

Plant Clinics of Thiruvaiyaru:

a Study based on Farmers' Perspectives

Supported by **CABI**
Vaminathan Research Foundation
Resource Centre - Thiruvaiyaru





Plant Clinics of Thiruvaiyaru:

a Study based on Farmers' Perspectives

M.S. Swaminathan Research Foundation
Third Cross Street, Taramani Institutional Area
Taramani, Chennai 600113

MSSRF / MG / 16 / 46

M S Swaminathan Research Foundation
Thrid Cross Street, Institutional Area,
Taramani, Chennai 600 113
Tel +9144 22541698, 22542791
Fax +91 44 22541319
nva@mssrf.res.in
www.mssrf.org

Photo Credits: Thiruvaiyaru VRC

Report Design & Layout: R. Kolappa Dhas

FOREWORD

Successful agriculture is based on the effective management of the unholy triple alliance of weeds, pests and pathogens. It has therefore been an act of vision for CABI International to have started a movement for establishing Plant Clinics. The Clinics were designed to generate a local level cadre of professionals who can serve as Plant Doctors. The unique feature of this programme is the total involvement of the community. Farm women and men are trained to become Plant Doctors. I have seen with great pride rural women introducing themselves as “Plant Doctors”, Community Hunger Fighters, Community Climate Managers, “Academicians of the National Virtual Academy” and so on. In other words converting unskilled workers to skilled ones is one of the outcome of Plant Clinics. They help in pest proof the whole village with the active participation of farm women and men.

I am grateful to Dr L Vedavalli one of our most eminent social anthropologists for chronicling the Plant Doctor initiative undertaken by MSSRF jointly with CABI. A small programme is becoming a mass movement. Dr R Rajkumar, Senior Scientist, Mr G Sudhakar, Scientist as well as Ms Nancy Anabel, Head of ICT have rendered valuable service in making this programme meaningful and memorable. I also thank the Thiruvaiyaru Village Resource Centre team for their effective contribution. Thiruvaiyaru has been the home of classic karnatic music promoted by St Thiagaraja. I am happy that this town of music has also become the centre of origin of technological innovations in agriculture. I hope a time will come when every male and female farmer will identify themselves as Plant Doctors capable of protecting crops from pests, pathogens and weeds.



M S Swaminathan

ACKNOWLEDGMENT

Professor M S Swaminathan has been a very great source of inspiration and motivation to me in all my endeavours. To him I am deeply indebted. I am grateful to Dr V Selvam for his support. My sincere thanks are due to Ms Nancy J Anabel for her inputs and support. I am grateful to Dr R Rajkumar for his encouragement, help and suggestions while writing the report. I owe a lot to Mr G Sudhakar and Mr G Murugan who have been very cooperative and supportive through out- both while at the field and also during writing the report. They were always kind and patient in responding to my queries and clearing my doubts. They and other staff of the Village Resource Centre of Thiruvaiyaru took care of all necessary arrangements which enabled me to carry out my field work without difficulty. My heartfelt thanks are due to each one of them for their help and assistance. I wish to express my deepest gratitude to my friend Dr R Rukmani for going through the draft more than once and providing inputs which enabled me to present the report in a better manner. I am thankful to her for her continuous support. I would also like to extend my heartfelt gratitude to my friend Dr R Rengalakshmi for meticulously going through all the case studies and helping me in various ways. I also wish to acknowledge with gratitude the spontaneous help and support provided by Ms D Suvitha in bringing out this publication. My appreciations are due to my niece Ms Supriya Santhanam for her help. I am thankful to Ms S Punitha for helping me with the map and my thanks are due to Dr R Gopinath, Dr G Anuradha and Mr A Sakthivelan for their support. I wish to acknowledge my sincere gratitude and appreciation to all plant clinic doctors for sharing their experiences. The spontaneity with which women and men informants spoke about the services of plant clinic intervention in Thiruvaiyaru region enabled me to get a clear picture of the kind of impact it has created on the farming community. I am immensely indebted to each and every one of them for giving their time and sharing their experiences.

L Vedavalli

CONTENTS

Foreword

Acknowledgement

1	Background	7
2	Initiating Plant Clinics in the Villages of Thiruvaiyaru Taluk, Tamil Nadu	11
3	Plant Clinic and its Impact: Voices of Farmers	15
4	Concluding Remarks	70
	Appendix- The Case Studies	80

Plant Clinics of Thiruvaiyaru: a Study based on Farmers' Perspectives

1 Background

Agriculture continues to be a primary livelihood option for a majority of Indian rural population. A greater percentage of them are small and marginal farmers and they contribute significantly to the country's food security. However, a large section of them cannot get basic crop health services. Their traditional knowledge and lived experiences seem to be inadequate to meet some new challenges in crop husbandry. This knowledge gap needs to be filled in by scientific advisories. Farmers need on spot, timely help and guidance for their crop related problems. In the context of a weak agricultural extension system coupled with adverse impact of climatic change, a majority of farmers face difficulties in managing crop production and problems leading to lower productivity and loss.

Managing plant health is very critical to ensure sustained food production and food security. Timely diagnosis of various problems hampering crop production such as, pest/disease/nutrient deficiencies are necessary to minimise production losses. It is in this context, the role of plant clinics that focus on risk reduction and enhancing the yield performance of crops in the farmers' fields, particularly in the developing world like India, assumes great significance.

M S Swaminathan Research Foundation (MSSRF) since its inception has been focussing on enhancing the livelihoods of rural communities whether it is agriculture or fishing through various initiatives. In these, strategies that reduce the risks involved in various livelihood occupations have always been important. MSSRF's programmes, in accordance with its mandate adopts a pro-poor, pro-nature and pro-woman approach. Agriculture being the major livelihood avenue for the rural resource poor community, MSSRF has been working to improve the lives of the farmers through its Village Knowledge Centre (VKC) and Village Resource Centre (VRC) programme.¹ As it has been widely acknowledged that information and knowledge empowerment of rural poor are necessary to enhance their socioeconomic conditions, MSSRF aims to provide scientific knowledge and skills to help farmers to improve their livelihood using different ICT tools and through networking with research institutions and government departments. These include different methods, such as phone-in-programmes and sending agricultural advisories as voice/audio short message (SMS) in the local language through mobile phones. There is another service namely Farmers Helpline service where the farmers can contact the MSSRF staff for any agricultural related queries. The VRC and the VKC maintain a database on agricultural related aspects for the benefit of the local farming community. There is also a newsletter namely *Namma Ooru Seidhi* which carries local specific and relevant information on agriculture, fisheries, education and employment and so on.

MSSRF-CABI International

The most recent addition to agro services provided through VRCs and VKCs is the intervention of the 'Plantwise', better known as plant clinic programme initiated during August 2012 by MSSRF in collaboration with CABI International by entering into a memorandum of understanding. Initially, Tamil Nadu and Maharashtra were selected to implement the programme and later the Union Territory of Puducherry was included.

The Plant clinic programme, a unique one first started in Thiruvaiyaru in Thanjavur district, Tamil Nadu has expanded to 40 villages covering states of Tamil Nadu and Maharashtra and Union territory of Puducherry. In all these states, the plant clinic programme is implemented through the VRCs of MSSRF located in the

¹The Village Resource Centre is typically located at the block level, or at the central point of a cluster of villages. Village Knowledge Centres are normally located at the village *Panchayat* level.



respective area. The plant clinic, usually held in a village common area is conducted by a cadre of trained women and men, namely plant doctors with the support of an agricultural expert or agricultural resource person` from MSSRF.

Objectives of the plant clinic programme

- To improve food security of the rural families by reducing crop losses
- To build a new cadre of professionals at the local level as Plant Doctors
- To establish community-based Plant Clinics at the village level to provide practical advice and recommendations to farmers on various problems
- To provide best practices/recommendations to combat pests and improve crop yields

Objectives of this study

This study attempts to understand the utility and effectiveness of the plant clinic programme in the villages of Thiruvaiyaru Taluk of Thanjavur district, Tamil Nadu where the programme is being implemented.

Study Area

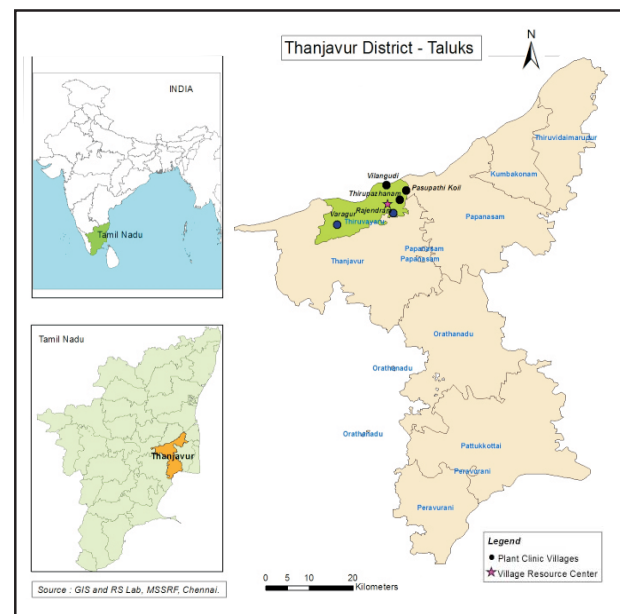
Thanjavur, located in Tamil Nadu, South India is an important centre of South Indian religion, art, and architecture. It is the head quarters of Thanjavur district. The area is an important agricultural centre located in the Cauvery Delta and it is known as the “Rice bowl of Tamil Nadu”. Thanjavur covers an area of 36.33 km (14.03 sq miles).

Study Villages

The study was conducted in the revenue villages of Thirupazhanam, Vilangudi, Rajendiram, Pasupathi Koil, and Varagur (See Map) where plant clinics are held on regular basis and also in the villages/hamlets located near the above mentioned villages such as Mathur, Arasur, Panaiyur and Illuppakorai where plant clinics are held based on the demands of the farmers.

The primary (and also the traditional) occupation of a majority of inhabitants in these villages is agriculture. The main agricultural seasons consist of *Kuruvai* (May/June-September), *Thaaladi* (September-December), *Samba pattam* (August-December), followed by *Thai-Masi* (January-February) *pattam* and *kodai* or *Chittirai pattam*

The main crop cultivated in *Kuruvai* and *Samba* is rice and crops like sesame and black gram are cultivated as summer crops. Crops like sugar cane and horticultural crops such as vegetables, coconut and banana are also grown. In few villages like Madhur where irrigation facility is available floriculture is also practiced in a small way. *Kuruvai* cultivation depends on the availability of ground water/bore set facilities. Similarly, cultivation during *Thaaladi* is decided by the release of water in Cauvery for irrigation on right time in the region. If the release of water is delayed, the farmers straight away go in for *Samba* cultivation.





The common crops cultivated during Thai-*Masi pattam* are black gram and sesame. Crops grown during this season do not require irrigation facility. It is pointed out that the crops grow by using the *pani iram* or the dew drops. Those who have access to ground water irrigation facility cultivate these crops during the *kodai* season.

The plant clinic intervention is implemented in the villages of Thiruvaiyaru Taluk through the VRC of Thiruvaiyaru. The study was carried out during September-October, 2014 and in April, 2016.

Methodology

The study primarily adopts a qualitative methodology. In-depth, unstructured interviews were conducted with farm women and men who use the services of plant clinic. Detailed interviews were held with persons who were available and volunteered to share their experiences/views of the plant clinic. A total of 42 (12 women, 30 men) persons were individually contacted to understand their perspectives on the functioning and usefulness of the plant clinic intervention. The respondents fall in the age group of 29 to 83 years. Three women respondents and men belong to Schedule Caste while the remaining comes from Backward and Most Backward Castes. A majority of the respondents are marginal and small land holders with landholdings less than two ha; only five male respondents have lands ranging from two to four ha. We have also come across a woman respondent and two male respondents owing land and also working as agricultural wage labourers.

The interaction of the author with farm women and farm men was helpful to gain useful insights about the overall impact of the plant clinic intervention on the farmers, specific views on the advisories/guidance received and few other issues related to agriculture. It may be mentioned here that a majority of them said they carefully keep the prescriptions and refer to them whenever there is a need. However, they were not able to remember the advisories prescribed at the plant clinic. Those who remembered the inputs name were unable to say the proportion. So retaining the prescriptions helped them as a source of reference. On the whole, the interviews helped to gauge the overall impact of the programme as perceived by farm women and men.

In addition, interactions with plant doctors, agricultural expert from MSSRF and other staff associated with the programme were useful to understand their perspective and views on the plant clinic intervention and its benefits. It helped the author to appreciate their commitment and interest in the implementation of the programme and understand the difficulties and challenges they encounter. Further, reports/documents related to this intervention formed the main source of secondary data.

Being present in the VRC of Thiruvaiyaru during the three field visits enabled the author further to grasp well the role of plant clinic in the lives of the farmers. By observing the frequent phone calls received at the VRC from farm women and men to get advisories or clarifications or guidance for their crop problems/farm operations and also by observing the farmers visiting the VRC of Thiruvaiyaru with their disease/pest affected crops to get guidance of the agricultural expert and plant doctor of MSSRF, the role of plant clinics could be ascertained. Also, the author had an opportunity to observe one of the plant clinic sessions held in the village of Pasupathi Koil (October, 2014) which provided an understanding of the functioning of the clinic and the attitude of the farm women and men present and to observe Plant Clinic Cluster Exchange Meeting (October, 2014) in Thanjavur where plant doctors and agricultural resource persons from Tamil Nadu, Puducherry and





Maharashtra participated. Some farm women and men using the plant clinic services were also present. The discussions, exchange of views and experiences among the participants helped to understand the positive aspects and utility of the plant clinic programme to the farmers and also the need for strengthening the programme. The information thus generated through in-depth interviews, discussions and personal observation are discussed in this report.

The author undertook three field visits; two during September-October 2014 spreading over nine days and the third visit was undertaken for five days during April, 2016. The first two visits were devoted to collecting primary data through conducting individual interview with farm women and men. Interactions were also held with few plant doctors and the agricultural expert from MSSRF. During the third field visit the programme has been scaled up to become E-Plant Clinic. The author met five respondents and also held detailed discussion with the staff of MSSRF and the plant doctors during this time which helped to understand the better features of the e-plant clinic and the significant aspects of the plant clinic intervention in general.

In between the two periods the author was in touch with some women and men respondents through phone for cross checking, getting some clarity or some details relevant to the study; we also made use of this opportunity to find out whether they continue to use the services of the plant clinic regularly; the responses were encouraging. The staff at the VRC of Thiruvaiyaru associated with the intervention were also in regular contact either through phone or whenever they visited the head office in Chennai. These contacts with the respondents and also the others associated with the intervention proved useful while preparing the present document on the plant clinic programme implemented by MSSRF in collaboration with CABI International.

The Centre for Agriculture and Bioscience International (CABI)

CABI is a not-for-profit inter-governmental development and information organisation based in the United Kingdom. CABI engages in a variety of projects that address agricultural and environmental issues in the developing world.

CABI's centre in India works to improve the lives of local people and communities through a variety of methods. It helps smallholder farmers to improve the quality and quantity of their crops, enabling them to achieve better prices, and works to increase opportunities for trade. It also provides training and access to knowledge for farmers that will help them to improve crop quality whilst safeguarding the environment.

Specific programmes include the regional implementation of CABI's global Plantwise initiative, which aims to help farmers lose fewer crops to pests and diseases, and thus increase their yields. The use of safe biological controls is encouraged and trained extension workers hold free advisory plant clinics for farmers in the local area.

The centre also runs Direct 2 Farm, an innovative information service that provides agro-advisory services to farmers in the region via the mobile phone network. The farmers can access high quality bite-sized pieces of information, as SMS or voice messages, on demand via their mobile- a practical, effective way of delivering the knowledge the farmers need to solve their everyday agricultural problems.

The centre collaborates with a number of public, private and governmental bodies across the region, to enable the effective and efficient implementation of programmes, and to enable impact to be studied. Work so far has yielded tangible economic and social benefits for the local communities, as well as the environment.

[https://en.wikipedia.org/wiki/CABI_\(organisation\)](https://en.wikipedia.org/wiki/CABI_(organisation))

www.cabi.org/Uploads/Plantwise/Plantwise%20Policies.



It may be pointed out here that a series of discussions were held between MSSRF and CABI at different phases of the programme. This enabled refinement of various important aspects such as module preparation for trainees (the potential plant doctors), criteria for selecting the trainees and setting up of plant clinics in the villages.

This report consists of four sections including the present one followed by section - 2 that discusses details related to the initiation of plant clinics in the villages of Thiruvaiyaru Taluk. In section - 3 we attempt to gauge the overall impact of the plant clinic programme on farm women and men in the villages of Thiruvaiyaru region, Tamil Nadu. Also, this section deals with reflections of agricultural expert/resource persons of MSSRF and the plant doctors associated with the plant clinic programme. Section - 4 of the report forms concluding remarks.

2 Initiating Plant clinics in the Villages of Thiruvaiyaru Taluk, Tamil Nadu

It is important that farmers are empowered to manage their crop problems with latest environment friendly technologies and sustainable agricultural practices to reduce crop loss and maintain crop productivity. Awareness and knowledge on pest and disease and other crop related issues are crucial to manage plant health; timely diagnosis and management measures of plant diseases, pest attack and nutritional issues are very crucial for increasing the productivity and avoid losses to farmer. Access to constant flow of information and proper guidance is the need of the hour to address current crop problems/issues faced by farmers. Plant clinic can play a substantial role in this. The whole idea of plant clinic is to provide access to appropriate knowledge and timely advice to farmers to grow healthy crops and reap better harvest. The activities of the plant clinic include both diagnosis and prescription on remedial measures. In other words, plant clinics facilitate reduction of risk and minimisation of costs of cultivation and thereby improving agricultural productivity and farmers' wellbeing.

Plant clinic referred to as *Payir Maruthuva Mugam* in Tamil language was first initiated on a pilot basis in Thiruvaiyaru in Thanjavur district, Tamil Nadu. This programme implemented based on the guidance provided by CABI covers five revenue villages (and their surrounding hamlets/villages)- Thirupazhanam, Vilangudi, Varagur, Pasupathi Kovil and Rajendiram where VKCs of MSSRF operate. The concept of plant clinic was something new to the farmers in the study villages. They were not aware of such programmes functioning elsewhere until the plant clinic intervention was initiated in their villages. The first model plant clinic was set up in Vilangudi Village followed by other villages. Apart from the selected VKC villages the programme has also found its way to non-VKC villages or virtual villages as there was demand from the farmers of those areas. So it is essentially need based in the virtual villages. There is good response from these villages; men as well as women farmers come to the clinic for solutions to their crop problem. Totally 26 villages/hamlets are covered. This shows the utility of the plant clinic to the farmers. Plant clinic is held during important crop season of the area in a common area in a village. Two to three sessions are held in a month at a 15-20 days interval. Also, the clinics are conducted when there is pest/disease problem and during critical stage of crop growth. Every time a clinic is held it gets regular visitors of more than twenty farmers. Plant clinic are not permanent structures but are held periodically at regular intervals.

Plant Doctors

Plant clinics are conducted by a trained cadre of women and men known as plant doctors. Prior to setting up of plant clinic in the villages, MSSRF identified innovative and progressive women and men farmers to prepare them as plant doctors.



Certain criteria were adopted while identifying the potential trainees who would be plant doctors. It was determined that trainees (women and men) should be interested in the subject and are willing to establish plant clinic and serve their fellow farmers. They should have access and control to mobile phones; and should be literate and willing to participate in the review process of CABI. Individuals with agricultural background were preferred and chosen for training as plant doctors by CABI. MSSRF encouraged progressive farmers willing to serve as plant doctors to get trained and enrolled in this. They are expected to take a great role in setting up a plant clinic. MSSRF facilitates them to establish a plant clinic.

As part of Plant Clinic programme, short courses on field diagnosis or recognition and interpretation of symptoms of plant diseases and pests and running a clinic were provided by CABI South Asia to the selected women and men. The training also focused on local specific common diseases/pest and other crop issues and to prepare the trainees to diagnose and provide suitable prescription. It was a ten day training conducted in the VRC of Thiruvaiyaru. The courses have been given based on the modules (on field diagnosis and running a clinic) prepared by CABI. The modules were translated into local language by MSSRF.

Knowledge Workers of Village Knowledge Centres (trained personnel who manage the VKCs) of MSSRF and progressive farmers serve as plant doctors. Of the total 30 persons trained as plant doctors from Thiruvaiyaru only 15 (male 8, female 7) are active and regular in playing their role as plant doctors. It may be mentioned that two staff from the VRC of Thiruvaiyaru have also undergone training. Plant doctors are given a certificate after the completion of training. Plant doctors are paid an honorarium of Rs 500/- per plant clinic session.

Establishment of plant clinics

Though MSSRF was familiar with the people and area, a lot of ground work was done before setting up of plant clinic in selected villages. Efforts were taken to involve all the stakeholders in implementing the intervention so that the benefits of it would reach the intended population. Discussions were held with village *Panchayat Presidents*, progressive farmers and other key stake holders to make them appreciate the relevance of the plant clinic for the farmers and also to involve them by seeking their help in finding a common place to set up plant clinic and convenient time to conduct a plant clinic session in their respective villages. In addition to this, MSSRF organised awareness programmes using various traditional (thandora) and modern ICT tools. Through these programmes efforts were taken to make farm women and men understand the concept of plant clinic, its unique features and the venue of the plant clinic to be set up and to motivate them to use the services of the plant clinic to improve their livelihood.

Unique features of plant clinics

Plant clinics are usually held in a village common place to increase the visibility and access to farmers; it could be a Village Knowledge Centre, or Farm School building or village community hall. Any farm woman or man can freely ask for any advice or guidance related to his/her crop problem. The plant clinic is a platform where farmers and plant doctors /agricultural expert come together. Farmers seek advice for the pest or disease problem they encounter in their fields from the plant doctors/ agricultural experts.





Plant clinic are run independently using existing facilities and personnel; they are open to all farmers-marginal, small or big farmers. Any crop whether major or minor crop cultivated by the farmers are accepted for providing guidance/prescription. The sessions typically last for 3–4 hours. Plant clinics provide diagnostic and advisory services. They offer services free of cost to farmers on plant health, pest/disease attack and guidance for achieving higher productivity.

Whenever plant clinic is held a banner is kept out side and also inside the venue to draw the attention of the farm women and men. A tool kit encompassing lens, microscope, laptop, projector, knife, gloves, tissue and sanitisers along with required templates to collect case history and issue prescriptions are provided for the plant clinic. There are set instructions on how to record information, using a register for the query and a prescription pad for writing a recommendation. Digital microscope is used in the plant clinic sessions. Minute pests which cannot be seen through our eyes is visualised by displaying it on the laptop. The live demonstration helps the farmer to improve his or her knowledge base of a specific pest or disease. This is important to take preventive and control measures. It helps to increase the confidence level of the farmer.

The clinic provides a wide range of technological solutions along with cultural, biological and chemical methods, which are nationally and internationally permissible, ecologically safe and environmentally sustainable to mitigate crop loss, improve crop health and economic benefit of the farmers. The prescriptions are provided in a data sheet². Chemical recommendations particularly harmful to the crop and environment are largely avoided except when the damages are in critical stage. This is done to save the crop and to avoid loss to the farmer. Plant clinic facilitate eco friendly and scientific pest management procedures to increase production and productivity.

Farmers are informed in advance about the date, time and place of plant clinic sessions whenever it is scheduled to be held in a particular village; the residents are informed about it through the Village Knowledge Workers, Farmers Association Members, progressive farmers and Plant doctors and through voice SMS. The regular users of the plant clinic also inform their relatives and neighbours about the plant clinic and encourage them to visit the same thus acting as the best advocates for the clinics. The first plant clinic was conducted in the village of Vilangudi followed by other villages. It is understood through our interactions with various stakeholders that the clinics are conducted periodically covering the entire crop cycle during peak agricultural seasons and during various stages of growth in selected VKC villages. Depending on the demand or urgency (example during any out break of pest/disease) the clinics are conducted unscheduled also. Apart from the selected villages Plant clinics are held in more than 21 villages; but it is demand based, we were told. Number of plant clinic sessions conducted in those villages has increased over the last three years. Number of clinics held may vary from one village to another.

Plant clinic provides a good platform for the farmer to interact with the agricultural expert and plant doctors and enable him/her to have access to expert advice on diverse plant health problems. Apart from diagnosing crop failure issues, the clinic also provide appropriate advice on pest and disease management and nutritional management. Farmers bring their affected crop samples to the clinics for diagnosing the problem and get technological solutions such as a prescription detailing the case history along with recommendations.

Role of plant doctors

We have seen that the plant doctors have been trained to identify/diagnose diseases/pests (particularly local specific) and other issues and to provide suitable prescription or remedial measures to the farmers. Plant doctors follow given procedures to check the crop samples and ensure that the case history with preset

²At present prescription is provided through farmers mobile phones as SMS



questions for each farmer / crop are being documented to better diagnose the problem, whether it is pest or disease or nutrient deficiency. Plant Doctors also visit farmers' fields when they find the problem complex. During the diagnosis, a handholding support is given to them by engaging with agriculture professionals. They are monitored and supported by agricultural experts from MSSRF or an external resource person. As plant doctors may not have full fledged knowledge of all crop related problems, they take the advice of agricultural experts from MSSRF. Plant doctors encourage farmers to bring their crop sample to the plant clinic. They take efforts to educate farm women and men on collecting crop sample by following set criteria.

The VRC staff monitor the plant clinic sessions whenever it is conducted in a village. They provide necessary support and encouragement to the plant doctors in conducting the plant clinic sessions. The agricultural expert at the VRC stated that the staff mainly go to the plant clinics to play a supportive role and to observe whether the plant doctors are providing right advice.

It was reported by plant doctors, and corroborated by the staff of MSSRF, that in the initial stage only few farmers visited the plant clinic. There were only five to seven persons visiting the clinic and they did not carry the affected plant samples with them. And, if at all the plant samples were brought the farmers did not adhere to the guidelines provided (as to how one should get a plant sample). Only gradually farmers began to understand why the plant doctors insist on them to adhere to the guidelines while bringing disease/pest affected crop. It is pointed out by the plant doctors that now-a-days the farmers follow the protocols before they bring their infected, infested and affected crops to plant clinics held in designated areas where experts (and plant doctors) can examine the crop problem and advise them accordingly. If there is demand from the farmers the plant doctors are available to personally show how the samples should be collected.

From the interactions with farm women and men and also with the plant doctors it is understood that the number of users started growing only after some time when they realised that advisory/recommendation worked well; the services of the clinics in these villages gained appreciation of the farmers gradually and steadily. These days they come voluntarily with the pest afflicted plant sample to seek solutions. At least 20-25 persons come to the clinic with some problem or the other related to their crop. Today, the farmers look forward to the next plant clinic sessions. They have many questions and doubts for the plant doctors and the resource persons to respond.

It is also stated that in order to update or improve the knowledge of plant doctors they are given training (by the VRC of Thiruvaiyaru) from time to time through video clippings on widespread pests and diseases of the region. The video clippings may be taken from a live pest attack found in a farmer's field or taken from a web site. Such trainings enable the plant doctors to gain confidence and to respond well to a pest or disease outbreak. It also helps them to create awareness among farmers about causes and symptoms of a particular pest or disease and to take necessary preventive and control measures. It is also learnt that Knowledge Workers of the VKCs are roped in to help the farmers during outbreak of any pest/disease. They are also trained through video clipping on certain common pest /disease such as Paddy Thrips (*Samba and Kuruvai* seasons), Paddy Blast (*Samba* season), Mites in paddy (*Kuruvai* season), False Smut in Paddy (*Samba* season). They are also trained to give prescription to the farmers. This will enable farmers to take immediate measures to manage any pest/disease attack.

It may be pointed out here that plant clinic activities are further strengthened by other ICT based extension services of the VRC like Phone-in-programme, Farmers Helpline service, audio/text advisories as SMS through the mobile phone, electronic and print devices. Farmers contact the VRC of Thiruvaiyaru through the Farmers Helpline service for clarifications, advice or suggestions any time of the day. The local plant doctor acts as a bridge between the farmer and the agricultural experts from MSSRF.



E-plant clinic

It may be pointed out here that the plant clinic intervention has been converted into E-plant clinic. Eight committed plant doctors from Thanjavur district were selected and given training in conducting e-plant clinic. After eight months—May 2015–December 2015—of testing /piloting in the villages of Thiruvaiyaru region this concept has been replicated in Pudukottai and in the Union Territory of Puducherry. The response from both women and men farmers seem to be encouraging.

The coordinator of the programme was very happy to share with us that the e-clinic has been a success and receive a lot of appreciation from farm women and men. The difference between e-plant clinic and the regular plant clinic is that in the latter the advisories are written down on a paper whereas in the former one the advisories are sent as short text messages through farmers' mobile phone. It is stated that the primary aim of the e - plant clinic is to reach more and more farmers. One of the main criteria of the e-clinic is that at least 15 farmers should attend each session with affected plant samples. Another important criterion is that they should bring their mobile phones with them³. The advisories prescribed are sent through SMS in Tamil, the local language which enables the farmers to read and follow the advisory related to his or her crop problem. The advantage of the e- plant clinic is that the advisories which are in the form of SMS can be shared with the fellow farmers.

According to the plant doctors and others from MSSRF (associated with e -plant clinic activities) the impact of the new initiative has been good. The aim is to reach at least 15 or 20 farmers through each session. It is expected that these persons in turn will influence the other farmers to follow right agricultural practices at appropriate time.

It is pointed out that the plant doctors encourage the farmers to visit the clinic for their benefit. One of the plant doctors mentioned that they stress the importance of this intervention to the farming community. “We will encourage them to visit the plant clinic by saying 'Unless you come we can not reach you. So you should come to improve your lives and livelihood'. We are extremely happy with the result” mentioned a plant doctor from Vilangudi. Another plant doctor mentioned that “In order to enable more farmers to visit the clinic, working hours of the plant clinic has been increased by two more hours. We wait for the farmers to come. Attendance is maintained”. The agricultural expert from MSSRF is always present during the e- plant clinic sessions to correct or verify the advisory provided by the plant doctor.

In the following section we attempt to assess the overall impact of the plant clinic programme through the perspectives of rural agricultural women and men. As it has already been mentioned the detailed interviews held with women and men farmers form the basis for the present study.

3 Plant Clinics and its Impact

3.1. Plant clinic-a boon to the farming community of Thiruvaiyaru region

“I attended plant clinic when it was first held in Iyyampatti Village and I instantly knew that it was going to create immense impact on farmers' lives and attitudes. I am happy that my first impression and belief about the utility of the plant clinic to the farming community has been proved right”, says 83 year old Mr Sammandam from the village of Punavasal. Another farmer, Mr Chakravarthi from Mathur Village appreciates the plant clinic intervention thus: “At a time when farming is considered economically non-viable and not

³The farmers are also told that the old mobile phones without Android base and China made mobile phones (they do not support the Tamil font) will not be of use to them. The farmers are advised to carry suitable mobile phones so that they can get crop advisories without any problem.



remunerative the plant clinic gives people like me some hope and confidence to continue to practice it as a primary livelihood. Plant clinic provides excellent on spot guidance to the farmers to handle their various farm related problems and issues. My experiences clearly reveal that a farmer can perform well if he or she has updated information and proper timely guidance”. Mrs Pattu from Thirupazhanam who has highly been motivated says, “Though I have been involved in agricultural work I was doing it mechanically. But now with the intervention of *payir maruthuva mugam* (plant clinic) in our village I am happy to find that there is a great difference in carrying out the agricultural operations with understanding based on right knowledge (*Therindhu seivadarkum theriyama seivadarkum vithiyasam irukku. Therindhu seigirom ippa Selavum kammiyaga varuthu ippa.*). I have been motivated to do my agricultural work with enthusiasm and confidence. We do not seek the input dealer's guidance these days. I always look forward for the next plant clinic session”

The simple statements of Mr Sammandam, Mr Chakravarthi, and Ms Pattu succinctly bring out the significance of the plant clinic intervention initiated in Thiruvaiyaru region of Thanjavur district. These statements reflect the value the farmers attach to the services of the plant clinic.

Farm women and men regard plant clinic as a saviour of the farmers; it is held in high esteem so much so they consider it as a great boon. They are full of praise and appreciation for its services in reducing crop risk and improving the crop yield. This intervention assumes great significance particularly at a time when farming community feels at loss due to lack of and access to knowledge and latest technology to handle their crop problems and mainly so when they confront with problems of new pest and disease attack hither to unknown to them.

One of the striking aspects that came out very clearly during the interactions with the respondents has been the importance and relevance of access to knowledge, technology and proper timely expert guidance to a farmer to improve his/her overall crop health and mitigate loss; this in all probability in the long run may lead to quality and quantity enhancement of the crop yield. This crucial knowledge and fundamental advisory support to prevent crop losses and enhance their earnings has been something the farming community in general lack in the villages of Thanjavur district. There are numerous accounts of women and men respondents highlighting the difficulties and losses they have undergone due to want of knowledge and guidance. The formal agricultural extension seems to be not that effective in addressing the crop related problems of rural agricultural population particularly the small and marginal farming households.

It is largely felt by almost all the respondents that formal agricultural extension system is not of much help in meeting the needs of the farmers. Agricultural officers (AO) or Assistant Agricultural Officers (AAO) are not of any help to them. Generally, they are not accessible for crop advisories or for any other crop related guidance. In other words the farmers' needs/demands have been poorly served by the formal agricultural extension services. Only few have the access to agricultural extension services. According to some farmers, the extension personnel are not in a position to cover the entire farming population in a village. It is because AAO's and AO's are generally tied up with scheme and subsidies related work and thus they are unable to provide their guidance to the farming community to handle crop related issues; if at all the extension person visits the village he is not able to attend to the farmers' problems as he is over burdened with work. It is gathered that the farmers' problems get compounded when they encounter problems mostly hither to unknown to them. They fall short of their knowledge when confronted with such problems (eg *sempen* (mite) attack during *kuruvai* season). In the absence of effective agricultural extension service and other expert guidance farmers in most cases, in their helplessness for want of assistance or guidance compelled to depend on the local input dealers for crop advice.



It is gathered that in most cases the chemical dealers acted with vested interest. They prescribe more than the required chemicals even when the problem can be handled with application of one chemical input. Also, often harmful chemicals are prescribed. The inputs with expired date are sold to the farmers. Due to lack of knowledge and proper guidance farmers in most cases resorted to indiscriminate use of inputs. Crop recommendation with inappropriate and harmful chemical inputs increased the cost of cultivation without any positive impact on the crop yield.

That the dearth for crop advisories and the vulnerable condition of the farmers have been exploited by the local input dealer can be understood from the subsequent accounts of farm women and men.

No access to agricultural extension service; so due to lack of knowledge and access to knowledge depended on input dealer

Mr Pradapan from Mathur pointed out that the farmers do not have access to agricultural extension service and thus, the farmers have been pushed to depend on the input dealer for advice. The arbitrary use of inputs increased the cost of cultivation. The farmers often faced with crop losses. He explains: “We do not have any contact with agricultural extension officer. We cannot approach agricultural department people. Even if we personally go to the department, they do not respond well; they are very mechanical in responding to our queries. That is why farmers are at the mercy of the local input dealer. The farmers follow blindly whatever advisory he suggests or recommends. Generally, due to lack of awareness farmers use inputs indiscriminately. More than required quantities of fertilisers and sprayers are used. It causes lot of damage to the crop and thus farmers face loss of income due to poor yield. This is the general situation in almost in all the villages here. I was totally dependent on the local input dealer for advice to handle crop related problems. The input dealer normally prescribes three to four inputs. He would not explain to us about the actual problem of the crop. Whatever the input dealer gave I used to apply them till I came into contact with plant clinic that is being held regularly in Pasupathi Koil”.

We blindly followed it

Mr Surodanan from Illuppakorai: “We are getting immediate solutions for our crop problems. This was not the case before. We were at the mercy of the input dealer; whatever he prescribed for crop related problems and cultivation we blindly followed it. He would give us some inputs. He would not tell us what kind of pest/disease had affected the crop. Often we were given unsold fertilisers/pesticides. I was not aware of new technologies. Plant clinic provides *vazhi muraigal* (appropriate steps) related to cultivation of crops to farmers”.

...still we all depended on him for advice to get remedial measures as there was no other option

Ms Pushpa from Rajendiram: “The recommendations provided at the plant clinic are very effective and economical. Earlier we depended on the input dealer for guidance. Most of the times it did not work well; still we all depended on him for advice to get remedial measures as there was no other option. Now we understand that we applied the inputs indiscriminately”.

Input dealer exploited the farmers

Mr Chakravarthi from Mathur: “Before I came into contact with plant clinic I was dependent on the local input dealer for guidance. Only 20 per cent of the farmers are knowledgeable; the rest are unable to take right decision. The farmers buy whatever the input dealer suggests them to apply to overcome the problem. Now, few of us realise how the input dealer gave unnecessary inputs for a specific problem and the quantity of the inputs suggested were also more than the required proportion. He used to give four-five *dabbas* (Tins) of



chemicals and we used them without questioning. (*Thevai illadadai ubayogithom. Ippa thevaikerpa seigirom*). Moreover, he will not give us the input at a required time”.

He used to sell the input which was not fast selling and expired ones

Ms Marudammal from Vilangudi: “Until two years ago, whatever the input dealer recommended we used to apply that. He used to sell the input which was not fast selling and expired ones. The required input was rarely advised by him”.

...input dealer would have suggested two different chemicals which mean more expenditure

Mr Sivakumar from Koneri Rajendiram: “My rice crop was affected by more than two pests/diseases. To control this Sudhakar Sir (agricultural expert from MSSRF) prescribed only one chemical and it was very effective in controlling the pest attack. Crop yield was also good; it was profitable. For the same crop problem the input dealer would have suggested two different chemicals which mean more expenditure”.

Input dealer prescribed more than the required quantity of inputs

Mr Varadaraj, Villiya Nallur Village: “Generally, he (the input dealer) suggested chemicals more than the required quantity and also prescribed additional chemicals which were not necessary. We did not take the crop sample to him. We used to explain to him orally. Sometimes I was not able to articulate well as to how the affected crop looked like and about the symptoms of the crop problem also”.

We paid attention to the company's name and not to the chemical base

Mr Nagaraj from Varagur: “Previously, whatever chemicals the input dealer prescribed we applied them. Before the inception of plant clinic intervention, I used to take the affected crop to the input dealer and applied the chemicals prescribed by him. Most of the farmers used to explain the crop problem orally to the input dealer. Whatever he prescribed we followed it. We paid attention to the company's name and not to the chemical base. We were not aware of the combination and proportion of the chemicals”.

3.2. Plant Clinic - an effective agricultural extension service

It is against this background the farm women and men sincerely feel that the plant clinic programme is a great boon to the farming community. It is mainly because the plant clinic is accessible, reliable and provides a platform to the farmers to express their needs and find solutions. The diagnostic and advisory services are lauded by the respondents. They are able to take appropriate timely measures to control pests and diseases. Farmers are happy that they get guidance for problems like heat stress, water logging and treatment for nutrient deficiencies. Guidance is given right from land preparation to harvest of the crop. Cost of cultivation has come down because of the timely action taken by the farmers and also due to judicious use of necessary inputs (mainly by using the locally available inputs) on time. Farmers feel free to seek advice or opinion of the plant clinic even on crops to be planted. They appreciate the genuineness of the plant clinic doctors and agricultural expert/the MSSRF staff in providing crop related guidance, suggestions and advisories.

As the farmers did not have access to this kind of support system earlier they regard the plant clinic intervention as an effective and helpful extension service. They value its crop advisories and guidance because it is reliable and help the farming community to minimise risk and enhance crop production. Crop advisories are provided to all types of crops grown in different cropping systems and homestead. The plant doctors or the agricultural expert give equal importance to all crops; even if there is only one or two orange trees care is taken to give necessary crop advice to mitigate the problem. So the farmers feel comfortable to seek guidance of the plant clinic for all type of crops grown by them.



3.2.1. Plant health care through plant clinic

We have benefited a lot through the plant clinic

“This is a useful intervention as great majority in this region are still dependent on agriculture for their livelihood; it has contributed to improve the lives and livelihood of farmers” say people like Mr Karthikeyan from Panaiyur. Ms Azhagammal from the village of Illuppakorai who takes active role in the household agricultural activities says she has benefited through the plant clinic in several ways. She says, “... We have benefited a lot through the plant clinic. My rose plant started yielding good and quality flowers; my mango tree was rid of red ants' problem; leaves of lemon tree which were curled up became healthy and started to yield good fruits. And, most importantly we could get rid of heavy infestation of weeds from the sugar cane field and later could also save the crop affected by *kuruthu poochi* (Stem borer). All these were possible because I could get right prescription/guidance at the appropriate time from the plant clinic. For crop related problem I approach Sudhakar Sir (agricultural scientist from MSSRF) from the VRC and some times the plant doctors Mr Punyamoorthy or Ms Rita from our village”.

Ms Marudammal hailing from Vilangudi Village thinks her village is fortunate to have this programme where by she and others are able to get immediate solutions for their crop problems. She continues to say that due to this intervention cost of cultivation has come down. She and her husband are careful in using right inputs in right dosage at appropriate time. She can take precautionary and control measures for pest and disease attack. So the crop is saved from damage and there is yield increase. She says that she rarely comes across chaffy grains in her paddy crop these days and there is yield increase of four bags (62 kg per bag) from 100 *kuzhi* of land. They used to harvest 10 bags of paddy earlier; “input costs have come down a lot which itself is a profit for us (*selavu kuraindale labam thane*)”, points out Marudammal. And, she is very happy that she does not have to depend on the input dealer for advice and is saved from making several needless trips to the input dealer's shop.

The farmers are benefiting a lot through this intervention. I have heard other farmers talking highly of the plant clinic

Mr Kandappan from Arasur says that the farmers in his village are getting benefited a lot through the services of the plant clinic and he feels proud that plant clinic sessions are regularly held in his village. According to him “...Nearly 50 persons participate in each session and many have benefited through it. The plant clinic doctors are patient and listen carefully to the farmers' concerns and sometimes they even visit the fields of farmers to get first hand information. I have heard other farmers talking highly of the plant clinic. The farmers are benefitting a lot through this intervention as the prescriptions are simple and effective”.

Field crops as well as plants grown in the homestead given importance

Mr Chidambaranathan from Illuppakorai Village who cultivates mainly banana, sugarcane and rice in rotation says that the plant clinic gives equal importance and give solutions to the crops that are grown as field crops and also for crops like lime, fodder crop and so on that are grown in the fields and homestead.

According to Mr Chidambaranathan, “I have been able to control flower shedding in our lemon plant after carrying out the remedial measures as suggested by the agricultural expert. The tree has started yielding fruits. We can earn by selling the lemon fruits. I have five-six trees. I followed the advice provided by the agricultural expert in raising the fodder crop also. As per his suggestion I applied Urea mixed with goat dung after irrigating the land for a good vegetative growth. I took care not to use fresh goat dung as it would result in scorching of the crop. The growth of the fodder crop was good”



...now you should see my three year old mango tree!!

Mr Prabhakar, Thirupazhaam: “There was no growth in my one year old mango sapling. It had a stunted growth. At the plant clinic it was recommended to apply vermi compost and some micronutrients (I do not remember the name) as they would help in growth promotion. It was also suggested to spray *erumbu* (ant) powder on the branches of the mango trees to control ant attack. I sprayed four kilos of *erumbu* powder. There is no sign of ants on the tree. Now it is three year old tree. I did as advised and now you should see my mango tree!! People ask me in wonder-is it three year old *maankannu* (young mango tree)?!”

Ennudaiya mudal anubhavame enakku nambikkai thandhadu (My first experience gave me confidence)

Ms Kavitha from Pasupathi Koil, an enthusiastic farmer who started using the services of the plant clinic two years later it was introduced in her village says “*Ennudaiya mudal anubhavame enakku nambikkai thandhadu* (meaning her first experience with the plant clinic was very encouraging and gave her confidence about its services and activities)”. She went to the plant clinic for the first time when she had noticed some disease attack

on her banana crop. The remedial measure carried out worked well and she was extremely happy with the yield. She says she did not make use of the plant clinic in the initial two years as she had the guidance of an agricultural extension person who was knowledgeable and helpful. After he got transferred to another area she started using the services of the plant clinic. Since then she has been regular in attending the plant clinic and getting crop advisories to improve her household farming. She mentioned that she finds her input cost has come down by 20 per cent now than the previous years when she had carried out her agricultural activities based on the guidance of agricultural extension person.

In following pages we have made an attempt to discuss the various aspects of crop related issues/problems, the related remedial/management measures provided by the plant clinic and the experiences of the women and men respondents. The impact of the plant clinic at the village level is also briefly discussed.

3.2.2. Pest/disease management

Failure in timely diagnosis of diseases and other pests has often been responsible for devastating losses. This is something which came out well during the personal interactions with the farmers. Reducing crop losses by keeping pests at bay is crucial to food security. The plant clinic's role in diagnosis and management of diseases and insect pests is greatly appreciated by the farming community. It offers solution to the problems caused by fungi, nematodes, viruses, bacteria, insects and weeds and so on. It is also seen whether the crop problem is related to soil health. Remedial measures are explained in a simple manner that the farmers can easily understand and adopt the advisory. It is learnt that crop losses are avoided by taking appropriate timely preventive and curative measures to control pests and diseases and increase the income. By and large bio inputs and environmentally safe chemicals are prescribed. As it has been mentioned earlier chemical recommendation is given only if the damage is severe or in a critical stage. It emerged clearly during the course of interactions with the respondents that plant clinic, keeping its focus to a greater extent on Integrated Pest Management provides advisories.

The farmers to some extent have become aware of the various pest/disease affecting their crops, its symptoms and its causes. Impact of plant clinic in controlling and managing pest/disease problems can be seen both at the individual and the village level. It is learnt that generally, prior to the intervention of plant clinic the farm women and men have not been able to ascertain whether their crop is affected by pest or disease or nutrition deficiency or due to excess heat. Based on their assumptions they treated the crop problem on their own or by taking the advice of the input dealer which in most cases were inappropriate to address a particular cop



problem. Plant clinic to a great extent helps them in this regard; it strives to explain to a farmer the causes, the symptoms and related remedial measures of a crop problem. The farmers are gradually getting to know of these various aspects and how one could identify pest/disease and treat the same.

It is heartening to know that the farmers are able to cope up with unusual or unexpected crop problems like *sempen* attack during *kuruvai* season. It is learnt that the farmers have never encountered *sempen* attack until few years ago. They have not heard of this pest earlier. When their crops were affected by this pest they did not know it was a pest. It was pointed out that in general the farmers did not apply any chemicals to their crops during *kuruvai* season. Without any knowledge on the pest and the remedial and management measures the farmers used to face crop loss. Similarly, in the case of rose cultivators, they have not been aware that there are remedial measures (organic as well as chemical) to control Mealy bug. It was pointed out that they were under the impression that only rains at that time would help to wash out the pest. Farmers like Chakravarthi is very happy to share with us that due to timely action to control the pest he is able to get good quality flowers and there is substantial increase in the income. Sesame is cultivated by a majority of the farmers as a summer crop but farmers mentioned that they paid little attention to it. Only urea was used as basal application. However, with the inception of the plant clinic the farmers have started taking right measures in raising the sesame crop. The interaction with respondents like Mr Srinivasan, Mr Kumar and Mr Karthigeyan it is revealed that the farmers are taking proper control measures to manage pest/disease attack on sesame these days. Karthikeyan admits that he had not heard of any pest attack on sesame until recently. When the growth of his sesame crop had not been good for the past six to seven years he used to think that it was due to lack of water. He did not know all these years that it was due to *vadal noi* (Wilt) attack. He came to know of this only after the plant clinic intervention.

Importantly, the study reveals that the farmers are increasingly becoming aware of the importance of seed treatment (and also corm treatment) for all crops in preventing disease and pest attack on the nursery crops and also at the later stage of crop growth.

Also, the farmers are getting familiarised with the simple pest control methods such as growing trap crops in the main field, removing of dead plants like pumpkin, black gram, phyllody from the sesame field and destroying or completely removing the disease affected rhizome (banana corm) from the field and so on.

They are able to control pests/diseases, prevent crop loss and get increased yield; at least they do not face crop losses. The preventive and protective measures taken by the farmers indirectly contributes to increase the income of the farmers as they are able to cut down on input costs because they are using right proportion of pesticides/insecticides mostly on right time.

Reflections of farm women and men on pest/disease management

...able to take precautionary or preventive measures on right time

Farmers like Mr Vadivel feels that in general, these days the crops have become vulnerable to pest attack due to absence of *mel mazhai* (rain fall after transplantation) at appropriate time. It results in increased cultivation cost and less yield. He says if there is *mel mazhai* the farmers can easily cut down on expenses. He also added that farmers in this region never used to resort to spraying chemicals/inputs during *kuruvai* season. Of late it is increasingly becoming common due to pest attack like *sempen* (Mite). “How ever”, he says “we feel relieved and happy as we have access to guidance and help now to handle the situation and combat the pest /disease problems through the plant clinic intervention. Because of this we are able to minimise our input expenditure and we are also getting better income than three years ago. I feel secure as I have access to expert's advice. I can contact him over the phone also”.



Plant Clinic provides advisories for different crops





Plant doctors/ Agricultural resource person visiting farmers' fields





Mr Varadaraj points out: “*Payir Maruthauva Mugam ingu nadappadu migavum sowgariyamaga irukkiradhu. Enda nerathil enna marundhu adippadu enbadhu therigiradhu. Noi marrum poochi kattupadugiradhu*” meaning due to the plant clinic intervention the farmers have come to know what inputs one should use and at what time to solve a crop problem; disease/pest attack gets controlled. He continues to say: “We can take our crop sample to the clinic. Based on the diagnosis they give us right crop advisory which is easy to follow and it is economical also. I can tell you that my input expenses has come down from Rs 1000/- to Rs 700/-”

It is important to mention here that plant clinic takes care in providing the advisories in such a way that the farm women and men can understand the crop problem and the remedial measures well. Few respondents pointed out that the explanation is given in such a manner that can be easily grasped by them. One of the farmers namely Mr Sivakumar from Koneri Rajendiram remarked that the crop advisories are explained in a simple way that one can easily share with others.

...remedial measures/crop advisories are explained in a very simple manner that it can be easily understood and one could teach or share with the other farmer

According to Mr Sivakumar: “The agricultural expert explains to us about the problem of the crop, its causes and the necessary remedial measures in a very simple manner that it can be easily understood and one could teach or share with the other farmer (*Adutha vivasayikku chollitharum alavirku chollitharugirar*) also. For example, he explained to me in detail how crop would look like when it is affected by *kuruthu poochi* (Stem borer). He said the stem would dry and become weak and there would be a cut inside the stem”

Guidance from plant clinic controlled Sempen attack during Kuruvai season

Mr Sundaramoorthy from Vilangudi who is quite knowledgeable on agriculture related issues speaks highly of the plant clinic services. He had experienced several benefits through the plant clinic. Mr Sundaramoorthy, Mr Muruganandam from the same village and many others like Ms Chitra, Ms Selvamai and Mr Moorthy, speak about the *sempen* attack during the *kuruvai* season and the role of plant clinic in controlling the pest. They have been able to control *sempen* attack and avoid loss. They also reported that there was yield increase. Many pointed out that they had never applied any *marunthu* (pesticide) during *kuruvai* season and it is something unusual which is happening for the past few years!

Mr Sundaramoorthy: “This year (2014) unusually there was a heavy attack of *sempen* during *kuruvai* season and normally we do not apply any pesticide during this season. We have not heard about this pest attack on paddy until recently. I could not identify the pest when it attacked my paddy crop. Once I saw the pest through the microscope my confidence level improved. The crop would have got completely wiped out had we not got the timely advice and guidance from the agricultural expert from the plant clinic. The *sempen* attack was very severe that most of us had to go for chemical pesticide application. The pesticides prescribed were not harmful to the crops. During this season (*kuruvai*-2014) alone around 50 farmers would have gone with the crop samples to the plant clinic and also to the VRC and they were able to avoid crop loss as they took control measures. Along with the plant clinic services, if nature is favourable and kind to farming the crop yield will increase.”

Mr Sundaramoorthy added to say that he was able to take right control measures when his paddy crop was affected by *ilai suruttu puzhu* (leaf folder) last year and *ilai pen* (Thrips) in *kuruvai* season during 2013 and also during 2014.

Timely action with proper application of pesticide helped to control the pest soon. The yield was good; the whole village could avoid crop loss as all adopted the right remedial measures

Mr Muruganandam says he is able to control pests of different types affecting the crops due to timely



diagnosis and curative and protective measures provided at the plant clinic. He is also able to avoid crop loss. He mentioned about *sempen* attack on the rice crop, ADT 43 planted in *kuruvai* season in 2015. When he took the affected crop sample to the plant clinic the plant doctor after examining it said that it was affected by *sempen*. By viewing through the microscope he could see the insect was in egg formation stage and also saw insect movement. Based on the crop advisory he sprayed 250ml/acre of Propergite along with 500 gm of wettable Sulphur. He also added 200ml of neem oil and 100ml sticking agent. He pointed out that "...timely action with proper application of pesticide helped to control the pest soon. The yield was good. The yield was around 37 bags (62 kg/bag) of paddy from one acre and I did not spend much on the chemical. It was only around Rs 1500, I think. Here, I must tell you due to the plant clinic intervention the whole village could avoid crop loss as they all adopted the right remedial measures".

I thought it was due to excess heat; not aware that it was due to pest attack

Farmers like Moorthy were not aware that their crop was affected by a pest. Instead they thought it was due to heat. For example, when he noticed the leaf tip of the rice crop planted during *kuruvai* season (2013) getting dried up and there was discolouring of the paddy sheaths he thought it was due to excess heat. It was only when he took the crop sample to the plant clinic he came to know that it was due to *sempen* and not due to heat. He says he got more clarity when the expert using the microscope showed him the live demo of *sempen* and how it sucks the water from the plant in the computer screen. The damage was in the initial stage. As a remedy for this pest attack the expert prescribed application of one kg of urea mixed with wettable solution; he was also advised to spray sulphur (½ kg per acre). He was relieved to see the crop getting its original colour and he was happy with the yield. He also said that the crop remained yellow in colour till the harvest and the yield was not satisfactory for such farmers who did not adopt the remedial measures.

Ms Chitra who realised that her rice crop was affected by *sempen* (during *kuruvai* season, 2014) a little late says she could have got more yield if she had taken the sample crop to the plant clinic well in advance. However she is glad to mention "...We harvested 23 bags of rice from one acre. Normally, we get around 17 bags only. Had I shown the plant well in advance I would have harvested 28 bags. I would not have got this much yield had I ignored to visit the clinic. Considering the late realisation and taking proper remedial measures at a critical stage of the damage of the pest I am satisfied with the yield. That way it is a profit for me". Another farmer by name Mr Varadaraj mentioned that by following the crop advisory he could save his rice crop (Fifteen days after transplanting) affected by *ilai pen* (Thrips) and *sempen*. And he says he got a good yield when compared to his neighbour.

...rice crop was affected by more than two pests. We could save the crop as we sprayed the required inputs to control the disease /pest in the beginning stage itself

Ms Selvamani has been visiting the *payir maruthava mugam* ever since it was initiated in her village in 2012. She narrates one of the incidents where she was able to save her rice crop affected by different pest/disease. "...During the *kuruvai* season in 2012 I visited the *mugam* (plant clinic) when my 50 days old paddy crop (ADT 43) had been affected by more than one pest/disease such as (*kuruthu poochi* (stem borer) and *vella poochi* (mites) and along with these there was another pest which appeared like mosquitoes. Based on the prescription I sprayed three different inputs (*marundhu*) on the crop. I do not remember names of the inputs. We could save the crop as we sprayed the required inputs to control the disease /pest in the beginning stage itself. We got a good yield of more than 16 bags of rice in 100 *kuzhi* of land. Normally it used to be around 12-13 bags".



“...Payir nashtam varavillai (...did not incur loss)”

Mrs Pattu who has been a regular user of the plant clinic and feels grateful for its services recalls her first visit when she took rice crop planted in 200 *kuzhi* (*kuzhi* is a local unit of measurement. 300 *kuzhi*= one acre) of land during samba season was affected by *kuruthu poochi* (stem borer). The crop was in the grain formation stage. The crop looked dried up with drooping of leaves at the tip. The leaves were shrivelled and the stems were also damaged. The growth of the crop was affected. She did not know the reason for the damage. When she showed the sample of the affected crop it was pointed out to her by the agricultural expert in the clinic that the crop was affected by a pest called *kuruthu poochi*. She mentioned that though the recommended inputs were applied after a week (of getting the recommendation) they could see the change within few days. The yield of the crop was satisfactory. She added to say “*Payir nashtam varavillai* (We did not incur loss)”. Had we not adopted the control measures we would have got reduced yield by three bags (one bag = 60 kilos). Had we done it earlier the yield would have been even more”.

Control measures for nel pazham noi (False mut) and sempen (mite) very effective

According to Mr Vadivel, the plant clinic enables the farmers to prevent loss of crop from pest/disease attack. He mentioned two instances when his rice crop was affected by *nel pazham noi* (False mut) in *samba* season (2013) and affected by *sempen* (mite) during *kuurvai* were saved by timely advice of the plant clinic. He says on both the occasions the agricultural expert visited his field and gave guidance regarding the control measures to be adopted. He could avoid loss in rice crop planted during samba season which was affected by *nel pazham* though the attack was in the critical stage as he followed the advisory prescribed at the plant clinic. He pointed out that “The colour of grains had become dull. If the rice crop is affected by *nel pazham* one will normally face heavy loss. However, I did not incur any loss. Thanks to the plant clinic! I got 45 bags (60 kgs per acre) of yield from one acre. I sold it immediately for Rs 650 per bag. Otherwise (if I had sold after few months) I would have got Rs 1000. In the following *kuurvai* season I was very cautious and I got 50 bags from one acre. I sold one bag for Rs 900/-. The expenditure was Rs 20000/-” In the case of *sempen* attack he was told not to worry as it was in the early stage and that the crop could be saved. The sheaths had turned red in colour and the crop had stunted growth. Vadivel followed the advice and he could see the result within five days.

...thus I was able to avoid loss of nearly 30 per cent of crop yield

Mr Kumar was upset when rice crop planted in two acres of land did not develop tillers properly. “Luckily”, he says “at that time (November, 2013) a plant clinic was held in our village and the crop was saved. The crop was affected by *vellai noi* (stem borer) (Locally it is referred to as *vellai* (white) *noi* (disease) as ear heads turn white in colour due to stem borer attack) The agricultural expert at the plant clinic prescribed some control measures to be followed and I did as recommended by him. And, thus I was able to avoid loss of nearly 30 per cent of crop yield. I harvested 13-14 bags per 100 *kuzhi* which is the normal yield”.

I could save rice crop (ADT 43) planted during the summer season (2013) affected simultaneously by kadir navai poodchi (ear head bug) ilai pulli noi (leaf spot) and kulai noi (leaf blast) and prevent loss; ...

Mr Moorthy is also happy to share with us that he was able to save his rice crop (ADT 43) planted during the summer season (2013) affected simultaneously by *kadir navai poodchi* (ear head bug) *ilai pulli noi* (leaf spot) and *kulai noi* (leaf blast) and prevent loss though the disease/pest incidence was very severe. By following the crop advisory provided at the plant clinic he could control them and got a better yield when compared to others (who did not carry out right insect/disease control methods). When others got nine bags (60 kg per bag) from 100 *kuzhi* (300 *kuzhi* = one acre) of land he is happy that he got three bags more than the others.



...we have come to know that it is not due to heat and it is due to fungal infection.

Mr Venkatesan from the village of Panaiyur is of the view that awareness on pest and disease has been created among the farmers because of the plant clinic. He cites one example to illustrate this point. He pointed out that "... if the top portion of the rice crop looked dried we used to think it was due to wind effect or heat. But now we have come to know that it is not due to heat but it is due to fungal infection".

I must tell you that the crop which was in an Intensive Care Unit (ICU) was restored and brought back to normal health due to the timely guidance of the plant clinic and its encouragement. I am grateful to the plant clinic

Mr Karthikeyan from Panaiyur, one of the many regular users of plant clinic services, consults the plant doctor or the agricultural expert for almost for everything related to his farming. One could see the sense of gratitude in Karthikeyan when he explained how he could bring back the rice crop revival which seemed hopeless from inundation and later by pest attack of *ilai pen* (Thrips). He narrates: "... Two days after transplanting, my two acre rice field totally got inundated due to heavy rains. I could see only one crop in the field. I thought I had lost Rs 20000. I was very worried and I called the VRC of Thiruvaiyaru and explained to Sir (the agricultural expert at the VRC) about the rice crop condition. As I was not sure of the chemicals/inputs mentioned over the phone I directly went to the VRC to meet Sir in person to get the advisory. He wrote it down for me the details of the inputs and the proportion of the inputs to be used/sprayed (300 g Zink Sulphate, 30 g Ammonium phosphate along with sticking agent). I followed the recommendation and sprayed two tanks. I repeated the same after 15 days. It became alright. Later, I confronted another problem- *ilai pen* affected the rice crop. Three days after spraying Chlorpyrifos along with Acephate the pest was controlled. I harvested 50 (60 Kg per bag) bags of rice from two acres. I was satisfied with the yield. I thought I was going to face heavy loss because the condition/severity of the crop damage was like that. I must tell you that the crop which was in an intensive care unit (ICU) was restored and brought back to normal health due to the timely guidance of plant clinic and its encouragement. I am grateful to the plant clinic. The crop, which was in a critical condition, has yielded 50 bags of rice (from two acres). If every thing had gone well right from the beginning till the end I would have got 70-75 bags. As I told you I am satisfied with what I got. There is a great demand for this rice and easily fetches Rs 1000 per bag from Tamil Nadu Civil Supply Corporation. We get immediate payment for the product sold; payment is not delayed. The price goes up to Rs 1250 if we sell them after few months of stocking".

My friend Mr Kaliya Perumal thought that he had lost his BPT rice variety planted in one acre of land

It is interesting to come across few respondents who, apart from talking of how they were able to save their crops from critical states of damage, also spoke about their friends who have been able to save their crops. For instance Mr Shankaranarayan from Vilangudi mentioned that his friend Mr Kaliyaperumal had almost given up hope on his BPT rice planted in one acre of land and was thinking of ploughing the land and start the process again. Such was the condition of the crop. It was affected by *sempen*. But fortunately, his friend consulted the plant clinic and followed the prescription given. Within ten days there was great improvement. He could harvest 30 bags. He lost two acres of crop where he did not follow the advisory. Shankaranarayanan added to say that after experiencing the good results, his friend who was totally dependent on the input dealer in Thirumanoor now regularly visits the plant clinic to take appropriate measures to improve the crop yield.

I have been able to save my sesame crop

Mr Srinivasan from the village of Thirupazhanam, who like any other farmer in his area did not take much care in cultivating sesame crop, for the first time he used chemical inputs based on the crop advisory of the plant



clinic to save his crop from flower shedding (April, 2014) due to some pest attack. He says, “I do not remember the names of the chemical prescribed but they were effective in controlling the flower shedding in the crop. First time I sprayed a chemical contained in white colour tin and the chemical I used for the second time was from a yellow tin. If I had not done nearly 80 per cent of the crop would have got damaged. I got eight bags (800 kilos) from three acres where as my friend Mr Babu got six bags from two acres. The difference in the yield was because he swung into action (based on the advice from the plant clinic) before the pest could damage the crop heavily but I sprayed the necessary inputs when the damage was rather severe. I had lost my hope on the crop; but I am happy to say that the yield was good. I used two bags (50 kg per pag) of urea and irrigated the crop twice. Not much expense was incurred to raise the crop. I am thankful to the plant clinic”.

...vadal noi (Wilt) would have caused heavy loss in the sesame yield

Mr Sammanadam from Punavasal who normally cultivates sesame as a summer crop pointed out that he was able to prevent a loss of nearly 50 per cent because he carefully adopted the control measures advised at the plant clinic.

Mr Sammandam: “I usually go in for sesame cultivation during summer season. The sesame crop cultivated in one acre of my land got affected by *vadal noi* (Wilt) (in April –May 2013). I took the sample plant to the plant clinic held in our village. The disease appeared when the crop was in the capsule formation stage. I meticulously followed the advice given by the agricultural expert. As he prescribed I used *Pseudomonas* blended with farmyard manure for top dressing and I also sprayed the same through foliar method and through root for immediate arresting of *vadal noi*. I was extremely satisfied with the yield performance of my sesame crop. If I had not carried out the control measure as guided by the agricultural expert I would have incurred 50 per cent loss”.

Despite wrong choice of crop and heavy stem borer attack I could minimise the loss of maize crop ----

Karthikeyan from Panaiyur who has been carrying out his agricultural activities based on the guidance of the plant clinic ever since its inception in 2012 in his village spoke about his experience of planting maize (NK 2642) during March 2013 based on the advice of the input dealer. He did not have any prior experience of cultivating this crop and that was the first time he cultivated maize. He later realised that it was a wrong crop selection for that season. He said he thought his investment of Rs 25000/ was a waste. However, he was able to avoid the loss and he explains how he was able to do it.

He says “...Last year (March 2013) I cultivated *makka cholam* (NK 2642) a new variety in two acres of my land. It was the first time I tried with maize. I did not have experience in cultivating this crop. Based on the advice of the input dealer I selected this crop; later only I realised it was a wrong crop selection and that was not the season for sowing maize. I did not realise that it would affect the yield. After the inception of plant clinic, I normally consult Sudhakar Sir (agricultural expert from MSSRF and also a resource person of plant clinic) before taking up any new agricultural activity. Unfortunately, that time I did not consult him. I spent Rs 25000/-. The crop had also stunted growth. The crop was also affected by *kuruthu poochi* (stem borer). It was a 40 day crop. When I mentioned about it to Sudhakar Sir, he visited the field after the plant clinic session. He was saddened to see the crop and in a concerned voice he remarked *mudallaye kanbikkama vittingale* (meaning you could have shown it us much earlier)! On seeing the crop he recommended certain inputs to overcome the problem and to promote the growth of the maize crop. To overcome stunting and increase the yield I was recommended to immediately go in for fertiliser application- Urea and Potash as top dressing and to enhance growth I was suggested to go in for foliar application of growth promoter (Sea weed extract) which was in granule form. To control stem borer attack chemical recommendation was given which I did. I could



have reaped a good harvest had I been a little alert and taken the advice of Sudhakar Sir before choosing the crop and shown the affected field little earlier. The only consoling factor is that I was able to minimise the loss. I got back what I spent. This was possible only because of Sir”

Able to save coconut trees affected by Rhinoceros beetle and thus prevent a loss of Rs 50000

Ms Thilakavathy from Arasur apart from operating her three acres of land also works as a wage labourer. She is very confident that she can easily prevent and control Rhinoceros beetle on her coconut crop as she is aware of the remedial measures for the same. She followed meticulously the prescription provided at the plant clinic and saved four out of six trees from beetle attack. She has been able to prevent a loss of Rs 50000/-.

Ms Thilakavathy reports: “Many farmers from our village make use of the services of the plant clinic ever since it was introduced here. For a long time our coconut trees did not fruit well. When I told the officer (agricultural expert from the plant clinic) he visited our coconut field. He said that the trees have been affected by *gaanda miruga vandu* (Rhinoceros beetle). There were many holes in the fronds and it caused damage. It did not allow the frond to open up and grow. Sir told me that I could control the attack by keeping a pot containing a concoction of castor cake (200 g) powder and ground nut cake (200 g) powder mixed in 1 litre of water for every five coconut trees in the field. He said this concoction would attract the beetle and they would fall into the pot. This mud pot trap method proved effective and I was able to save affected trees. After three months of application I was happy to see fronds coming out. As a precautionary measure I was asked to keep naphthalene balls at the base of inter space in leaf sheath; this will prevent the beetle attack on the fronds. Also, I was told to place a mixer of *kurunai marundhu* (Carbofuran) with sand in the gaps between the fronds in extreme case of attack. For flowering I was told to apply 10 kgs of farmyard manure, 0.75 kg of DAP, one kg of urea (1 kg) and 1.5 kgs of MOP per tree along with 20 g boron as a basal application. The trees have started to yield fruits.

The beetle had affected six trees and I have saved four of them. I have confidence to safeguard my coconut trees. I have been able to prevent a loss of Rs 50000/-. Thanks to the plant clinic. Coconut tree gives income throughout the year. It is a good source of income if it is taken care of well by us. Now I am confident to handle any crop problem with the help of the plant clinic”.

Able to save my banana crop from vadal noi (Wilt)

Mr Chidambaranathan was very happy that he could find a solution to treat *vadal noi* (Wilt) which had been affecting his banana crop for more than four years and causing lot of anxiety to the household. He was sad when he mentioned that he could not get a proper answer when he approached even the Banana Research Centre.

Mr Chidambaranathan states thus: “For nearly four to five years my banana crop in two acres of my land has been getting affected by *vadal noi* (wilt). I even went to Banana Research Centre to get a solution for the disease. But nothing worked. I lost nearly 50 per cent of the crop. Again this problem cropped up this year (2014). It was seven months old crop. Fortunately for me a plant clinic was held in our village at that time. The agricultural expert recommended trenching of Copper Oxychloride (1 1/2 kilo) and neem oil (2 1/2 litre) mixed in 200 litres of water for the entire area. I did as advised by Sir and 90 per cent of the crop was cleared of the disease. The disease got controlled and I was happy with the income I got from the crop yield”.

Able to control sar orinji poochi (Mealy bug) in my rose crop. ---timely application of right remedial measures reduces crop damage and increases income

Chakravarthi from Mathur is happy to share with us about the improvement in the yield of the rose crop and the economic benefits he gets through it by taking timely measures to prevent and control pest attack.



According to Mr Chakravarthi “I can see improvement in rose yield ever since I started following the guidance and suggestions of the plant clinic. Earlier the rose crop used to often get affected by *sar orinji poochi* (Mealy bug) which used to affect the quality and quantity of the yield. Now I am able to control the damage caused by the *sar orinji poochi* due to timely application of right remedial measures. I am unable to give you the exact economic profit (due to market fluctuation) but I can surely say that there is substantial improvement in the yield and the income. I could conduct my daughter's wedding without borrowing money from outside. I am able to manage household expenses without difficulty”.

Simple, affordable and effective pest/disease control methods

While talking to the farmers it is inferred that generally they do not seem to know the cause for the problem they face in their crops. Most of them attend to their problem based on the symptoms they see on the crop. The farmers who have been focusing on the remedy often did not think of the cause of the pest/disease problem. Few farmers have come to realise that finding a cause for the problem would enable him or her to take precautionary methods or the right action to prevent and control certain pests/diseases when he/she sees symptoms. For example, some of the measures suggested include completely destroying or removing the entire affected banana plant from the field either by dumping it in a far of place, rotation of crops in the banana field, and removing the dead plants like pumpkin and phillody which promotes or aggravates diseases/pest. Wherever necessary it is also advised to raise trap crops such as marigold in the rose field to control pest, to keep field bunds free of weeds and to use quality seeds/corm treated with necessary inputs to prevent disease in the nursery and so on. The timely advice and simple methods enable the farmer to prevent loss. Moreover, when they are shown the pest/disease affected plant in the digital microscope they show/evince interest to know more about the pest/disease and its causes. As a result their confidence also increases.

We never thought that dried plant will be breeding ground for pest and disease

For Ms Viji from Panaiyur Village who grows vegetables mainly for market, it was a revelation that a dead pumpkin crop can act as a breeding ground for pest and disease attack. She also pointed out that the plant doctor /the agricultural expert do not stop with giving crop advisories they also take care to explain about the cause and how a particular recommendation should be carried out by giving reasons for that.

According to Viji “ ...We grow vegetable crops such as ladies finger, cluster bean, and pumpkin and so on in 100 *kuzhi* of land. The pumpkin plants looked very unhealthy and the leaves of the plant wilted. My husband bought some chemical from Thanjavur and applied on the plant; there was no change in the condition of the plant. Then we observed leaves of the other vegetable plants getting curled up. Fortunately, I went to the plant clinic held in our village to seek guidance to handle the problem. This was the first time I went to the plant clinic. The plant doctor and the agricultural expert visited my vegetable garden. When the agriculture expert saw the pumpkin plants, he recommended removing of the entire debris of pumpkin plants. He pointed out that spreading of disease /pest on other vegetable crops were due to the pest damaged pumpkin crop. He stated that it was a main breeding ground for insect/pest that affects the crops. He said the pest/insect that affected the vegetable crops were *ilai pen* (Thrips) and *Aswini poochi* (Aphids). My husband bought the recommended tonic and another input which looked like *jeera* seeds (Thiamethoxam); the same was sprayed in recommended proportions. The very next day we could see the effect of the spray; we found the dead insects/pest. The vegetable crops were saved from further damage and we were happy when they showed signs of healthy growth. I saw the *ilai pen* that affected vegetable crops through the micro scope. The eggs of the insects looked like a grape fruit bunch. When the insect was pressed it became reddish in colour. We were not aware that dried/dead plant would be a breeding ground for pest and disease”.



Ms Viji continued to say "..., for *maavu poochi* (Mealy bug) attack on *sundaikai chedi* (*Solanum* sp) I was advised to spray neem oil (5 ml) mixed with one litre of water to control the pest/insect. I was also told that care should be taken to see that all the stems get sprayed properly. I learnt that the insect would be at the base portion of the leaves. The plant doctor /the agricultural expert do not stop with giving crop advisories; they explain to us about the cause and how a particular recommendation should be carried out giving reasons for that".

Yellow Mosaic Virus controlled in black gram

I sprayed the recommended input to the crop and the manja themal noi got controlled. As suggested at the plant clinic I uprooted the plants affected by the insect from the field

Mr Srinivasan says that he prefers cultivating black gram in his field as a summer crop because it is profitable and it also helps to promote soil health. He could control *manjal themal noi* (yellow mosaic virus) attack (May 2014) by adopting the advisory provided at the plant clinic. He added to say that when the other farmers saw the results on his field they also followed the controlled measures and they were happy with the results. He was very happy that he could also get 200 kilos more from an acre than the previous years as he also followed the other advisory recommended for crop growth and weed management.

According to Srinivasan, "Black gram crop was affected by a disease which we locally referred to as *manja themal noi* in Tamil language. When I took the affected crop to the plant clinic I was told that it was due to an insect which spreads the virus but I could not see anything on the crop. Then I saw the crop in the microscope which was fully infested. I sprayed the recommended input and the *manja themal noi* got controlled. As suggested at the plant clinic I uprooted the plants affected by the insect from the field. After seeing me, some of my fellow farmers also sprayed the insecticide whose plants were also affected by *manjal themal noi*. They were also happy with the results.

As per plant clinic recommendation I sprayed water soluble fertiliser and growth promoter. I used weedicide to control the weeds. Earlier I used to get one or two bags of black gram from one acre of land now from two acres and 100 *kuzhi* I got 15 quintal (200 kilo more per acre). I must say that plant clinic contribution is much in this".

Ms Pattu pointed out that she could control yellow mosaic virus on the black gram by adopting the prescription of the plant clinic. She said, "The leaves of black gram plants (planted as inter crop with sesame) had turned yellow (yellow mosaic virus) and there was no flowering. When the agricultural expert along with the plant doctor Ms Revathi visited the field he suggested uprooting of the affected plants and carrying out repeated (once in ten days) spray of neem oil. To induce flowering he advised foliar spray of DAP (10 ml in one litre of water). My son did as advised by Sir (agricultural expert) and watered the plants. We were happy with the crop yield. When our neighbour Mr Saravanan had a similar problem, my son got him the necessary inputs from the shop".

I was not aware that one should uproot the uludu crop affected by manjal themal noi from the field

Like Ms Viji, Surodanan from Illuppakorai also mentioned that he did not know that the black gram plant affected by *Yellow Mosaic Virus* should be removed from the field to arrest further spread of the disease.

"I was not aware that one should uproot the *uludu* (black gram) crop affected by *manjal themal noi* (Yellow Mosaic Virus) from the field. I was told that in order to arrest the spread of the disease/pest I should uproot and remove the affected plant. I was told that the disease is caused by the white flies. In order to control it I should apply neem oil within 15 days whether it is affected or not as a precautionary measure".

***Simple and easy methods help to prevent spread of disease***

Ms Sundaravalli was another woman farmer who was surprised to know that the removal of affected plant from the field will prevent spreading of *manjal noi* on black gram crop.

Ms Sundaravalli says: “My black gram crop was affected by *manjal noi* (Yellow leaf Mosaic virus) (March April 2014) and when I showed the sample I was told to uproot the affected plant and remove it from the field. I was told at the plant clinic that the disease would spread through the roots. As advised I removed affected plants from the field. I did not know that this simple and easy method help to prevent spread of disease. I also realise the importance of seed treatment now. After I started doing seed treatment the *manjal noi* and other diseases do not affect the black gram crop”.

Without any pesticide application we were able to get rid of ilam kuruthu poochi (from sugarcane crop) totally

Azhagammai of Iluppakorai Village: “When my sugarcane was affected by *ilam kuruthu poochi* (Early shoot borer) we were advised a simple and less expensive method to control the pest. We were recommended to flood the field for two days and release the water later. This method was very easy to follow. It did not cost us much. Without any pesticide application we were able to get rid of *kuruthu poochi* totally”.

Simple pest control method using locally available inputs

“The plant clinic in most cases recommends simple methods using the locally available inputs; as a result of this the cost also comes down” says Mr Vadivel from the village of Villiyanallur. Based on the advice of plant clinic he could control insect attack on his sesame crop by adopting simple and locally available inputs. He mentioned that his nearly 50 days old sesame crop planted during 2014 was affected by an insect (Aphids) due to which there was an excretion of something like *then* (honeydew) drops on the leaves and the sticking substance accumulated on the leaves and branches. And, the leaves started rolling, twisting and bending. After examining the crop the agricultural expert pointed out that the attack was in the mild stage and advised Vadivel to spray neem oil mixed with 13 litres of water. On the advice of the agricultural expert he had also sprayed a tonic for the growth of the crop. He was happy that he got four bags of yield from one acre which was two bags more than the previous year and the cost of cultivation was also lesser than the previous years. He also added to say that he never took care of sesame crop like this before.

Never gave attention to sesame crop earlier. Earlier we used to harvest one quintal per acre but now we get more than two quintals per acre

Mr Kumar from Thirupazhanam says, “...Sesame crop generally gets affected by *saar orinji poochi* (Jasids) which makes the fruit and the leaves oily and sticky. This pest normally attacks the tender leaves. We are able to control it due to the plant doctor's guidance. Based on his advice I applied neem oil and garlic extract mixed with water. There is yield improvement in sesame crop now. Earlier we used to harvest one quintal per acre but now we get more than two quintals per acre. Previously we never used to pay much attention to sesame crop”.

We get immediate solutions -simple and effective - for our crop problems. I was also told that spraying of marigold extract would help control ver poochi (termite) in the early stage of the attack. I did as recommended by the plant clinic and the response was good

A young farmer by name Mr Venkatesan from Mathur came to know through the plant clinic that he can control termite attack on rose crops in its initial stage by spraying marigold flower extract on the affected crops. He was glad to see the results after spraying the flower extract.



According to him, “Plant clinic is a great boon to the farmers like me. We get immediate solutions -simple and effective - for our crop problems. My rose crop was affected by termite attack; about 250 plants were badly affected. The affected crop's twigs, branches and twigs turned black and started drying up. When I approached the plant clinic with affected sample plants I was told that it was due to *ver poochi* (also known as *ver karaiyan* (termite)). As a remedy, it was recommended spraying of marigold flowers extract on the affected crops. I was told that this solution has medicinal properties and it would control the termite damage. I was also told that spraying of marigold extract would help control *ver poochi* in the early stage of the attack. I did as recommended by the plant clinic and the response was good. As suggested by Sir (agricultural expert from MSSRF) I have also planted marigold plants in rose crop field to keep off the pest or restrict pest attack”

I could save my banana crop from kizhazngu azuhgal noi by adopting the simple advisory. Cause for a crop problem is explained well

Mr Pradapan residing at Mathur is full of appreciation for the plant clinic service. He never misses attending the plant clinic sessions held in the neighbouring village, Pasupathikoil. Though at present rose crop is his main focus he cultivates banana also. He was really touched by the services of the plant clinic because it not only prescribes remedial and preventive measure in helping the farmers to increase their crop yield the clinic also takes pains to explain the cause for a problem so that the farmers can take appropriate measures in cultivating their crops.

Pradapan tells us, as to how he was able to save his banana crop: “I could save my banana crop from *kizhazngu azuhgal noi* (Rhizome rot) by adopting the simple advisory suggested by the agricultural expert. Though I come from a traditional banana growers family I did not know what caused damage to the banana crop. The agricultural expert visited my field. He said that the damage was due to *kizhangu azhugal noi* and explained to me in detail by dissecting the affected portion of the banana crop. The agricultural expert explained that when the yellowing of top leaves occur we should know that it is due to problem in the bottom portion of the stem; and the rooting will not be strong. He prescribed simple and low-cost remedial measure- spraying of one gram of Trimixin in one litre of water and he also suggested drenching of the crop using 10 grams of *Trichoderma Viride* and 10 grams of *Pseudomonas* in 10 litres of water. I did as suggested and I was relieved to see the plant recovering and reviving. Looking at the damage I thought the crop could not be recovered; I had almost given up my hope. I could save the crop with a small and simple solution. Had I not adopted this I would have lost more than 80 percent of the crop. Earlier I used to apply DAP, Potash and *kurunai* for the crop. Now I am using micronutrients to avoid deficiency”.

Now I understand that if the crop is in a critical stage of damage something like in Intensive Care Unit condition we need to resort to chemical application

Mr Kannan from Rajendiram Village who prefers to cultivate his crop in organic way and who has not used any chemical pesticides for nearly seven years had to apply chemical pesticide when his rice crop was affected by stem borer during *samba* season (2013). He said he had to do it as the damage was in a critical stage. He is convinced that the plant clinic recommends chemical application which is not harmful and only if there is a need for that.

Mr Kannan goes on to say “I prefer to follow organic method of cultivation of crops. For nearly seven years I did not use any pesticide to my crop. Only last year (2013) I applied chemicals (when my rice crop was affected by stem borer during *samba* season) as per plant clinic recommendation to control pest as the damage was quite high on my rice crop. I did that so as to recover the crop from the pest attack immediately. It was pointed out to me by the plant doctor that when the pest or disease attack is in the initial stage we can not go in for traditional/organic method of treatment. Now I understand that if the crop is in a critical stage of damage



something like in Intensive Care Unit condition we need to resort to chemical application; then only we can save the crop. The chemical inputs recommended are not toxic; they are safe and do not cause harm to the environment”.

Plant clinic contribution in controlling pests/disease recognised at the village level

From the interactions with the respondents it emerged clearly that plant clinic gained recognition among wider farming households at the village level when their crops were affected by pests like *sempen*, leaf folder and so on. Following are the testimonials of farmers which highlights this aspect.

Plant clinic made a great impact during thaaladi season

Mr Shankaranarayanan: “Plant clinic made a great impact during *thaaladi* season when the rice crop was severely affected by *ilai suruttu puzhu* (Leaf Folder). The farmers were saved from crop loss due to the intervention of the plant clinic. The farmers recognise the role of plant clinic in helping the farmers to do agriculture with confidence. Adopting the right measures at right time helps the farmer to avoid risk and get increased yield. The prescriptions advised at the plant clinic are simple and precise. Unlike the input dealer they do not prescribe unnecessary inputs. What is required for the crop problem is only suggested here”.

.....the effective and timely management and control measures for pest/disease attack on BPT rice variety gave great visibility to the services of plant clinic

Mr Pazhanivel from Varagur: “The plant clinic gained good recognition once the farmers started realising the efficacy of the plant clinic services in providing appropriate advisories for their crop related problems. *Payir maruthuva mugam* has become popular and successful among the agricultural community as we have been able to manage and control pest/disease attack particularly in BPT rice variety, a fine rice variety. Rice yield has also increased significantly. This has created great impact on the farmers. As BPT rice variety fetches high rate in the market the farmers prefer to cultivate this variety though it is highly vulnerable to disease/pest attack. According to me, the effective and timely management and control measures for pest/disease attack on BPT gave great visibility to the services of plant clinic. The farmers in my village including me feel confident that we can manage and control disease/pest attack on other crops as well with the guidance and help of plant clinic. Mr Sarangapani (the plant doctor) goes to other villages when plant clinic sessions are held there. He is very helpful and encourages using the services of plant clinic”.

...this incident (controlling mite attack) created a great impact on me and other farmers

Mr Sundaramoorthy: “We never used to apply chemicals during *kuruvai* season. For the past two years we have been experiencing pest attack (Mite) during *kuruvai*. It is probably because of over heat. During this season (*kuruvai*, 2014) alone around 50 farmers would have gone with the crop samples to the plant clinic and also to the VRC and they were able to avoid crop loss. The agricultural expert visited the field at the right time of pest attack and gave prescriptions to control the same; this incident created a great impact on me and other farmers”.

Farmers from our village have been able to control Aswini poochi attack in sesame

Mr Karthigeyan: “During this year (2014) there was wide spread attack of *Aswini poochi* on sesame crop. Farmers from our village (Panaiyur) have been able to control this by following the advice (spraying of Chloripyrifos (100 ml per acre mixed with 20 litres of water) provided by the agricultural expert at the plant clinic. Confidence of the farmers in the plant clinic got further strengthened. It helps the village at large”.



Mr Venkatesam is another farmer who also feels that plant clinic helped farmers of Panaiyur Village to control *Aswini* attack on sesame. Venkatesam is of the view that though all the farming households may not visit the clinic they get benefited through the other farmers who visit the clinic and adopt the recommended advisories. As an example he mentioned about the *Aswini* attack on sesame crop. He mentioned, "...when sesame was affected by *Aswini poochi* (Aphid) the entire village followed the recommendation provided at the plant clinic. The pest got controlled and the farmers were happy".

3.2.3. Knowledge Empowerment

Most of the farmers were not aware of the difference between pest and disease. For them both are same. As one of the farmers namely Mr Govindaraj from Vilangudi Village mentioned any attack is referred to as *poochi adichidichiduchi* (attacked by pest). As an example, he pointed out that when there was an attack of pest like *sempen* (white mite) the farmers used to refer to it as *payiril manjal adithulladhu* (the crop has turned yellowish colour); they did not know it was a pest attack.

Coming to the clinics with affected plants and interacting with the plant doctor and the agricultural expert the farmer is able to gain specific knowledge regarding a pest or disease. As we have mentioned earlier digital microscope is used at the plant clinic to diagnose and identify the pest/or disease attack. With the help of the microscope and a lap top the farmer is shown the insect or pest which otherwise is not visible to the normal sight of a person. With the help of the microscope it is also explained to the farmer the prevalence or presence of micro-organisms (bacteria and virus) in the crop. This helps the farmer to improve his knowledge on pest/disease. Minute pest which cannot be seen through our eyes is visualised through laptop. It helps to increase the confidence level of the farmer. The respondents said they could grasp well whenever the plant doctor or the agricultural explains about a pest or disease attack. It is stated that the expert will explain the cause and also the symptoms of a particular pest or disease. Many farmers mentioned about *sempen* attack during the *kuruvai* season and how with the crop brought by the farmer the expert in a live demo showed the former as to how the mite sucks the water content from the plant. The live demonstration helps the farmer to improve his or her knowledge base of a specific pest or disease. This awareness or knowledge is important to take preventive and control measure measures.

It was motivating to hear from the women and men farmers that they are getting familiarised with pest and disease name and the preventive and controlled measures. Some of them were proud to share with us that they can identify easily certain pest/disease. This is very crucial to take timely appropriate action to prevent crop loss.

I will be able to identify if there is sempen attack on the crop

Mr Govindaraj "Now I will be able to identify if there is a *sempen* attack on the crop. I saw it through the microscope in the plant clinic. I could see it hidden in the crop and sucking the sap from the crop".

Ms Selvamani: Now I can easily identify *vella poochi* which eats the sheaths of the crop and *ver poochi* which is long and yellow in colour. However, I am still unable to detect the attack of *kuruthu poochi* (stem borer) as it becomes visible to our eyes during grain formation stage only.

MS Pattu: Now I can easily identify *kuruthu poochi* and my son knows what inputs to be used to control it.

Mr Shankaranarayan: "To an extent I can identify *ilai pen* (Thrips). Early in the morning if we touch the sheaths with our wet hands the insect would get stuck to the hands".

I can easily identify if a crop is affected by Ashwini poochi (aphids)

Mr Govindaraj also says: I can easily identify if a crop is affected by *Ashwini poochi* (aphids). I know the damages it causes to the crop. Until recently I did not know anything about it and the nature of the damage.



Last year my sesame crop was affected by that pest. I came to know through the plant clinic it feeds on the plant sap. I also observed that the leaves of the sesame were rolled, twisted and wilted. The leaves also had turned black. I sprayed the suggested inputs in water and the pest damage was minimised.

...recognise termite (ver poochi) attack on rose crop

Mr Venkatesan: “We are able recognise this particular attack (*ver poochi*) which is common in rose plants cultivated here. As we are undertaking remedial measures promptly the pest attack is controlled quickly. The quicker the treatment the faster would be the pest control. This limits the stress on the crop and also lessens the stress on us”.

...not aware of remedial measures to control mealy bug in rose crop- Now I have the confidence that I can control the pest

Mr Pradapan: “I was not aware of remedial measures and I used to think that only if it rains at that time this pest (Mealy bug) could be washed out. I thought rain was the only remedy. In the absence of rain we used to allow the crop to get dried up because we did not have choice. Now I have the confidence that I can control the pest even if the crop becomes dry and the stems turn black in colour and save the crop (*inru karuginalum kaapparri vidalam engira nambikkai vanthulladhu*). This is because I am aware of the remedial measures to be taken to control the pest”.

Similarly, Ms Thilakavathy says that she can easily control beetle attack on her coconut trees. She says, “...such is my confidence that I have helped few of my villagers (to carry out the remedial measures) whose coconut trees were damaged by the beetle attack. I told them the remedial measure and they followed it. They are happy with the results. I still remember the recommendation and prescription for controlling the beetle and for the healthy growth of the tree for a better yield”.

I have learnt so much through the plant clinic. I know the chemicals and other bio inputs that can be used for pest/disease/ fungal attack on crops particularly rice

Mr Pazhanivel, an owner cultivator and also an agricultural wage labourer is an enthusiastic farmer. He was pleased to share with us about his experiences. He remembers the chemical names and the quantity to be applied for a particular problem. He adopts the prescription of the plant clinic both in his land and also in his employers land. He also sees to it that the other farmers also follow the advisories properly. He talks about his knowledge improvement thus: “I have become aware that inputs should be used in proper portion; overdose or under dose of them will not give desirable results. I know the chemicals and other bio inputs that can be used for pest/disease/ fungal attack on crops particularly rice. In my experience, combination of Carbendazim and Mancozeb works very well in case of fungal attack like sheath rot, sheath blight and leaves spot disease. Spraying of these two chemicals controls the fungal attack. To control *sempen* (white mite/fly) and *ilai pen* (Thrips) attack I use Acephate and Profenofos respectively and I find them effective. I spray neem oil to control pest and I tell others to do the same as it is harmless. For uniform growth and for more tiller formation Potassium nitrate can be used (1 kg per acre). I can also diagnose diseases like *sooral* (fungal disease) and know the remedial measures. It commonly occurs during scorching heat (*kadung kaichal*) days”.

My knowledge has improved a lot in the last one year due to my constant touch with the plant clinic

Mr Pradapan: “I (Pradapan) know the names of the chemicals/inputs used for different pest/disease affecting the crop. For example Trimixin ((for Rhizome rot in banana crop) and Fepronil (to control *Thrips and koon vandu* (Rhizome weevil)). I also came to know through plant clinic that instead of Fepronil, *vasambu* (*Acorus calamus*) extract can be used to manage and control Rhizome weevil. I am also aware that depending on the damage stage I should use the inputs application and when to change the use of the input for the same problem”.



Nutrient deficiency

Due to lack of knowledge few farmers pointed out that they have misunderstood nutrient deficiency for disease/pest attack.

Nutrition deficiency and not pest attack

Ms Pattu: "...sesame (intercropped with black gram) planted in 200 *kuzhi* during February-March, 2014 had stunted growth. The grain initiation also got delayed. The plants did not look healthy. We thought it was due to some pest attack. But we came to know from the plant clinic that it was due to nutrient deficiency. Again based on the agricultural expert's advice my son carried out the remedial measures. Based on the prescription hesprayed the inputs (Boron 3 gm per one litre of water and Potassium Nitrate 10 grams per one litre of water) to enhance the growth of the crop. The plants which were stunted began to grow well and started to fruit. We were able to avoid a loss of around six *marakka* (one *marakka*=3 kilos) of *ellu* (sesame).

There was no sprouting of fronds in my coconut trees. I was told that it was due to nutrient deficiency

Mr Nataraj: "I have three coconut trees; they are five year old. One died because of *kuruthu poochi* (stem borer) attack. Recently, two months ago (August 2014) I consulted the agricultural expert at the plant clinic when I did not see any growth in my five year old coconut trees; there was no sign of sprouting of fronds. I was told that it was due to nutrient deficiency. As recommended at the plant clinic I administered coconut tonic through the root and after 10 days I applied Potash (1.5 kilo), DAP (7.5 kilo), Urea (1Kilo) and micronutrients mixed with 20 kgs of farmyard manure per tree in circular basins at two feet distance from the base of the tree. I am happy to tell you that the trees have started sprouting fronds. The expert patiently explained to me as to how to administer the coconut tonic through the root and how the recommended inputs should be applied mixed with farmyard manure".

It is revealed through the case studies that the awareness and knowledge enhancement are very crucial for the farmers to manage effectively crop related problems and issues.

Awareness on importance of seed/corm treatment

It is revealed through the case studies that the farmers in general had not paid much attention to seed treatment either because they lacked the knowledge on its importance or motivation to carry it out. Though persons like Mr Karthikeyan and Mr Govindaraj have heard about seed treatment and got bio inputs free of cost when they bought rice seeds from the agricultural department they ignored it as they were not aware of its importance in preventing certain pest/disease and in helping in the healthy growth of a crop.

It is encouraging to find that the plant clinic has been playing a significant role in guiding the farmers on seed treatment as an important pest/disease preventive method. Some of the farm women and men have understood that healthy seedlings are a prerequisite to prevent or minimise loss due to pest/disease attack and help in increasing the yield. Most of them take it seriously now-a-days and carry out the seed treatment. In case for some reason they are unable to do it they go in for seedling treatment instead. And, few also mentioned that for some reason if they are unable to do seed treatment they apply or spray necessary bio inputs on the nursery bed. We also gathered during the field study that the farmers like Mr Pazhanivel encourage his fellow farmers in his village to undertake seed treatment. Also, persons like Mr Nataraj mentioned that after seeing him doing seed treatment and getting the benefits the other farmers in the village have also been motivated to do seed treatment.

Come to realise the importance of seed treatment

Ms Pushpa from Rajendiram stated: "I understood the importance of seed treatment. I did seed (rice) treatment



using *Pseudomonas* mixed with *thozhu uram* (farmyard manure). I was happy to see the uniform growth of the seedling. The crop also did not suffer from any disease attack. I was happy with the yield”.

This was the first time I have done treatment of seedling

Mr Kandappan from Arasur pointed out: “I went to the plant clinic for first time in 2013 with my paddy seedling to get the plant doctor's opinion on it. I was told to do dipping of the seedling using *Pseudomonas* and Azospirillum before transplanting; I did seedling treatment as advised at the plant clinic. Now I have planted paddy in four acres of my land. The crop looks good and healthy. I did not have knowledge about this earlier.

This was the first time I have done treatment of seedling”. Similarly, Mr Pazhanivel from Varagur says, “I have also come to realise the importance of seed treatment with biological inputs like *Pseudomonas* and I also encourage the fellow farmers to do seed treatment so as to prevent disease/pest attack on the crop. We can get good healthy seedlings. In case someone had not been able to do seed treatment I tell them to do seedling treatment by using *Pseudomonas*”.

...never took it (seed treatment) seriously. I learnt that one can avoid certain diseases like kulai noi (blast disease) and seedling disease in paddy.

Mr Karthikeyan: “I have heard about the seed treatment earlier also but never took it seriously. Now I have come to realise the importance of seed treatment through the plant clinic. For example, I take care that my rice seeds are treated well with bio inputs and I can see the difference; growth of the crop is good. There is no attack of *kulai noi* or seedling disease these days”. Karthikeyan also does seed treatment for sesame crop. He does not neglect it.

M Sundaravalli from Pasupathi Koil is another respondent who mentioned that she has come to realise the importance of seed treatment now. She says that “...After I started doing seed treatment the *manjoi noi* (Yellow Mosai Virus) and other diseases do not affect the black gram crop”.

“...learnt that seed treatment if done properly would save crops from diseases like vadal nai (wilt), ilai karugal noi (leaf blight) and ilai pulli (leaf spot)

Mr T Sammandam from Punavasal is happy to share with us the merits of doing seed treatment. “I was advised to do seed (sesame) treatment using *Trichoderma Viride*. I was told that this would prevent diseases that spread through the roots of the crop. I also learnt that seed treatment if done properly would save crops from diseases like *vidal nai* (wilt), *ilai karugal noi* (leaf blight) and *ilai pulli* (leaf spot). It was very effective in controlling the disease in the crop”.

...never done seed treatment for sesame until May 2014

As we have mentioned earlier that not many paid attention to sesame crop cultivation. However, due to the influence of the plant clinic farmers are taking interest in its cultivation. Mr Venkatesan, a farmer from Panaiyur pointed out that “I have never done seed treatment for sesame until May 2014”. On the advice of the plant clinic held in his village he did seed treatment last year and he says that the yield from two acres of land increased from 300 kilos to 450 kilos. He has also been doing seed treatment for rice for the past three years and he could see the difference in the growth of the crop. He mentioned that by taking the advice of the plant clinic he and some others in his village have been able to control pests and disease in rice and sesame.

Now, I am aware of the importance of banana corm treatment for healthy and good growth of the crop

According to Mr Pradapan residing in the village of Mathur who never misses attending the plant clinic whenever it is held in his neighbouring village namely Pasupathi koil admits that though he come from a



traditional banana growers family he did not know what caused damage to the banana crop. Through the plant clinic he learnt about corm treatment as a preventive method for diseases such as *kizhangu azhugal noi* (Rhizome rot) in banana. He says, "... Now, I am aware of the importance of banana corm treatment for healthy and good growth of the crop. I have come to realise that I can control diseases like *kizhangu azhugal noi* in banana crop by undertaking right corm treatment. So, I diligently carry out the treatment of the planting material. I can see the positive results. I am happy to tell you that nearly ten farmers followed the remedial measures by observing me".

...going to adopt soil trenching (corm treatment)

Mr Chidambaranathan has been able to improve his income through the sale of banana by following the crop advisory (for controlling wilt and other agronomic practices) of the plant clinic. He says hereafter he would take precautionary method to save his banana by adopting soil trenching to avoid disease attack.

Mr Chelladurai from Rajendiram: "Whenever plant clinic is held in our village I make use of it. I follow the plant doctor's advice and suggestions. Based on their advice I have started doing seed treatment for rice and I find the difference in the growth and yield of the crop. I was told that seed treatment would prevent disease and pest attack in the crop".

My neighbours started doing seed treatment when they saw yield improvement in my paddy crop

Mr Nataraj from Rajendiram: "My neighbours started doing seed treatment when they saw yield improvement in my paddy crop. They continue to do the seed treatment; there is improvement in the yield and incidence of pest/disease has also reduced. I feel sad that I am not in a position to do agriculture now. I am glad that many farmers including women from my village using the guidance of the plant clinic to improve their livelihood".

Soil health

Another area where the plant clinic is guiding the farmers is in soil health. Plant clinic also highlights the importance of soil health during the interaction with the farmers visiting the plant clinic. The farmers are advised to improve soil health based on soil nutrient status. This has helped few farmers to cut down on input use.

Some farmers realise the importance of soil testing and are also aware that input application based on the soil test results would improve the crop yield, quality of the yield and minimise investment on inputs. It was gathered from the interaction with the farmers that earlier they did not give much importance to soil health and soil testing. Those farmers who have been advised to do soil testing in their farm land have come to realise that maintaining the soil health is imperative for the healthy growth of their crops. They have also come to understand that based on soil test results they can apply only the required inputs in proper proportions which will help not only in the growth of the crop but also in bringing down the input cost.

People like Kannan stated that they have come to realise that soil health and water quality play a major role in crop health and production. It is pointed out that due to plant clinic exposure many farmers from the village of Keezhapunaval have done soil testing and carried out corrective measures based on the advice of the soil science person from the VRC.

Few of us have taken seriously about the importance of doing soil testing and water testing in a scientific manner

Mr Kannan from Rajendiram has been able to rectify the salinity of both soil and water and could cultivate crops with out anxiety. According to him, "...Few of us have taken seriously about the importance of doing



soil testing and water testing in a scientific manner. Thanks to the plant clinic and the VRC of Thiruvaiyaru. There was no rain continuously for two to three years. Even planting during *samba* season had become uncertain as there was no water. This had increased the salinity of the soil and water content in my agricultural land that I lost more than Rs 1, 200, 00 rupees last year (2013) which include the expenses incurred on ploughing the land, weeding and fertiliser application. The entire paddy crop planted in 91/2 acres last year (*kuruvai* season, 2013) had dried. The area in and around my land and water had been affected with heavy salinity”.

He continued to say , “I approached the plant clinic held in our village at that time to get the advice of Mr Sudhakar, the agricultural expert and I explained to him about the condition of the crop planted in that season (*Kuruvai* season). He visited the field to assess the nature and extent of the damage. According to his instruction I gave water and soil for testing. The results showed that levels of salinity were high both in the soil and water. I removed the entire dried crop from the field and I sprayed MAP to the field. He also prescribed micronutrients. I was also told that I should take care of avoiding water logging in the field and at the same time not allowing the field to become dry. I did everything as guided by the agricultural expert. In order to eliminate the salinity I applied Gypsum and left it in the field for a day after which the water was drained from the field. Then I applied the prescribed inputs to the land. Fortunately it also rained. I was satisfied with the crop performance though I made a minimum profit of Rs 30000/-; I did not incur any loss like the earlier season”.

Kannan pointed out that his neighbouring farmer who also faced similar problem and reluctant to cultivate the land got motivated to do soil testing and planted rice in the *samba* season. He stated: “My neighbour gained confidence to cultivate paddy after I took the risk of cultivating the same in the following season (during *samba* season). Earlier, they were not prepared to cultivate the land. My neighbours also visit the plant clinic for advice. Based on the recommendation they also tested their soil and water”.

Farmers like Mr Sammandam from Punavasal, Mr Sivakumar from Koneri Rajapuram, Mr Chidambaranathan from Illuppakorai, Mr Muruganandam from Vilangudi and Mr Chelladurai from Rajendiram have been able to rectify the imbalances found in their soils by adopting the advisory provided by the plant clinic based on their respective soil test results. They are all happy to mention that apart from enhancing the soil health the soil test also helped them to avoid unnecessary usage of fertilisers. Mr Sammandam pointed out that due to plant clinic the entire village did soil sampling and almost everyone carried out the advisory provided and experienced the benefits of the same.

3.2.4. Weed management

Plant clinic also tries to educate the farmers on weed management and how weeds could also be a host to pests. Ms Sundaravalli, Mr Karthikeyan and Ms Azhagammai could control weeds by using safe weedicide prescribed by the plant clinic. Employing labour for weeding would involve more expenses felt the farmers. The farmers also are given useful tips to control weeds in the field.

Weed management through proper ploughing

Ms Chitra from Pasupathi Koil “I also came to know through the plant clinic that there is safe chemical weedicide to control the weeds in the field. I forgot the name of the weedicide. I have written it down in my note book. He (the agricultural expert) also told me that a well prepared land controls weeds. He explained to me how one could control weeds with proper ploughing method. He said that initial ploughing (primary tillage operation) should be done followed by irrigation and secondary ploughing after irrigating the land to reduce weed population in the main field. This will bring down weeding expenses and also helps to improve the yield”.



I followed proper ploughing method and irrigation practices; not much weeds in the field

Mr Varadaraj: “Last year I broadcasted black gram seeds immediately after irrigating the land; there was lot of weeds. I applied weedicide but it was immediately followed by heavy rain. Now (April 2016) the standing crop in the field is black gram. As per plant clinic suggestion I broadcasted seeds after three days of irrigating the land. There is not much weeds in the field. I followed proper ploughing method and irrigation practices. Following the advice of the plant clinic helped me in weed management”

Kozhunji (Tephrosia purpurea) can act as a soil health enhancer and also weed controller

Through the plant clinic Mr Muruganandam from Vilangudi has learnt that *Kozhunji* can act as a soil health enhancer and also weed controller. Based on the recommendation of the plant clinic he cultivated sesame (with *Kozhunji* as inter crop) in one acre. As per the guidance of the plant clinic he broadcasted the sesame seeds in east-west direction and seeds of *Kozhunji* in north-south direction in the same field; *Kozhunji*, as an intercrop with sesame prevents weed growth in the field apart from helping to enhance soil health. The purpose of broadcasting *Kozhunji* in opposite direction is to avoid mixing with sesame seeds in the field and to enable proper spacing between the plants. It also prevents weed growth in the field. He is happy that spacing between the plants is good and there are no weeds in the field.

Muruganandam adds to say that “I will be able to save nearly Rs 5000 on weeding. For weeding nearly 25 persons have to be employed. The farmer from my neighbouring field was surprised to see my land with no/less weeds. His land has lot of weeds”.

3.3. Judicious use of inputs and reduction in cultivation cost

One of the significant impacts of the plant clinic has been in the area of input utilisation. Plant clinic stresses judicious use of inputs particularly pesticides and promotes use of bio inputs. As one initiates a conversation with the respondents about the plant clinic the most heard common remark is-“*engalakku migavum ubayogamaga irukku. Selavu korainji irukku. alavu therindhu marunthu, uram ubayogippadal*”-meaning “plant clinic is very useful. Our cost of cultivation has come down as we use right proportion of required inputs”. It is heartening to see farmers who had in most cases resorted to indiscriminate use of inputs to their crop due to lack of knowledge/guidance talking to us with great relief that they do not resort to indiscriminate use of inputs these days and they no longer depend on input dealer for advice. They realise that they have been taken for a ride by the local input dealers. They whole heartedly appreciate the role of the plant clinic in guiding the farmers in using the right dosage of appropriate organic/inorganic inputs and in reducing the cultivation costs. Farmers are of the view that they are provided reliable plant healthcare at low costs. And, in case of any doubt in using the inputs they do not hesitate to call MSSRF staff or the plant doctor from their village who are very prompt in responding and clearing their doubts.

The major advantage of plant clinic has been in the area of input utilisation by the farmers

Mr Sivakumar appreciates the contribution of plant clinic in bringing down the indiscriminate use of input utilisation by a farmer. This has to a great extent reduced input cost.

He says: “The major advantage of plant clinic has been in the area of input utilisation by the farmers. Earlier we were not aware of the quantity of chemicals/pesticide/insecticide to be used. Now the awareness level has increased among the farmers. Indiscriminate use of inputs has come down; people are careful these days. Nearly 50 percent of input expenses have come down and there is increase in yield. Unlike the input dealer, only necessary inputs are prescribed at the plant clinic”.



We used to think that more fertiliser means more yield. Now, we avoid unnecessary use of fertilisers

Ms Marudammal is a relieved person now as she has the support and guidance to follow right input in proper quantity. Also her household has been able to cut down on cultivation cost due to judicious use of inputs.

According to her, “We used to apply fertilisers every now and then to the field if the growth of crop was not satisfactory. We used to think that more fertiliser means more crop yield. We did not realise that it was not good to use the fertilisers like that until we came into contact with the plant clinic. Apart from the monetary loss it also involved lot of physical work and mental stress. Now because of plant clinic intervention we are avoiding unnecessary usage of fertiliser and other inputs which again bring down the expenses. We are benefiting a lot and there is improvement in our income”.

Alavu solvadhal selavu kuraigiradhu (Right proportion of inputs to be used is prescribed; so there is reduction in expenditure)

Govindaraj from Vilangudi feels that after the plant clinic intervention he is able to save on cultivation cost as he is able to take right action at right time to safeguard his crops from pest/disease attack by using right inputs. He also points out that he uses inputs judiciously.

Mr Govindaraj states thus: “Alavu solvadhal selavu kuraigiradhu. Thakka tharunathil marundhu adippadhal selavu kammiyagiradhu. Noi thakku adigamanal selavu jasthi Varumun kakkirom. Avargal ishtathirku Urakkadaikarargl marunthu kodupargal. Nangal engal ishtathirku adippom. Ippa neenga ezhudi kodukireergale! Pirachuinaillai!” (“Right proportion of inputs to be used is prescribed; so there is reduction in expenditure. As we are taking pest/disease control measures on right time the cost comes down. If the disease/pest attack is severe our expenditure on input will be on higher side. Now we are able to take precautionary measures on time and avoid crop loss due to the plant clinic intervention. Earlier, the input dealer used to suggest whatever he thought was right. And, we the farmers used to apply inputs indiscriminately! Now the plant doctor writes the prescriptions; so no problem!”)

Dependency of the input dealer for advice has come down; also our expenditure on inputs has come down

Ms Ramamirutham from Pasupathi Koil was happy to share with us about the great service plant clinic has been rendering to the farmers in her village. Like others she also feels that the crop advisories are very effective, simple and useful. She added to say “I have realised that our expenditure on inputs has come down if we follow the prescription given at the plant clinic. Since this intervention, our dependency on the input dealer for advice has come down a lot”.

We are happy because we are able to reduce input cost

Ms Selvamani operating her leased in land of six acres sees a great difference in cost of cultivation before and after the inception of plant clinic intervention.

Ms Selvamani: “The cost of inputs has come down by 50 per cent with the inception of plant clinic in our village. Previously, the input dealers used to prescribe three-four chemicals for controlling pest/disease and for other growth related problems. We were spraying three times; now we are able to control pest/disease with one time spraying. We are happy because we are able to reduce input cost”.

Though I do not see any change in yield the fact that we are able to cut down on input is a gain for us

Mr Sundaramoorthy is of the opinion that there is definitely reduction in input cost after he started taking the help of plant clinic though he does not see any marked yield improvement.



Mr Sundaramoorthy states: “Due to the intervention of plant clinic input expenses have come down. Though I do not see any change in yield the fact that we are able to cut down on input is a gain for us (*selavu kuraindale palan koodathane?!)* Now based on the advice of the expert I am using only 50 kilos (per acre) DAP after ploughing of the land. Earlier I used to apply 75 kilos of DAP (per acre) five days after transplanting. Similarly, I have also reduced the quantity of urea from 25 kilos to 20 per acre. I was told the land would not absorb more than this”.

Unnecessary application of inputs is avoided. This is a gain

Mr Chakravarthi from Mathur also says that the input expenses have come down. He feels that is a gain for him. According to him, “Unnecessary application of inputs is avoided. This in itself is a gain for me. (*Thevai illada marundugalai adikkamal iruppade engalukku varumanam*). As of now this is a major benefit. We will know the other benefits in the coming days”.

...guide us about the proper method of applying the input so that wastage can be avoided - carrying out spraying on the right time during the day would avoid wastage of inputs

Mr Sivakumar says that wastage of inputs is avoided as plant clinic guides farmer about proper measures one should take while spraying inputs.

“We are guided about the proper method of utilising the input so that wastage can be avoided. Plant doctor guides farmers about suitable time for spraying inputs. We are told that by carrying out spraying, on the right time during the day would avoid wastage of inputs and allow the plants to effectively absorb the input. So, the farmers including me have become aware of this aspect and follow the instructions of the plant clinic”.

Timely application of right inputs in correct measurements helps in improving the yield and minimising risks

Mr Surodan points out: “Timely application of right inputs in correct measurements helps in improving the yield and minimising cost/risks. The agricultural expert from the plant clinic recommends chemical application for pest attack, only when the crop faces the risk of crossing economic threshold level. By and large bio inputs and environmentally safe chemicals are prescribed.

Awareness on the use of bio inputs increased

We have come across several respondents like Mr Pazhanivel, Muruganandam, Venkatesan (Mathur), Chidambaranathan, Govindaraj, Nagaraj, Karthikeyan and Ms Kavitha mentioning that they have come to learn about the importance of using bio inputs for their crops. It is not that they have not heard of these bio inputs earlier but the awareness level on its importance was low. However, after the inception of the plant clinic intervention some farmers have taken it seriously and using them whenever necessary. This aspect can be appreciated through the below given statements of farmers.

According to Mr Venkatesan of Mathur, “I have come to know of the importance and benefits of using bio inputs such as *Pseudomonas*. Earlier I used to apply only chemical inputs to my crops. Now, mostly I go in for bio input applications. Sometimes I use a combination of bio and chemical inputs. Earlier I used to apply chemicals at least four times. Now, as I use bio inputs, the effect of it lasts for a longer time and the pest attack is reduced. Unless there is a severe pest attack chemical application is not normally recommended at the plant clinic”.

Mr Chidambaranathan is also of the view: “After coming into contact with the plant clinic I have started using bio inputs like Azospirillum and Phosphobacteria during nursery raising and also after transplanting of rice.



They also advised me to apply farmyard manure to improve the fertility of the soil and I am applying them now”.

Mr Govindaraj states: “We came to know about the bio inputs and its benefits to the crop and the environment through the plant clinic. I have started using bio fertilisers only after the plant clinic intervention started in our village. Though I had heard about these bio inputs I never took it seriously as I lacked the knowledge about their importance to the crop and the environment. Now I have started using Azospirillum, Phosphobacteria and *Pseudomonas*. I use both Azospirillum and Phosphobacteria during nursery raising and after transplanting. Later I apply *Pseudomonas* for crop establishment. I generally mix it with sand and apply to the field. We would appreciate it if bio fertilisers could be made available in our locality itself”.

As the awareness on the utilisation of inputs has increased, farmers see to that only the inputs prescribed by the plant clinic is supplied by the input dealer.

Our awareness level about using proper inputs has increased - I insist on knowing chemical base

Mr Nagaraj: “Our awareness level about using proper inputs has also increased. Previously, whatever chemicals the input dealer prescribed we applied them. Before the inception of plant clinic intervention, I used to take the affected crop to the input dealer and applied the chemicals prescribed by him. Most of the farmers used to explain the crop problem orally to the input dealer. Whatever he prescribed we followed it. We paid attention to the company's name and not to the chemical base. We were not aware of the combination and proportion of the chemicals. Now after the plant clinic intervention we ask for chemical name. It is a turning point for us. Now, we insist on chemical base. We do not blindly buy whatever is prescribed by the input dealer. He has come to realise that we have become smart and cannot fool us any more with the brand name”.

Farmers like Prabakar from Thirupazhanam and T Sammandam from Punavasal mentioned that after the intervention of plant clinic some of the farmers have become aware of the kind of chemicals that should be sprayed for a particular crop problem. It is stated that previously they generally used to spray/apply Karate, Monocrotophos, Sevin Powder, Endosulphan and so on. Few farmers also pointed out that they have come to know of the harmful effects of red labelled/banned chemicals. Mr Sammandam pointed out that “...earlier, to control fungal disease (*poosanam*) and pest attack (*poochi*) we used to spray and sometimes Monocrotophos. We avoid using them now”.

Mr Karthikeyan: “There is awareness among the farmers- that one should not use all the chemicals/inputs suggested by the dealer and should limit the input application. For example, earlier the input dealer used to recommend the farmer to apply insecticide/pesticide like Monocrotophos, sticking agent and micro food together. Now we learnt that there is no need to apply like this; we have come to realise that only micro - food is sufficient in normal circumstances”.

Mr Surodanan: “I had poor knowledge of technology/usage of inputs. Now I have come to understand that most of the crop losses were due to poor knowledge. I realise that I had incorrectly and excessively used the inputs because I depended on the input dealer for advice and input recommendation. It is quiet common for the farmers in the villages to approach or rely on the input dealers guidance and recommendation. He also supplied substandard inputs. These days I go to the input dealer only to buy the inputs and not to seek his advice for crop related problems”.

Ms Pattu was very happy when she told us that she does not go to input dealer for advice. She eagerly looks forward to the plant doctor who visits her village often. “We do not seek the input dealer's guidance these days. We ask for guidance when Revathy amma (the plant clinic doctor) visits our village. I feel happy when I see her and I will always have something or the other to ask her related to the cultivation of crops including vegetables.



She gives suggestions and sometimes she would contact Sir (Agricultural expert from MSSRF) for details and clarifications. Her frequent visits to our hamlet motivates us (*avargal vandhu povadhu urchagamaga irukku*).

I find nearly 20 per cent reduction in input cost when compared to the AO's advisories I adopted earlier

Ms Kavitha started using the plant clinic services only from 2014 though the intervention began in 2012. She had the guidance of a good agricultural extension officer. After he was transferred Kavitha began to take the advice of the plant clinic. She says, “At the plant clinic only minimum quantities of inputs are suggested. They are not expensive and are environment friendly. The farmers are advised to use chemicals with green or yellow or blue label on it as they are less/non toxic. They are effective and at the same would not cause damage to the health of the plant and the environment. I find nearly 20 per cent reduction in input cost when compared to the AO's advisories I adopted earlier. The earlier AO was good but still I find the plant clinic's advisories are the best and effective”.

I am careful to spray or apply the inputs recommended by the plant clinic people. Purchase the inputs mentioned in the prescription

Ms Chitra: “I felt bad that I did not spray the prescribed pesticide to my rice planted in the earlier season. I sprayed the chemical advised by the input dealer. The pest was not controlled. These days I am careful to spray or apply the inputs recommended by the plant clinic people. I am also careful in following the proportion of the inputs to be applied for a crop problem. I do not go to buy the inputs but I give instructions to the person who goes to purchase them to get only the inputs mentioned in the prescription chit. If I have any doubt I verify with Kalaivani akka who is a plant doctor from our village or I will ask Sir”.

Mr Pazhanivel: “I have learnt so much through the plant clinic. I know the chemicals and other bio inputs that can be used for pest/disease/ fungal attack on crops particularly rice. Now I am aware that inputs should be used in proper portion; overdose or under dose of them will not give desirable results”.

Mr Surodanan: “I got sensitised to the harmful effects of indiscriminate use of the inputs. Thanks to the plant clinic; it plays a significant role in mitigating the crop loss”.

Mr Srinivasan: “I am glad that the plant clinic promotes the use of bio inputs; only when there is a need they prescribe chemicals which are not harmful to the environment”.

3.4. Other Benefits

That the plant clinic has come to occupy an important place in the lives of the farmers is obvious from the preceding pages. The accessibility to reliable, simple and effective crop advisories has tremendously increased the confidence of the farmer. She or he does not hesitate to visit the plant clinic or contact the plant doctor\the agricultural expert when faced with unique problems other than the common ones. It has been gathered through the interactions with the respondents like Mr Moorthy from Thirupazhanam, Mr Varadaraj and Mr Muruganandam from Vilangudi that there were few occasions when they had faced unique situations and they have been able to manage it successfully with the timely guidance from the plant clinic.

I was also able to get a reasonably good yield even though I used aged seedlings

Mr Moorthy who has been experiencing the benefits of plant clinic services in improving his livelihood mentions about one incident where he was brought to a situation of planting aged seedlings. He mentioned: “As I could not raise nursery for *kuruvai* season (2014) I bought seedlings from outside. When I showed the seedling to the agricultural expert he advised me to trim down the top of the seedlings and increase the number of seedlings planted per hill at the time of planting. Foliar application of Mono Ammonium Phosphate (one kg per acre) was recommended immediately after the planting. It was recommended to repeat the spray in an



interval of 20 days. The expert said this would avoid the problem of the aged seedlings and also would help minimise the loss. I did as suggested. I was also able to get a reasonably good yield even though I used aged seedlings”. He added to say that when the crop did not develop tillers properly he came to know it was due to nutrient deficiency and he was advised at the plant clinic to maintain water (minimum of 3-4 cms) level in the field during the grain formation stage and spray a minimum of one kg of Potassium Nitrate through foliar application. And, at a later stage it had mite attack; he could control it using the prescription provided by the plant clinic and it was a pleasant surprise for him when the yield was more than he expected.

I was contemplating of ploughing the land again when the roots got snapped while pulling the seedlings

Mr Varadaraj had a problem with his rice seedlings. He had raised a nursery (IR 20 Rice) and was getting ready for transplanting the same in the field (*kuruvai pattam* 2015). As he started to pull the seedlings the roots got snapped. He became anxious but after a while he contacted the agricultural expert for his advice. The prescription provided by the agricultural expert worked well and Varadaraj could carry out transplanting operation. He was glad that he could carry out the cultivation of IR rice as he planned; otherwise he would have ended up with delayed planting by a month.

Mr Varadaraj experience on this in his own words:

“I had planted IR 20 rice a variety during *kuruvai pattam* (2015). When I tried pulling the rice seedling for transplanting purpose the roots of the seedlings got sliced or cut. I was worried and I immediately contacted the agricultural expert at the VRC of Thiruvaiyaru. He told me to apply Gypsum to avoid root snapping while pulling. He also told me to wait for two days after applying Gypsum before pulling the rice seedling. I did as recommended by the expert and I could pull the seedling without any damage to the roots. I was contemplating whether to plough the land again when the roots got snapped while pulling the seedlings. Had I done it and resorted to start the process again it would have been late by one month. The yield would have been affected. Also, only my crop would have been still in the field while others would have completed the harvesting. So naturally my crop would have definitely attracted cattle. Fortunately, I listened to the expert and waited for a week after applying Gypsum to the field. The result was good. I did not incur loss. Thanks to the plant clinic”.

Due to timely action I could overcome the florets damage

Mr Muruganandam had encountered a different problem during *Samba* season when the rice florets got affected due to snow moisture. However, he could manage it with timely intervention of the plant clinic.

“During *Samba* season (2015) I encountered some problem with my rice crop during the florets formation stage. The florets started shedding due to snow moisture. Panicles were not forming well; the panicle growth was scanty and distorted. I sprayed Boron as per the recommendation of the plant clinic. Due to timely action I could overcome the florets damage. I am happy to tell you that I got 48 bags of rice per acre. The quality (weight) of the grain was good. I used to harvest less than 40 bags per acre before. My brother was surprised at the yield increase. He wondered how I was able to harvest that much quantity in spite of using lesser quantity of fertiliser”.

Guidance on general aspects

Plant clinic guidance extends to various other aspects of farming like fertiliser management, water management and right seed rate, and so on. All these aid in decreasing the anxiety of the farmer, increasing the yield of the crop and preventing unnecessary expenditure and time.

Fertiliser Management

Mr Manikandan’s sesame (planted during 2012) field almost looked empty; only one or two seedlings were



here and there. He did not have any hope on the crop and his mother also suggested ploughing the land and starting the process again. Fortunately, by carrying out proper fertiliser management based on plant clinic's guidance, he could not only revive the crop he could also get significant increase in the yield.

...almost lost our hope on our sesame crop (2012) planted in 2.25 acres. What we thought a lost crop yielded more. With good *ura nirvagam* (fertiliser management) there was improvement in the growth of the crop. I got 250 kilos more which means I got an additional income of Rs 20000/-.

Following is what Mr Manikandan from Punavasal Village had to say about his experience with the plant clinic in recovering his sesame crop by adopting good fertiliser management. "... We had almost lost our hope on our sesame crop (2012) planted in 2.25 acres. The plant population looked very bad. We could only see one or two plants here and there in the field. The field looked very bad that my mother suggested ploughing the land again. I also felt the same way. Fortunately, plant doctor and the agriculture expert from MSSRF visited the field. I followed the advice provided by the expert. With good *ura nirvagam* (fertiliser management) there was improvement in the growth of the crop. I applied the recommended quantity of Complex along with Urea, and potash and sprayed micro nutrient – Multiplex (5 kilo per acre).

Later, in the same crop I was also able to control insect attack caused by yellow leaf hopper and arrest flower shedding. I am not sure of the insecticide used for controlling the pest. I think it is Profenofos. I will have to check with the prescription sheet given at the plant clinic. What we thought as a lost crop yielded more than the previous years; I got 250 kilos more which means I got an additional income of Rs 20000/- (Rs 8000 per 100 kilo)".

It is learnt that many farmers like Mr Muruganadam, Ms Kavitha, Ms Sundaravalli, Mr Sundaramoorthy, Mr Shankaranarayan, Mr Pazhanivel and few more have been experiencing yield benefit by adopting proper fertiliser management as guided by the plant clinic.

I did not realise that seed (paddy) rate I was using was on higher side

Mr Natarajan was happy to share with us about the services of the plant clinic. He appreciates the plant clinic in taking care to provide guidance even on aspects like seed rate and number of seedlings per pit to be planted. There was increase in tillers contributing towards yield enhancement.

According to Natarajan, "The plant clinic is rendering a great service to help improve the productivity and the income of farmer. In many ways it helps us cut down farming expenditure. I did not realise that seed (paddy) rate I was using was on higher side. I was not aware of this. I used to sow 16 *padi* (16 kilo) of seeds for 100 *kuzhi*. Based on the advice of the agricultural expert I reduced the seed rate to 10 kilos and also followed the seed treatment. I reduced number of seedlings per pit- two-three seedlings. There was an increase in the number of tillers and the yield also increased from eight to 10 bags per 100 *kuzhi* to 12 to 15 bags. I have so far done like this for three times and I was happy with the yield".

Benefits of using right seed rate

Mr Muruganadam, who was once very dejected and felt hopeless says that he is no more dejected and feels helpless as he has the support and help of the plant clinic. He narrated many benefits he has experienced since the inception of plant clinic. One such is in using right seed rate. He talks about the indirect benefits of using right seed rate. Following is what Muruganadam has to say on the benefits of using right seed rate.

According to him: "The seed rate used per acre has reduced; earlier I used 60 kilos for 140 sq ft and now the same quantity of seed is used to plant 150 sq ft of land. There is seed rate reduction and at the same time area of



land under cultivation using 60 kilo of seeds has increased. This is because the germination is good; there is no wastage. As the tiller formation is good and stems of the seedlings are broad and thick, it is sufficient to plant five seedlings per hill instead of 10. Rice nursery does not face pest or disease attack that generally affects the rice seedlings. *Muraiyodu seiyumbodhu labam palavazhigalil varugiradhu* (When done in a proper manner the profit we experience are many)-seed rate is reduced, enhances germination, while transplanting the seedlings more area is covered for same seed rate, allows for thick and abundant tiller formation and improves productivity”.

I take their guidance not only for enhancing yield, to control pest/disease attack but also in selecting crop varieties for different agricultural seasons

Farmers like Mr Sivakumar, Kannan, Surodanan and many others pointed that they make use of the plant clinic services not only for enhancing yield, to control pest/disease attack but also in selecting crop varieties for different agricultural seasons.

Mr Sivakumar states: “I take their guidance not only for enhancing yield, to control pest/disease attack but also in selecting crop varieties for different agricultural seasons. I normally go by the agricultural expert's guidance in choosing the crop for planting in a particular season. For example it was suggested that I could cultivate *Auduthurai 36* and *ADT 43* rice varieties for cultivation during *kuruvai* season (2014) as they are short term crops and could be harvested soon. As per the recommendation I chose the same and cultivated. I was happy with the crop performance. In the following season (*Samba*) I am planning to cultivate *BPT 5204* and *vella ponni*”.

Mr Surodanan is very happy to share with us that he opted to cultivate *CR 1009* rice variety, a long duration crop based on the advice of the agricultural expert. He mentioned that farmers in his village were not in favour of cultivating this rice variety as it is not a fine variety and fetches lesser rate in the market. He was happy to tell us that after he started cultivating that rice variety and getting better income others have started to cultivate the same in their respective lands. In his own words: “Before, people used to hesitate to cultivate rice variety-*CR 1009*, a long duration crop. Now after seeing me many are opting for it. People used to hesitate as it is not a fine variety and fetches lesser rate in the market. It was based on his (agricultural expert) advice I started growing *CR 1009* rice variety in *Samba* season. We understood that this variety is less susceptible to pest and disease. If we properly carry out all the operation in *Samba* season one could get a yield of 45 to 50 bags (One bag = 60 kilos). Seeing me many have taken to planting this variety. It fetches a good rate if we wait for some time and sell in the market. We do not have to spend on inputs to control pest/disease. Finer rice varieties fetch good price but they are susceptible for pest/disease attack”.

...the expert at the plant clinic is always ready to help us

Mr Kannan appreciates the services of the plant clinic and the people offering their services. He was please to share with us how the plant clinic extends its help in all possible ways. He is happy that he can get guidance even on the selection of crops for cultivation. He says: “If we seek guidance /suggestions the expert at the plant clinic is always ready to help us. When I asked for his advice as to what rice variety I could cultivate I was suggested to go either for *CR 1009* or *Trichy 1* variety (during *samba* season). I opted for the former one. As summer crop I was suggested to cultivate red gram to reduce salinity of the soil and he also recommended to grow green plants such as *thakkai poondu* (Daincha) and *sanappai* (sun hemp) (which can also be used as green manure) one month before transplanting rice crop. We have been advised to practice this regularly as it would maintain/enhance soil health and this also would help reduce expenses. As suggested I have sown *sanappai* in my field”.



Yield and grain quality character improvement

From the preceding pages it can be seen that the adoption of timely preventive and control methods of pest/disease and judicious use of inputs at appropriate stages of crop growth greatly contributed to risk reduction and decreased cultivation cost. Many also reported yield enhancement. A majority of the respondents (like Varadaraj, Kavitha, Muruganandam, Shankaranarayan, Chitra, Chidambaranathan, Marudammal, Pattu, Kannan, Marudammal, Surodanan, Pazhanivel, Venkatesan, Chakravarthi and many others) have such confidence in the plant clinic that they carry out their agricultural activities (From crop selection, nursery raising to transplanting and throughout the cultivation of the crop) based only on the guidance of the plant clinic. They were happy to share with us that by adopting good agronomic practices they could get enhanced crop produce. It may be pointed out here that some of the farmers encouraged by the yield improvement with less cultivation cost have been inspired to seek guidance of the plant clinic for grain quality characters improvement. Farmers like Ms Kavitha and Mr Shankarnarayan were very delighted to share with us that the merchant paid more than Rs 30 per bag as he was impressed with the quality of the grains.

Ms Kavitha and Mr Muruganadam elaborate the measures they adopted based on the guidance of the plant clinic and the result of the same.

I got more Rs 30-35 per chippam (Chippam=40 kilos) than the normal rate

Ms Kavitha recounts: “I decided to cultivate rice from last year (2015) instead of banana as there is no market for the latter. It is not economical. I fully followed the *parinduraigal* (advisories/instructions) of the plant clinic in rice cultivation. I reaped a good harvest of quality grains and the merchant was happy to pay me a higher price. I got more Rs 30-35 per *chippam* (*Chippam*=40 kilos) than the normal rate. Thanks to the plant clinic (*...nalla magasul kidaithadhu. Maniyum thiratchiyaga, nalla nirmaga irundadu. Viyabari nall vilai koduthar. 30-35 rubaikkumel oru chippathirku kidaithadhu. Payir maruthuva mugamdhan idarku karanam*).

Based on Sir's (agricultural expert from MSSRF) guidance I planted CR 1009 rice variety in my seven *maa* of land and KO 50 in .5 acre. To a greater extent I did as per the recommendation suggested at the plant clinic. Due to good agronomic practices I got a good yield of 170 *chippam* from seven *maa* of land. I got more yield than others in the village with less cultivation cost. While I got 15 *chippam* from 100 *kuzhi* (300 *kuzhi*=one acre) the others got between 10-12 *chippam*. The tiller growth was exceptionally good that we found it difficult to hold the stems of the crop while harvesting it. Based on my request they gave me advisory for obtaining good grain quality characters which I adopted; the colour and the quality of the grains were excellent. I harvested the crop before it got completely dried up and there was still some dampness or moisture. *Nel sidaravillai* (There was no shattering of grains). The only thing which I did not do was seed treatment. Before I could do it, the rice sowing machine had already reached my field. (Rice nursery was prepared using rice sowing machine). So I could not do it. However, later I applied the necessary prescribed bio inputs in the nursery field.

I irrigated the land at the right time and in a proper manner. I applied/sprayed the inputs as per the specifications of the plant clinic. Balanced application of fertilisers reduced the cost involved in cultivation. On the 22nd day I transplanted the rice seedlings. After 15 days of transplanting I applied DAP (3 bags) and Urea (1 bag) as basal application. On the 30th day I used the prescribed weedicide and the weeds got controlled. Then I applied the necessary *uram* (fertilisers). After second weeding I applied Urea, Potash, *Kurunai marundhu* and neem oil to the field.

The rice nursery was affected by *ilai pen* (Thrips) and later the rice crop was affected by *kuruthu poochi* (stem borer) and *ilai karugal* (leaf blight) but I did not face any yield loss as I followed crop advisory given at the plant clinic; the disease/pest got controlled soon.



To manage rodent problem in the fields it was suggested to put goat/sheep dropping on the edges of the field bunds, the smell of which would keep rats away. It worked in my field and many others are using this method to manage rodent problem”

Mr Muruganandam narrates: “The first thing which I learnt from the plant clinic is the advantages and benefits of seed treatment using bio-inputs. Until 2012-2013 I did not have knowledge of seed treatment. Subsequently, I became aware of the balanced application of fertilisers, the need to take preventive and management measures of pest/disease attack, measures to be taken to improve the grain quality and enhancing the crop yield.

Fertiliser management is another aspect which I learnt through the plant clinic. This has not only helped me to improve crop yield but it has also helped in reduction of input cost. Based on the advice of the plant clinic I apply fertiliser on the 12th day in the nursery field. They say it is sufficient to apply five kilo of Urea and eight kilo of Potash for 60 kilos of seed. *Munbu kuthu madipaga poduven* (earlier, I used to apply inputs based on rough estimation). Before transplanting I used to go in for basal application of one and a half bag of Complex per acre. At the plant clinic I was told to split the quantity into three parts and apply at three different periods of time- one dosage of 25 kilo just before transplanting, another dosage between eight to 10 days after transplanting-so that the crop can absorb it well and enable good growth during the vegetative stage. Then, the next application should be within 25 days. They tell us to add extra five kilos at this time which would enable equal growth of panicles (*thoor vedithu simbu vlarchi samamaga vara*). In order to avoid chaffy grains and for increasing the quantity and quality of grains, foliar application of Potassium Nitrate (one kilo mixed with 200 litres of water per care) during flowering and grain formation stage is recommended. I have come to know that this would enhance grain yield by decreasing the panicle sterility. We are also advised to carry out spraying early in the morning or during late afternoons.

I had planted *Adisaya Ponni* (Deluxe Rice) in my field in *Thaaladi* season in 2015. After 35 days of transplanting it was affected by *ilai pen* (Thrips); The leaves (*Thogai*) turned yellow for which I applied 400 ml of Chlorpyrifos per acre. I saw the pest through the microscope. Then there was continuous rain; so I was advised to apply 10 kilo of Zink Sulphate per acre. At every stage I followed the prescription of the plant clinic. I got 48 bags of paddy from one acre; the normal yield used to be less than 40 bags. The quality (in terms of grain weight and lustre) of the grain was also good. Thanks to the plant clinic”.

It was a periya saadanai (big achievement); no one has got this much; the normal average yield from 100 kuzhi would be around eight to nine bags but I got 13

For Mr Shankaranarayan, it was a moment of joy when he got Rs 1, 01900 by selling paddy harvested from 2.5 acres. He says that according to him it is a great achievement; he went and shook his hands with the agricultural expert and plant doctor when he got this huge profit. He was proud to mention that the paddy merchant paid him immediately as he was impressed with the colour and quality of the grains.

Mr Shankaranarayan: I am very happy to share with you that for the first time in my life I could get cash earnings of more than a lakh (Rs 1, 01900) which I got after selling the BPT rice grown (during *thaaladi* season, 2015) in less 2.5 acres of my land. I was so excited and happy that I shook my hands with Sudhakar sir and Murugan sir as I harvested 105 (60 kgs per bag) bags of rice. It was a *periya saadanai* (achievement); no one has got this much; the normal average yield from 100 *kuzhi* would be around eight to nine bags but I got 13. Normally, BPT rice variety would not yield much if grown in *thaaladi* season. But I got good yield as I followed meticulously the advisories given at the plant clinic. I also sought their advice to improve grain characteristics. The colour and quality of the grain was good that the merchant bought it and paid me (Rs 1, 01900) on the spot.



I got a good yield of *adisaya ponna* rice cultivated in *kuruvai* season also. I got 12 bags from 100 *kuzhi* as against the normal average yield of eight to nine bags”.

If one is careful in following disease, water and fertiliser management he or she can get this much yield

Mr Sammandam normally cultivates sesame as a summer crop; he is extremely happy about the increase in the yield and the improvement in the quality of the seeds. He is of the opinion that he has been able to get good yield as he meticulously followed the advisory prescribed at the plant clinic. He stated that “I did seed treatment (2014) (the sesame crop was affected by Wilt in the previous year (2013)) as advised by the plant clinic and it was effective in controlling the disease in the sesame crop. The plant clinic also guided me in water and fertiliser management. I used to harvest 80 kilos from one acre of my land and now I harvest three-four quintals -four times more than the previous times. It is a huge treasure-*idhu oru periya pudaiyal*. One kilo of sesame is sold at Rs 100-see the difference between 80 kilos and four quintals! If one is careful in following disease management, water and fertiliser management he or she can get this much yield”.

More voices of farmers on crop yield

We have also heard many farmers telling us about gain in the crop yield. To cite few examples:

Mr Pazhaivel: “Now-a-days I am getting good yield as I am able to take appropriate action at right time. I am getting 14 to 15 bags (one bag = 60 kgs) of BPT rice from 100 *kuzhi*; before the plant clinic intervention it used be nine to 10 bags. In *motta* (bold) rice variety the yield has increased from 11 to 12 bags to 17 bags”.

Mr Prabakar : “In general, there is yield improvement now. Earlier I used to harvest eight to ten bags of rice; now from the same 100 *kuzhi* I get 12-15 bags of yield”.

Mr Sammandam is also glad to share with us that his rice yield is 40 per cent more than the previous years. “Once I started following the recommendation given at the plant clinic there is significant yield improvement. Earlier I used harvest 30 bags (60 kg = one bag) of paddy now it is between 45 to 50 bags. It is 40 per cent more than the previous harvests. There was no pest/disease attack. The growth of the crop was uniformly good”.

Mr Govindaraj: “After adopting the recommendations and prescriptions provided through plant clinic there is improvement in crop yield. Earlier I used to harvest 30 bags of rice in an acre and now from the same area I get more than 36 bags”.

Prior to the intervention we used to harvest 10-12 *marakka* (1 *marakka*= 3 kilo) of black gram from 100 *kuzhi* (300 *kuzhi*=one acre) of land. Now it has increased to 11/2 quintal per 100 *kuzhi*. Similarly from 100 *kuzhi* of *vayal* we used to harvest six bags; now it has increased to 10 bags.

With less investment I got an excellent yield. I got a profit of Rs 35, 000 from banana harvested in 3.5 maa area of land

Ms Kavitha who was very happy with her rice produce both in quantity and quality wise also mentioned about the yield of her banana crop which she was cultivating before shifting to rice last year. She said she went to the plant clinic for the first time in 2014 when she had problem with her banana (G 9 variety) suckers planted in 3.5 *maa* (three *maa*= one acre) of land. She was guided to treat corms well. Based on their recommendation she applied *Pseudomonas* and *Trichoderma Viride* around the corm/suckers; she also sprayed MAP for good growth of the crop. The yield was good and she got a good profit. She says, “I did not spend much on the fertilisers. With less investment I got an excellent yield. I sold it for a good price (*Chedi ookkamaga, thelivaga irundhadu. Selavu kammi. Labam kooda kedaichadhu*). I got a profit Rs 35, 000 from banana harvested in 3.5 *maa* area of land”.



Economic improvement and how it helps the household

While the respondents talking about overall increase in crop produce as a result of the plant clinic intervention in their villages they have also pointed out about the economic improvement of the household. It could be gathered through discussions with them that the improved economic condition has to an extent contribute to ease the financial situation of the households. At least, they do not borrow as they used to do it before. For few it has helped them to clear their debts. They are able to cope with household expenses without much tension and strain. Few like Mr Chidambaranathan have invested the profit wisely so that it will fetch him income when needed.

Bought goat with the improved income from banana crop

Mr Chidambaranathan: “My wife and I are happy about the improvement in banana crop yield. With the earnings from banana we have bought goats worth Rs 15000. Whenever there is a demand for liquid cash we sell one of our goats. My wife compares goats to ATM card as we get instant cash by selling a goat. Last year I did not take the plant clinic advice seriously. I will be very careful hereafter. I will consult the concerned person and according to the experts or plant doctors' guidance I will do my agriculture”.

...we have been able to buy a goat and a cow without difficulty

Ms Ramamirutham: “There is improvement in our income from the land and thus we have been able to buy a goat and a cow without difficulty. This will enable us to earn additional income”.

kadan vanguvathu illai ippo. iduve periya vishayam; oralavu padhai therigirdhu (I do not borrow money these days. This is a significant development. I have a direction now)

Mr Pradapan: “The primary reason for cultivating rose is that we can get some income on a daily basis. Our daily income from the sale of rose flowers has definitely improved due to plant clinic intervention. This is because of the enhancement in quality and quantity of the flowers. I do not borrow money these days. I am not falling into debt trap. This is a significant development. I have a direction now (*kadan vanguvathu illai ippo. iduve periya vishayam; oralavu padhai therigirdhu*). I have sufficient earnings that can take care of my daily household expenses and cultivating expenses for next crop. I am happy to see good quality flowers in my field. There is improvement in the quality and quantity of the yield. The colour of the flowers is striking and the petals are arranged beautifully. Earlier it was not the case. The petals were loosely arranged and also colour of the flowers was not up to the mark. So the earning from such flowers will be less”.

Mr Shankaranarayanan: “The improved income due to enhanced crop yield helps me to educate my daughter without any difficulty. I have also cleared all my debts. Thanks to the plant clinic!”

...we used to get around Rs 400 per day; now it is nearly Rs 1000 which is 11/2 times more than the earlier days. I am paying school fees with out borrowing from others. We are getting sufficient income to meet our household expenditure

Mr Venkatesan, Mathur: “Our family (my brother and I) have benefited a lot through the plant clinic. Our household income has improved now. These days my rose crop yield good quality flowers. The yield has also increased. We are getting increased income now. As I told you we can earn income on daily basis by selling the flowers in the market. As the quality of the flowers (size and the colour) is good it fetches better rate. Before the plant clinic intervention we used to get around Rs 400 per day; now it is nearly Rs 1000 which is 11/2 times more than the earlier days. We are able to run the family without difficulty. I am able to take care of my son's education. I am paying school fees without borrowing from others. We are getting sufficient income to meet our household expenditure”.



Like Mr Pradapan and Mr Venkatesan, Mr Chakravarthi who also concentrates on rose cultivation narrates the improvement both in the quality and quantity of the crop and the resultant economic gain to the household.

...there is substantial improvement in the yield and the income. I could conduct my daughter's wedding without borrowing money from outside

Mr Chakravarthi: “I can see improvement in rose yield ever since I started following the guidance and suggestions of plant clinic. Earlier the rose crop used to often get affected by *sar orinji poochi* (Mealy bug) which in turn used to affect the quality and quantity of the yield. Now I am able to control the damage caused by *sar orinji poochi* due to timely application of right remedial measures. I am unable to give you the exact economic profit (due to market fluctuation) but I can surely say that there is substantial improvement in the yield and the income. I could conduct my daughter's wedding without borrowing money from outside. I am able to manage household expenses without difficulty”.

...able to educate my three children without borrowing money for interest

Mr Muruganandam: “My financial position is better now. Due to good crop performance and improved earnings I am able to educate my three children without borrowing money for interest. I used to borrow money for interest to pay fees and to meet other educational expenses”.

3.5 Farmer to Farmer Extension

It is obvious from our field work that not all the households in a village visit the plant clinic for getting crop advisories or any other farm related guidance. However, it has been learnt through the interactions with the respondents that the plant clinic users share the crop advisories with their relatives and friends. And, it is also gathered from the respondents that their neighbours/relatives are also motivated to adopt the same in their respective fields to handle their crop problems as they are able to see the positive results. In this manner the plant clinic services reaches others indirectly.

...farmers without visiting the clinic also get benefited by the services of plant clinic if not directly

Vadivel from Vinayaganallur feels that farmers without visiting plant clinic can also get benefited. He states: “Plant clinic is regularly held in our neighbouring village, Vilangudi. I am one of the regular visitors to the plant clinic. In our village there are 100 households; at least 20 persons come to the clinic for crop advice. By observing us following certain remedial measures to control pest/disease or to improve the performance of the crop yield in our fields other farmers from neighbouring fields adopt the same if they also have similar problems in their crops. So without visiting the clinic also farmers get benefited by the services of plant clinic if not directly. As they see the agricultural expert visiting the fields of farmers and providing advice they confidently adopt the prescription followed by me and other farmers visiting plant clinic”. Mr Venkatesan from Panaiyur also has a similar view as that of Mr Vadivel when he says: “Minimum 15 persons attend the clinic and benefit. Some may not directly benefit from the clinic but they get benefited through the other farmers who visit the clinics and adopt the recommended advisories. For example when sesame was affected by *Aswini poochi* (Aphid) the entire village followed the recommendation provided at the plant clinic. The pest got controlled and the farmers were happy”.

They were motivated to adopt when they saw me carrying it out in my affected sesame field

Mr Govindaraj who could control *Aswini* attack on his sesame crop is happy that few others from his village could also control the pest using the advisory of plant clinic. Other farmers namely Mr Sammandam, Mr Sekar and Ms Rukmai also adopted the recommendation to control the pest (*Aswini*) in sesame cultivated in



their respective fields. They were motivated to adopt it when they saw me carrying out the remedial measures in my affected sesame field. I know they followed the prescription correctly. They were able to arrest the crop damage to a great extent because they adopted the right remedial measures before it was too late.”

...not only am I benefiting but others are also getting benefited indirectly

Mr Pradapan is one of the farmers happy to share with us that there are several others who are benefiting indirectly through him and the other users of the plant clinic services. According to him, “By attending the *payir maruthuva mugam* (plant clinic) and adopting the guidance not only am I benefiting but others are also getting benefited indirectly. They are encouraged to follow the remedial measures when they see me doing it and getting benefited by it. They are using micronutrients to their crop these days. I can see healthy and quality flowers in the fellow farmers rose fields. Earlier it was not the case. The petals were normally loosely arranged and also colour of the flowers was not up to the mark. I am glad to see good flowers in my field”.

Mr Sammandam from Varagur also shares the view of Mr Pradapan. He says, “I am satisfied with plant clinic activities. I have benefitted a lot. Having seen me adopting crop advisories of plant clinic and getting good yield, my relatives and neighbours have also been encouraged to follow the advisories provided by plant clinic; they have experienced positive results. Normally, the farmers would be curious to know if they see someone using any input from a new container. Looking at the container they would be interested to know the input details and for which it is used. Like this the message or advisory spreads to the other farmer also. Services of plant clinic should be continued for the benefit of the farming community”.

Mr Srinivasan pointed out that “... by observing me, some of my fellow farmers also sprayed the insecticide whose black gram plants were also affected by *manjal themal noi* (yellow mosaic virus). They were also happy with the result”.

Mr Shankaranarayan says that after observing the crop performance in his field his brothers have also started attending plant clinic. Similarly, Mr Chelladurai mentioned that looking at him doing seed treatment and its benefits several farmers have started doing it.

Ms Thilakavathy is proud to mention that she has been able to share her knowledge on remedial measures for beetle attack on coconut tree with others.

“I have helped few of my villagers (to carry out the remedial measures) whose coconut trees were damaged by beetle attack. I told them the remedial measure and they followed it. They are happy with the results. I still remember the recommendation and prescription for controlling the beetle and for the growth of the tree for better yield”.

3.6 Constraints in adopting crop advisories

Our interactions with farmers show that most of them adopted crop recommendation and the results were good. At least they did not face any loss, mentioned some respondents. However, we came across few respondents who could not do as recommended by plant clinic either due to shortage of labourers or money to buy the prescribed inputs. There are few who said that they could not carry out the prescribed advisory due to non availability of inputs particularly bio inputs and personal reasons.

Mr Govindaraj from the village of Vilangudi is one of the many farmers who does farming based on the guidance of plant clinic. He operates seven acres of land which includes both owned by the household and also leased in land. Though he enthusiastically does every thing according to the prescription of the plant clinic he is not able to carry out seed treatment.



He says, “I had sought the advice of the agricultural expert at plant clinic for nursery rising of rice crop. I had used 90 kilos of seeds for three acres. Based on the expert's guidance I applied 20 kgs of DAP and 10 kgs of Urea as basal application. But I could not do the suggested seed treatment because I did not have money at that time to buy the inputs. However, later I applied bio fertiliser mixed with farmyard manure to the land. I also do not generally get time to do seed treatment. So I go for this type of direct application of bio fertiliser to the land”

Ms Viji hailing from Panaiyur Village is another person who felt sad because she could not do banana corm treatment as suggested by the agricultural expert before planting as the household did not have the money to buy the necessary inputs to do the treatment.

Mr Venkatesan from the same village as that of Ms Viji normally consults the agricultural expert of MSSRF who is also present during plant clinic sessions for agricultural related issues; he feels that he should have taken some more effort to organise necessary labour and to find time to do corm treatment so that he could have reaped a good harvest.

...I feel bad that I could not carry out seed treatment (using BHC powder and erumbu marundhu) for my banana crop. It was mainly due to non availability of labour and lack of time

Mr Venkatesan pointed out that “...However, I feel bad that I could not carry out corm treatment (using BHC powder and *erumbu marundhu*) for my banana crop (planted in Adi (July-August) *pattam*) as recommended by the plant clinic. It was mainly due to non availability of labour and lack of time. I am facing the consequence now-the crop has been affected by some disease. Otherwise I could have reaped a good harvest. It is three months old now (October 2014). The banana is now fetching a very good price in the market. It is a lesson for me. I should have taken little more effort though there was non - availability of labour and done the corm treatment and other related recommendation of the plant clinic”.

... due to lack of helping hands and due to certain family and social obligations unable to carry out certain crop advisories

Ms Azhagammai: “While I feel we are fortunate to have the services of plant clinic there are few occasions when I am unable to carry out certain crop advisories provided by the agricultural expert/plant doctor; it is due to lack of helping hands and due to certain family and social obligations. I have to attend functions like marriage and other life cycle rituals; I cannot avoid them. The social obligations sometimes hinder my work in the fields. I am unable to do as prescribed by Sudhakar Sir (Agriculture expert from MSSRF) and plant clinic doctor. For example I could not plant sugar cane during the right planting time. It was pointed out that if one wants to go for early crop it should be done during January or if one wishes to carry out the late planting it should be done during May and June. While I could plant in a part of the field during the right season I could not do it for the remaining land as there were social obligations to attend to. I had to go for weddings of our relatives. The sugarcane planted in May month was good. I carried out the recommendations to the extent possible but could not sustain it in the *maraudambu* (ratoon crop) crop”.

Azhagammai continues to say that she did another mistake (earthing up of sugarcane field at wrong time) which she narrates in her own words.

I realise that we should not carry out the agricultural operations depending on our convenience and whims fancies

Ms Azhagammai: “I also did another mistake. There was lot of weeds in the sugar cane field (2014). I employed labourers for weeding. Hand weeding had cost me a lot. I had to spend nearly Rs 5000 per acre. I did not apply weedicide. Another blunder we did was earthing up the sugarcane field during the formation of



tillers. Sudhakar sir specifically advised me not to do earthing up during tiller formation stage. As against this, after the weeding operation was over (30 days after planting) my husband completed the process of earthing up which had cost us heavily. This resulted in rotting of the side branches of the crop and tiller formation was bad. In spite of me reminding my husband of what Sir had told us about earthing up and told him to wait, he went ahead with it. We made a mistake and faced the consequence. Unfortunately, for some reason I could not contact the agricultural expert or the plant doctor to get advice from them at that time. Any way, we have learnt a lesson and we will not repeat the mistake. Experiences teach us. We have to be careful to plant the crop during the right season and follow the guidelines of the plant clinic. Last year (2013), I did as advised and guided by Sudhakar Sir and the sugar cane yield was good.

Hereafter I would be careful to plant the crop in the right crop season and do as recommended by the plant clinic. We learn through our mistakes. Now, I tell other farmers that they should not do it (earthing up) before 90 days of planting sugar cane crop”.

I would have got higher yield had I followed all the instructions of the expert

Mr Vadivel shared with us that “For the first time I went for cotton (180 days duration) cultivation this year (June-July 2014). I took the advice of agricultural expert from the plant clinic before I decided to plant cotton in my field. I was satisfied with the yield of 10 quintal per acre. I would have got higher yield had I followed all the instructions of the expert; for example, he advised me to do topping/nipping of the crop after 40 days of sowing which I did not do. There was not sufficient spacing between the two crops which affected the yield. (The expert said that the spacing should be 120 cm *60 cm). I was told that one could get 15-20 quintals from an acre”.

Bio Inputs not available - could not do seed treatment

Mr Pazhanivel, an enthusiastic farmer residing in Varagur Village follows meticulously the recommendations of plant clinic. He also makes sure that his fellow farmers and the land owners (where he works as an agricultural wage labourer) follow the advisories properly. He pointed out that he heard other farmers telling that they could not get the necessary bio inputs to apply to the field as per plant clinic prescription. Then I immediately contacted Murugan Sir (plant doctor from the VRC of Thiruvaiyaru). He gave me addresses of few shops in Thiruvaiyaru where the said inputs would be available.

He says, “Bio-inputs should also be made easily available in the village. *Pseudomonas* is not available here. It is very useful and effective in preventing certain diseases. It would be useful if it is made easily available to the farmers”

Getting bio inputs such as Trichoderma Viride, Pseudomonas, Phospobacteria and so on is difficult

Mr Venkatesan from Panaiyur who said that he could not do corm treatment for want of labour and time stated that he could not do seed treatment for sesame because he could not get necessary bio inputs. “It was suggested to me to apply *Pseudomonas* and Phospobacteria before broadcasting of sesame seeds in the field. As sesame cultivation affects the soil fertility this was recommended to prevent the same. However, I could not do it as the bio inputs were not available. Getting bio inputs such as *Trichoderma Viride*, *Pseudomonas*, Phospobacteria and so on is difficult here”.

Crop advisories not practical

It may be of interest to mention here that there are one or two respondents who think that plant clinic advisories are either impractical or they are all chemical based. So farmers like Mr Vijayakumar from Rajendiram are not



comfortable using the crop advisories of the plant clinic. However, he says that he encourages other farmers in his village to make use of the plant clinic services. He also mobilises farmers to participate in the plant clinic.

... I am hesitant to do whatever is being suggested or prescribed at the plant clinic. This is because elders at home may not like it

According to Mr Vijayakumar “Conducting plant clinic in our village is a useful intervention; it is a great service to the farming community. However, I am hesitant to do whatever is being suggested or prescribed at the plant clinic. This is because elders at home may not like it (*Chinna pulla vellama veeduvandu seradhu enbragal*). I have heard people in our village making fun of Sridhar (plant doctor from this village) doing agriculture different from traditional practice/method”.

I am gradually coming out of the hesitation. I assumed that the prescriptions given at plant clinic are mostly chemical based

Mr Vijayakumar adds to say, “I am gradually coming out of the hesitation. I like to use only organic inputs to my field. I assumed that the prescriptions given at the plant clinic are mostly chemical based. So, though I used to be present in all the sessions of plant clinic and encouraged people to participate I did not use the service for a long time. Now my attitude is changing; I understand that the agricultural expert at the plant clinic prescribes only safe chemicals; only when the crop damage is very severe chemical pesticides are advised”.

3.7 Advantages of E Plant clinic

Providing crop advisories as SMS through mobile phones of the plant clinic users is greatly appreciated by the respondents. Farmers like Ms Kavitha, Ms Sundaravalli, Mr Muruganandam and Shankaranarayanan mentioned that they find receiving crop advisories as SMS is useful. According to them, one can always verify the advisory whenever they get any doubt or help other farmers by sharing the information with them. As farm women and men normally carry their mobile phones they feel it is useful to show it to the input dealer while buying the prescribed inputs. While applying the inputs to the crops they can check the proportion of the inputs to be applied.

3.8 Plant Doctors/Agricultural Expert very Helpful and Supportive

Plant doctor and the agricultural expert are ever ready to help us

Plant clinic intervention is welcomed by all the respondents and they consider themselves as fortunate as they have access to crop advisories for all types of problems. Timely sessions conducted during important stages of crop growth are really helpful and useful to farm families. A greater majority of the respondents pointed out that plant doctors and the agricultural expert are ever ready to help them. Farmers including women feel free to approach plant doctors and the agricultural experts for any crop related doubts. They are willing to help farmers and give guidance. The respondents are of the view that plant doctors and the agricultural expert and the staff from MSSRF are understanding and always extend their help to farmers. One of the respondents pointed out that farmers including women farmers feel encouraged to talk to plant doctors and agricultural expert about agricultural related issues not only during plant clinic sessions but also over the phone. Farmers seek clarifications and suggestions / advice if they have any doubt or problems regarding agriculture. Plant doctors and the expert visit the fields to assess the growth or disease/ pest attack levels and offer guidance. “The interesting point is that we do not go in search of them; they come in search of us to help us improve our livelihood (*engalai naadi vandhu solgirargal; nangal thedi povadhu illai*)”, stated one of the farmers from Thirupazhanam Village. The attitude and commitment of plant doctors and the staff of MSSRF encourage farmers to show more interest in doing agriculture.



The respondents speak highly of the role played by plant doctors like Ms Devaki from Vilangudi, Ms Revathi from Thirupazhanam, Ms Kalavani from Pasupathi koil, Mr Sridhar from Rajendiram, Mr Sarangapani from Varagur and Mr Arunachalam from Pasupathi koil. Farmers feel relieved as they have access to plant doctors and also the agricultural expert from the VRC of Thiruvaiyaru. Women and men respondents mentioned that they would approach plant doctors for any guidance regarding pest/disease problem. They would help them in identifying the crop problem and give guidance to control pest/disease or to take preventive measures. Plant doctors would contact the expert for confirmation before suggesting any recommendation. The respondents mentioned that they also contact the agricultural expert through mobile phone or Farmers' Helpline Service.

Plant doctor and the expert visit the fields

The respondents think that plant doctors and the agricultural expert are very sensitive to their problems and are very patient in answering all their queries. They regard field visits by plant doctors and the agricultural expert as a very good gesture as it really enhances the confidence level of a farmer. One of the farmers from Mathur mentioned that plant clinic and farmers are like a family (*oru kudumbamaga irikkirom*). He says he feels comfortable in seeking the help of the agricultural expert and plant doctor.

My Attitude changed. They render their service without looking at their watches. They consider our lands as their own and guide us well. I do not know in what manner I am going to repay them for their service

The approach and the commitment with which plant doctors and the agricultural expert from the VRC carry out their work has changed the attitude of over confident persons like Mr Sundaramoorthy who used to think he knew everything and was well equipped to manage his crop problems. Due to this attitude he did not go to plant clinic; however, soon he found himself seeking the guidance of plant clinic for all his crop related matters. This is because once when the agricultural expert along with the plant doctor visited the land of his brother-in-law to assess the damage of rice blast also took care to point out at the similar attack in the neighbouring field which happened to be Mr Sundaramoorthy's. Until then he did not realise that his field had been affected by rice blast. He narrates the incident- "Once he (the agricultural expert) along with plant doctor had come to see my brother-in-law's field (which is adjacent to my field) affected by *kulai noi* (rice blast) to assess the extent of damage. I was not present when he had come to the field but later I was told that the agricultural expert looking at my field pointed out that it was also affected by *kulai noi*. He did not stop with that; he also told my brother-in-law to inform me about it and carry out the remedial measures to control the pest. Somehow this incident and Sir's gesture created an impact on me which changed my 'I know it all' attitude. The agricultural expert and the plant doctor could have easily confined their guidance to the farmer whose field they had come to observe! I did not realise that my rice crop was affected by rice blast until my brother-in-law brought it to my notice. Gone are the days when I used to carry out agricultural activities on my own. These days I take the guidance of plant clinic for all crop related matters".

He continued to say "... They render their service without looking at their watches. They consider our lands as their own and guide us well. I do not know in what manner I am going to repay them for their service".

Help is available at our door steps

Govindaraj is very happy and feels motivated to carry out farming work without anxiety these days as he has the help from Ms Devaki, plant doctor residing in his village. Not only that, he can also get the advisory or guidance from the agricultural expert from the VRC of Thiruvaiyaru through phone.

Govindaraj says: "Help is available at our door steps. I can easily contact plant doctor Ms Devika from my village and the expert from the VRC for any help. Plant clinic is of great use and help to us. We can contact the agricultural experts if we need any guidance and advice through the phone or go to the VRC in Thiruvaiyaru.



We do not have to wait for the next plant clinic session. We call the VRC or approach Ms Devika not only to seek guidance for remedial measures for crop related problems we also seek their help if we do not get prescribed inputs in our area. They would guide us about the possible places of availability of the input recommended. In case we do not get the prescribed input they would suggest alternative chemical or biological inputs. Once, when I could not get the prescribed chemical - Dicofol, I contacted Sudhakar Sir over the phone who was in Chennai at that time. He suggested similar kind of chemical produced by a different company. I bought it and applied it to the crop. It was effective”.

Similarly, we have heard farmers talking about the helpful nature of plant doctors like Mr Sridhar, Mr Arunachalam, Mr Sarangapani and Ms Revathi. Ms Pattu, a farm woman from Thirupazhanam pointed out to us that she is encouraged to do her farming activities as she has the help from Ms Revathi and she said “I will be eagerly looking forward for her (Revathi) visit always”.

Ms Kavitha from Pasupathi Koil spoke highly of the service of plant doctors from her village. According to her, “...Plant doctor Mr Arunachalam from our village is very helpful. I take his guidance. He would tell us if any crop is affected by a pest or disease in the beginning stage itself. I showed him my egg plant and he said it had been affected by *kondai poochi* (stem borer). He explained to me by tearing the stem of the egg plant. Sometimes he would also contact the agricultural expert in the VRC of MSSRF for clarifications and suggestions”.

Mr Sammandam from Varagur feels confident about carrying out his agricultural operations as he has the help of Mr Sarngapani, a trained plant clinic doctor from his village. He says he and other villagers contact him for any help or assistance when they get doubts regarding cultivation of crops. He helps farmers in getting guidance or remedial measures for crop related problems by contacting the agricultural expert at Thiruvaiyaru VRC. Some times he also helps them to contact the agricultural expert from the VRC through the phone.

Got advisory through Help Line service

Kavitha pointed out that if there is no plant clinic session and if they need help related to crops the farmers have access to the agricultural expert's advice through the Farmers' Helpline service and also Mr Arunachalam, plant doctor in her village. She added to say “During December 2015 the rice crop in my land had some disease/pest attack. I did not know disease details. So I called the Helpline of the VRC to get advisory to control the pest/disease. When I explained to Sir the symptoms the agricultural expert said that it was due to *pachai puzhu thakkudal* (green horned caterpillar) attack. He prescribed spraying of Cartap Hydrochloride 300g and sticking agent 100g evenly all over the field. The pest got controlled”.

Ms Sundaravalli mentioned that she would contact the agricultural expert if she needs guidance or crop advisory. She called the VRC of Thiruvaiyaru to get advice of the agricultural expert when her black gram crop had pest attack: “Recently (March,2016) when I noticed some pest/disease attack I called the VRC and explained to Sudhakar Sir (the agricultural expert) how the crop looked. He said it was due to Prodenia pest. He recommended application of jaggery syrup (after boiling it to become paste like liquid) mixed with Mythomil and rice brawn along the farm bunds. I did as prescribed by sir and the pest got controlled”.

Crop advisory through SMS

Ms Kavitha also mentioned about another incident; when her neighbour's black gram crop had dried up she contacted the agricultural expert over the phone for advice and he sent her the advisory through SMS mentioning that it was due to *ver poochi* (wilt) and recommended physical removal of the affected crop from the land. Ms Kavitha's neighbour did as advised and his crop grew well. He was also satisfied with the yield.



He (the agricultural expert from MSSRF) would take care to provide right recommendation when he gets queries through phone. He verifies with farmers about various aspects of crop before prescribing any advisory

In order ascertain the cause and nature of the problem the agricultural expert takes sincere efforts when he gets phone calls from farmers. He gathers information by asking different questions on the problem of the plant to ascertain the cause and offer solutions to the problem. He would ask information on various aspects such as colour, whether it is drooping, curled up or wilting and so on. He would also tell the concerned farmer the cause for the problem and explains the symptoms and the remedial measures or preventive measures to be taken.

Govindaraj with great respect spoke about the sincerity of plant doctors/agricultural expert in helping farmers to improve their livelihood. He states: “When there was *kombu pachai puzhu* (Green horn caterpillar) attack on my rice crop I contacted Sir for advice. The leaves of the plant started wilting due the pest/insect attack. The leaves were sliced into pieces. As suggested by him I sprayed Cartap Hydrochloride (300 gram per hectare) along with sticky agent (100 gram) mixed in 100 litres of water. I could see the pest dying immediately after the spray. Whenever we call him (agricultural expert) for advice or clarifications he would recommend only after verifying the condition of crop like how does the leaves look, whether there is a cut or does it droop or curled up and so on. He would take care to provide right recommendation”.

Help of plant doctors and the VRC's extend beyond providing crop solutions

It was heartening to learn that plant doctors and the staff from the VRC of Thiruvaiyaru do not restrict their role only to provide crop solutions. Farmers contact them in case they do not get the required inputs prescribed by plant clinic. Farmers are guided about the possible places of input availability in the nearby areas. The following few remarks of the respondents would suffice to understand this aspect.

...they guide us in getting necessary inputs

Mr Pradapan appreciates highly of the services of the plant clinic and the VRC of Thiruvaiyaru in helping the farming community. He pointed out that he can contact the agricultural expert and other staff from MSSRF at any time not only for getting crop advice but also seek their guidance as to where one can get necessary inputs prescribed for the crops. “When I told them that I could not get *Trichoderma Viride* they guided me to a place where I could buy the same. Similarly, on two other occasions I could buy *Pseudomonas* florescence with their help. So, their help extends much beyond providing crop solutions” pointed out Pradapan.

Mr Shankaranarayan: “plant doctor and the agricultural expert do not confine to giving crop advisories they help us in other ways also. In case we do not get required inputs for the crop/land they would guide us to possible places of availability. Once when I did not get the needed plant protection chemicals for my *kuruvai* crop, plant doctor after enquiring in Thanjavur gave me the address of an input dealer in the same town. I immediately went to Thanjavur and got the inputs”.

Mr Pazhanivel, as we have mentioned earlier makes sure that even his other fellow farmers follow the guidance provided by the plant clinic. He will also verify by going to their fields. He mentioned that “On few occasions they (other farmers) told me that they could not get the necessary inputs to apply to the field as per plant clinic prescription. Then I immediately contacted Murugan Sir (plant doctor from the VRC of Thiruvaiyaru). He gave me addresses of few shops in Thiruvaiyaru where the prescribed inputs would be available. The farmers were happy that they could get the inputs on time”.

He adds to say, “In case of any doubt in using the inputs I do not hesitate to call MSSRF staff or Mr Sarangapani, plant doctor in our village and they are very prompt in responding and clearing my doubts”.



Ms Chitra: “When I could not get Omite in the local shop I asked Kalaivani *akka* (plant doctor) as to where I could get the pesticide. She gave me an address of one Navin shop in Thanjavur. I sent one of the persons working in our farm to get it from Thanjavur. Now whenever I need to buy any inputs from the local dealer I give clear instructions to the person who goes to get the same that he should buy only the input mentioned in the prescription chit and not the other inputs available with the dealer”.

Arranged to get necessary inputs

Mr Nagaraj is one of the many farmers who appreciate very much the services of plant clinic and also helping attitude of persons involved in the plant clinic work. He says:

“First plant clinic was held in our village during the middle of *thaladi* season (2012) when diseases like *ilai karugal* which is locally referred as *manjal noi* (bacterial leaf blight) was widely prevalent in the paddy fields. Some of us were relieved that we could get proper guidance and right remedial measures. But the recommended inputs to control the diseases were not available. When I pointed out about it to the agricultural expert from the VRC of Thiruvaiyaru (who is also present during plant clinic sessions) through phone, he took immediate steps to arrange for the inputs through the concerned company people. So, we could minimise or arrest the damage to the crop to a great extent. The disease was controlled”.

Farmers pay tribute to plant clinic services

Plant clinic –a source of inspiration to do agriculture with interest and confidence

According to the respondents the inception of plant clinic intervention is a significant one. This has been a *vara prasadam* (boon) to the farming community which really contributes to improve the lives and livelihood of a farmer, is the common remark of the respondents. Almost all were unanimous in pointing out that plant clinic is a useful intervention as a majority in this region are still dependent on agriculture for their livelihood. The experiences of the respondents prove that if a farmer has timely appropriate guidance he or she can do well in agriculture.

Plant clinic gives hope to farmers to pursue agriculture

“Inception of plant clinic intervention is a significant one for the entire farming community. This intervention really contributed to improve the lives and livelihood of a farmer. Farmers look forward to plant clinic sessions. MSSRF/CABI is like our family doctor for our field crops (*MSSRF/CABI engalukku family doctor madhiri*)”, Mr Karthikeyan

“This is a useful intervention as great majority in this region are still dependent on agriculture for their livelihood”, Mr Kannan

“This guidance is very important for farmers to pursue their occupation with confidence and enthusiasm”, Mr T Sammandam

“The timely guidance and advice is something which we have been lacking all these years. It is a great service to the farming community. Thanks to MSSRF and CABI for conducting plant clinic in our village. We only hope that this service would continue”, Mr Govindaraj

“Though I have been involved in agricultural work I was doing it mechanically. But now with the intervention of *payir maruthuva mugham* (plant clinic) in our village I have been motivated to do my agricultural work with interest and confidence. More importantly there is a great difference in carrying out agricultural operations and doing it with understanding based on right knowledge; I always look forward to the next plant clinic session. (*Therindhu seivadarkum theriyama seivadarkum vithiyasam irukku. Therindhu seigirom ippa*)”
Ms Pattu



“I have lot of interest in agriculture. As a wage labourer also I do my work with interest. My interest in agriculture further got strengthened with the inception of plant clinic intervention in our village. Farmers in our village are fortunate to get this service through MSSRF and CABI collaboration” Mr Pazhanivel

“MSSRF and CABI through plant clinic have taken that role (of AO or AAOs role) and inspire the farmers to do agriculture with confidence”, Mr Kumar:

Plant clinic gives people like me some encouragement to continue to practice agriculture as a primary livelihood option

“At a time when farming is considered to be not viable and remunerative the association with plant clinic gives people like me some encouragement to continue practicing it as a primary livelihood option. Plant clinic conducted by MSSRF/CABI is a source of inspiration to me. It gives me confidence to pursue my agricultural activities. I am able to breathe easily now”, Mr Chakravarthi

“At a time when youngsters are losing interest in agriculture, interventions like this would go a long way in reassuring them to continue with their traditional occupation and in improving their livelihood”, Mr Srinivasan “I am happy to share with you that I am doing agriculture with interest and enthusiasm these days. Gone are the days when I did agriculture in a monotonous manner. Thanks to plant clinic”, Mr Shankaranarayan

“Our family (my brother and I) has benefited a lot through plant clinic. I find that my confidence level and interest have increased ever since I came in contact with plant clinic conducted by MSSRF/CABI” Mr Venkatesan, Mathur

“It has gained recognition among farm women and men as the results are good. Now, whenever plant clinic is held in our village people with affected portion of the crop/plant would visit the clinic to get guidance or remedy for the problem. I encourage others to visit plant clinic”, Ms Marudammal

“*Ennudaiya mudal anubhavame enakku nambikkai thnadhadu* (my first experience with plant clinic was very encouraging and gave me confidence about its services and activities. The plant clinic is doing a great service to the farmers; the prescriptions are simple and effective; it is accessible to all farmers including women farmers. Plant doctors and the staff from MSSRF are very supportive to us. I see a great difference between the agricultural extension officers and plant clinic in reaching out to farmers”, Ms Kavitha

“I have great confidence in plant doctors. I am very satisfied with their services. All farmers from our village may not visit plant clinic but some of them are indirectly getting benefited through their neighbours /relatives who use plant clinic crop advisories”, Ms Sundaravalli

“We feel secure as plant clinic is held at crucial periods in our village”, Mr Prabakar:

...the stress involved in doing agriculture has considerably been reduced in the last two years

“I value the advice and recommendation provided by the agricultural expert associated with plant clinic. As far as I am concerned, the stress involved in doing agriculture has considerably been reduced in the last two years. Thanks to plant clinic”, Mr Chidambaranathan

“Many farmers are on the verge of giving up agriculture as a livelihood option. However, there is a slight change in the attitude of few farmers; they feel confident to continue agriculture as their livelihood. It is mainly because of the activities of plant clinic and their contact with plant doctors and the agricultural expert from MSSRF. I am one of them. I feel relieved of the stress and strain involved in carrying out the day today farming operations”, Mr Pradapan.



There is not much stress now in doing agriculture

“In general, the stress level of farmers has been reduced due to the intervention of plant clinic”, Mr Nagaraj.

“There is not much stress now in doing agriculture. I find that my confidence level and interest have increased ever since I came in contact with plant clinic conducted by MSSRF/CABI. With access to regular crop advisories and guidance from plant clinic I am positive that I can make good profit by doing agriculture. There are youngsters like me who are interested in taking up agriculture as a full time job. We do not have to go abroad to earn income for the family. We can earn that money by doing agriculture in our fields (*Veli naadu pogavendam; vivasayathil sambathikkalam enra nambikkai vandulladu ippo*)”, Plant clinic is a great boon to farmers like me. We get immediate solutions -simple and effective - for our crop problems”, Mr Venkatesan from Mathur

Plant clinic a boon to farmers

“It (plant clinic) has been doing great service to the farming community. It has improved the confidence level of farmers. I have come to know of good agronomic practices to an extent. I try my best to follow the guidance given at the plant clinic. If there is any problem in my crop I will wait till the end of the plant clinic session and take the agricultural expert to the affected field to get his guidance to handle the problem. Plant clinic is a boon to the farmers”, Mr Manikandan

This has been a great boon to the farming community

“I am one of the many farmers from our village who have been utilising the services of plant clinic ever since it was introduced in our village three years ago (2012). This has been a great boon to the farming community. We get guidance right from nursery preparation to harvest of crops. Plant doctors are always ready to help farmers whenever there is any need”, Mr Moorthy

“Inception of plant clinic sessions in our village is a very good intervention. It is really a great boon to farm households. Although we have been engaged in agriculture since our forefather's time I feel our knowledge is inadequate; we do not know about new technologies, new pests/disease and how to control or prevent them. I am happy that this gap in our knowledge is largely taken care of by plant clinic conducted by MSSRF and CABI” Ms Azhagammai

As a livelihood option agriculture gave a gloomy prospect

The following statement of Mr Muruganandam will summarise the state of the farmers in general before and after the inception of plant clinic.

Mr Muruganandam: “All these years I have been doing agriculture in *eno thano* (not in a methodical way) manner. It is not that I did not use fertilisers or did not adopt remedial/preventive measures to manage pest/disease. But I did not do it in a proper manner; this led to high cultivation cost and low yield. I was a dejected person; I did not know as to how I could improve the yield with minimum cultivation cost. We were in heavy debts. As a livelihood option agriculture gave a gloomy prospect. I think this was true of many of other farming households here. However, with the inception of plant clinic services in our village I began to develop interest and confidence. “...*Moonru nangu varudamaga nimmadiyaga irukken. Neenga vandhu kedpadarku enakku solla perumaiyaga irukku. MSSRF/CABI kodukkum ookathil nan vivasayam seigiren. Mundhi vivasayam nodindhu iriundadhu. Ippa thembaga irukken*” (I am at peace since the past few years (since the inception of plant clinic). I feel proud talking to you (about the services of plant clinic). I am doing agriculture with the support provided by MSSRF/CABI. I am doing agriculture based on the guidance of the plant clinic these days. Earlier, the condition of agriculture was in a bad state. Now, I feel encouraged”.



Mr Muruganandam added to say in a voice choked with emotion: “I am confident and feel reassured to continue agriculture as my livelihood now. Due to lack of confidence and agriculture extension support I felt helpless when my father sold more than 10 acres of land. Had this intervention been there at that time I would not have allowed my father to sell our agricultural lands. My father owned 60 *maa* (20 acres) of land. He sold 10 acres of land. We were doing agriculture for loss. When we could not manage any more we leased out our lands. We had bank loans. Now this is not the situation. I have been able to make profit from agriculture which was going on a loss earlier. (“*Mudalil nashtathirikku vivasaym seidhen. Bank kadan irundadu. Nilathai virrom. Nilathai othikku koduthom. Ippa andha nilamai illai. Nashtathil ponadhai labathirku konduvanden*”). I am getting more yield (seven to ten bags of rice per acre) now.”

Plant clinic services could be expanded

Several farmers expressed their wish that the services of plant clinic could be expanded to other areas so that more and more number of farmers could benefit. One of them is Mr Pradapan. He is of the view: “Only a small percent of farmers are covered through this intervention. Services of plant clinic should be expanded so that more and more of farm women and men can improve their livelihood by following right agricultural practices and preventive/remedial measures to save the crop from pest/disease attack. Vegetable cultivation should be encouraged. This is my humble opinion. As I mentioned earlier farmers in our village resort to indiscriminate use of inputs without realising that it is harmful to the growth of the crop. It would be very helpful and useful if plant clinic is held frequently in our village also”.

Ms Kavitha is of the view when she says “... Several farmers have started doing agriculture with clear understanding. Microscope facility available at the plant clinic is very useful for us; we gain knowledge and understanding of the nature of pest/disease attack and how they cause harm to the crop. By following simple practices we are able to enhance the yield. I wish the services of plant clinic are expanded so that more farmers can get benefited. But I am unable to articulate how it can be done (*payir maruthuva mugamai nanraga kondupoganam. Anal eppadi enru cholla theriya villai!*)”

Glancing through the preceding pages it is obvious that farmers in plant clinic villages wholeheartedly welcome this initiative as they have experienced the benefits after adopting the guidance and crop advisories. The above reflections of women and men respondents on plant clinic services give us a clear picture as to how the intervention has significantly been contributing in addressing the needs of farmers to grow healthy crops and improve their earnings that has created immense impact on the lives of farmers. This intervention assumes importance particularly at a time when farming community feels at a loss due to lack of and access to knowledge, technology and guidance particularly when they confront unexpected new problems in the form of pest/disease attack. Their anxiety and uncertainty has come down to a larger extent. They feel confident that they will be able to carry out their agricultural operations with less/reduced strain. Few of them like Mr Muruganandam became emotional when they spoke about the services of plant clinic and the improvement it has brought about in their socioeconomic condition.

3.9 Views of plant doctors /agricultural experts on plant clinic

Having seen the overall impact of the plant clinic intervention through the voices of farmers-the target audience - it may be worthwhile to know the perspectives of other important players engaged in the programme, namely, plant doctors and the agricultural expert/staff of the MSSRF. Talking to plant doctors and the agricultural expert/staff from MSSRF brought out various interesting aspects. They are glad to mention that this intervention which attracted only few farmers in the initial stages has become much sought after one not just in the operational villages but also in the surrounding villages particularly, since last year (2015). And, not only that, on learning about the plant clinic intervention and its benefits many farmers from



other villages such as Thirumanoor and Karaipakkam from nearby Ariyalur district and Kavattan Kurichi and Paruthikudi from Thiruvaiyaru come to the VRC with the affected sample plants to get crop advisories. They have been motivated to come to the VRC mainly because they heard about the plant clinic services either through their friends or relatives who have benefited from plant clinic crop advisories. Such is the impact it has created on the lives of farmers, stated the staff of MSSRF.

It is learnt that initially the farming community was sceptical about the plant clinic initiative. “The general opinion among the villagers” mentioned Mr Sridhar, a plant doctor “what are they going to tell us that we do not know about farming?” (*namakku theriyadadai enna solla poranga?*). Other plant doctors like Ms Devika, Mr Sarangapani, and Ms Revathi also corroborated this. Plant doctors were also subjected to ridicule. Farmers, particularly men farmers did not have confidence in the ability of women plant doctors to guide and help them, mentioned Ms Devika and Ms Kalaivani. However, the mindset of farmers is totally different now, mentioned plant doctors. Once the farmers began to observe the perceptible changes in the crop performance as a result of adopting the crop advisories recommended by the plant clinic they gradually began to recognise and appreciate the usefulness of the plant clinic. Plant doctors added to say that they do not have to take efforts like in the initial days to mobilise the farmers to attend the plant clinic. Irrespective of the age and sex of plant doctors, the farming community treats them with respect and look up to them for guidance.

Plant doctors and the staff of MSSRF are of the view that farm women and men have been able to improve their knowledge on pests/diseases and other agronomic practices due to the services rendered by plant clinics. The agricultural expert from the VRC pointed that out of 15 persons coming to plant clinic around six to seven persons are able to grasp well; they are getting familiarised with common pests/diseases and are able to identify symptoms of *kuruthu poochi*, *ilai suruttu puzhu*, *sempen* etc. According to him, the impact is excellent particularly with live demonstration of pest/disease attack of a crop using the microscope and laptop as it enables farmers to understand the problem well and retain the information. He says, “We are trying to improve the knowledge of farmers to identify pests and diseases. To an extent they identify stem borer and leaf folder pests. But certain incidence like paddy blast is very difficult for a farmer to diagnose in the initial stage. Probably through experience one can diagnose; paddy blast incident cannot be identified through the naked eyes. One has to use magnifying lens. Or by using digital microscope one can come to know of the attack; farmers have to keenly watch and they have to be trained to identify the problem. At the early stage they cannot find the blast. To typically identify the blast in paddy he/she has to identify it in the old leaf and not in the new leaf. May be through practice they will improve their knowledge. However we are able to observe some improvement now”.

The agricultural expert and plant doctors pointed out that they get normally feedback from farmers about the results of adopting the crop advisory recommended in the previous session. This helps them to find out whether the farmer followed the recommendation correctly or not. They continued to say that based on the feedback of farmers and by their own observation they can say that there is yield (rice crop) improvement of 150 kilo to 180 kilo per acre. The input expenditure comes down when advisories are followed. Often, the pest/disease attack is managed with one time control measure and not repeated. The agricultural expert and plant doctors were pleased to tell us how some farm women and men after consistently experiencing positive results have gone one step further to take initiative to get advisory for grain character improvement. They meticulously followed the advisory and have been able to get grain qualitative improvement in grain (rice) characteristics. Because of this, they have been able to get Rs 30- 40 more per bag than the normal rate. The agricultural expert and plant doctors mentioned that they feel good and encouraged when farmers share such information and express their gratitude to plant clinic (see the case studies of Ms Kavitha, Mr Muruganandam and Mr Shankaranarayan).



The utility of the plant clinic for the community as a whole gets reflected when there is an outbreak of pest/disease, feel the agricultural expert and plant doctors. (We may remember that a similar view was also expressed by few respondents). Plant clinic is able to influence (directly or indirectly) farmers in an entire village to adopt necessary preventive or control measures when there is an outbreak of pest/disease attack on a crop. It was pointed out that farmers regularly visiting the clinic normally act as spokespersons; also, the other farmers (not visiting the clinic) observe the effectiveness of a crop advisory adopted by the users of the plant clinic. The agricultural expert and plant doctors like Ms Devika, Ms Kalaivani, Mr Arunachalam and Mr Sridhar refer to this as community approach which is really effective particularly during outbreak of pest/disease incidences. For instance, when there was an outbreak of mite attack, the entire village as such adopted the crop advisory to control and manage the pest. Here, farmers themselves have become spokespersons; the information or the crop advisory reaches through farmers' connections with friends and relatives in the village, mentioned the agricultural expert.

We had opportunity on more than four occasions to witness farmers from plant clinic villages and other villages visiting the VRC to seek agricultural expert's help or guidance in growing their crops or to handle their pest/disease affected crops. One can see apart from the agricultural expert, Mr Murugan from the VRC who is also trained plant doctor is busy responding to farmers' calls and attending to farmers visiting the VRC. It is learnt that technically also he (Murugan) is quite good and he can identify the symptoms of a disease/pest. He is able to learn through his constant association with Mr Sudhakar. It is encouraging to see both these persons working in proper coordination and commitment for the effective implementation of the programme.

It was learnt that during major cropping seasons the VRC staff associated with plant clinic would have their hands full. Mr Sudhakar said from 9 AM to 7 PM the VRC would be kept open for the sake of farmers. It was pointed out that irrespective of weekends and other holidays the VRC would be functioning to guide farmers. He stated that he and Mr Murugan would be always alert to Helpline calls. He said that they both work in proper coordination in providing advisories to farmers. He said "I will be connected to Murugan and I will not miss phone calls from him as the call could be a doubt regarding a crop advisory or to handle any crop problem of a farmer. Murugan is equipped with knowledge of crop related problems and the relevant remedial measures. He learnt it because he closely works with me and he is a committed person", pointed out Sudhakar.

Increase in Helpline calls is an indication of the relevance of the plant clinic programme and also growing need for guidance from farmers to improve their livelihood, felt the staff of MSSRF. "Helpline queries have almost been doubled in 2015 and we are addressing more than 200 questions per month from farmers; the minimum calls were around 90 per month during 2014" mentioned Murugan. During the author's visits to the VRC of Thiruvaiyaru it has been observed many farmers not only men even women farmers calling through Helpline service for crop advice. During the recent visit in April 2016 there were several calls asking advisory related to black gram, a common standing crop at that time. A majority of the calls were on weed control measures. It was observed that the persons concerned were responding to farmers' enquiry very patiently. We have also seen one woman from Pasupathi Koil visiting the VRC in person for advisory to improve tillers in her rice crop.

From the interaction with the expert and the plant clinic doctors it is learnt that the plant clinic sessions enable them to come to know of common issues related to plant/crop of a particular season. This way the plant clinic facilitates them to develop relevant content and disseminate the same as voice SMS,/ blasting/audio advisory to the farming community. This message prepares the farmer to handle a situation (For example, alerting them to possible pest/disease attack and the precautions or control measures to be taken, sowing time, suggesting alternative crop and so on) by taking timely and proper action. It is stated that this content goes not only to a specific set of farmers it is disseminated to the entire five operational villages. Sometime for a selected group



of farmers (10 to 12 farmers) from the five villages audio conference is organised to address specific or common problems faced in the villages. This way a farmer also gets educated and the information spreads to his/her friends, relatives and others in the village. In addition to this, in order to address the queries of farmers from other villages audio conference is organised. Because of this many new users are coming to plant clinic and also to the VRC.

According to the coordinator of the programme and the agricultural expert from the MSSRF the multiple approaches adopted by the VRC complement the activities of plant clinics. As it has been mentioned, farmers have access to crop advisories through various channels such as phone-in-programme, voice SMS disseminated through mobile phones, Farmers Helpline service, and audio conference, so on. The VRC also periodically organises training programmes for selected farmers in its premises related to season specific crop cultivation and pest/disease management.

Plant doctors and others associated with the plant clinic programme are pleased to share with us that the impact of the e-clinic has been good and receive a lot of appreciation from farm women and men. As the advisories prescribed are sent through SMS in Tamil, the local language it enables farmers to read and follow the advisory related to his or her crop problem. They mentioned since the aim of the programme is to reach more farmers this could be achieved to an extent through this e-plant clinic initiative; this initiative provides great scope for sharing knowledge among the farmers and the advantage is that the advisories which are in the form of SMS can be stored for future reference. They have also mentioned that they have got a good feedback from farmers visiting plant clinic. It is hoped that farmers receiving the crop advisory as SMS in turn will influence others to follow right agricultural practices at appropriate time.

Plant doctors mentioned that while serving as plant doctors has given them a sense of pride and satisfaction it has also raised their self esteem and confidence. One of the women plant doctors said, “I feel very proud of my role as a plant doctor in our village. My husband also feels good when farmers share with him about my support and assistance in handling their crop related problems”. Women plant doctors pointed out that they have won the respect of men farmers from their respective villages. At home also their role and contribution to farmers is recognised; their men folk also feel proud of them. As a result, their self confidence and self esteem have enhanced. Apart from the social recognition their economic status also improved as they get honorarium for their service as plant doctors.

Almost all plant doctors we met and spoke to mentioned that the training they received and the constant interaction with the farmers and the able guidance of the agricultural expert from MSSRF has improved their knowledge on plant health. However, they admit that they are not confident enough to guide farmers on certain aspects. So, before prescribing the advisory to a farmer they get it confirmed with the agricultural expert. Interaction with plant doctors revealed that they can easily identify stem borer, leaf folder, mite, Thrips and paddy blast and attack of *Kanda miruga vandu* and *koon vandu* in coconut. This was also confirmed by the agricultural expert, Mr Sudhakar (He monitors and facilitates the plant doctors while they diagnose and give crop recommendation to the farmers at plant clinic) who pointed out that plant doctors due to their experience of attending to farmers have gained experience and they are able to easily diagnose some pest problems.

According to Sridhar, “...It is something great that I got this opportunity to be a plant doctor. I consider myself to be very fortunate for having been trained as a plant doctor. But I also have regret because all the training modules were not covered for us (few other plant doctors also wondered why all training modules were not covered during the training). However, we have learnt so much from Mr Sudhakar that we are able to identify major diseases/pest that attack the crop and be of help to farmers. We go along with the expert to the field and he is with us in the plant clinic. He observes whether we are giving right advisory to farmers”.



Plant doctors were unanimous when they said that farmers feel assured that they have someone to help them to improve their livelihood. (*Namakku enru oruthar irukkilar enna ennam makkalidiaye ulladu*). According to plant doctors, of all the initiatives of MSSRF plant clinic is something significant which strives for the improvement of farmers' lives.

Cross Learning

The agricultural expert and others felt that the plant clinic has provided them with a great opportunity to help farmers manage their agricultural related problems. “In the process”, pointed out the agricultural expert “it has helped us to improve and update our plant health knowledge through cross learning from the farmers and from other sources”.

It was also interesting to learn when Mr Sudhakar shared with us as to how he learnt from farmers. He narrated: “When the issue of mealy bug was widely prevalent during summer, a farmer from Puducherry on his own called Mr Murugan, to share about his experience of using camphor (30 grams), cows urine (100ml) mixed with water (one litre) and spirit (10 ml- to dissolve the camphor) as pesticide to control mealy bug. He suggested that as it is very effective control measure it could be followed by other farmers. We felt we should try out this crop advisory. On experimental basis the plant clinic recommended this advisory to few women and men farmers. This problem was widely prevalent in crops such as egg plant, *bindi*, chilly, turkey bean and hibiscus. Farmers who adopted this advisory were happy with the results. Once the efficacy of the advisory was established the plant clinic began to recommend the same to others without any hesitation. This shows that two-way learning also takes place between the agricultural expert/plant doctor and the farmers. Based on the effectiveness of the treatment it is now replicated in Puducherry”.

Agricultural expert takes other experts' advice

We have also learnt that in case the agricultural expert is unable to identify a particular problem he takes other experts' (from universities or other related institutions) advice. As an example Mr Sudhakar mentioned about an incident: last year (2015) when rice crop (of Mr Moorthy from Thirupazhanam Village) planted in *Kuruvai* season was affected by copper deficiency during grain formation stage, the agricultural expert from the VRC contacted an expert from Soil and Water Research Institution through SKYPE where the concerned farmer also participated in the discussion. Mr Sudhakar mentioned that he could not diagnose that the crop was affected by copper deficiency until he had a discussion with the expert. The farmer followed the advisory (Foliar application of Copper Sulphate, Potassium Nitrate and Boron) and got a normal yield. He could avoid loss. The other farmer whose crop also had the similar problem did not carry out the remedial measures and he experienced great loss.

Input dealers are supportive

Another important aspect mentioned by the staff of MSSRF and also the plant doctors is about the attitudinal changes of input dealers. It was stated that of late the input dealers from Thanjavur and Thiruvaiyaru have become spokespersons for the plant clinic; they are guiding those farmers coming to them for guidance to seek the help of the plant clinic/the VRC of Thiruvaiyaru for the same. Based on their suggestion many have started coming to the VRC of Thiruvaiyaru for guidance. It is also pointed out that the input dealers are also careful in giving inputs and also confirm with the VRC of Thiruvaiyaru before giving the same to a farmer.

In case, the dealer did not have the prescribed input for a crop problem he would call the VRC to find whether he can give alternative one but containing right proportion of chemicals similar to the prescribed one. For example, when a farmer from Valapakudi Village went to get a weedicide prescribed by the plant clinic for his



chilly crop, the input dealer called the VRC to tell them that he did not have the one prescribed by the plant but had the same chemical with a different brand name and whether he could give that. After verifying with the concerned person from the VRC he gave the weedicide to the farmer. Earlier, it was not the case. They would give whatever was available with them.

We may also mention about another incident shared by the VRC staff during our interaction with them. A farmer from Punavasal Village had been advised by the plant clinic to spray (Carbandasim and Cartao hydrochloride) to control leaf folder and leaf spot in paddy crop. The input dealer (Amman Agencies from Thiruvaiyaru) called back to find out whether he can give Hexaconazole (acre 250 ml with water 100 lt per acre). The price of the input is less and it has also Blue triangle which is not harmful. Sudhakar verified by checking in the net and he learnt that it can control both insect and the pest. The result was good. So, now at the plant clinic this input recommended to the farmers. Instead of two inputs one can be used, the cost is also less and it is also not harmful- a blue triangle labelled chemical, pointed out Mr Sudhakar.

Linkages

When asked whether plant clinic has any networking with other organisations/institutions in reaching out to the farmers, it is learnt that the plant clinic took initiative to collaborate with Agricultural Extension Officer. But it did not work out as the latter are target oriented. Their main work involves allocating schemes to the farmers. However, whenever there is a scheme for the community rodent control measures VRC/Plant Clinic facilitate the AAOs to conduct such programmes in the villages so that a majority get benefited.

Challenges

The agricultural expert and the others from the MSSRF associated with the plant clinic intervention are satisfied with the results to a great extent. Nevertheless, they feel that there are certain challenges which they encounter both at the field level and in other aspects. When enquired about the challenges they face while implementing plant clinic sessions in the villages it is pointed out that one has to stick to the schedule; the plant clinic has to be conducted based on the schedule- whether there is a need for it or not. It is very difficult to conduct a plant clinic in a village during a lean cropping season. One has to take great effort to conduct plant clinics during such off season. It was stated that due to reduced crop area the farmers would not visit the plant clinic.

There are also few aspects (eg bunchy top of banana mainly prevalent in Thirukattupalli area) where plant clinic has not succeeded so far in changing the practices of farmers, pointed out the agricultural expert. Though farmers are repeatedly told to remove the virus affected plant totally, they continue to maintain the disease affected ones resulting in the persistence of the disease. Farmers in general do not wish to lose the cropping period. This is mainly because farmers are interested only in the banana leaves which they sell in the market. They keep the trees for two and half a year and repeat the same process again which does not control the virus and the problem persists resulting in outbreak of disease. They do not seem to realise seriousness of the issue, pointed out the agricultural expert.

It is also pointed out that though there has been improvement in the participation of women not many come forward to visit the clinic. A majority of farmers visiting the clinic for crop advisories are men. Usually, one fourth of the participants are women. Only when there is outbreak of a disease/pest or during critical stage women visit plant clinic. It is also pointed out that special strategies have to be developed to involve them or to make them participate. Efforts are taken to make them aware of the importance of using the clinic. If they are oriented well about the concept there might be increase in their participation and they will become spokespersons. When asked why it is felt that women should come forward to visit plant clinic it was pointed



that they are engaged in almost in all the agricultural activities such as transplanting, weeding and harvesting. Knowledge transformation will help them reach many more farmers. That's why they are keen on mainstreaming gender in this intervention so that reach will be there. They are happy to mention that there is considerable improvement in women's participation in 2015 than the previous years.

The agricultural expert at the VRC mentioned that he needs to constantly update himself with latest technologies and knowledge. "I have to read a lot and talk to people. I must have contact with input dealer", he stated. He added to say "We still have to develop a lot. Area is large. We can cover only three-four blocks; it is a difficult task. We do not have sufficient hands to conduct plant clinic. We have to stick to the schedule".

From the foregoing pages it is obvious that this intervention contributes significantly in improving farmer's lives by providing information and scientific expertise to solve cultivation related problems and saving their crops from ravages of pests/diseases through timely diagnosis and remedial measures, thus improving crop productivity. As we have mentioned earlier plant doctors also feel that of all the initiatives plant clinic is a comprehensive, productive measure that has been attempted so far for the enhancement of farmers' livelihood.

4 Concluding Remarks

The plant clinic programme initiated by the M S Swaminathan Research Foundation in collaboration with CABI South Asia- India, in the villages of Thiruvaiyaru region in 2012 is highly relevant and timely. This intervention is significant as a great majority of farmers suffer from lack of access to knowledge on latest agricultural technologies. This is particularly so in the current context of a decline in the formal agricultural extension services. The role of plant clinics becomes very important to farmers, particularly when they are facing various pest/disease incidences previously unknown to them.

Plant clinic enables farmers, including agricultural labourers free access to its services. The essential idea of a plant clinic is to provide access to knowledge and timely, appropriate guidance to farmers to handle or cope up with their crop related problems in order to minimise crop loss and enhance crop yield. This programme, implemented through the Village Resource Centre (VRC) of Thiruvaiyaru, covers five villages- Vilangudi, Thirupazhanam, Rajendiram, Varagur and Pasupathi Koil in Thiruvaiyaru Taluk. Clinics are held during important crop seasons in common places in a village. Usually, two sessions are held in a month at 15-20 days interval. The VRC announces the date and time and venue to the farmers through voice SMS. The information is also passed on to farmers through the plant doctors, 'Knowledge Workers' of the Village Knowledge Centres and progressive farmers from the respective villages. In addition to the five villages, clinics are also held in more than 20 surrounding hamlets as there is demand for the same from the farmers of those hamlets.

Plant clinics are conducted by plant doctors who are a trained cadre of women and men. Presently, 15 plant doctors (male 8, female 7) are actively involved in the programme with the support of agriculture expert/staff of MSSRF in Thiruvaiyaru region. The VRC staff monitor the plant clinic sessions whenever it is conducted in a village and also observe whether the plant doctors are providing right crop advisory. Plant clinic plays a huge role in helping farmers by providing services that are accessible and reliable. Further, crop related guidance/suggestions to carry out agricultural activities are provided. After examination and analysis of sample plant materials the prescriptions are provided in a data sheet. The advisories are largely simple that prove to be effective. Normally, bio inputs are prescribed. Chemical recommendations are given only in extreme cases of pest/disease attack. Apart from addressing crop related issues plant clinic also helps farmers to tackle certain issues like rodent problem confronted by them. They are connected with line department to conduct integrated rodent management in the villages.



It is heartening to find that the clinic is visited by all sections of the rural farming community. It is accessible to both women and men from different socioeconomic background. Sociocultural factors of the rural society do not seem to hinder access to the services of plant clinic. We have come across persons, particularly women from deprived sections using the guidance of plant clinic on regular basis. Women do visit the plant clinic and participate enthusiastically. While men of the household work at the field, some women take the responsibility of visiting the plant clinic to get prescription for their affected crops.

Initially, the plant clinic programme did face some difficulties in mobilising the farmers to participate in the clinic; however, services of the clinics gradually gained appreciation and recognition of women and men farmers of different age groups once they started to experience perceptible improvement in crop yield. In the early days, only few farmers used to come to the clinics; they did not carry the affected plant parts with them. But today they come in large numbers with the sample crop as per the instructions of the plant doctors for solutions and they look forward to the next plant clinic session. Field crops as well as plants grown in the homestead are given importance in plant clinics. The holistic approach adopted in providing crop advisories proved to be very useful and effective which attracted more number of farmers seeking crop advisories of the plant clinic.

The study reveals that in general, farmers encounter loss mainly because of lack of information and knowledge to deal with their agriculture problems. In the absence of any proper means to express their needs and find solutions farmers are compelled to depend on the local input dealer for crop advisories. Crop recommendations given by the input dealers are expensive and also do not help manage the crop problem effectively. The input dealers often exploit farmers by prescribing more than the required inputs, wrong and also outdated chemicals. Lack of knowledge and guidance force farmers often resort to indiscriminate use of inputs leading to increased cost of cultivation without any positive impact on the crop yield.

Lack of formal extension service makes farmers look upon the plant clinic intervention as an effective and helpful extension service; they did not have access to this kind of support system earlier. They pay great tributes to this intervention which according to them is a saviour of farmers. This intervention is considered as a *vara prasadam* or a boon by the farmers. Such is the trust and impact it has created on them. Its impact can be clearly seen in the daily farming routine of the rural families. It is clear that if a farmer has timely and appropriate guidance he or she can do well in agriculture.

Plant clinic offers a platform for the farmers to interact with a team of plant doctors and also the agricultural resource person to get a better understanding about controlling diseases, pest attack and improve yield. It is evident that plant clinic plays a substantial role in reducing risks, improving the agricultural productivity and minimising cost of cultivation. It is an effective support system for them.

It is learnt through this study that failure in timely diagnosis of pests/diseases has been responsible for major crop loss. It also clearly brings out the relevance of specific as well as common/general crop advisories for the farmers that improve plant health and production. Specific knowledge regarding a pest or disease is given through the plant clinic. Plant clinic provides preventive and curative recommendation depending on the farmers' crop problem or issue.

Interacting with the plant doctor, the farmer is able to get specific knowledge of important aspects. For example, with the crop sample brought by the farmer, the plant doctor or the agricultural expert in a live demo (using digital microscope and laptop) explains to the farmer the prevalence or presence of microorganisms (bacteria and virus) in the crop which otherwise is not visible to the normal eye sight of a person. This live demonstration helps the farmer to get a good understanding and improve his or her knowledge base of a specific pest or disease. This enables the farmer to take preventive and control measures.



Plant clinic also provides useful and simple guidelines to prevent or control pest/disease, about which farmers did not have any idea earlier. For instance, as a precautionary and preventive measure the farmers are advised to remove or uproot or dispose off the infected plant parts like the disease affected sesame plant, corm, or dead pumpkin plants from the land. Plant clinic also guides farmers in growing trap crops (eg marigold as a trap crop) as a disease or pest control measure which would reduce future pest/disease pressure.

Plant clinic tries to promote Integrated Pest Management practices among the farmers which may not come out explicitly in the case studies. By going through the case studies carefully, it can be known that the plant clinic recommends carrying out seed treatment; prior to the plant clinic intervention, not many were aware of its importance and some did not take it seriously. Now they have come to understand its importance in controlling pest and disease through their experiences. Thanks to the plant clinic! Except in few cases, not much has been mentioned on weed management as one of the pest/disease control measures. The plant clinic also creates awareness on the importance of maintaining soil health. MSSRF, as part of its regular activities is helping farmers in soil testing and provide necessary advice based on the soil test results. Soil analysis is done in the VRC of Thiruvaiyaru.

Common or general advice pertaining to plant health problems often includes selecting varieties and other inputs that improve plant health and vitality. In the short run, this type of advice will increase plant resistance to problems and help mitigate losses. In the long run, this may lead to increased profitability through increasing yields leading to greater quantity sold and/or improving quality leading to better terms of sale.

Plant clinic guidance extends to various other aspects of farming like fertiliser management, water management and right seed rate, and so on. Its role in addressing certain unique situations faced by few farmers is significant. The timely intervention of the plant clinic could help them overcome the problems they had encountered about which they had no idea as to how to deal with them. To cite a few examples: a farmer could get a reasonably good yield even though he used aged seedlings; another farmer could save rice seedlings whose roots got snapped while pulling and enabled him transplant the same without any difficulty; there is also another farmer who could overcome the florets damage affected due to snow moisture.

It may be pointed out here that the farmers who do not visit plant clinic also get benefited by its services; its services indirectly reach them. Those farmers are encouraged to follow the remedial measures and other agronomic practices when they see their neighbours or relatives getting benefited by adopting plant clinic advisories. Plant clinic also gained visibility at the village level when there has been an out break of pest/disease. Plant clinic either directly or indirectly reaches out to the farmers with its advisories when there is an outbreak of pest attack of mite, stem borer, paddy blast and so on. Thus the entire village gets benefited.

Most of the respondents have been able to adopt the recommendations and they are content with the results. They have come to realise that they can get improved crop yield if they undertake timely and precise preventive and protective measures and also by following proper agronomic practices. Some respondents pointed out that they can diagnose common pest/diseases prevalent in the region and know the required input application/remedial measures. Farmers in general have come to realise the importance of seed treatment as a pest/disease preventive measure. Also, awareness is growing among the farmers on the importance of maintaining soil health for healthy growth of crops.

Farmers are also increasingly becoming aware of the importance of using the right dosage of appropriate organic/inorganic inputs at right time in improving the yield of the crop and ill effects of using over dosage of inputs to the agricultural field. As a result, indiscriminate use of inputs has come down to a great extent. This has helped the farmers in reducing the cost of cultivation. There is increasing awareness on the utility of bio



inputs; they had never paid attention to it earlier due to ignorance and lack of knowledge. The farmers are now increasingly using bio inputs. The farmers do not depend on input dealer for crop advice. They make sure that the input dealer gives the input prescribed at the plant clinic. increasingly using bio inputs. The farmers do not depend on input dealer for crop advice. They make sure that the input dealer gives the input prescribed at the plant clinic.

It is heartening to hear people mentioning about yield improvement with less investment. Farmers are happy at least they do not incur any losses these days. Some of them have been able to improve not only the quantity but also the quality of the crop harvested and get better price in the market. Credit goes to plant clinic. While the respondents talk about overall increase in crop produce as a result of the plant clinic intervention in their villages, they also point out about the economic improvement of the households. The improved economic condition has to an extent contributed to ease the financial situation of the households. They claim that they do not borrow as they used to do before.

It is learnt from our interactions with the respondents that though most of them were able to adopt the recommendation few of them had constraints in adopting the prescriptions provided at the plant clinic. They could not carry out as recommended by the plant clinic either due to shortage of labourers or money to buy the prescribed inputs. There are few who could not carry out the prescribed advisory due to non availability of inputs particularly bio inputs and due to personal reasons.

It may be mentioned here that there are one or two respondents who were not comfortable using the crop advisories of the plant clinic as they assumed the advisories were either impractical or they were all chemical based. However, there seem to be a change of attitude among them and are gradually coming out of their reservation.

It is evident that apart from the tangible benefits there are other intangible benefits experienced by the farm women and men users of the plant clinic services. The plant clinic apart from helping farmers to minimise risk, enhance production and earnings has to an extent contributed to their capacity building, knowledge empowerment and behavioural changes. Access to timely guidance and crop advisories has given them a sense of security and boosted their morale to pursue agriculture with interest and confidence. Those who were dejected and wondered about the feasibility of pursuing agriculture as a livelihood option seemed to have gained confidence and feel assured to continue with agriculture as their primary economic activity. The stress, both at the mental and economic level, has decreased to some extent.

The respondents consider themselves really fortunate to have this programme conducted in their villages as they get immediate solutions for their crop problems. They do not have to depend on the input dealer for advice. *Payir maruthuva mugam inga nadakkiradu romba udaviya irukku. Selavu kammiyagi irukku. Engalukku nambikkai vandirukku* (conducting plant clinic in our village is very helpful and gives us confidence) is a most commonly heard remark whenever one starts conversation with farm women and men on the plant clinic services and its usefulness. Growing number of farmers visiting the plant clinic and increasing number of calls or enquiries through the helpline or regular phone is an indication of the utility of the plant clinic for farmers.

Plant clinics upgraded and converted into E plant clinic in late 2015 has gained a lot of recognition; getting crop advisories as SMS through the mobile phones, is greatly appreciated by the farm women and men. As they normally carry their mobile phones they feel it is useful to show it to the input dealer while buying the prescribed inputs. While applying the inputs to the crops they can check the proportion of the inputs to be applied. They can refer to it whenever there is a need and they can also share it with others. The plant doctors who underwent special training to conduct E plant clinics are happy with the response from the farmers.



It is clear that the multiple approaches adopted by the VRC complement the activities of plant clinic conducted by the MSSRF and CABI. Audio advisories, phone-in-programmes, local newsletter, Farmers' Helpline service and so on complement plant clinic services. On the other hand, plant clinic also acts as a base for strengthening content development for the services mentioned above. Through the plant clinic sessions held in different villages the plant doctors and the agricultural expert become familiar with the common issues related to plant/crop of a particular season. This knowledge facilitates them to develop relevant content and disseminate the same as voice SMS/blasting/audio advisory to the farming community.

The attitude and commitment of the agricultural expert and plant doctors matter a great deal in reaching to the needy and poor farmers is clearly reflected in the study. In the initial days, the farmers were critical of plant doctors particularly women plant doctors' role. Today, irrespective of age and sex of the plant doctors the farmers treat them with respect. One can see the dedication and enthusiasm of the agricultural expert/plant doctors and other staff of the VRC in carrying out their work. The presence of the plant doctors in the operating villages and their spontaneous and timely guidance has enhanced the confidence level of the farmers in pursuing their farming with interest. Their services are appreciated by the farmers and the latter look up to the former if they encounter any crop problem; they feel free to approach them without hesitation in seeking their guidance in carrying out their agricultural activities. The plant doctors provide the necessary guidance when there is a demand from the farmers. If the plant doctors are not sure of themselves in providing a crop advisory they immediately contact the agricultural expert for confirmation or clarification. The plant doctors also facilitate the farmers to contact the VRC of Thiruvaiyaru for any clarification or advice.

Apart from providing advisories based on the crop sample brought by a farmer to the plant clinic, the agricultural expert or resource person/ and plant doctors visit the fields of the farmers to assess the extent and severity of a problem which enhances the knowledge and confidence level of a farmer. The concern and patience with which the agricultural expert deals with farmers in clearing their doubts and providing necessary guidance command the respect of the farming community; their untiring services are highly appreciated.

Plant doctors are trained to address common pests/diseases through video clippings; for example: videos on Paddy Thrips (*Samba* and *Kuruvai* seasons), Paddy Blast (*Samba* season), Mites in paddy (*Kuruvai* season), False Smut in Paddy (*Samba* season). Such trainings enable the plant doctors to gain confidence and to respond well to a sudden pest or disease outbreak. During outbreak of a disease or a pest, Knowledge Workers of the VKCs of MSSRF are also roped in by giving training to them through video clippings and also through oral explanation to help farmers to deal with such situations. They are also trained to give prescription to the farmers. This is done so as to enable the farmers to take immediate measures to manage any pest/disease attack.

Plant clinics have helped to bridge a relationship between the farming community and the experts/scientists. The farmers are so comfortable with the agricultural scientist/resource persons that sometimes they take crop samples to the VRC for verification and recommendation. The former contacts the latter either through the helpline for guidance or for clarifications or sometimes go in person to the VRC with affected plant for advice.

It is observed how the advisory work a highly skilled job commands respect and admiration for those who do it well. The experts at the VRC level are equated with a good medical doctor with good social and clinical skills. For example, Mr Sudhakar 's (agricultural scientist from the VRC) role is equated with a good doctor who is good at diagnostic skills and poise.

The agricultural expert and the plant doctors are willing to learn to serve the community better. The plant clinic demands lot of their time and energy. However, they respond to the farmers' demands or needs sincerely and



promptly. This attitude encourages the farmers including the women farmers to contact the expert over the phone or go in person to the Village Resource Centre to seek the guidance or advice of the expert. Plant doctors and the VRC staff of MSSRF, Thiruvaiyaru do not confine themselves to providing diagnostic and advisory services; they also help the farmers in other ways also such as where to source the required inputs. The farm women and men contact them in case they do not get the required inputs prescribed by the plant clinic. They are guided about possible places of input availability in the nearby areas. There were also instances where the VRC arranged to get bio inputs required by the farmers.

The impact of plant clinic has been such that farmers from other villages of Thiruvaiyaru and also from Ariyalur district visit the VRC of Thiruvaiyaru with affected crop sample to get guidance and crop advisories for their crop problems, on hearing about plant clinic services either through their friends or relatives benefited by it. The plant doctor and the agricultural expert of the VRC are always ready to extend their help in all possible ways. It is learnt that during the peak agricultural season times they would have constant stream of farmers visiting the VRC to get solutions for their crop problems. Their services extend even beyond the regular office hours. The staff at the VRC would work even during weekends and holidays to cater to the needs of the farmers. In addition to this, they attend to agricultural helpline calls from the farmers including women. The helpline calls have increased almost by 100 per cent than during the previous year (2015). More than 200 calls are attended per month which indicates the relevance of the plant clinic programme for the farmers. Utility of the plant clinic is reflected in the growing number of callers through the Helpline or personally coming to the office for advice. Lately, efforts have been taken to collect systematic feedbacks from the users of the plant clinic; this would be of great use to improve its services further.

Plant doctors have a sense of pride and fulfilment that they are able to do something useful to their fellow villagers. The women plant doctors are happy that their social status both at the village level and at home has improved. Apart from social recognition their economic status has also improved as they get honorarium for their service as plant doctors. Consequently their self esteem has been enhanced.

Plant doctors are interested and enthusiastic and are passionate in carrying out their work. However, their confidence level needs to be enhanced. The plant doctors' knowledge need to be improved or updated for them to improve their services. They need to be familiar with emerging trends in crop disease and pest control. They look to the advice of the expert before giving their recommendation to the local farmers. The plant doctors feel that though they have knowledge to diagnose and prescribe remedial measures for most of the prevalent diseases/pest, they feel their knowledge is inadequate. That's why they verify with the agricultural experts or agricultural resource persons of MSSRF. In a way, this kind of verification helps plant doctors avoid wrong diagnosis and prescribe measures which may prove costly for the farmers. It is encouraging to find that some kind of monitoring by agricultural expert of MSSRF is taking place. It is necessary that this verification and monitoring continues so that the plant doctors will be in a position to diagnose well and prescribe right remedial measures to farmers in handling their crop problems and farming operations.

It is interesting to learn that cross learning takes place between the agricultural expert of the VRC and the other farmers. When a farmer suggested a simple bio-control measure for mealy bug attack the agricultural expert started providing the crop advisory after testing it for its efficacy in few farmers' fields. The agricultural expert does not hesitate to get expert's advice from other institutions in case he is not able to diagnose a crop problem. Though the work load is quiet heavy the agricultural expert and the plant doctors are happy that the plant clinic programme offers opportunity to enhance their knowledge on crop health through cross learning from the farmers and also from other sources such as internet and experts from other research institutions. It is important that they constantly need to update their knowledge to serve the farming community better, felt the agricultural expert.



It was motivating to know that the input dealers who were once providing the farmers with wrong crop advisory and also with unnecessary, harmful and outdated inputs are gradually changing their attitude. In fact, few of them have become spokespersons for the plant clinic; they guide those farmers coming to them for crop advisory to take the help of the plant clinic/VRC of Thiruvaiyaru for the same. The input dealers are careful and also verify with the agricultural expert before giving any inputs to the farmers. Also, if he did not have the prescribed input/chemical he would call the VRC to find whether he can give alternative one but containing right proportion of the chemicals similar to the prescribed one.

The agricultural expert and the plant doctors also confront certain challenges. Holding plant clinic as per schedule poses certain constraints to the persons involved in the programme. They find it difficult to stick to the time schedule. The plant clinic has to be held as scheduled whether there is a need for it or not. During lean period, tremendous efforts have to be taken to conduct plant clinic in a village. The farmers would not participate in plant clinic as the area under cultivation would be very less during such periods. Women's participation in the plant clinic programme needs to be increased still more as they take part in almost all the agricultural activities. Their participation would facilitate reach of the programme, stated the agricultural expert.

The agricultural expert felt helpless as the plant clinic intervention could not succeed in convincing the banana growers about the importance of removing the disease (bunchy top of banana) affected banana plant totally from the land as it is important to eradicate the virus completely from the soil. Otherwise the problem will persist for a long time. The farmers do not realise the seriousness of the issue; they continue with the same crops, stated the agricultural expert.

The impact of the plant clinic programme is such that there is demand for expansion of this programme. Farmers expressed that plant clinics should be operated in more areas and in frequent intervals. The respondents feel that the benefits they get through the plant clinic should also be made available to other villages so that agriculture as a primary occupation could be followed by many with confidence and encouragement.

If one goes through the case studies it would be obvious that a farmer needs constant and consistent guidance through out the crop cycle; it is the need of the hour. At one time he/she faces inundation of the crop, and at another time he has to handle when the crop suffers from pest /disease attack or nutrient deficiency during the growth stage. At different stages the crop is prone to different pest/disease attack. Sometimes the same is affected by multiple pests/diseases simultaneously. Due to the changing climatic conditions and other factors farmer confront new problem every other day for which he/she needs constant guidance to encounter it. The necessity of access to proper guidance and effective crop advisories has been highlighted well particularly when the farming community is faced with new crop challenges or when they are confronted with new pest attack hitherto unknown to them. For example, until three years ago farmers in Thanjavur district have hardly used any chemical to control pest in *kuruvai* season. Since 2013 their paddy crop has been affected by a pest called *Sempen* (Mite) which they have never seen in their field. Luckily, for the farmers in plant clinic villages they have been able to take control and protective measures to manage the pest and prevent crop loss. In situations like this the farmer needs appropriate guidance and help. Against this background the plant clinic intervention is a significant one which should continue to be held not only in the villages where it has already been functioning this should also be expanded to all the rural agricultural villages if the farmer has to improve not only his livelihood and his food security but also that of the country as a whole.

The way plant clinic is addressing various issues faced by the farmers is really remarkable. The plant doctors and the staff of MSSRF deserve lot of appreciation for their efforts which is well beyond the call duty. Not a



surprise to hear the respondents shower compliments and praise on the plant doctors and agricultural expert as well as other stake holders.

We are, however, still at an early stage of establishing clinics and more data is needed to assess their long term impact. Collecting systematic feedbacks from the users of plant clinic would be of great use to improve its services. Plant health clinics alone will not cure weaknesses in extension services or low adoption of technologies, but they do offer new advantages: they are demand-led; they provide regular and reliable advice to more farmers; there is still much to do.

Training/awareness programmes and workshops (eg. IPM, Sesame cultivation, season based rice cultivation and so on) are conducted by the agricultural department, research institutes and Non Profit Organisations for farmers. They are useful but these programmes reach out only to a few farmers in a village. What farm women and men need is continuous plant health care services covering a larger population.

The farming community stands to gain a lot through the services of well organised plant clinics. Providing plant healthcare on regular basis is important in order to address farmers' varied and continuous plant health needs. This is necessary so that the farmer can take timely precautionary and protective measures to control or prevent pest/disease attack. At the psychological level access to the crop advisories makes a farmer feel secure and his/her stress level is reduced to an extent. To sustain this, interventions like this (plant clinics conducted by MSSRF/CABI) are necessary but not sufficient. The study clearly brings out the need for a systematic delivery of plant health care. A greater majority of the farmers do not have access to a reliable agriculture extension service. Consequently the farmer suffers from crop loss which affects his household's food security and the economic wellbeing. This in turn affects the country's economy. To improve and strengthen the capacities of farm women and men to produce more with reduced cultivation cost, earnest efforts have to be taken at the State level. For larger reach of the farmers interventions like this should be incorporated at the state policy level and should be part of the state agricultural extension. Just as we have primary health centres for human beings it is imperative to have health centres for agricultural crops too. This can bring significant change in agricultural sector as well as the lives of farmers.



Author with Respondents/ Plant Doctors





Author with Respondents/ Plant Doctors



**Appendix: Case Studies****Name: Ms G Azhagammai**

Age: 63 Years

Education: SSLC

Occupation: Agriculture

Village: Illuppakorai

District: Thanjavur

I, Azhagammai aged 63 years hail from a village namely Illuppakorai in Thanjavur district. I have studied up to SSLC. I have a son who is working as a driver. My husband and I are engaged in agriculture. We own five acres of land and we have also leased in two acres.

I know about MSSRF for more than 10 years. A few farm women from my village take part in most of the activities of the VRC of MSSRF located in Thiruvaiyaru. We get crop related advisories as SMS from MSSRF through our mobile phones. We participate in Phone-in-programmes and other agriculture related programmes organised by MSSRF. The local news letter published by the VRC of Thiruvaiyaru is very useful for people from all walks of life.

Inception of plant clinic in our village is a very good intervention. It is really a great boon to farm households. It was introduced in our village three years ago. Timely sessions during important stages of crop growth are really helpful and useful to the farm families. Although we have been engaged in agriculture since our forefathers' time, I feel our knowledge is inadequate; we do not know about new technologies, new pests/disease and how to control or prevent them. I am happy that this gap in our knowledge is largely taken care of by plant clinic conducted by MSSRF and CABI.

We have benefited a lot through the plant clinic. My rose plant started yielding good and quality flowers; my mango tree was got rid of red ants' problem; leaves of lemon tree which were curled up became healthy and started to yield good fruits. And, most importantly we could get rid of heavy infestation of weeds from the sugar cane field and later could also save the crop affected by kuruthu poochi (Stem borer). All these were possible because I could get right prescription/guidance at the appropriate time from the plant clinic. For crop related problem I approach Sudakar Sir (agricultural scientist) from the VRC and some times the plant doctor Mr Punyamoorthy or Ms Rita from our village who is also a plant doctor.

The agricultural expert who visited the sugarcane (pure crop) field (2013) pointed out at the large presence of weeds. If the weeding could not be carried out on time it would affect the crop yield. I felt helpless as there was no sufficient labour to carry out weeding. When I told him about the lack of hands to help me with this he recommended a low cost technology – spraying of 2, 4-D Sodium salt (One kg) and Metribuzin (500 gram) mixed with a sticking agent - to control the weeds. This treatment was very effective. Within few days the field was almost cleared of the weeds and we could also save labour cost of Rs 4500. Had we not done this and waited for the manual labour, the crop growth would have got affected leading to a low yield.

When at a later stage my sugar cane was affected by *ilam kuruthu poochi* (Early shoot borer) we were advised a simple and less expensive method to control the pest. We were recommended to flood the field for two days and release the water later. This method was very easy to follow. It did not cost us much. Without any pesticide application we were able to get rid of *Kuruthu poochi* totally. We did this in 100 *kuzhi* of land as an experimental exercise. The result was 'super'. For some reason, my husband did not flood the field with water in another two acres. We could see the difference between the two fields (flooded and non flooded fields) of sugar cane. The yield was less in the land where we did not carry out the flooding operation.

**Name: Mr Gopi**

Age: 29 Years

Education: ITI

Occupation: Agriculture and lime kiln

Village: Arasur

I am Gopi from Arasur Village and I am 29 years old. I have done my ITI course. I am a farmer and I also own a lime kiln (sunnambu kalavai). I have great interest in agriculture. I like to do it in organic way. I wish to improve my knowledge on agriculture. I have known plant clinic ever since it was launched in our village. I help in mobilising people for the plant clinic.

I consult the plant doctor at the plant clinic for my crop related problem. As I am interested in organic farming I ask for biological remedy. My coconut trees did not yield well and the fronds were shedding. The stem of the tree became very narrow at the tip with less number of leaves. To improve yield in my coconut trees chemical based prescription was given at the plant clinic. As I was not for chemical based treatment I asked for a bio/organic input solution. I was advised to apply *Azospirillum* and *Pseudomonas* mixed with farmyard manure. (300gm of *Azospirillum* and 300 gm *pseudomonas* and 10 kg of farm yard manure per tree). There was no improvement and I did not see any difference after application of the inputs. Unfortunately, we did not have rains at that time. I think because of that, the input application did not work.

When my paddy crop was affected by *poonjai noi* I followed the advice given by Mr Sudakar. The crop became alright two days after spraying of the recommended input to control the disease. As it rained two days after the application, I am not sure whether it was due to spraying of the input or it was due to the rains.

Mr Sridhar, a plant doctor from our village is very helpful to the farmers. The villagers approach him first for any crop related problem. If there is a need they would go to the VRC in Thiruvaiyaru. I support plant clinic and encourage our villagers to make use of it. I have told people like Mr Veerayyan and Mr Karnan to go the plant clinic when they encountered problems in vegetables crops like brinjal (egg plant)and vellari (cucumber) . They were happy when they could see their crops yielded well. Similarly, when the paddy seed material used by Mrs Thilakavathy and Mr Annadurai did not sprout well I guided them to consult Mr Sridhar or Mr Sudakar Sir While most of the farmers welcome this intervention and feel it is very helpful for the farmers to practice agriculture in a cost effective manner there are few who are sceptical about the recommendations given at the Plant clinic. They think it is not practical for them to follow the recommendation.

Name: Mr Govindaraj

Age: 42 Years

Education: Class 9

Occupation: Agriculture

Caste: SC

Village: Vilangudi

District: Thanjavur

I am Govindaraj aged 42 years. I come from a predominantly agricultural village namely Vilangudi in Thanjavur district of Tamil Nadu. I have studied up to Class 9. Ours is a joint family. My younger brother, his wife and their two children live in the same house with me and my wife.

I have been engaged in agriculture for the past 10 years. We have one acre of agricultural land. We have also taken six acres on lease. We have ground water (pump set) facility which enables us to practice agriculture in



While I feel we are fortunate to have the services of plant clinic there are few occasions when I am unable to carry out certain crop advisories provided by the agricultural expert/plant doctor; it is due to lack of helping hands and due to certain family and social obligations. I have to attend functions like marriages and other life cycle rituals; I cannot avoid them. The social obligations sometimes hinder my work in the fields. I am unable to do as prescribed by Sudakar Sir (Agriculture expert from MSSRF) and plant clinic doctor. For example I could not plant sugar cane during the right planting time. It was pointed out that if one wants to go for early crop it should be done during January or if one wishes to carry out the late planting it should be done during May and June. While I could plant in a part of the field during the right season I could not do it for the remaining land as there were social obligations to attend to. I had to go for weddings of our relatives. The sugarcane planted in May month was good. I carried out the recommendations to the extent possible but could not sustain it in the *maraudambu* (ratoon) crop.

I also did another mistake. There were lots of weeds in the sugar cane field (2014). I employed labourers for weeding. Hand weeding had cost me a lot. I had to spend nearly Rs 5000 per acre. I did not apply weedicide. Another blunder we did was earthing up the sugarcane field during the formation of tillers. Sudakar sir specifically advised me not to do earthing up during tillering formation stage. As against this, after the weeding operation was over (30 days after planting) my husband completed the process of earthing up which had cost us heavily. This resulted in rotting of the side branches of the crop and tiller formation was bad. In spite of me reminding my husband of what Sir had told us about earthing up and told him to wait, he went ahead with it. We made a mistake and faced the consequence. Unfortunately, for some reason I could not contact the agricultural expert or the plant doctor to get advice from them at that time. Any way, we have learnt a lesson and we will not repeat the mistake. Experiences teach us. We have to be careful to plant the crop during the right season and follow the guidelines of the plant clinic. In the previous year (2013), I did as advised and guided by Sudakar Sir and the sugar cane yield was good.

I realise that we should not carry out the agricultural operations depending on our convenience and whims and fancies. Hereafter I would be careful to plant the crop in the right crop season and do as recommended by the plant clinic. We learn through our mistakes. Now, I tell other farmers that they should not do it (earthing up) before 90 days of planting sugar cane crop.

I appreciate the services of the plant clinic which aims to improve the livelihood of the farming community. We get simple but effective tips to improve the yield of the crop in our fields. We are grateful to MSSRF and CABI.

Name: Mr Chakravarthi

Age: 32 Years

Education: Class 10

Village: Mathur

District: Thanjavur

I come from a traditional agricultural family. I own one acre of land. Our main crop used to be rice until few years ago. When I took over the responsibility I switched over to Rose cultivation as I found cultivation of rice was not remunerative. Rose crop enables us to get income on daily basis. During the month of *karthigai* (November-December) I cultivate *kadalai* (Groundnut). For the first time I have planted *bhendi* (ladies finger) 15 days ago.

I got introduced to VRC of MSSRF in Thiruvaiyaru through one of my uncles. I went to Coimbatore to participate in a farm related programme organised by the Foundation.



At a time when farming is considered to be non-viable and not remunerative the association with MSSRF gives people like me some encouragement to continue to practice it as a primary livelihood. Plant clinic conducted by MSSRF/CABI is a source of inspiration to me. It gives me confidence to pursue my agricultural activities. Plant clinics provide excellent guidance to the farmers to handle their various farm related problems and issues. A farmer can perform better if he or she has updated information and guidance. I visited plant clinic for the first time last year (2013) when one of its sessions was held in Pasupathi Koil, a nearby village.

I can see improvement in Rose yield ever since I started following the guidance and suggestions of the plant clinic. Earlier the Rose crop used to often get affected by *sar orinji poochi* (Mealy bug) which used to affect the quality and quantity of the yield. Now I am able to control the damage caused by the *sar orinji poochi* due to timely application of right remedial measures. I am unable to give you the exact economic profit (due to market fluctuation) but I can surely say that there is substantial improvement in the yield and the income. I could conduct my daughter's wedding without borrowing money from outside. I am able to manage household expenses without difficulty.

Before I came into contact with plant clinic I was dependent on the local input dealer for guidance. Only 20 per cent of the farmers are knowledgeable; the rest are unable to take right decision. The farmers buy whatever the input dealer suggests them to apply to overcome the problem. Now, few of us realise how the input dealer gave unnecessary inputs for a specific problem and the quantity of the inputs suggested were also more than the required proportion. For example for one litre of water four gram of input is sufficient. But he used to give 500 grams of input. He used to give four-five *dabbas* and we used them without questioning. (*Thevai illadadai ubayogithom. Ippa thevaikerpa seigirom*). Moreover, he will not give us the input at a required time.

I no longer depend on the input dealer for advice. I follow the prescription provided at the plant clinic. At the plant clinic, less expensive but at the same time effective remedial measures using locally available inputs (like *vasambu* (*Acorus calamus*), garlic solution, tobacco, neem oil) are recommended for any type of sucking insects (*poochi*) and worms (*puzhu*). The input expenses have come down. This itself is a gain for me. (*Thevai illada marundugalai adikkamal iruppade engalukku varumanam*). Now what is necessary for the crop's health/problem is used. Unnecessary application of inputs is avoided. This is a gain. As of now this is a major benefit. We will know the other benefits in the coming days.

I am able to breathe peacefully now. I am becoming confident to pursue agriculture as my livelihood.

Name: Mr Chelladurai

Age: 40 Years

Education: SSLC

Occupation: Agriculture

Village: Rajendiram

District: Thanjavur

I, Chelladurai aged 40 years come from a traditional agricultural village, Rajendiram. I have completed my Higher Secondary School education. I have two acres of agricultural land. I know about the activities of the Village Knowledge Centre of MSSRF which has been functioning in our village for the past eight years. I participate in some of the programmes of the VKC. I attended a three day youth conference held in Tamil Nadu Agricultural University, Coimbatore.

Whenever plant clinic is held in our village I make use of it. I follow the plant doctor's advice and suggestions. Based on their advice I have started doing seed treatment for rice and I find the difference



in the growth and yield of the crop. I was told that seed treatment would prevent disease and pest attack in the crop. At the time of grain formation in my paddy crop I noticed yellowing of leaves/sheaths (*thogai*). I did not want to use any chemicals; we normally spray thembu tonic, DAP and urea *karaisal*. I wanted to apply *panchakavya* (a biological growth promoter) instead. I took the advice of the agricultural expert at the plant clinic before spraying *panchakavya*. It was stated that this would act as stimulant and prevent mainly fungal disease. There was improvement after I sprayed *panchakavya*. There was increase in yield. I got two bags more when compared to others in our village.

I also did soil sampling in my field. After I got the results based on their advice I began to apply the necessary inputs in right quantity. It is helpful. We do not have to spend unnecessarily on the inputs now.

Name: Mr Chidambaranathan

Age: 40 Years

Education: Class 10

Village: Illuppakorai

District: Thanjavur

My name is Chidambaranathan and I am 40 years old. I have had education up to Secondary School level. I come from a traditional agricultural family. I own one acre of land. I have also leased in one acre. We rear goat which is our secondary source of income. My wife actively takes part in all the agricultural activities. Fifty percent of the land is used for banana cultivation. I cultivate crops in rotation method-banana followed by sugar cane and then rice. Black gram is cultivated as inter crop with banana. Crops like *cholam* (maize), *naripayaru* (a fodder crop) and *veli masal* (a fodder crop) are cultivated in 100 *kuzhi* (300 *kuzhi*= one acre) land adjacent to the banana field .

We know about MSSRF for the past 10 years. MSSRF has set up a Village Knowledge Centre in our village for the benefit of the people living in this village and surrounding areas. It has been since two years that plant clinic is being conducted by MSSRF in association with CABI in our village on regular intervals. It has been a great boon to farmers. We get solutions not only for problems related to major crop we also get solutions for minor crops like lime, fodder crop and so on that we grow in our fields.

A

For nearly four to five years my banana crop in two acres of my land has been getting affected by *vadal noi* (wilt). I even went to Banana Research Centre to get a solution for the disease. But nothing worked. I lost nearly 50 per cent of the crop. Again this problem cropped up this year (2014). It was seven months old crop. This disease usually affects seven to nine months crop. Fortunately for me a plant clinic was held in our village at that time. The agricultural expert recommended trenching of Copper Oxychloride (11/2 kilo) and neem oil (21/2 litre) mixed in 200 litres of water for the entire area. I did as advised by Sir and 90 per cent of the crop was cleared of the disease. The disease got controlled and I was happy with the income I got from the crop yield.

This year I am going to take precautionary method to save my banana crop. As recommended by the agricultural expert at the plant clinic I am going to adopt soil trenching. I was also told that by doing corm treatment we can avoid disease attack. Through organic method we can find a long term solution to this disease, I feel. The plant clinic has recommended me to apply neem cake 300-400 kg per acre during the early stages and raise maize and sorghum as trap crops. I am going to do this. We have been habituated using *kurunai marundhu* (Carbofuron) which is toxic. Now with the plant clinic's intervention we have stopped using it.

My wife and I are happy about the improvement in banana crop yield. With the earnings from banana we have bought goats worth Rs 15000/-. Whenever there is a demand for liquid cash we sell one of our goats. My wife compares goats to ATM card as we get instant cash by selling a goat. Last year I did not take the plant clinic



advice seriously. I will be very careful hereafter. I will consult the concerned person and according to the experts or plant doctors' guidance I will do my agriculture. We do not have to wait for the plant clinic to be held in our village. We can easily contact the VRC of Thiruvaiyaru through the Farmers' Helpline service for any help related to our crop cultivation. The response has been very good.

As the *vadal noi* has been affecting the crop for the past five years I was advised at the plant clinic to do soil testing. I did as suggested; I gave the soil sample to the VRC of Thiruvaiyaru. From the results of the soil test I came to know that contents of Potash and Phosphorous were rather high in the soil. So I was advised to reduce the quantity of the application of the same. They have given me the proportions to be followed. Depending on the crop I cultivate, I follow the application of the inputs to the field. I do not have to use inputs unnecessarily. I can use right inputs in correct proportions.

I have been able to control flower shedding in our lemon plant after carrying out the remedial measures as suggested by the agricultural expert. The tree has started yielding fruits. We can earn by selling the lemon fruits. I have five-six trees. I followed the advice provided by the agricultural expert in raising the fodder crop also. As per his suggestion I applied Urea mixed with goat dung after irrigating the land for a good vegetative growth. I took care not to use fresh goat dung as it would result in scorching of the crop. The growth of the fodder crop was good.

I am planning to plant sugarcane in January (2015). I will do it as per the advice and recommendation of the plant clinic.

After coming into contact with the plant clinic I have started using bio inputs like Azospirillum and Phosphobacteria during nursery raising and also after transplanting of rice. They also advised me to apply farmyard manure to improve the fertility of the soil and I am applying them now.

I am not able to tell you off hand the proportion of inputs to be used but I have all the prescriptions; I can refer them when there is a need. I go by the recommended usage of inputs to the extent possible. I value the advice and recommendation provided by the agricultural expert associated with plant clinic. As far as I am concerned, the stress involved in doing agriculture has considerably reduced in the last two years. Thanks to plant clinic.

Name: Ms Chitra

Age: 30 Years

Education: Class 12

Village: Pasupathi Koil

District: Thanjavur

I, Chitra aged 30 years come from a village known as Pasupathi Koil. I have studied up to Class 12. Ours is an agricultural family. We have one acre of *vayal* (wet land) where we normally cultivate rice, sesame and black gram. My husband used to manage the agricultural operations of our land. I used to supervise and work along with others during weeding, transplanting and so on. Gradually, I found myself developing interest in farming. So I was inspired to get engaged even in managing the farm operations and other activities. As I got fully engaged in the household farming my husband gradually started withdrawing from farming. Now he runs a small hotel which we had started four years ago (2010).

I know about plant clinic since its inception in our village. But I never used to take part in the sessions. I used to see many women and men going to the plant clinic with crops/seedlings. Then, out of curiosity I also visited the plant clinic. I really felt sad that I did not visit it earlier.



I have really benefitted through the plant clinic. Recently, during kuruvai (2014) my rice crop was affected by *sempen* (Mite). The crop looked healthy. But, only at the last stage I realised that the crop was affected by pest attack. I took it to the plant clinic held at that time in our village. Based on the recommendation of Sudakar sir (Agricultural expert of MSSRF at the plant clinic) I sprayed Omite 200 ml mixed with one can of water (10 litres). The pest was controlled. We harvested 23 bags of rice from one acre. Normally, we get around 17 bags only. Had I shown the plant well in advance I would have harvested 28 bags. I am happy that at least I got 23 bags. I would not have got this much yield had I ignored to visit the clinic. Considering the late realisation and taking right remedial measures at a critical stage of the damage of the pest I am satisfied with the yield. That way it is a profit for me.

I felt bad that I did not spray this pesticide to my rice planted in the earlier season. I sprayed the chemical advised by the input dealer. The pest was not controlled. I do not know why. These days I am careful to spray or apply the inputs recommended by the plant clinic people. I am also careful in following the proportion of the inputs to be applied for a crop problem. I do not go to buy the inputs, I give instructions to the person who goes to purchase them to get only the inputs mentioned in the prescription chit. If I have any doubt I verify with Kalaivani akka who is a plant doctor from our village or I will ask sir.

I have brought eight day old rice seedling to show it to the plant doctor today. The agricultural expert has advised me to spray Urea mixed with neem cake powder. I have not done seed treatment; so sir has asked me to dip the seedling *Azospirillum* before transplanting them. I will not commit the mistake again. I was careless on the earlier two occasions. Last time I was deceived by the seemingly healthy look of the rice crop. I will be careful this time. Now I know to identify *sempen* attack. There will be lot of white scrapings in the leaves

Though I have been managing the agricultural work in our field I was not bold enough to go to Thanjavur alone; moreover our family also does not like this. Now I have improved a little. I have started discussing with my fellow women farmers the problems we face in cultivating crops. I ask Sir for clarifications if I have any doubt or for guidance. I take interest to listen to other farmers while explaining their crop related problems to the plant doctors and agricultural expert at the plant clinic. I also attended classes held in farm school of our village.

When I could not get Omite in the local shop I asked Kalaivani akka as to where I could get the pesticide. She gave me a address of one Navin shop in Thanjavur . I sent one of the persons working in our farm to get it from Thanjavur. Now whenever I need to buy any inputs from the local dealer I give clear instructions to the person who goes to get the same that he should buy only the input mentioned in the chit and not the other inputs available with the dealer.

I came to understand that in stem borer attack in rice crop that worms affect the stem and the insect affects the leaves leaving lot of holes on it. I also came to know through the plant clinic that there is safe chemical weedicide to control the weeds in the field. I forgot the name of the weedicide. I have written it down in my note book. He told me that a well prepared land controls weeds. He explained to me how one could control weeds with proper ploughing method. He said that initial ploughing (primary tillage operation) should be done followed by irrigation and secondary ploughing after irrigating the land to reduce weed population in the main field. This will bring down weeding expenses and also helps to improve the yield. I will definitely follow the advice provided at the plant clinic as this will not only help me to cut down the cultivation cost but also help me to get better yield.

**Name: Mr Gopi**

Age: 29 Years

Education: ITI

Occupation: Agriculture and lime kiln

Village: Arasur

District: Thanjavur

I am Gopi from Arasur Village and I am 29 years old. I have done my ITI course. I am a farmer and I also own a lime kiln (*sunnambu kalavai*). I have great interest in agriculture. I like to do it in organic way. I wish to improve my knowledge on agriculture. I have known plant clinic ever since it was launched in our village. I help in mobilising people for the plant clinic.

I consult the plant doctor at the plant clinic for my crop related problem. As I am interested in organic farming I ask for biological remedy. My coconut trees did not yield well and the fronds were shedding. The stem of the tree became very narrow at the tip with less number of leaves. To improve yield in my coconut trees chemical based prescription was given at the plant clinic. As I was not for chemical based treatment I asked for a bio/organic input solution. I was advised to apply *Azospirillum* and *Pseudomonas* mixed with farmyard manure. (300gm of *Azospirillum* and 300 gm *pseudomonas* and 10 kg of farm yard manure per tree). There was no improvement and I did not see any difference after application of the inputs. Unfortunately, we did not have rains at that time. I think because of that, the input application did not work.

When my paddy crop was affected by *poonjai noi* I followed the advice given by Mr Sudakar. The crop became alright two days after spraying of the recommended input to control the disease. As it rained two days after the application, I am not sure whether it was due to spraying of the input or it was due to the rains.

Mr Sridhar, a plant doctor from our village is very helpful to the farmers. The villagers approach him first for any crop related problem. If there is a need they would go to the VRC in Thiruvaiyaru. I support plant clinic and encourage our villagers to make use of it. I have told people like Mr Veerayyan and Mr Karnan to go the plant clinic when they encountered problems in vegetables crops like *brinjal* (egg plant) and *vellari* (cucumber). They were happy when they could see their crops yielded well. Similarly, when the paddy seed material used by Mrs Thilakavathy and Mr Annadurai did not sprout well I guided them to consult Mr Sridhar or Mr Sudakar Sir

While most of the farmers welcome this intervention and feel it is very helpful for the farmers to practice agriculture in a cost effective manner there are few who are sceptical about the recommendations given at the Plant clinic. They think it is not practical for them to follow the recommendation.

Name: Mr Govindaraj

Age: 42 Years

Education: Class 9

Occupation: Agriculture

Village: Vilangudi

District: Thanjavur

I am Govindaraj aged 42 years. I come from a predominantly agricultural village namely Vilangudi in Thanjavur district of Tamil Nadu. I have studied up to Class 9. Ours is a joint family. My younger brother, his wife and their two children live in the same house with me and my wife.

I have been engaged in agriculture for the past 10 years. We have one acre of agricultural land. We have also taken six acres on lease. We have ground water (pump set) facility which enables us to practice agriculture in



all the three seasons. We mainly cultivate rice crop and during the summer season we cultivate sesame.

I have known Village Knowledge Centre for the past three years. My wife is a member of Village Management Committee of the VKC. Though my wife was involved in VKC activities I never used to go to VKC. I started showing interest in the activities of VKC only after the plant clinic was introduced in our village in 2012. I have been receiving voice SMS from the VRC of Thiruvaiyaru for the past seven months which are useful to a farmer like me.

A significant aspect of the plant clinic has been that it has helped the farmers to cut down cultivation cost. After adopting the recommendations and prescriptions provided through plant clinic there is improvement in crop yield. Earlier I used to harvest 30 bags of rice in an acre and now from the same area I get more than 36 bags.

Few of us have become aware of the importance of soil sampling; I did not know the difference between pest and disease attack. Only now I am getting familiarised with names of pest. When there was an attack of pest like *sempen* (white mite) we used to refer to it as *payiril manjal adithulladhu* (the crop has turned yellowish colour). I did not know it was a pest attack. Now I will be able to identify if there is a *sempen* attack on the crop. I saw it through the microscope in the plant clinic. I could see it hidden in the crop and sucking the sap from the crop. The tips of the crop had become reddish in colour.

I have planted paddy crop in seven acres. Two weeks ago (August 2014) I noticed that there was some pest attack on the crop planted in three acres. I took the affected plants to the plant clinic held (22 August 2014) in our village. The crop expert prescribed spraying of neem oil and Sulphur if the attack was moderate; for severe attack I was asked to add Dicofol along with neem oil and Sulphur (if it is more). After four days, as recommended by the expert I sprayed all the three mixed with water. The pest attack has been controlled to a great extent. Fearing the attack might spread to other four acres I sprayed the same solution as a precautionary measure to the rest of the area.

Prior to this also, I had sought the advice of the agricultural expert at the plant clinic for nursery rising of rice crop. I had used 90 kilos of seeds for three acres. Based on the expert's guidance I applied 20 kgs of DAP and 10 kgs of urea as basal application. But I could not do seed treatment as suggested by the expert because I did not have money to buy the inputs. However, later I applied the bio fertiliser mixed with sand to the land. I do not generally get time to do seed treatment. So I go for this type of direct application of bio fertiliser to the land. The crop can be harvested in three weeks time. The standing crop looks satisfactory. We are expecting a reasonably good yield.

As I told you the cost of cultivation has also reduced significantly. I can easily say it has become 50 per cent lesser now. Right proportion of inputs to be used is prescribed; so there is reduction in expenditure. As we are taking pest/disease control measures on right time the cost comes down. If the disease/pest attack is severe our expenditure on input will be on the higher side. Now we are able to take precautionary measures on time and avoid crop loss due to the plant clinic intervention. Earlier, the input dealer used to suggest whatever he thought was right. And, we the farmers used to apply inputs indiscriminately! Now the plant doctor writes the prescriptions; so no problem! *Alavu solvadhil selavu kuraigiradhu. Thakka tharunathil marundhu adippadhil selavu kammiyagiradhu. Noi thakku adigamanal selavu jasthi Varumun kakkirom. Avargal ishtathirku Urakkadaikarargl marunthu kodupargal. Nangal engal ishtathirku adippom. Ippa neega ezhudi kodukireergale! Pirachuinaillai!*

I can easily identify if a crop is affected by *ashwini poochi* (aphids). I know the damages it causes to the crop. Until recently I did not know anything about it and the nature of the damage. Last year my sesame crop was affected by that pest. I came to know through the plant clinic it feeds on the plant sap. I also observed that the leaves of the sesame were rolled, twisted and wilted. The leaves had also turned black. Here after I will be



careful and will take necessary action to prevent and control the pest. I sprayed the suggested inputs neem oil in 100 litres of water and the pest damage was minimised. Other farmers namely Mr Sammandam, Mr Sekar and Mrs Rukmani also adopted the recommendation to control the pest in sesame cultivated in their respective fields. They were encouraged to adopt it when they saw me carrying it out in my affected sesame field. I know they followed the prescription correctly. They were able to arrest the crop damage to a great extent because they adopted the right remedial measures before it was too late. On another occasion when there was *kombu pachai puzhu* (Green horn caterpillar) attack on my rice crop. I contacted Sir for advice. The leaves of the plant started wilting due the pest/insect attack. The leaves were sliced into pieces. As suggested by him I sprayed Cartap Hydrochloride (300 gram per hectare) along with sticky agent (100 gram) mixed in 100 litres of water. I could see the pest dying immediately after the spray. Whenever we call him for advice or clarifications he would recommend only after verifying the condition of crop like how the leaves look, whether there is a cut or does it droop or curled up and so on.

We came to know about the bio inputs and its benefits to the crop and the environment through the plant clinic. I have started using bio fertilisers only after the plant clinic intervention in our village. Though I had heard about these bio inputs I never took it seriously as I lacked the knowledge about their importance to the crop and the environment. Now I have started using Azospirillum , Phospobacteria and *Pseudomonas* . I use both Azospirillum and Phospobacteria during nursery raising and after transplanting. Later I apply *Pseudomonas* for crop establishment. I generally mix it with sand and apply to the field. We would appreciate it if bio fertilisers could be made available in our locality itself.

Help is available at our door steps. I can easily contact the plant doctor from my village and the expert from the VRC for any help. Plant clinic is of great use and a help to us. We can contact the agricultural experts if we need any guidance and advice through the phone. We do not have to wait for next plant clinic session or go to the VRC in Thiruvaiyaru. We call the VRC or approach Ms Devika (plant doctor from this village) not only for seeking guidance for remedial measures for crop related problems we also seek their help if we do not get prescribed inputs in our area. They would guide us about the possible places of availability of the input recommended. In case we do not get the prescribed input they would suggest alternative chemical or biological inputs. Once, when I could not get the prescribed chemical - Dicofol, I contacted Sudakar Sir over the phone who was in Chennai at that time. He suggested similar kind of chemical produced by a different company. I bought it and applied it to the crop. It was effective. The timely guidance and advice is something which we have been lacking all these years. It is a great service to the farming community. Thanks to MSSRF and CABI for conducting plant clinic in our village. We only hope that this service would continue.

Name: Mr Kandappan

Age 42 Years

Education: Diploma in Civil Engineering

Occupation: Agriculture and Cable T V operator

Village: Arasur

District: Thanjavur

My name is Kandappan aged 42 years. I have done my Diploma in Civil Engineering. I come from a traditional agricultural family. My father was a school teacher and he also looked after our 10 acre agricultural land. My mother supported him in the agricultural activities. After completing my studies I looked after the lands for ten years. Then I went to Singapore looking for a job.

It is three years since I returned from Singapore. Again I have taken up to agriculture. I am also a cable TV operator. I cultivate paddy, cotton, sesame and black gram. After harvesting paddy raised in *thaladi* season. I



generally grow cotton where water facility is available. In areas with less water facility I grow sesame or black gram. I have around 60 coconut trees. I try to avoid using chemical pesticides/insecticides as they destroy benevolent and useful insects also.

I have come to know of plant clinic activities for the past two years. Till then I did not take much interest in the Village Knowledge Centre's activities. I have gone to the plant clinic three times. I feel proud to tell you that plant clinic sessions are regularly held in our village. Nearly 50 people participate in each session and many have benefited through it. The plant clinic doctors are patient and listen carefully to the farmers' concerns and sometimes they even visit the fields of farmers to get first hand information. I have heard other farmers talking highly of the plant clinic. The farmers are benefitting a lot through this intervention as the prescriptions are simple and effective.

When I went to the plant clinic first time in 2013 I took my paddy seedling to get the plant doctor or the agricultural expert's opinion in it. I was told to do dipping of the seedling using *Pseudomonas* and Azospirillum before transplanting. Now I have planted paddy in four acres of my land. I did seedling treatment as advised at the plant clinic. The crop looks good and healthy. This was the first time I have done seedling treatment. I did not have knowledge about this earlier.

At the plant clinic we were advised that it is important to use inputs based on the soil requirement. And, more than the required quantity is not good to the land and the crop. Many of us have given our soil for testing. We have not yet got the results. After we get the results we can apply only the required quantity of inputs to the field and therefore avoid unnecessary expense.

There is another indirect benefit which I got through my participation in plant clinic. I got an opportunity to participate in a five day training programme on coconut tree climbing and management practices related to the coconut crop organised by the VRC of Thiruvaiyaru in association with Coconut Board. This training has helped me to manage the trees well and pluck the coconuts from the trees without any difficulty by using the climbing device.

I am happy with the plant clinic services. I do not have any problem. Our only problem is shortage of water during *kuruvai* season. What can plant clinic do in this regard? We have to handle it ourselves!

Name: Mr Kannan

Age: 29 Years

Education: BCA

Occupation: Agriculture and Clerical worker, Panchayat Union Office

Village: Rajendiram

I am Kannan from Rajendiram Village. I am 29 years old and have done my BCA. I have known about MSSRF activities ever since VKC started functioning in our village. I am happy to tell you that I worked as Knowledge Worker of the VKC for nearly three years before I got a job in the Panchayat Union office as Clerk. My association with VKC helped a lot to get this job. I am thankful to MSSRF.

The farmers and others irrespective of age and sex in our village have been benefiting through the services of the VKC. The database on agriculture available in the VKC has been used by the farmers to get guidance to carry out their agricultural work and update their knowledge. The VKC also disseminates information related to agriculture, veterinary, education and so on through various communication tools such as notice board, *Namma Ooru Seidhi*, disseminates advisories (on agriculture, health, weather and so on) as short text messages through mobile phone etc. Plant clinic intervention is another important service rendered by



MSSRF in association with CABI. We are happy that plant clinic sessions are being conducted in our village for the past two years. This is a timely intervention for farmers as a great majority are dependent on agriculture for their livelihood. Few of us have taken seriously about the importance of doing soil testing and water testing in a scientific manner. Thanks to the plant clinic and the VRC of Thiruvaiyaru. There was no rain continuously for two to three years. Even planting during *samba* season had become uncertain as there was no water. This had increased the salinity of the soil and water content in my agricultural land that I lost more than Rs 1, 200, 00 rupees last year (2013) which include the expenses incurred on ploughing the land, weeding and fertiliser application. The entire paddy crop planted in 91/2 acres last year (*kuruvai* season, 2013) had dried. The area in and around my land and water had been affected with heavy salinity.

I approached the plant clinic held in our village at that time to get the advice of Mr Sudhakar, the agricultural expert and I explained to him about the condition of the crop planted in that season (*Kuruvai* season). He visited the field to assess the nature and extent of the damage. According to his instruction I gave water and soil for testing. The results showed that levels of salinity were high both in the soil and water. I removed the entire dried crop from the field and I sprayed MAP to the field. He also prescribed micro nutrients. I was also told that I should take care of avoiding water logging in the field and at the same time not allowing the field to become dry. I did everything as guided by the agricultural expert. In order to eliminate the salinity I applied Gypsum and left it in the field for a day after which the water was drained from the field. Then I applied the prescribed inputs to the land. Fortunately it also rained. I was satisfied with the crop yield though I made a minimum profit of Rs 30000/-; I did not incur any loss like the earlier season.

My neighbour gained confidence to cultivate paddy after I took the risk of cultivating the same in the following season (during *samba* season). Earlier, they were not prepared to cultivate the land. My neighbours also visit the plant clinic for advice. Based on the recommendation they also tested their soil and water.

If we seek guidance /suggestions the expert at the plant clinic immediately responds. When I asked for his advice as to what rice variety I could cultivate I was suggested to go either for CR 1009 or Trichy 1 variety (during *samba* season). I opted for the former one. As summer crop I was suggested to cultivate red gram to reduce the salinity of the soil and they also recommended to grow green plants such as *thakkai poondu* (Daincha) and *sanappai* (sun hump) (which can also be used as green leaf manure) one month before transplanting of rice crop. We have been advised to practice this regularly as it would maintain/enhance soil health and this also would help reduce expenses. As suggested, I have sown *sanappai* in my field.

I prefer to follow organic method of cultivation of crops. For nearly seven years I did not use any pesticide for my crop. Only last year (2013) I applied chemicals (when my rice crop was affected by stem borer during *samba* season) as per plant clinic recommendation to control pest as the damage was quite high on my rice crop. I did that so as to recover the crop from the pest attack immediately. It was pointed out to me by the plant doctor that when the pest or disease attack is in the initial stage we can go in for traditional/organic method of treatment. Now I understand that chemical pesticides are recommended if the crop is in a critical stage of damage something like in Intensive Care Unit condition to save the crop. The chemical inputs recommended are not toxic; they are safe and do not cause harm to the environment.

I have dug a new bore pump taking the guidance of the MSSRF staff associated with plant clinic. The technology solution recommended was simple and effective. The bottom portion was filled with washed pebbles while top portion was filled with clay balls which prevent percolation of water from the top level of the bore. The quality of the drinking water is very good now. As advised by the staff I took the help of a bore technician.

People are ready to spend money to improve their production but the people's concern is that it should be useful and productive expenditure. The advice and recommendation given at the plant clinic is scientific and based



on research. But the input dealer sells the product to promote the interests of the company. We are satisfied the way plant clinic is functioning in our village and our experiences with the results are good. It is of great help and support to the farming community as Assistant Agricultural Officer is not of any help to us.

As the plant clinics are conducted during the main agricultural seasons, it is very useful. The plant clinic doctors and the expert visits the fields to assess the growth or disease/ pest attack levels. We freely talk to them about our problems and they help us in handling the problem by giving recommendations, suggestions and guidance to be followed for a respective problem. Because of this I find that farmers are showing more interest in doing agriculture. We have easy access to knowledge and guidance! Thanks to the plant clinic!

Name: Mr Karthikeyan

Age: 40 Years

Education: Class 10

Occupation: Agriculture

Village: Panaiyur

District: Thanjavur

I come from a traditional agricultural family and my name is Karthikeyan. I have studied up to Class 10. Agriculture is our family's primary occupation and we depend on agriculture for our livelihood. I have five acres of agricultural land and I have bore set facility. The main crops cultivated in our land include rice, sugar cane, black gram and sesame. We also have banana and mango trees. I cultivate rice in two seasons (*kuruvai* and *samba*); during Thai (January-February) bogum the crop cultivated is black gram and sesame is cultivated during *Masi* (February-March) –*Panguni* (March-April). This is the general practice followed by the farmers in our village.

I have known about MSSRF since the time the VKC was set up in this village seven years ago. I am one of the members of Village Management Committee of the Village Knowledge Centre. The Centre has been doing good work for the development of the rural people. The VRC at Thiruvaiyaru organise awareness meetings related to cultivation of local crops and take the farmers for exposure visits. The VRC also organises phone-in-programmes for farmers and regularly send us short text messages related to agriculture, and veterinary care and management. I have participated in a meeting on sesame cultivation at Srinivasa Rao School organised by MSSRF in March, 2014. I have also participated in the youth agricultural programme conducted by them.

The inception of plant clinic intervention is a significant one for the entire farming community. This intervention really contributed to improve the lives and livelihood of a farmer. Farmers look forward to plant clinic sessions. We get on the spot solutions to our crop problems which is very important for us.

I am one of the users of the plant clinic. I regularly attend the plant clinic sessions whether I have crop problem or not. I attend them because I believe that it would help me to become aware of various issues related to the crops and how to handle them. I have benefitted by following the recommendation given by the agricultural expert at the plant clinic for almost all crops I cultivate in my land. I also take the advice of the agricultural expert regarding the variety of rice crop or any other crop to be cultivated in my field.

Last year (March 2013) I cultivated *makka cholam* (maize) (NK 2642) a new variety in two acres of my land. It was the first time I tried with maize. I did not have experience in cultivating this crop. Based on the advice of the input dealer I selected this crop; later only I realised it was a wrong crop selection and that was not the season for sowing maize. I did not realise that it would affect the yield. After the inception of plant clinic,



I normally consult Sudakar Sir (agricultural expert from MSSRF and also a resource person of plant clinic) before taking up any new agricultural activity. Unfortunately, that time I did not consult him. I spent Rs 25000/-

The crop had also stunted growth. The crop was also affected by *kuruthu poochi* (stem borer). It was a 40 day crop. When I mentioned about it to Sudakar Sir, he visited the field after the plant clinic session. He was saddened to see the crop and in a concerned voice he remarked *mudallaye kanbikkama vittingale* (meaning you could have shown it much earlier)! On seeing the crop he recommended certain inputs to overcome the problem and to promote the growth of maize crop. To overcome stunting and increase the yield I was recommended to immediately go in for fertiliser application- Urea and Potash as top dressing and to enhance growth I was suggested to go in for foliar application of growth promoter (Sea weed extract) which was in granule form. To control stem borer attack chemical recommendation was given which I did. I could have reaped a good harvest had I been little alert and taken the advice of Sudakar Sir before choosing the crop and shown the affected field little earlier. The only consoling factor is that I was able to minimise the loss. I got back what I spent. This was possible only because of Sir.

I have been able to gain more details/knowledge (on improved agronomic practices and pest/disease management) related to sesame cultivation. (Attending the meeting on sesame cultivation also helped me to an extent). Normally, farmers from my village and in general in this region do not pay much attention to sesame cultivation. We do not even apply any fertiliser to the sesame field. We may apply urea sometimes. I have not heard of any pest attack on sesame until recently. Growth of my sesame crop had not been good for past six to seven years. I used to think that it was due to lack of water. I did not know all these years it was due to *vadal noi* (Wilt) attack. Thanks to plant clinic. During one of the plant clinic sessions held in our village when I had sesame crop in my field I took crop sample to the plant clinic. After examining the sample crop, the agricultural expert at plant clinic pointed out it was due to *vadal noi* attack and prescribed control measures. I was asked at the plant clinic whether there was anything like ash powder presence on the crop to which I said yes. There was also a pungent smell emanating from the affected crop. I have also been advised to remove *kundhu chedi* (stunted growth plant) (Phyllody) from the field and it was also explained to me that it is a source of vector borne disease. I followed the remedial measures as prescribed at the plant clinic and I also removed all the *kundhu chedi* from the field.

I have also started doing seed treatment based on the guidance of the agricultural expert. As per his guidance I soaked the seeds mixed with *Pseudomonas* and Phosphobacteria in rice starch for a day before broadcasting it in the field. I also learnt that if broadcasting of seed is done after five days after irrigating the land it would enhance good germination. I was happy with the germination. Twenty five days later I applied 15 kilos of Urea and 15 kilos of Potash. I did not find *kundhu chedi* in my field as a result of doing seed treatment. *Vadal noi* also did not affect the crop. If the *vadal noi* occurs the growth of crop will be affected. It will start drooping. My friend Mr Sivakumar did seed treatment for certain quantity of sesame seed material. In the field where he broadcasted seeds treated with *Pseudomonas* and Phosphobacteria, the crop was not affected by *vadal noi* whereas I noticed prevalence of this attack in the field where he had used untreated seed material. To overcome the problem he went to the plant clinic for guidance and he was recommended to spray *Pseudomonas*, AzosPirillum mixed with farm yard manure. It had reasonable good effect on the crop growth.

As I mentioned to you, I was very happy with the germination of the sesame seeds. Another thing which I learnt through the plant clinic was that I should reduce seed rate. I was using three kilos of sesame seeds per acre. My father used to broad cast 11/2 kilos of per acre. Now as per the advice of plant clinic I use only two kilos of seeds per acre. I was satisfied with the number of population. I got a good yield of 600 kilos of sesame from two acres. The cultivation expenses were also less.



I must also tell you that I used the advisories prescribed for my paddy crop (BPT Andhra Ponni) for the crop growth and also for pest attack of *ilai pen* (Thrips). Two days after transplanting, my two acre rice field totally got inundated due to heavy rains. I could see only one crop in the field. I thought I had lost Rs 20000. I was very worried and I called the VRC of Thiruvaiyaru and explained to Sudhakar sir about the rice crop condition. He told me over the phone to take down the prescription. He told me to apply Zink Sulphate, Mono Ammonium Phosphate mixed with sticking agent. As I was not sure of the chemicals/inputs mentioned over the phone I directly went to the VRC to meet Sir in person to get the advisory. He wrote it down for me the details of the inputs and the proportion of the inputs to be used/sprayed (300 g Zink Sulphate, 30 g Ammonium phosphate along with sticking agent). I followed the recommendation and sprayed two cans. I repeated the same after 15 days. It became alright. Later, I confronted another problem- *ilai pen* affected the rice crop. Three days after spraying Chlorpyrifos along with Acephate the pest was controlled. I harvested 50 (60 Kg per bag) bags of rice from two acres (normal yield is around 30-35 per acre). I was satisfied with the yield. I thought I was going to face heavy loss because the condition/severity of the crop damage was like that. I must tell you that the crop which was in an intensive care unit (ICU) was restored and brought back to normal health due to the timely treatment of the plant clinic advice and encouragement. I am grateful to the plant clinic. The crop, which was in a critical condition, has yielded 50 bags of rice (from two acres). There is a great demand for this rice and easily fetches Rs 1000 per bag from Tamil Nadu Civil Supply Corporation. We get immediate payment for the product sold; payment is not delayed. The price goes up to Rs 1250 if we sell them after few months of stocking.

During 2013 (April-May) sugar cane planted in one acre was affected by *ilam kuruthu puzhu* (early shoot borer). I could identify the pest but was not sure of the control measure. I contacted the agricultural expert at the plant clinic. Though I was against using *kurunai marundhu* (Furadan) as that would affect the fertility of the soil, I had to apply Furadan (10 kg per acre mixed with sand) to control the pest. After the application of Furadan the crop started developing tillers (*simbu vedikka aarambithu vittadu*). Then to control weeds I applied two packets (½ kilo per packet) of atrazine in the reverse manner. My father used to spend Rs 3000 for weeding alone. I also sprayed DAP (two bags). From one acre I got fifty tonnes of sugarcane. The normal yield would be 40 tonnes per acre. Weeding cost was also reduced.

During this year (2014) there was wide spread attack of *Aswini poochi* on sesame crop. Farmers have been able to control by following the advice (spraying of Chloripyrifos (100 ml per acre mixed with 20 litres of water) provided by the agricultural expert at the plant clinic. Confidence of the farmers in the plant clinic got further strengthened. It helps the village at large.

Growth of my jasmine plants was not satisfactory. I do not remember the input prescribed for the growth of the plant. The jasmine plants look good after following the recommendation. I grow banana also. The saplings were affected by *thandu azhugal noi* (corm rot). I was told at the plant clinic that this occurs due to heat in the summer season. To control the disease it was recommended to apply two kilos of *Pseudomonas* and two kilos of *Azospirillum* three days after watering the young saplings. In addition to this, application of growth regulator namely Biozyme (8 kilos) mixed with Zinc Sulphate (10 kilos) for one acre was also suggested. I was also told that I could do this through foliar feeding method. I will be doing this soon so that I can save my banana crop.

I feel bad that I failed to adopt the prescription suggested for mango crop which is not yielding fruits. It stops with flowering.

I have heard about the seed treatment earlier also but never took it seriously. Now I have come to realise the importance of seed treatment through the plant clinic. For example, I learnt that one can avoid certain diseases



like *kulai noi* (blast disease) and seedling disease in paddy. I take care that my rice seeds are treated well with bio inputs and I can see the difference; growth of the crop is good. There is no attack of *kulai noi* or seedling disease these days.

For any suggestions or guidance we can always contact the agricultural expert. He is very helpful and committed to his work. Any time we can approach him. He recommends only necessary inputs and recommends chemical application only when the crop is in the critical stage. It helps to avoid crop loss. The advisories are simple and reduce cultivation cost.

I have participated in *Vayal Vazhi Palli* (Farmer Field School) conducted by the Central Government where pest and diseases affect the field crop was explained but remedial measures were not covered. My participation in this programme has helped me to identify major pests and disease. It is Only MSSRF/CABI which offers help not only in identifying the crop problem but also providing solution for the same. I consult the agricultural expert to find out about a variety to be grown during a particular season. I also share the knowledge with my brother and others in the village.

MSSRF/CABI is like our family doctor for our field crops (MSSRF/CABI *engalukku family doctor madhiri*). Even during non plant clinic session days the expert visits our fields if we explain to them the problem over the phone. The advisories are very simple. We can easily adopt and the input expenses are less. There is awareness among the farmers about the rationale use of inputs chemicals/inputs in right proportion. For example, earlier the input dealer used to recommend the farmer to apply insecticide/pesticide like Monocrotophos, sticking agent and micro food together. Now we learnt that there is no need to apply like this; we have come to realise that only micro - food is sufficient in normal circumstances. I have never done seed treatment before though I used to get *Azospirillum* and *Pseudomonas*. My attitude has changed now. I and other farmers in our village understand the importance of doing seed treatment for all the crops.

Our contacts with VRC have further strengthened because of the plant clinic intervention. Since the farmers have access to the VRC we also get information about input availability, schemes for the farmers and so on. Agricultural Officer's role as an extension person is very limited. Only those who have contact with AO can get such information. I do not depend on him for solutions or remedial measures.

I wish that plant clinic intervention will be continued so that the farmers can carry out farming with confidence.

Name: Ms Kavitha

Age: 39 Years

Education: Class 10

Village: Vilangudi

District: Thanjavur

I am Kavitha aged 39 years. I come from a village called Vilangudi in Thanjavur district. I had school education up to Class 10. We are primarily agriculturalists. We own 5 acres of land. We cultivate rice, black gram, sesame, vegetables, and banana and so on. I am a member of Farm School (run by MSSRF) functioning in our village. My husband is a driver and also works on our land.

Right from my childhood I had interest in agriculture. I take care of most of the farm related work with my husband's support. In our *thottam* (garden land) I have 10 types of herbs and vegetables like *kathari* (egg plant), *mullangi* (raddish), *avarai* (lab lab), *pudalai* (snake guard), *peerkan kai* (ridge guard), *murungai*



(drum stick) and different varieties of greens. I had also 25 *savari kattai* (tapioca) plants in the garden land which I harvested during the month of *Thai* (January-February) this year-2016. This was the first time I tried cultivating this crop.

I began to use the services of plant clinic only from 2014 though it had been functioning since 2012 in our village. I knew about it but I did not feel the need to take its help as I had the guidance of a good AO. The AO was good, he used to visit the lands and give advisories related to the crop problem. I did not face any difficulty in carrying out my agricultural activities. After he was transferred to some other place I went in for banana cultivation in three acres of land for three years. Again I have come back to rice as I realised banana was not profitable crop. There is no market value for it.

Ennudaiya mudal anubhavame enakku nambikkai thnadhadu (my first experience with plant clinic was very encouraging and gave me confidence about its services and activities). I approached plant doctor for the first time during 2014 when my banana suckers did not grow well. I had planted G 9 variety of banana in 3.5 *maa* (three *maa*= one acre) of land. They suggested that the corm should be treated well before planting. Based on their recommendation I applied *Pseudomonas* and *Trichoderma Viride* around the corms; I also sprayed MAP for good growth of the crop. The yield was good and I got a good profit. I did not spend much on fertilisers. With less investment I got an excellent yield. I sold it for a good price (*Chedi ookkamaga, thelivaga irundhadu. Selavu kammi. Labam kooda kedaichadhu*). I got a profit Rs 35, 000 from banana harvested in 3.5 *maa* area of land.

I decided to cultivate rice from last year (2015) instead of banana as there is no market for the latter. It is not economical. I fully followed the *parinduraigal* (advisories/instructions) of the plant clinic in rice cultivation. I reaped a good harvest of quality grains and the merchant was happy to pay me a higher price. I got more Rs 30-35 per *chippam* (*Chippam*=40 kilos) than the normal rate. Thanks to plant clinic (*...nalla magasul kidaithadhu. Maniyum thiratchiyaga, nalla nirmaga irundadu. Viyabari nall vilai koduthar. 30-35 rubaikkumel oru chippathirku kidaithadhu. Payir maruthuva mugamadhan idarku karanam*).

Based on Sir's (agricultural expert from MSSRF) guidance I planted CR 1009 rice variety in my seven *maa* of land and KO 50 in .5 acre. To a greater extent I did as per the recommendation suggested at the plant clinic. Due to good agronomic practices I got a good yield of 170 *chippam* from seven *maa* of land. I got more yield than others in the village with less cultivation cost. While I got 15 *chippam* from 100 *kuzhi* (300 *kuzhi*=one acre) the others got between 10-12 *chippam*. The tiller growth was exceptionally good that we found it difficult to hold the crop while harvesting it. Based on my request they gave me advisory for obtaining good grain quality characters which I adopted; the colour and the quality of the grains were excellent. I harvested the crop before it got completely dried up and there was still some dampness or moisture. *Nel sidaravillai* (There was no shattering of grains). The only thing which I did not do was seed treatment. Before I could do it the rice sowing machine had already reached my field. (Rice nursery was prepared using rice sowing machine). So I could not do it.

I irrigated the land on right time and in a proper manner. I applied/sprayed the inputs as per the specifications of the plant clinic. Balanced application of fertilisers reduced the cost involved in cultivation. On the 22nd day I transplanted the rice seedlings. After 15 days of transplanting I applied DAP (3 bags) and Urea (1 bag) as basal application. On the 30th day I used the prescribed weedicide and the weeds got controlled. Then I applied the necessary *uram* (fertilisers). After second weeding I applied Urea, Potash, *Kurunai marundhu* and neem oil to the field.

The rice nursery was affected by *ilai pen* (Thrips) and later the rice crop was affected by *kuruthu poochi* (stem borer) and *ilai karugal* (leaf blight) but I did not face any yield loss as I followed crop advisory given at the plant clinic; the disease/pest got controlled soon.



I followed balanced application of fertilisers. I did not use inputs indiscriminately. So the cultivation cost was also less. I have seen people using more than the required quantity of inputs. For instance, where three sprayers of inputs are sufficient some farmers instead use five sprayers for their fields. I understand now that using more than the necessary quantity of inputs would not yield any good result. So, I am very careful using only the recommended dosage of prescribed inputs.

To control *ilai suruttu poochi* the plant clinic recommends installing pheromone traps and light traps to control harmful insects/pests. To manage rodent problem in the fields it was suggested to put goat/sheep dropping on the edges of the field bunds, the smell of which would keep rats away. It worked in my field and many others are using this method to manage rodent problem

Similarly, for black gram, sesame, vegetables and flower crops also I follow the advice given at the plant clinic. I have black gram in 4.5 *maa* of land, sesame in two *maa* and vegetables like egg plant in one *maa* of land. I have more than five varieties of jasmine. I have rose crop also in my land. My jasmine and rose plants (during 2015) started yielding more flowers. There was some disease attack on the jasmine crop and it was not producing flowers. I requested the plant doctor to suggest some inputs to promote good yield of jasmine flowers. I sprayed Porponofos (3 ml, Cartap, Hydrochloride (3g), sticking agent (1 ml). There was increase in the flower yield and the disease also got controlled after I followed the crop advisory. Similarly, when Rose plants were affected by *ilai pen* (Thrips) it was brought under control after adopting the remedial measures. As per the recommendation I sprayed Imidacloripid mixed with 10 litres of water. After that it started flowering well. They were looking good.

For the first time, I planted 25 numbers of *savari kattai* (tapioca) during mid 2015 and followed advisories from the plant clinic in raising them. The quality of the tubers was excellent that I could not lift it. But I stopped cultivating after it was affected by *maavu poochi* (Mealy bug). I was asked to remove the affected part of the plant from the field.

Presently, I have black gram in 4.5 *maa* of land. I have sought the advice of the agricultural expert at the VRC of MSSRF in Thiruvaiyaru to safe guard the black gram crop from pod borer attack. I have taken the preventive measures and as per his guidance I have sprayed the prescribed inputs to improve the quality and also yield of the crop. Black gram fetches good rate if the quality is good.

If there is no plant clinic session and if we need help related to our crops we have access to the agricultural expert's advice through the Helpline service and also Mr Arunachalam the plant doctor in our village. During December 2015 the rice crop in my land had some disease/pest attack. I did not know disease details. So I called the Helpline of the VRC to get advisory to control the pest/disease. When I explained to Sir the symptoms he said that it was due *pachai puzhu thakkudal* (green horned caterpillar) attack. He prescribed spraying of Cartap Hydrochloride 300g and sticking agent 100g evenly all over the field. The pest got controlled. The plant doctor from our village is very helpful. I take his guidance. He would tell us if any crop is affected by a pest or disease in the beginning stage itself. When I showed him my egg plant he said it had been affected by *kondai poochi*. He showed me by tearing the stem of the egg plant. Sometimes he would also contact the agricultural expert in the VRC of MSSRF for clarifications and suggestions.

If I notice anything abnormal in the crop I do not hesitate to call the VRC. Once I took a photo of an insect and showed it to Sir. I wanted to know whether it is *nanmai tharum poochi* (beneficial insect) or *theemai vilavikkum poochi* (harmful insect). He told me that it was *nanmai tharum poochi*.

My neighbour told me that his black gram crop had dried up. So, I contacted Sir and he sent me SMS that it was due to *ver poochi* and recommended physical removal of the affected crop from the land. He did as advised and the crop grew well and the yield was satisfactory, he said.



The plant clinic is doing a great service to the farmers; the prescriptions are simple and effective; it is accessible to all farmers including women farmers. The plant doctors and the staff from MSSRF are very supportive to us. I see a great difference between the agricultural extension officers and the plant clinic in reaching out to farmers. At the plant clinic only minimum quantities of inputs are suggested. They are not expensive and are environment friendly. Plant doctors alert us when the crop is affected by any pest or insect in the initial stage itself. We are able to see the insects (through the microscope) causing damage to the crop. The prescribed chemicals do not cause any harm to the plant or the environment (*Konjamana marundhu solgirargal. Arambakalathiliye enna thakki irukku enbadai kanbhikingirar. Kankudaga poochhai parkamudigiradhu. Marundhu aditha oruvarathil palan therigiradhu. Payirukku bhadippilladha marundhu parindhuraikirargal*). We see the result within a week after adopting the remedial measures. The farmers are advised to use chemicals with green or yellow or blue label on it as they are less/non toxic. They are effective and at the same would not cause damage to the health of the plant and the environment. I find nearly 20 per cent reduction in input cost when compared to the AO's advisories I adopted earlier. The earlier AO was good but still I find the plant clinic's advisories are the best and effective.

Introduction of E- plant clinic is an excellent initiative. As it is conducted frequently we are able to follow correct farm operations. As we are getting the advisories in our mobile phones we are able to refer to the advisories provided at the plant clinic. We can verify what chemicals we have applied earlier. Mobile phone is always with us. So it makes things much easier. As we know the chemicals prescribed we can find out the rate by calling the input shop. I have not incurred any loss since I started using the clinic's crop advisories.

Several farmers have started doing agriculture with clear understanding. Microscope facility available at the plant clinic is very useful for us; we gain knowledge and understanding of the nature of pest/disease attack and how they cause harm to the crop. By following simple practices we are able to enhance the yield. I wish the services of plant clinic are expanded so that more farmers can get benefited. But I am unable to articulate how it can be done (*payir maruthuva mugamai nanraga kondu poganum. Anal eppadi enru cholla theriya villai!*)

Name: Mr Kumar

Age: 52 Years

Education: Class 5

Occupation: Agriculture

Village: Thirupazhanam

District: Tanjavur

I, Kumar aged 52 years hail from a village called Thirupazhanam. I have had education up to Class 5 only. I have been engaged in agriculture since my childhood. We own five acres of land where we mainly cultivate rice crop followed by black gram and sesame.

I have known MSSRF since five years. I am one of the Village Knowledge Centre Management Committee members. Since its inception MSSRF has been doing good work covering various aspects of the village community. MSSRF conducts awareness and training programmes for farm women and men. We also get agricultural related information as short text messages through our mobile phones; they are local specific and timely. The SMS plays an important role in the day today agricultural activities of the farmer. Awareness programme on crop insurance was very useful to the farmers; I have availed this scheme twice. MSSRF also took male farmers to *Aduthurai* Rice station for exposure visit. Programmes on health, education and other social issues are also organised for the socioeconomic development of the community.



Since 2012 plant clinic is conducted in our village. It is a good initiative whereby the entire agricultural community in the village has been benefiting. Its reach is wider than other services. The interesting point is that we do not go in search of them; they come in search of us to help us improve our livelihood (*engalai naadi vandhu solgirargal; nangal thedi povadhu illai*). Though Agricultural Extension officers visit our village they do not have sufficient time to listen to our concerns and help us; due to this we are not able to get their advice or guidance. MSSRF and CABI through the plant clinic have taken that role (of AO or AAOs role) and inspire the farmers to do agriculture with confidence.

I was upset when rice crop planted in two acres of land did not develop tillers properly. I became anxious. Luckily at that time (November, 2013) a plant clinic was held in our village and the crop was saved. The crop was affected by *vellai noi* (stem borer) (Locally it is referred to as *vellai* (white) *noi* (disease) as ear heads turn white in colour due to stem borer attack) The agricultural expert at the plant clinic prescribed some control measures to be followed and I did as recommended by him. And, thus I was able to avoid loss of nearly 30 per cent of crop yield. I harvested 13-14 bags per 100 *kuzhi* which is the normal yield.

Previously we never used to pay much attention to sesame crop. We did not take efforts to apply any manure for sesame crop. Sesame crop generally gets affected by *saar orinji poochi* (Jasids) which makes the fruit and the leaves oily and sticky. This pest normally attacks the tender leaves. We are able to control it due to the plant doctor's guidance. Based on his advice I applied neem oil and garlic extract mixed with water. There is yield improvement in sesame crop now. Earlier we used to harvest one quintal per acre but now we get more than two quintals per acre.

To improve the yield of black gram I was advised to spray DAP and apply growth regulator NAA (Naphthalene Asceic Acid). To control pest attack we were advised to apply/spray Propenofos. I will use this knowledge when there is necessity.

Plant clinic sessions conducted in our village prove that if a farmer has right guidance he or she can do well in agriculture. Based on my experience I am telling you that expenses on inputs have come down. As I told you, we get regular short text/voice messages from MSSRF. We also get short text messages from Tamil Nadu Agricultural University (TNAU). If we have any doubt regarding the information sent it is not easy to contact them (TNAU) through phone or other means. On the other hand, we have good access with MSSRF. We get immediate solutions/recommendations for our agricultural problems; Sudhakar sir (Agricultural expert from MSSRF) is super. The recommendations given by him are generally simple and economical. The staff are accessible at any point of time. A farmer can perform better if he or she has updated information and guidance. MSSRF in association with CABI plays a significant role in helping the farmers. We are grateful to MSSRF/CABI.

Name: Mr Manikandan

Age: 36 Years

Education: Class 8

Occupation: Agriculture

Village: Punavasal

District: Thanjavur

My name is Manikandan and I am 36 years old. I hail from a village called Punavasal. I have studied up to Class 8. I cultivate crops such as rice, sesame, black gram in seven *maa* (7 *maa*=2.5 acre) of my land. I own only one acre and I have leased in 1.5 acres of land. I cultivate crops mainly in one season-samba season; if there is



water in the River Kaveri I cultivate in *Kuruvai* season also. I have an oil engine to pump water from the bore well to irrigate the land. I am the only son to my parents. My mother helps me a lot in carrying out agricultural activities.

I am in regular touch with the VRC of Thiruvaiyaru. Experienced farmers from our village also visit the VRC for suggestions and crop advisories. Meetings on cultivation of crops like sesame are organised by the VRC for the benefit of the farmers. I normally participate in all the meetings. Unfortunately, I could not go to the youth in agriculture programme conducted in Coimbatore. Information that appeared in the news letter of *Namma Ooru Seidhi* from the VRC of Thiruvaiyaru enabled me to get insurance money of Rs one lakh when my father lost his life due to a road accident when he had gone to buy fertiliser from IFFCO given on subsidised rate.

I have been using the services of plant clinic since its inception in our village. It has been doing great service to the farming community. It has improved the confidence level of the farmers. I have come to know of good agronomic practices to an extent. I try my best to follow the guidance given at the plant clinic. If there is any problem in my crop I will wait till the end of the plant clinic session and take the agricultural expert to the affected field to get his guidance to handle the problem. I have been able to save my sesame crop and reap a very good yield; also I was satisfied with the harvest of maize crop from my field. Thanks to the plant clinic! I have all the prescriptions given by the agricultural expert at the plant clinic.

We had almost lost our hope on our sesame crop (2012) planted in 2.25 acres. The plant population looked very bad. We could only see one or two plants here and there in the field. The field looked very bad that my mother suggested ploughing the land again. I also felt the same way. Fortunately, the plant doctor and the agriculture expert from MSSRF visited the field. I followed the advice provided by the expert. With good *ura nirvagam* (fertiliser management) there was improvement in the growth of the crop. I applied the recommended quantity of Complex along with Urea, and potash and sprayed micro nutrient – Multiplex (5 kilo per acre).

Later, in the same crop I was also able to control insect attack caused by yellow leaf hopper insect and arrest flower shedding. I am not sure of the insecticide used for controlling the pest. I think it is Profenofos. I will have to check with Sir (agricultural expert from MSSRF) or the prescription sheet given at the plant clinic. What we thought as a lost crop yielded more than the previous years; I got 250 kilos more which means I got an additional income of Rs 20000/- (Rs 8000 per 100 kilo). The following year (2013) I could not plant sesame or any other crop as there was no sufficient water facility to irrigate the land. Ours is an oil engine which has less capacity to pump water. I could not ask my fellow farmers as they also faced water shortage.

When everyone had planted paddy in *Kuruvai* I had planted maize in my field. I followed the instructions provided at the plant clinic. I took care in making proper pits for planting and also providing necessary spacing between two plants. I applied Complex, Urea and Potash as per the advice of the resource person at the plant clinic. There was not much weed problem in my maize field. I harvested 25 bags. I spent around Rs 8000 and I sold for Rs 1500 per quintal.

Black gram planted during 2014 was affected by pest. It was 15- 20 day old crop. The leaves were full of holes. As per the recommendation given at the plant clinic I applied Profenofos to control the pest/disease. I think I sprayed $\frac{1}{4}$ litre per acre. I will have to verify with the sheet given by the resource person. The pest/disease was controlled within a few days. As recommended by the plant clinic I also used Pursuit (a weedicide) to control weeds in the field. I was satisfied with the yield.



My three year old mango tree did not look healthy. The tender shoots were affected. The leaves were curled up. I applied the pesticide I use for rice crop but that did not have any effect. I showed it to the agricultural expert from the plant clinic who recommended spraying of Pendol and the pest got controlled. The shoots started to grow well. For about six-seven months there was no problem; again the pest has appeared on the crop. I have been recommended to apply/spray five ml of some chemical in 13 litres of water. Right now I am not able to recollect the name of the chemical. I have noted down in my diary.

We have become more aware of the importance of soil testing through the plant clinic conducted in our village. I took advantage of the soil testing camp conducted in our village to get soil test done for my fields. The results revealed that Potash and Phosphorous were high and average organic carbon level was low. As per the suggestion I reduced quantity of potash and DAP and applied farm yard manure mixed with PM and PB.

I take the advice of Sudhakar sir for agriculture related matters. For example I consulted him before buying a motor engine for irrigation purpose.

Based on my experience I can say plant clinic is a boon to the farmers (*vivasayigalukku varaprasadam*). I have benefitted a lot through MSSRF/plant clinic. That is why I came forward to share my experience with you. I am unable to recollect everything now. Whatever I remembered I shared with you. We are thankful to MSSRF/CABI.

Name: Mrs Marudammal

Age: 60 Years

Education: SSLC

Village: Vilangudi

District: Tanjavur

My husband and I live in Vilangudi Village. We own 100 *kuzhi* (300 *kuzhi*= one acre) of agricultural land. We have also taken land (1/2 acre) on lease. We grow rice in two seasons (*kuruvai* and *samba*) and sesame as a summer crop. I have studied up to SSLC. I help my husband in carrying out agricultural activities like fetching water for spraying of agricultural inputs to the crop, in weeding and so on. Of late I have started to take the responsibility of going to the plant clinic held regularly in our village for getting solutions for crop related problems.

I have visited VKC in our village and VRC in Thiruvaiyayu. I have participated in programmes on crop protection, soil testing programme, awareness programme, and teleconference. Plant clinic was initiated in our village two years ago (2012). We are really fortunate to have that programme conducted in our village. Due to this intervention we get immediate solutions for our crop problems; cost of cultivation has come down. We are careful in using right inputs in proper right dosage at appropriate time. We are able to take precautionary as well as control measures for pest and disease attack. We do not have to depend on the input dealer for advice. We used to make several needless trips to the input dealer's shop. Now it is not the case.

This year (2014) the paddy crop has been greatly attacked by *sempen* (mite) in our area; it has been widely prevalent in our area. My crop is no exception to this. I have never heard about it earlier. During the plant clinic held during (August 28, 2014) I took my paddy crop affected by *sempen*. At the clinic, with the help of the microscope it was explained to me about the nature of the pest and how it affects the crop. I was really surprised to see the pest hiding under the leaves sucking the sap from the crop; the pest was not visible outside. It was not visible in the affected crop when taken out of the microscope. My husband bought the pesticide as suggested by the plant doctor and sprayed it to the affected field (Sulphur 250 gram and Dicofol ¼ litre for 120 *kuzhi*) and



I was happy to see the crop recovering immediately. My neighbour also adopted the pest control method adopted by us in our field. He was happy when *sempen* attack was controlled after the application of the prescribed remedy.

Due to the intervention of plant clinic we are able to prevent the pest and disease attack in the beginning stage itself. So the crop is saved from damage and there is yield increase. We rarely come across chaffy grains in our paddy crop these days. From our 100 *kuzhi* land we used to harvest 10 bags (62 kg per bag) of paddy earlier; now we get an excess yield of four more bags. Our input costs have come down a lot which itself is a profit for us (*selavu kuraindale labam thane*). Until two years ago, whatever the input dealer recommended we used to apply that. He used to sell the input which was not fast selling and expired ones. The required input was rarely advised by him. We used to apply fertilisers to the field every now and then if the growth of crop was not satisfactory. We used to think more fertiliser means more growth of the crop. We did not realise that it was not good to use the fertilisers like that until we came into contact with the plant clinic. Apart from the monetary loss it also involved lot of physical work and mental stress. Now because of plant clinic intervention we are avoiding unnecessary usage of fertiliser and other inputs which again bring down the expenses. Now we follow whatever the plant doctor/expert advices and suggests. We are benefiting a lot and there is improvement in our income.

Before, I was confined mostly to my house and our field. Once I started going to the plant clinic I have gained confidence to move with people and interact with them confidently. Buying the inputs and applying the same is taken care of by my husband but I help him. My husband does not go to the plant clinic as he would be normally busy with some work in the field at that time. I will not hesitate to go to the plant clinic whenever we notice any change in the growth of the crop or any attack. I will take the affected portion of the plant and show it to the plant doctor and get suitable advice. My husband is happy that I take the responsibility of taking the affected crop to the plant clinic or contacting Mrs Devika (the plant doctor) for any help or assistance whenever there is a need. Mrs Devika would come to our field and suggest remedial measures if there is a need. She would also verify with the agricultural expert from the VRC of Thiruvaiyaru before giving us details of prescription for a crop problem.

I encourage my village women and neighbouring village people to visit and make use of plant clinic. It is gaining recognition among farm women and men as the results are good. Now, whenever plant clinic is held in our village people with affected portion of the crop/plant would visit clinic to get guidance or remedy for the problem.

Name: Mr Moorthy

Age: 62 Years

Education: Class 10

Occupation: Agriculture and Agriculture Wage Labour

Village: Kamaraj Nagar, Thirupazhanam

District: Thanjavur

My name is Moorthy and I am 62 years old. I have studied up to Class 10. I have been engaged in agriculture for more than 30 years. I have one acre of agricultural wet land and I work for wages on others' land also. I mainly cultivate paddy in all the three agricultural seasons *Kuruvai* (June to September/October); *Samba* (September- January) and *kodai* (summer season). As I have ground water irrigation (pump set) facility I cultivate paddy in *Kuruvai* season also.



I am one of the many farmers from our village who have been utilising the services of plant clinic ever since it was introduced in our village three years ago (2012). This has been a great boon to the farming community. We get guidance right from nursery preparation to harvest of crops. I do not visit plant clinic as an onlooker or to while away my time. I go there with a purpose. There would be some reason or the other for me to visit clinic—either to get clarifications or guidance or to know remedial measures for a pest/disease attack on the crop and so on. I take the guidance of the agricultural scientist, Mr Sudakar and plant doctor seriously and adopt them in my field. Plant doctors are always ready to help farmers whenever there is any need.

As I told you I have benefitted a lot through the plant clinic. When my paddy crop (ADT 43) planted during the summer season (2013) was affected by insect and diseases simultaneously I could control them and I got better yield when compared to others (who did not carry out right insect/disease control methods). When others got nine bags (62 kg per bag) from 100 kuzhi (300 kuzhi = one acre) of land I got three bags more than the others. When I first noticed the pest attack on my crop I thought it was due to *kadir navai poocchi* (ear head bug). The crop was in the ear head formation stage of growth. I took the sample of the affected crop to the plant clinic. When the agricultural expert saw the sample crop he told me that the crop had also been affected by *ilai pulli noi* (leaf spot) and *kulai noi* (leaf blast) and he also visited my field. He told me that disease incidence was severe and I should apply fungicide (Tebuconazole 250 EC at the rate of 200 ml) and also *vasambu* (Acorus calamus) powder 500 gm per acre to control ear head bug incidence in the paddy field. He recommended Tubuconazoel at the rate of 200 ml along with 500 gm of *vasambu* powder per acre. I did as recommended by the agricultural expert and I could see the result in 10 days; I could prevent the loss to a great extent. I was told that chemical (fungicide) application was recommended to my field as the crop was in the critical stage of disease attack. During that severe stage of damage the chemical application helped to control the disease and minimise the loss of crop.

In the following season, known as *kuruvai bogum* I had planted paddy (Andhra Ponni) which was affected by *sempen* (mite). The leaf tip of crop was getting dried up and there was discolouring of the paddy sheaths. I thought it was due to heat. I did not know it was due to an insect until the agricultural expert told me about it. When I took the sample of affected crop to the plant clinic it was pointed out that it was not due to heat and that it was due to *vellai sempen*; they explained to me about the pest and how it damages the crop by sucking the water content. I got more clarity when I saw the live demo of *sempen* and how it sucks the water from the plant in the computer screen. The expert using the micro scope showed me the movement of the *sempen* on the crop using the computer. The damage was in the initial stage. As a remedy for this pest attack the expert prescribed application of one kg of urea mixed with wettable solution; I was also advised to spray sulphur ($\frac{1}{2}$ kg per acre). He also said I can use one kg of sulphur if I mix it with manure and apply to the field. For one acre I sprayed and for another 1 1/2 acres I mixed it (Sulphur) with manure. I was relieved to see the crop getting its original colour and I am happy with the yield; it was good. For the farmers who did not adopt the remedial measures their crop remained yellow in colour till the harvest. The yield was not satisfactory.

I was not only able to avoid the loss of my paddy crop planted during the *kuruvai* season but I was also able to get a reasonably good yield even though I used aged seedlings. As I could not raise the nursery for that season (2014) I bought the seedlings from outside. When I showed the seedling to the agricultural expert he advised me to trim down the top of the seedlings and increase the no. of seedlings planted per hill at the time of planting. Foliar application of Mono Ammonium Phosphate (one kg per acre) was recommended immediately after the planting. It was recommended to repeat the spray in an interval of 20 days. The expert said this would avoid the problem of the aged seedlings and would also help minimise the loss. I did as suggested. Later I was confronted with another problem. I was not happy with the grain formation and there were not many tillers. I came to



know it was due to nutrient deficiency. I was advised at the plant clinic to maintain water (minimum 0f 3-4 cms) level in the field during the grain formation stage. I was also asked to spray a minimum of one kg of Potassium Nitrate through foliar application. And the same crop was also affected by vellai sempen which was widely prevalent everywhere in and around my village at that time. I also adopted the control measures as advised by the agricultural expert. It showed immediate result. The pest attack got controlled. It was a pleasant surprise for me when the yield was more than I expected. Thanks to the plant clinic.

The plant clinic plays a significant role in improving the lives of the farming community. Our awareness on pest and disease is gradually increasing. Now I can easily identify *vellai sempen* attack and carry out remedial measures to control it. As I mentioned to you earlier, I could control this pest attack on paddy twice (cultivated during *samba* and *kuruvai* season). Minute symptoms of insect/disease attack which cannot be seen through our eyes is also seen with the help of the microscope and the computer. The expert explains to the farmer –if the symptom is like this, particular pest will be the major problem. During *Kuruvai* season when there was an outbreak of *vellai sempen* attack, the expert in a live demo showed the farmer how the mite is sucking the water content from the plant using the crop brought by the farmers. The live demonstration helps the farmer to improve his or her knowledge base of a specific pest or disease. This awareness is important to take preventive and control measure measures. It helps to increase the confidence level of the farmer.

After the intervention of plant clinic programme we started to use bio inputs to the field. Out of 100 persons ten are using them regularly. Through the plant clinic we have also come to realise the importance of seed treatment. The extension officers (who used to come 10 years ago) also used to tell us to do seed treatment but we did not take it seriously then. The bio inputs were also provided to us free of cost from the agricultural department when we used to buy paddy seeds. But we ignored it; *Ippa adhan mukkiyathuvam theriyuthu* (Now we understand the importance of seed treatment with biofertilizers). There is yield improvement now. I want each and every farmer from my village to make use of this wonderful service of the plant clinic and follow the advice/recommendation provided for their crop growth and problems.

There is great opportunity for the farming women and men to practice agriculture with interest. We are able to experience increased yield. Plant clinic sessions are conducted at frequent intervals and we find them useful; it is particularly helpful during *kodai kalam* (summer season). The staff from MSSRF and Ms Revathi (Plant Doctor) from Thirupazhnam take great efforts to take the benefits of plant clinic to the rural agricultural people. The date of the plant clinic sessions is written on the notice board of the VKC well in advance. The plant doctor also personally goes to the farmers' houses and informs them of the sessions. I feel honoured to have plant clinic sessions in our village. I also help in mobilising the farm women and men whenever plant clinic is conducted in our village. I encourage my villagers to make use of the plant clinic and get benefitted like me in safeguarding the crop from pest/disease and getting improved yield.

Name: Mr Muruganandam

Age: 45 Years

Education: Class 10

Village: Vilangudi

District: Thanjavur

I, Muruganandam aged 45 years hail from Vilangudi Village. I have completed my Secondary School Education. I have been engaged in agriculture since 1990s. Till last year I was in a joint family and operated the family's land. For the past one year I am taking care of my 2.5 acres of land. I have also taken one acre on



lease. I cultivate rice in two seasons and *ellu* (sesame) in summer season. I am cultivating black gram in *chittirai pattam* (April-May - summer season) since two years

I know about MSSRF and its activities since the inception of Village Knowledge Centre in our village. First time I went to the VKC when my cattle had developed *kasappu noi* (Foot and mouth disease) and it got controlled after I followed the traditional medicine suggested by the Knowledge Worker from the VKC.

All these years I have been doing agriculture in *eno thano* (not in a methodical way) manner. It is not that I did not use fertilisers or did not adopt remedial/preventive measures to manage pest/disease. But I did not do in a proper manner; this led to high cultivation cost and low yield. I was a dejected person; I did not know as to how I could improve the yield with minimum cultivation cost. We were in heavy debt. As a livelihood option agriculture gave a gloomy prospect. I think this was true of many of other farming households here. However, with the inception of plant clinic services in our village I began to develop interest and confidence. “...Moonru nangu varudamaga nimmadiyaga irukken. Neenga vandhu kedpadarku enakku solla perumaiyaga irukku. MSSRF/CABI kodukkum ookathil nan vivasayam seigiren. Mundhi vivasayam nodindhu iriundadhu. Ippa thembaga irukken” (I am at peace since the past few years (since the inception of plant clinic). I feel proud talking to you about the services of plant clinic. I am doing agriculture with the support provided by MSSRF/CABI. I am doing agriculture based on the guidance of the plant clinic these days. Earlier, the condition of agriculture was in a bad state. Now, I feel encouraged).

I am confident and feel reassured to continue agriculture as my livelihood now. Due to lack of confidence and agriculture extension support I felt helpless when my father sold more than 10 acres of land. Had this intervention been there at that time I would not have allowed my father to sell our agricultural lands. My father owned 60 maa (20 acres) of land. He sold 10 acres of land. We were doing agriculture for loss. When we could not manage we leased out our lands. We had bank loans. Now this is not the situation. I have been able to make profit from agriculture which was going on a loss earlier. (“Mudalil nashtathirikku vivasayam seidhen. Bank kadan irundadu. Nilathai virrom. Nilathai othikku koduthom. Ippa andha nilamai illai. Nashtahil ponadhai labathirku konduvanden”). I am getting more yield (seven to ten bags of rice per acre) now. I am not spending unnecessarily on the inputs these days.

The first thing which I learnt from the plant clinic are the advantages and benefits of seed treatment using bio-inputs. Until 2012-2013 I did not have knowledge of seed treatment. Subsequently, I became aware of the balanced application of fertilisers, the need to take preventive and management measures of pest/disease attack, measures to be taken to improve the grain quality and enhancing the yield of the produce.

I have started doing seed treatment using bio inputs. I have also come to know of right seed rate to be used; the advantages of doing this are many. I am telling you this out of my experience. The seed rate used per acre has reduced; earlier I used 60 kilos for 140 sq ft and now the same quantity of seed is used to plant 150 sq ft of land. There is seed rate reduction and at the same time area of land under cultivation using 60 kilo of seeds has increased. This is because the germination is good; there is no wastage. As the tiller formation is good and stems of the seedlings are broad and thick, it is sufficient to plant five seedlings per hill instead of 10. Rice nursery does not face pest or disease attack that generally affects the rice seedlings. *Murayodu seiyumbodhu labam palavazhigalil varugiradhu* (When done in a proper manner the profit we experience are many)-seed rate is reduced, enhances germination, while transplanting the seedlings more area is covered for the same seed rate, allows for thick and profuse tiller formation and improves productivity.

Fertiliser management is another aspect which I learnt through the plant clinic. This has not only helped me to improve crop yield but cut down on input cost. Based on the advice of plant clinic I apply fertiliser on the 12th



day in the nursery field. They say it is sufficient to apply five kilo of Urea and eight kilo of Potash for 60 kilos of seed. *Munbu, kuthu madipaga poduven*. (Earlier, I used to apply inputs based on rough estimation) Before transplanting I used to go in for basal application of one and a half bag of Complex per acre. At the plant clinic I was told to split the quantity into three parts and apply at three different periods of time- one dosage of 25 kilo just before transplanting, another dosage between eight to 10 days after transplanting-so that the crop can absorb it well and enable good growth during vegetative stage. Then, the next application should be within 25 days. They tell us to add extra five kilos at this time which would facilitate equal growth of panicles (*thoor vedithu simbu vlarchi samamaga vara*). In order to avoid chaffy grains and for increasing the quantity and quality of grains foliar application of Potassium Nitrate (one kilo mixed with 200 litres of water per care) during flowering and grain formation stage is recommended. I have come to know that this would enhance the grain yield by decreasing the panicle sterility. We are also advised to carry out spraying, early in the morning or during late afternoons.

We face pests of different types affecting our crops. Due to timely diagnosis and curative and protective measures provided at the plant clinic I could handle the problem by following the remedial measures and avoided losses. The rice crop, ADT 43 planted in *kuruvai* season in 2015 was attacked by *sempen* (Mite). During the planting season a plant clinic was conducted in our village. I took the affected crop sample to the plant clinic and after examining it plant doctor said that it was affected by *sempen*. By viewing through the microscope I could see the insect was in egg formation stage and also saw insect movement. Based on the crop advisory I sprayed 250ml/acre of Propergite along with 500 gm of wettable Sulphur. According to the advisory, I also added 200ml of neem oil and 100ml sticking agent. Timely action with proper application of pesticide helped to control the pest soon. The yield was good. The yield was around 37 bags (60 kg/bag) of paddy from one acre and I did not spend much on chemical. It was only around Rs 1500, I think. Here, I must tell you due to plant clinic intervention the whole village could avoid crop loss as they all adopted the right remedial measures.

I had planted *Adisaya Ponni* (Deluxe Rice) in my field in *Thaaladi* season in 2015. After 35 days of transplanting, it was affected by *ilai pen* (Thrips); The leaves (*Thogai*) turned yellow for which I applied 400 ml of Chlorpyrifos per acre. I saw the pest through the microscope. Then there was continuous rain; so I was advised to apply 10 kilo of Zink Sulphate per acre. At every stage I followed the prescription of plant clinic. I got 48 bags of paddy from one acre; the normal yield used to be less than 40 bags. The quality (in terms of grain weight and lustre) of the grain was also good.

During *Samba* season (2015) I encountered some problem with my rice crop during the florets formation stage. The florets started shedding due to snow moisture. Panicles were not forming well; the panicle growth was scanty and distorted. I sprayed Boron as per the recommendation of the plant clinic. I am happy to tell you that I got 48 bags of rice per acre. The quality (weight) of the grain was good. I used to harvest less than 40 bags per acre before. My brother was surprised at the yield increase. He wondered how I was able to harvest that much quantity in spite of using lesser quantity of fertiliser. As I adopt the prescription given at the plant clinic there is yield improvement and the quality of the grains is good. I do not see chaffy grains now.

Based on the recommendation of the plant clinic I did soil sampling (2013) in my field. Based on the soil test results the agricultural expert advised me to reduce the quantity of Potash application to the field. He said instead of applying 100 kilos he told me to use 50 kilos that should be split into two parts and applied once within 100 days and again in 115 days so that it would support developing healthy panicles and enhancing the yield. The soil test result in another plot of the land showed deficiency in *thazhai chathu*. so I was suggested to reduce the quantity of Urea. The soil gets right nutrients as I apply the inputs based on the soil test results. This also reduces wastage of inputs.



I have planted sesame in one acre now (April 2016). He told me to broadcast the seeds in east west direction. In the same field he told me to broadcast seeds of *kozhunji* in west – east direction. The purpose of broadcasting *kozhunji* (*Tephrosia purpurea*) in opposite direction is to avoid mixing with sesame in the field. It also enables proper spacing between the plants. *kozhunji* enhances soil fertility and in soil building. It also prevents weed growth in the field. Now the spacing between the plants is good. I will be able to save nearly Rs 5000 on weeding. For weeding nearly 25 persons have to be employed. The farmer from my neighbouring field was surprised to see my land with no/less weeds. His land has lot of weeds. I was told not to go in for basal application of fertiliser as it would evaporate during the ploughing operation. This would not benefit the soil or the crop, pointed out the agricultural expert at the plant clinic. I am expecting a good yield.

Last year (2015) there was continuous rain. More number of sprayers (of inputs) have to be used than done under normal circumstances. However, I did not experience loss, profit was less. Thanks to the plant clinic.

They caution us about the importance of rational use of pesticides. While spraying pesticides they instruct us how the pesticide should be delivered on the most affected portions of the crop and on the unaffected crops. We can ask them any doubt; for example if the growth of the crop is not good at the time of panicle formation (*karudhu varum nerathil mattamaga varugiradhu*) or if I notice *ven karudhu* (white panicles) I tell them about it. And I get appropriate advisory to rectify the crop defect or the problem. They clarify our doubts and answer all our questions patiently. I take crop samples of affected as well as normal looking ones to the plant doctor to get his/her feedback and guidance.

I would say plant clinic is a great boon to the farmers. It is giving us direction. We feel confident to carry out our farming activities as we have access to crop advisories and guidance for various agriculture related aspects/practices. One cannot do more than this. It is up to the farmers to utilise the services of the plant clinic, for their own benefit. Some of them do not visit the clinic. The plant doctors and the VKC take efforts to inform the farmers well in advance about the plant clinic schedule. If there is a need or demand from the farmers (those who missed the earlier plant clinic) the plant clinic is conducted even if it is not scheduled to be held at that time.

My financial position is better now. Due to good crop performance and improved earnings I am able to educate my three children without borrowing money for interest. I used to borrow money for interest to pay the fees and to meet other educational expenses.

Cultivation cost has reduced. My stress level has considerably come down. I have a sense of security and feel confident these days. I am really very grateful to plant clinic intervention. I sincerely pray that this service continues to be available in the coming days also.

Name: Mr Natarajan

Age: 38 Years

Education: Class 6

Occupation: Mason and panchayat overhead water tank operator

Village: Rajendiram

District: Thanjavur

My name is Natarajan. I am 38 years old and I hail from a village called Rajendiram. I work as panchayat overhead water tank operator. I was doing agriculture in leased in land (200 *kuzhi*) until recently. I had to give it up due to debts. Now I am going for construction work for my living. I used to cultivate paddy varieties like ADT 36 in *kuruvai* season and in *thaladi* season ADTponni, 46 and 43. I have three coconut trees at the backyard of the house. One tree died due to the attack of *kuruthu poochi*.



I have been using the services of Village Knowledge Centre functioning in our village since its inception. My children learnt to operate and work on computers. The VKC provides useful information related to agriculture and veterinary aspects to our villagers.

I was one of the many users of plant clinic. I was very happy when the plant clinic was initiated in our village and I helped in organising and conducting plant clinic here. Many farm families from this village have benefitted a lot through the VKC and the plant clinic.

The plant clinic is rendering a great service to help improve the productivity and the income of the farmer. In many ways it helps to us cut down farming expenditure. I did not realise that seed (paddy) rate I was using was on the higher side. I was not aware of this. I used to sow 16 *padi* (16 kilo) of seeds for 100 *kuzhi*. Based on the advice of the agricultural expert I reduced the seed rate to 10 kilos and also followed the seed treatment. I reduced number of seedlings per pit- two-three seedlings. There was increase in the number of tillers and the yield also increased from eight to 10 bags per 100 *kuzhi* to 12 to 15 bags. I have done like this three times and I was happy with the yield. My neighbours started doing seed treatment when they saw yield improvement in my paddy crop. They continue to do the seed treatment; there is improvement in the yield and incidence of pest/disease also reduced. I feel sad that I am not in a position to do agriculture now. I am glad that many farmers including women from my village using the guidance of the plant clinic to improve their livelihood.

I have three coconut trees; they are five year old. One died because of *kuruthu poochi* (stem borer) attack. Recently, two months ago (August 2014) I consulted the agricultural expert at the plant clinic when I did not see any growth in my five year old coconut trees; there was no sign of sprouting of fronds. I was told that it was due to nutrient deficiency. As recommended at the plant clinic I administered coconut tonic through the root and after 10 days I applied Potash (1.5 kilo), DAP (7.5 kilo), Urea (1Kilo) and micro nutrients mixed with 20 kgs of farm yard manure per tree in circular basins at two feet distance from the base of the tree. I am happy to tell you that the trees have started sprouting fronds. The expert patiently explained to me as to how to administer the coconut tonic through the root and how the recommended inputs should be applied mixed with farm yard manure.

At a time when farming community is uncertain about continuing agriculture as livelihood due to various reasons, plant clinic intervention gives hope to the farmers that they can continue in their traditional occupation. We have access to crop advisories. This gives the farmers a great hope that they can take preventive and control measures for pest/disease attack and can improve the productivity by taking the plant clinic advice. We know about soil testing and water testing but we never took it seriously but with the inception of plant clinic some of the farmers have been inspired to do soil testing in their field. The farmer can reduce the input cost by using appropriate inputs based on the soil type. Since soil testing facility is available at the VRC of Thiruvaiyaru the farmers are getting it done without difficulty. We cannot expect department people to help us. Even if we go there with our soil the staff won't respond well. So the farmer naturally gets discouraged. We are happy plant clinic is helping a lot in all possible ways. What can it do if it does not rain on time or the weather changes!

**Name: Mr Nagaraj**

Age: 47 Years

Education: CA

Occupation: Agriculture and works as Chartered Accountant

Village: Varagur

District: Thanjavur

I, Nagaraj (47 years) practice agriculture alongside my profession as Chartered Accountant. Agriculture is our traditional occupation. I am the only child to my parents and I have inherited nine acres of agricultural land from my father. I grow paddy in both *thaladi* and *kuruvai* seasons. As I do not have bore pump facility I do not undertake any cultivation during the *kodai* (summer) season. I grow paddy (ADT 36, a short duration variety) in *Kuruvai* and BPT which is also called as Andhra Ponni, a long duration variety in *thaladi*.

Benefits of plant clinic are manifold; there are direct benefits and indirect benefits. Chemical company *mugavargal* (Agents) visit the village but we do not have confidence in them. On the other hand the agri-(plant) clinic give us confidence. They give us proper advice. The staff of the VRC of Thiruvaiyaru associated with plant clinic and the plant doctor take efforts to make available the necessary inputs.

First plant clinic was held in our village during the middle of *thaladi* season when diseases like *ilai karugal* which is locally referred as *manjal noi* (bacterial leaf blight) was widely prevalent in the paddy fields. Some of us were relieved that we could get proper guidance and right remedial measures. But the recommended inputs to control the diseases were not available. When I pointed out this to the agricultural expert from the VRC of Thiruvaiyaru (who is also present during plant clinic sessions) through phone, he took immediate steps to arrange for the inputs through the concerned company people. So, we could minimise or arrest the damage to the crop to a great extent. The disease was controlled.

Ilai urai azhugal (sheath rot) and *thandu azhugal noi* (stem rot) are common occurrence in the later stages of paddy fields here. We were not aware of control measures. Now, we feel assured that they can be prevented and managed with the guidance and advice of the plant clinic. Our awareness level about using proper inputs has also increased. Previously, whatever chemicals the input dealer prescribed we applied them. Before the inception of plant clinic intervention, I used to take the affected crop to the input dealer and applied the chemicals prescribed by him. Most of the farmers used to explain the crop problem orally to the input dealer. Whatever he prescribed we followed it. We paid attention to the company's name and not to the chemical base. We were not aware of the combination and proportion of the chemicals. Now after the plant clinic intervention we ask for chemical name. It is a turning point for us. Now, we insist on chemical base. We do not blindly buy whatever is prescribed by the input dealer. He has come to realise that we have become smart and cannot fool us any more with the brand name.

After the inception of plant clinic I have started using bio fertilisers regularly. I get it from agricultural department. I do not think many know about the availability of bio fertilisers in the agricultural department. Tillers are formed well within 65 days of bio fertiliser application. Most of the farmers hesitate to cultivate BPT rice variety as it is susceptible for disease/pest attack. I prefer to cultivate this variety as it fetches high rate in the market. BPT variety is cultivated only during *thaladi* season but I have started to cultivate it in *kuruvai* also. I start the process 20 days before the *kuruvai* season starts. I feel all the more confident now as I have access to crop advice through plant clinic. As I told you the VRC and the plant doctor take efforts to make available the required inputs for the crops and guide us the possible places/shops of availability.



After the plant clinic intervention I have developed an interest to update my agricultural knowledge using the internet. I have been encouraged to read articles related to common disease/pest in crops, its control measures both using chemicals and bio inputs.

According to me the main advantage of the plant clinic is we are getting timely appropriate guidance /advisory. We are able to control pest/disease; looking at the early stages of symptoms we adopt the control measures based on the advice of the plant clinic doctor. I can identify the common disease/pest that affects the crop to a great extent now. We are able to take necessary action at the right time of plant growth which enables us to reduce cost of cultivation. My confidence level has increased. This is true of many farmers. In general, the stress level of farmers has been reduced due to plant clinic intervention.

Plant clinic also provides opportunity and enabling environment for farmers to meet each other and promote discussion among them. We need to have a separate building in a village for conducting agricultural related work where Plant clinic can be conducted. Just as we have a primary health centre and anganvadi the villages also should have physical structure for agri –clinics. It can be a meeting place for the villagers and Agricultural Extension officers. Agricultural Officers are not able to visit the area as they do not have time. Even if they come they do not see the fields and they meet only few farmers. Now plant clinic is playing the role of an agricultural extension service. We are very fortunate!

Name: Mr Parmanandam

Age: 52 Years

Education: S.S.L.C

Occupation: Agriculture

Village: Panaiyur

District: Thanjavur

My name is Paramanandam and I reside in Panaiyur, an agricultural village. I own five acres of land. We cultivate rice, sesame and banana. My son is a regular visitor to the plant clinic. He follows the crop advisories given at the plant clinic. He is happy with the crop performance. I have gone to the clinic only on two occasions. I am interested in doing organic farming but I had to give up because fellow farmers ridicule me. They think I am not practical.

I went to the plant clinic (August 2014) to get a solution for *thandu/kilangu azhugal noi* (Corm rot) affected in banana. At the plant clinic it was suggested to spray Profenofos ($\frac{1}{4}$ litre mixed with 200 ml water). I was not happy with the recommendation as I felt that would harm the earth worms in soil. I was also advised to remove the affected plant from the field and I was also told that the infected plant should not be left anywhere near the field. I felt rather than going in for chemical application I could remove the damaged saplings from the field and plant new saplings. I took away the damaged ones and planted new ones. I sprayed *panchakavya* for the banana crop. I am told that *panchakavya* would bring earthworms from five deep soils. Out of 1000 saplings planted 250 were damaged due to *thandu azhugal noi*.

I heard that plant clinic recommends chemical application only in extreme cases; for example, if the disease/pest damage is severe chemical spray is advised. I have participated in meetings such as sesame and rice cultivation conducted by MSSRF.

**Name: Ms Pattu**

Age: 55 Years

Education: Class 5

Occupation: Agriculture

Village: Thirupazhanam

District: Thanjavur

My name is Pattu aged 55 years. I studied up to class 5. I belong to a village namely Thirupazhanam in Thanjavur district. I have three daughters and two sons. Our primary source of income is from agriculture. We own 1 1/2 acres of farm land where we cultivate vegetables and rice. Sesame and urad dhal (black gram) are also cultivated after harvesting rice. We do not raise any crop in *kuruvai* season as we do not have sufficient irrigation facility. We have plantain and coconut trees. We use oil engine to pump the water to irrigate the crops in the field. I help my husband in carrying out agricultural operations. We own a cow and a calf and I take care of them. We grow vegetable crops after harvesting summer crops like black gram dhal. Certain vegetable crops like greens do not need much water. In households like us all the members have to work in the farm as hiring labour would prove costly for us. I sell the vegetables grown in our field in and around our village.

I have been involved in agricultural work and I was doing it mechanically (*eno thano enru vivasaym seidhom*). But now with the intervention of *payir maruthuva mugham* (plant clinic) in our village I have been motivated to do my agricultural work with interest and confidence. My first visit to the plant clinic was when our rice crop planted in 200 *kuzhi* (*Kuzhi* is a local unit of measurement. 300 *kuzhi*= one acre) of land during samba season was affected by *kuruthu poochi* (stem borer). The crop was in the grain formation stage. When I took the affected plant I did not know the reason for the damage. The crop looked dried up with drooping of leaves at the tip. The leaves were shrivelled and the stems were also damaged. The growth of the crop was affected. When I showed the sample of the affected crop, the agricultural expert in the clinic said that the crop was affected by a pest called *kuruthu poochi*. He explained to me about the problem and immediately wrote down the prescription. I told my son about my visit to the plant clinic and gave the 'notice' (the expert's prescription to control the pest). Though we could not buy the inputs immediately for some reason my son bought the inputs after a week and we applied it to the field as suggested by the expert. We could see the change within few days. The yield of the crop was satisfactory. *Payir nashtam varavillai* (We did not incur loss). Had we not adopted the control measures we would have got reduced yield by three bags (one bag = 60 kilos). Had we done it earlier the yield would have been even more.

Similarly, sesame planted in 200 *kuzhi* during the following season (February-March, 2014) had stunted growth. The grain initiation also got delayed. The plants did not look healthy. We thought it was due to some pest attack. But we came to know from the plant clinic that it was due to nutrient deficiency. Again based on the agricultural expert's advice my son carried out the remedial measures. Based on the prescription he sprayed the inputs (Boron 3 gm per one litre of water and Potassium Nitrate 10 grams per one litre of water) to enhance the growth of the crop. The plants which were stunted began to grow well. We were able to avoid loss of around six *marakka* (one *marakka*=3 kilos) of *ellu* (sesame). In the same field along with sesame we cultivated urad dhal as an inter crop. The leaves of black gram plants had turned yellow (yellow mosaic virus) and there was no flowering. When the agricultural expert along with the plant doctor Ms Revathi visited the field he suggested uprooting the affected plants and carrying out repeated (once in ten days) spray of neem oil. To induce flowering he advised foliar spray of DAP (10 ml in one litre of water). My son did as advised by sir (agricultural expert) and watered the plants. We were happy with the crop yield. When our neighbour Mr Saravanan had a similar problem my son got him the necessary inputs from the shop.



I have also taken the guidance of the plant clinic for healthy growth of plantain and coconut trees. I hope to get a good yield from both the crops. Though I go to the plant clinic when ever we have a problem in our crop I cannot remember the names of inputs and proportion recommended at the clinic but my son makes sure to get the recommended input from the shop and apply it to the crop in correct proportion. My son maintains all the *cheetu* (written prescriptions) given at the plant clinic carefully so that we can use it next time when we face similar crop problems in future. My son also discusses with our relative Mr Moorthy who takes lot of interest in plant clinic activities in our village.

We do not seek the input dealer's guidance these days. We ask for guidance when Revathy amma (the plant clinic doctor) visits our village. I feel happy when I see her and I will always have something or the other to ask her related to the cultivation of crops including vegetables. She gives suggestions and sometimes she would contact Sir (Agricultural expert from MSSRF) for details and clarifications. Her frequent visits to our hamlet motivates us (*avargal vandhu povadhu urchagamaga irukku*). Now I can easily identify *kuruthu poochi* (stem borer) and my son knows what inputs are to be used to control it.

We find that cost of inputs have come down considerably. More importantly there is a great difference in carrying out the agricultural operations with understanding based on right knowledge (*Selavum kammiyaga varuthu ippa. Therindhu seivadarkum theriyama seivadarkum vithiyasam irukku. Therindhu seigirom ippa*). I always look forward for the next plant clinic session.

Name: Mr Pazhanivel

Age: 33 Years

Education: Class 10

Village: Varagur

District: Thanjavur

My name is Pazhanivel aged 33 years. I hail from a village called Varagur. I have studied up to Class 10. I own 200 *kuzhi* (300 *kuzhi*=one acre) of agricultural land. I have also leased in one acre. I cultivate crops in two seasons namely *kuruvai* and *thaaladi*. I prefer to cultivate AD 36 rice variety in *kuruvai* and Andhra ponni in *thaaladi*. In order to supplement my household income I work as an agricultural labourer also. The wage labour work involves mainly spraying of agricultural inputs to the field.

I have lot of interest in agriculture. As a wage labourer also I do my work with interest. So the employers are also nice to me. My interest in agriculture further got strengthened with the inception of plant clinic intervention in our village. Farmers in our village are fortunate to get this service through MSSRF and CABI collaboration. I have learnt so much through the plant clinic. I know the chemicals and other bio inputs that can be used for pest/disease/ fungal attack on crops particularly rice. I have become aware that inputs should be used in proper portion; overdose or under dose of them will not give desirable results. The plant clinic encourages using bio inputs to the crops; only in extreme cases i.e when the pest damage is very severe the plant doctor recommends chemical application for immediate control of pest attack.

I use the plant clinic advisories meticulously. Once, when the rice planted during *kuruvai* season was affected by stem borer 15-20 days after transplanting and again when at a later stage it was affected by leaf folder I sprayed Chlorpyrifos 20 EC based on the prescription provided by the agricultural expert at the plant clinic. It was effective.

When I had planted CO 43 variety of rice in my field during *thaaladi* season it was affected by *nel pazham noi* (false mut) during the harvest stage I was advised to apply solution of one kg of *Pseudomonas* and ½ litre of



cow's urine for one acre. Fortunately, the disease got controlled. *Nel pazham noi* is common occurrence in CO 43 variety rice.

I have seen that the prescriptions prescribed at the plant clinic are effective in preventing and controlling pest/disease attack. I could see the results not only in my field but also in my employers' field. In my experience, combination of Carbendazim and Mancozeb works very well in case of fungal attack like sheath rot, sheath blight and leaves spot disease. Spraying of these two chemicals controls the fungal attack. To control *sempen* (white mite/fly) and *ilai pen* (Thrips) attack I use Acephate and Profenofos respectively and I find them effective. I spray neem oil to control pest and I tell others to do the same as it is harmless.

I have also come to realise the importance of seed treatment with biological inputs like *pseudomonas* and I also encourage the fellow farmers to do seed treatment so as to prevent disease/pest attack on the crop. We can get good healthy seedlings. In case someone does not do seed treatment I tell them to do seedlings treatment by using *pseudomonas*.

I can also diagnose diseases like *sooral* (fungal disease) and know the remedial measures. It commonly occurs during scorching heat (*kadung kaichal*) days. For uniform growth and for more tiller formation Potassium nitrate can be used (1 kg per acre). All this I learnt from the plant clinic. In case of any doubt in using the inputs I do not hesitate to call MSSRF staff or Mr Sarangapani, the plant doctor in our village and they are very prompt in responding and clearing my doubts.

Now-a-days I am getting a good yield as I am able to take appropriate action at right time. I am getting 14 to 15 bags (one bag = 100 kgs) of BPT rice from 100 *kuzhi*; before the plant clinic intervention it used be nine to 10 bags. In *motta* (bold) rice variety the yield has increased from 11 to 12 bags to 17 bags. Our only problem is weeds in the field which I hope to control with the help of the plant clinic guidance.

I observe keenly when the plant doctors and the experts examine the affected crop and explain to the farmers about the symptoms and remedial measures. The plant doctors and the agricultural expert also visit the fields of the farmers particularly if the disease/pest damage is in critical stage. They also come to our fields if we request them; they visit the fields and encourage us to follow good agricultural practices and improve the crop yield.

The plant clinic gained good recognition once the farmers started realising the efficacy of the plant clinic services in providing appropriate advisories for their crop related problems. *Payir maruthuva mugam* has become popular and successful among the agricultural community as we have been able to manage and control pest/disease attack particularly in BPT rice variety, a fine rice variety. Rice yield has also increased significantly. This has created great impact on the farmers. As BPT rice variety fetches high rate in the market the farmers prefer to cultivate this variety though it is highly vulnerable to disease/pest attack. According to me, the effective and timely management and control measures for pest/disease attack on BPT gave great visibility to the services of plant clinic in our village. The farmers in my village including me feel confident that we can manage and control disease/pest attack on other crops as well with the guidance and help of plant clinic. Mr Sarangapani goes to other villages when plant clinic sessions are held there. He is very helpful and encourages to use the services of the plant clinic.

I make sure that my other fellow farmers follow the guidance provided by the plant clinic. I verify the same by going to their fields. On few occasions they told me that they could not get the necessary inputs to apply to the field as per plant clinic prescription. Then I immediately contacted Murugan Sir (plant doctor from the VRC of Thiruvaiyaru). He gave me addresses of few shops in Thiruvaiyaru where the prescribed inputs would be available. The farmers were happy that they could get the inputs on time.



It would be nice if the farmers are updated with new technologies and latest harmless chemicals. Bio-logical inputs should also be made easily available in the village. *Pseudomonas* is not available here. It is very useful and effective in preventing certain diseases. It would be useful if it is made easily available to the farmers. All this will help plant clinic to run successfully and in turn will improve the condition of the farming community.

Name: Mr Prabhakar

Age: 39 Years

Education: Class 10

Occupation: Agriculture

Village: Thirupazhanam

District: Thanjavur

I am Prabhakar aged 39 years. I belong to Thirupazhanam Village. I have three brothers and we work together in carrying out agricultural activities in the field. We own one acre of agricultural land and I have also leased in three acres. We cultivate only rice crop during *samba* season. As we do not have irrigation facility we are restricted to doing agriculture during *Kuruvai* and *Kodai* season.

There is significant improvement in agricultural performance in the village as a whole due to plant clinic intervention. The plant clinic is doing a great service to the farmers particularly those who do not have access or unable to meet the Agricultural extension officer. We have come to know about the pest /insect affecting the crop during the nursery raising. I came to know only through the plant clinic about the disease/pest attack in the seedlings. The other farmers also have become aware of this. So they are cautious about it and take necessary efforts to control the disease/pest. And we are taking necessary precautions to control such pest/disease attack. We have begun to do seed treatment now.

After the intervention of plant clinic some of the farmers have become aware of what chemicals should be sprayed for a particular crop problem. Previously, we generally used to spray/apply Karate, Monocrotophos, Sevin Powder and so on. We used neem oil also. We did not apply the necessary inputs during appropriate time.

As far as I am concerned I have come to realise the importance of soil testing. I have done soil testing in my land and based on the recommendation I use inputs such as Urea, DAP and Potash now. I also follow the guidance in utilising inputs for basal application and top dressing.

My rice crop was affected by some disease/pest. I did not know what insect/pest had attacked the crop. There was no growth and the leaves were curled up. It was a 25 day old crop (after transplanting). However I was happy with the yield when I harvested the crop after 145 days of transplantation. Thanks to plant clinic. I took the affected crop to the plant clinic to get remedy to control the pest/insect. I came to know that the problem was in the rice seedlings. I could control the insect/pest within six days and avoid the loss. In general, there is yield improvement now. Earlier I used to harvest eight to ten bags of rice; now from the same 100 *kuzhi* I get 12-15 bags of yield.

I have planted BPT rice variety in four acres of land; I showed the seedlings to the expert at the plant clinic. The expert recommended spray – one on the tenth day and another spray on the 25th day. I was told to do this even if I did not notice any insect/pest on the crop. It is because the PPT rice variety attracts pest and disease due to the quality of sweetness of the crop. It was also pointed out that the insect/pest would not be visible to the eyes. So it was suggested to spray whether there was pest attack or not. I have forgotten the name of the input I used for the spray. I have it in the prescription.



There was no growth in my one year old mango sapling. It had a stunted growth. At the plant clinic it was recommended to apply vermin compost and some micro nutrients (one kilo-I do not know the name. One kilo was Rs 50) as they would help in growth promotion. I was also suggested to spray *erumbu* (ant) powder on the branches of the mango trees to control ant attack. I sprayed four kilos of *erumbu* powder. There is no sign of ants on the mango crop. Now it is three year old tree. I did as advised and now you should see my mango tree!! People ask me in wonder-is it three year old *maankannu* (young mango tree)?!

Farmers including women visit the plant clinic to get guidance and agricultural advisories. I have seen persons coming for various crops such as Papaya also. I have known persons like Ms Mary Emelda and Mr Dhurai Kannan asking for guidance for papaya and Mr V Arul Doss, Ms Mariya Pushpam and Ms Rajyam seeking advice for rice crop.

I do not hesitate to go to plant clinic session even if I have some work because I am getting benefitted. Cost of cultivation is coming down and the stress level has also come down significantly. We feel secure as plant clinic is held at crucial periods in our village and I can also contact VRC staff for any assistance for agricultural related activities.

The villagers did not pay much attention to the services and activities of MSSRF earlier. The VKC in our village has a data base related to agriculture, veterinary, education, health and so on. Since the last two years MSSRF in association with CABI is conducting plant clinics in several villages of Thanjavur. Added to this, we also get information through our mobile phones from the VRC. Weather and other agricultural advisories are very helpful and timely. We are grateful to MSSRF and CABI.

Name: Mr Pradapan

Age: 45 Years

Education: DME

Village: Mathur

District: Thanjavur

I, Pradapan hail from Mathur, a predominantly agricultural village in Thanjavur. I am 45 years old and I have done my DME. I own two acres of irrigated land where I cultivate rice and three acres of *kollai* (garden land). In one and a half acres of *kollai* I cultivate rose and in the remaining land I grow banana. I have bore facility.

We were traditionally banana growers. We started cultivating rose since 15 years. In between we stopped cultivating rose crop for five years mainly due to labour problem. Rose cultivation needs labour help on daily basis. Again we have resumed rose cultivation. Fifty percent of households in our village are engaged in rose cultivation now. It provides us with some income to meet our day-to-day expenses. Cultivating other crops seems not profitable and economical. A majority of the households are also cultivating vegetables.

We have been doing agriculture based on our traditional knowledge and experience. Generally, due to lack of awareness farmers use inputs indiscriminately. More than required quantities of fertilisers and sprayers are used. It causes lot of damage to the crop and thus farmers face loss of income due to poor yield. The farmers are not aware of the latest technologies that can be adopted. We lack guidance and help to carry out our agricultural operations. Whatever the input dealer gave we used to apply them. The input dealer normally prescribes three to four inputs to be used. He would not explain to us about the actual problem of the crop. He would just tell us to spray five tanks of the chemical. I was also dependent on the input dealer for guidance. I did not know the names of chemicals used for the crops. Another problem we face is shortage of labour. Many are on the verge of giving up agriculture as a livelihood option. However, there is a slight change in the attitude of few farmers;



they feel confident to continue agriculture for their livelihood. It is mainly because of the activities of plant clinic and their contact with plant doctors and the agricultural expert from MSSRF. I am one of them. I wish that all farmers get benefited through this intervention and develop a positive attitude towards pursuing agriculture as their major occupation.

When a fellow farmer from Pasupathi koil, a nearby village requested me to come to the plant clinic I thought they were organising a meeting. I was not keen on attending it. Out of respect for that person I went to that village. After reaching the venue only I realised that it was not a meeting and that he had invited me to visit the *payir maruthuva mugam* (plant clinic). I also came to know that he is one of the plant doctors. I saw some farm women and men with samples of pest/disease affected plants at the *mugam* waiting for their respective turn to consult the plant doctor. I was also motivated to visit the *payir maruthuva mugam* regularly since then.

Plant clinic plays a significant role in farmers' lives. We do not have any contact with agricultural extension officer. We can not approach agricultural department people. Even if we personally go to the department, they do not respond well; they are very mechanical in responding to our queries. That is why the farmers are at the mercy of the local input dealer. The farmers follow blindly whatever advisory he suggests or recommends. This is the general situation in almost in all the villages here. As I mentioned earlier, I was totally dependent on the local input dealer for advice to handle crop related problems. Whatever the input dealer gave I used to apply them till I came into contact with plant clinic that is being held regularly in Pasupathi Koil.

I am finding it very useful in carrying out my agricultural activities now. The thought that we have access to crop advisories encourages me to pursue agricultural operations with confidence. To an extent I have a sense of direction now. I feel relieved of the stress and strain involved in carrying out the day today farming operations.

We can contact the agricultural expert and other staff from MSSRF at any time. They all help us not only in providing solutions they also guide us as to where we can get the necessary inputs for our crops. When I told them that I could not get *Trichoderma Viride* they guided me to a place where I could buy the input. Similarly, on two other occasions I could buy *Pseudomonas* and florescenc with their help. So their help extends much beyond providing solutions. The plant doctors are equally supportive and helpful. The plant doctor and the agricultural expert visit our fields. By observing the crop/nursery in the field they offer us guidance to be followed both for the growth of the plants and also to protect them from pest/disease. The agricultural expert patiently answers all our questions. We are like a family (*oru kudumbamaga irikkirom*). I feel comfortable in seeking the help of the agricultural expert. We can call him for help/assistance anytime of the day. He is very patient and sensitive to farmers' problems.

When I went to plant clinic with pest affected rose crop I was told that the crop was attacked by *sar orinji poochi* (Mealy bug) (locally it is referred to as *sappathu poochi*,) a sucking pest. As far as rose crop is considered I do not know anything about *saar orinji poochi* and this pest damages the crop with leaves getting dried up and blackening the stems. I know that this was due to some pest attack but did not know the name of the pest and the names of chemicals used to control it. We were not aware of remedial measures and we used to think only if it rains at that time this pest could be washed out. I thought rain was the only remedy. In the absence of rain we used to allow the crop to get dried up because we did not have choice. Now I have the confidence that I can control the pest even if the crop becomes dry and the stems turn black in colour and save the crop (*inru karuginalum kaapparri vidalam engira nambikkai vanthulladhu*). This is because I am aware of the remedial measures to be taken to control the pest.

Similarly, I could save my banana crop from *kizhazngu azuhgal noi* (Rhizome rot) by adopting the simple advisory suggested by the agricultural expert. The agricultural expert visited my field. He came around 5.30



PM and left only around 7.30 PM. He explained (by cutting the damaged crop) to me the cause for the damage. He said that the damage was due to *kinzhangu azhugal noi* and prescribed simple and low-cost remedial measure- spraying of one gram of Trimixin in one litre of water and he also advised drenching of the crop using 10 grams of *Trichoderma Viride* and 10 grams *Pseudomonas* in 10 litres of water. I did as suggested and I was relieved to see the plant recovering and reviving. Looking at the damage I thought the crop could not be recovered; I had almost given up my hope. But I could save the crop with a small and simple solution. Had I not adopted this I would have lost more than 80 percent of the crop. Earlier I used to apply DAP, Potash and *kurunai* for the crop. I also saved the banana crop from nutrition deficiency by following the recommendation of the plant clinic. Now I am using micronutrients to avoid deficiency.

Though I come from a traditional banana growers family I did not know what caused damage to the banana crop. The agricultural expert explained that when the yellowing of top leaves occur we should know that it is due o a problem at the base of the banana shoot; and, the rooting will not be strong. He explained to me in detail by dissecting the affected portion of the crop. I am also aware of the importance of banana corm treatment for healthy and good growth of the crop. I have come to realise that I can control diseases like *kizhangu azhugal noi* in banana crop by undertaking right corm treatment. So, I diligently carry out the treatment of the planting material. I can see the positive results. I am happy to tell you that nearly ten farmers followed the remedial measures by observing me.

My knowledge has improved a lot in the last one year due to my constant contact with the plant clinic. I know the names of the chemicals/inputs used for different pest/disease affecting the crop. For example, when the damage due to *ilai pen* (Thrips) in rose crop was severe I used Fipronil (2.5 ml in one litre of water) for immediate recovery. If the damage is less or if the problem arises and if it is not severe I go for Imidacloprid. The treatment has been very effective. I have also been suggested to spray *vasambu* (*Acorus calamus*) extract instead of Fipronil to control *ilaipen*. To control *koon vandu* (Rhizome weevil) I was advised to fumigate the affected plant with tobacco fumigation. It was very effective. I am aware that I can use Trimixin ((for Rhizome rot in banana crop) and Fepronil (to control Thrips and *koon vandu* (Rhizome weevil)). I also came to know through plant clinic that instead of Fepronil, *vasambu* (*Acorus calamus*) extract can be used to manage and control Rhizome weevil. I am also aware that depending on the damage stage I should use the inputs application and when to change the use of the input for the same problem.

The primary reason for cultivating rose is that we can get some income on a daily basis. Our daily income from the sale of rose flowers has definitely improved due to plant clinic intervention. This is because of the enhancement in quality and quantity of the flowers. I am able to avoid borrowing of money to a great extent. I am not falling in the debt trap. This is a significant development. (*kadan vanguvathu illai ippo. iduve periya vishayam; oralavu padhai therigirdhu*). I have a direction now. I have sufficient earnings that can take care of my daily household expenses and cultivating expenses for next crop. I am happy to see good quality flowers in my field. There is improvement in the quality and the quantity of the yield. The colour of the flowers is striking and the petals are arranged beautifully. Earlier it was not the case. The petals were loosely arranged and also colour of the flowers was not up to the mark. So the earning from such flowers will be less.

By attending the *maruthuva mugam* and adopting the guidance not only am I benefiting but others are also getting benefited indirectly. They are encouraged to follow the remedial measures when they see me doing it and getting benefited by it. They are using micronutrients to their crop these days. I can see healthy and quality flowers in the fellow farmers rose fields also.

I got an opportunity to participate in a programme (held in Farmers School in Pasupathi koil) related to rice cultivation in *samba* season. It was very useful programme where from land preparation to harvest of rice was



covered. I came to understand the importance of seed treatment during this programme. I am very careful now. I follow the instructions to be followed in seed treatment. I got the opportunity to participate in this programme due to my contact and regular visits to the plant clinic for crop related advice.

Based on few farmers' request three plant clinics have been conducted in our village so far. More than 20 men came (each time) with their affected crop to seek solutions for their respective crop problems. Women are yet to visit the clinic. Only a small percent of the farmers are covered through this intervention. Services of plant clinic should be expanded so that more and more farm women and men can improve their livelihood by following right agricultural practices and preventive/remedial measures to save the crop from pest/disease attack. Vegetable cultivation should be encouraged. This is my humble opinion. As I mentioned earlier farmers in our village resort to indiscriminate use of inputs without realising that it is harmful to the growth of the crop. It would be very helpful and useful if plant clinic is held frequently in our village also.

Name: Ms Pushpa

Age: 43 years

Education: Class 12

Village: Rajendiram

District: Thanjavur

I, Pushpa, aged 43 years reside in Rajendiram Village. I have studied up to Class 12. I come from a traditional agricultural family. We have one acre of agricultural land where we mainly used to cultivate rice. We have also four coconut trees and few guava trees. We have given our land for lease; so there is no cultivation now. We do not have pump set facility. We also rear cattle.

I am happy to share with you that I worked as Knowledge Worker for some time in the VKC functioning in our village. So I am well aware of the services and activities of MSSRF to the various sections of rural people in our area. I could not continue to serve as Knowledge Workers after few years as I had to attend household work and take care of my two school going daughters.

The plant clinic programme initiated in our village two years ago by MSSRF in collaboration with CABI has been rendering great service to the farming community. I am one of the many farmers who have benefited by using the services of the plant clinic. The recommendations provided at the plant clinic are very effective and economical. Earlier we depended on the input dealer for guidance. Most of the times it did not work well; still we all depended on him for advice to get remedial measures as there was no other option. Now we understand that we applied the inputs indiscriminately.

I could get rid of the *mavu poochi* attack on my guava trees by following the remedial measures given at the plant clinic. Similarly, when there was button shedding in the coconut trees and got affected by *sivappu vandu* I consulted the plant doctor at the clinic. The prescription suggested for the problem had the desired result. I am unable to recollect the remedial measures prescribed at the plant clinic but I can say all the advisories worked well and they were simple ones.

I also understood the importance of seed treatment. I did seed (rice) treatment using *Pseudomonas* mixed with *thozhu uram* (farm yard manure). I was happy to see the uniform growth of the seedling. The crop also did not suffer from any disease attack. The yield of the crop was good. I was happy with it.

We, the farmers owe a lot to MSSRF for implementing this plant clinic programme. I wish this facility will be available in the years to come. The availability of this service encourages farmers to do agriculture with confidence.

**Name: Ms Radha**

Age: 30 Years

Education: Class 10

Occupation:

Village: Rajendiram

District: Thanjavur

My name is Radha and I am 30 years old. I have had school education up to Class 10. I am married. We are traditionally agriculturalists. We have two acres of irrigated land. We have a share in the up lands owned by my husband's family. We have coconut trees near our house. We rear cattle mainly for our garden land. My husband owns a lorry.

As my husband does not have time we have leased out our irrigated land. We grow fodder for cattle in the up lands. I am aware about Village Knowledge Centre of MSSRF functioning in our village. I got an opportunity to participate in training on coconut climbing and maintenance of coconut trees organised by MSSRF in association with Coconut Board.

Response to Plant clinic is very good in our village. I have heard my relatives and neighbours talking about its usefulness to the farmers. I have also benefitted through the plant clinic. We were able to get rid of *gandamiruga vandu* (Rhinoceros beetle) during 2013 from our coconut trees and save the fodder crop from *ilai pulli noi* (leaf spot) attack by following the prescriptions given by the agricultural expert from the plant clinic. The leaves had turned yellow in colour. The expert visited our fodder field before prescribing the remedy for the pest. My husband used *Pseudomonas* to control the disease in the fodder crop. I do not remember now the exact details of inputs given in the prescription. My husband has the chit and he only took care of carrying out the remedial measures.

In order to get rid of *gandamiruga vandu*, my husband soaked castor cake in the water, filled it in small mud pots and kept them near the coconut trees. The beetles were attracted to the solution kept in the mud pot and got killed. Next time when we notice *gandamiruga vandu* we would immediately follow the advice of the agricultural expert.

Plant clinic is doing a great service to the farming community.

Name: Ms Ramamirutham

Age: 50 Years

Education: Class 4

Village: Pasupathi koil

District: Thanjavur

My name is Ramamirutham aged 50 years. I belong to Pasupathi Koil Village, Thanjavur district. We own three acres of *kollai*(garden land) where horticultural crops like coconut, orange, and lemon, *narthankai* (Citron or bitter orange) are grown. In one acre of lease in *vayal* we cultivate mainly rice followed by black gram as a summer crop. My husband and I work together on our land. We do not depend much on the outside labour.

Plant clinic has been rendering a great service to the farmers in our village. The advisories we get from the plant clinic are very effective, simple and useful. I have realised that our expenditure on inputs has come down if we follow the prescription given at the plant clinic. Because of this intervention, our dependency on the input dealer for advice has come down a lot.



I was able to control pest attack on my black gram. The remedy given was very simple. I was asked to spray neem oil on the plants. I was also told that the pest is known as *Karuppu Aswini* (Aphids). Prior to the intervention we used to harvest 10-12 marakka (1 marakka= 3 kilo) of black gram from 100 *kuzhi* (300 *kuzhi*=one acre) of land. Now it has increased to 11/2 quintal per 100 *kuzhi*. Similarly from 100 *kuzhi* of *vayal* we used to harvest six bags; now it has increased to 10 bags.

Today I have come to the plant clinic to get advisory for my orange crop. The fruits do not look healthy. There are lesions on the fruits and other parts of the tree. I was told that the crop is affected by *maranoi* (Citrus canker). Remedial measures are prescribed to control the disease which I will follow.

If we follow the advice/suggestions given by Sir (agricultural expert) there is definitely improvement in the yield of the crop. Also, there is reduction of expenditure on inputs. The advisories are very effective.

There is improvement in our income from the land and thus we have been able to buy a goat and a cow without difficulty. This will enable us to earn additional income.

Name: Mr Sammandam

Age: 49 Years

Education: Class 10

Occupation: Agriculture

Village: Varagur

District: Thanjavur

I, Sammandam aged 49 years come from Varagur Village. Agriculture has been our traditional occupation. I have studied up to Class 10. I own one acre of land. I cultivate paddy in *kuruvai* and *thaaladi* seasons and sesame as a summer crop. I have also planted coconut trees on the farm bunds.

I knew about VRC of Thiruvaiyaru for more than four years through Mr Sarangapani who is also plant clinic doctor from our village. I have also visited the VRC but did not show much interest in its activities. However my attitude changed once I started going for plant clinic held in our village. It has been functioning since April 2013. I have participated in three camps. I began to realise the benefits of the plant clinics which helped me develop confidence.

I have got 10 bags more yield of paddy per acre. I had planted Andhra ponni paddy variety last year. It had a stunted growth. It had been affected by *kulai noi* (Blast) and *ilai pulli* (leaf spot). When I took the damaged crop to the clinic the agricultural expert advised me to spray Tricyclazole 300 ml per acre and saff powder 250 grams. And two days after spraying (as mentioned above) I was asked to spray micro nutrients mixed with sand. He said it would help to improve the yield. I did as advised by the expert; the yield was good. It increased by nearly 10 bags per acre. My elder brother was encouraged to adopt the same prescription when his Andhra ponni crop was also affected by *kulai noi* and *ilai pulli* during that time. He was also happy with the result.

It is the *kuruvai* season now and the standing crop is paddy- ADT 16. When it had the attack of some pest I did as prescribed by the agricultural expert and the pest got controlled. I think it was *ilai pen* (Thrips) attack. The attack was in the initial stage and I am happy to tell you that there is no trace of the pest on the crop. The grains have formed well. I had to go to Thanjavur to get the input; it was not available in the local market.

When I used to apply pesticides/insecticides as per the recommendation of the input dealer the pest or insects would never get controlled completely. It used to crop up again and again. Now we do not face these kind of situations. We are not dependent on the input dealer for advice. Earlier, whatever he gave we used it for the



crop. We did not have choice. Now we know we have to be careful while applying inputs; we are aware that right quantity of suitable input at right time is very important for us to reap a good harvest.

Mr Sarngapani from our village is a trained plant clinic doctor. We contact him for any help or assistance when we get doubts regarding cultivation of crops. He helps us in getting guidance or remedial measures for our crop related problems. He will help us to contact the agricultural expert from the VRC through the phone.

Agricultural extension officers are not coming to the village these days; they were coming earlier. They say they do not have time to visit the villages. They have time only to handle work related to subsidies now. We cannot find fault with them also!

I am satisfied with plant clinic activities. I have benefitted a lot. Having seen me adopting crop advisories of plant clinic and getting good yield, my relatives and neighbours have also been encouraged to follow the advisories provided by plant clinic; they have experienced positive results. Normally, the farmers would be curious to know if they see someone using any input from a new container. Looking at the container they would be interested to know the input details and for what it is used. Like this the message or advisory spreads to the other farmers also. Services of plant clinic should be continued for the benefit of the farming community.

Name: Ms Selvamani

Age: 47 Years

Education: Class 5

Occupation: Agriculture (in leased in land)

Village: Rajendiram

District: Thanjavur

Selvamani is my name. I am 47 years old and I live with my family in Rajendiram Village. Agriculture is the traditional occupation of both my husband's and my mother's family. My husband and I are doing agriculture in leased in land of six acres. My father-in-law owns land but we are not cultivating that land; my father-in-law takes care of it. It is three years since we shifted to agriculture to earn our livelihood. We own a cow which is our secondary source of income for the household; we sell its milk. Prior to taking to agriculture my husband used to earn income by riding a bullock cart.

I came to know of Village Knowledge Centre since three years that is when I started to involve myself with my husband in doing agriculture. My association with VKC got strengthened with the inception of plant clinic in our village. I help in mobilising farmers when ever plant clinic sessions are held in the village. Presently I am a member of the Farmers' Club functioning in our village. My house is situated near the VKC.

I have been visiting the *payir maruthava mugam* ever since it was initiated in our village in 2012. During the *kuruvai* season in that year I visited the *mugam* (plant clinic) when my 50 days old paddy crop (ADT 43) had been affected by more than one pest/disease (*ver poochi*, *kuruthu poochi* (stem borer), *vella poochi* (mites) and along with these there was another pest which appeared like mosquitoes. I took the sample to the plant clinic. After examining the plant the agricultural expert wrote a prescription. Based on the prescription I bought three different (*marundhu*) inputs that had to be sprayed on the crop. I do not remember the inputs name. We could save the crop as we sprayed the required inputs to control the disease /pest in the beginning stage itself. So there was no damage. We got a good yield of more than 16 bags of rice in 100 *kuzhi* of land. Normally it used to be less than this.



During the samba season there was an attack of vellai poochi and kuruthu poochi. When I consulted the agricultural expert for remedial measures he prescribed two inputs to be sprayed on the crop to control the pest. The yield was good. In the next *kuruvai* (2013) season the yield of rice was good. I got 16 bags from 100 *kuzhi* of land.

During this *kuruvai* season (2014) growth of the paddy in 150 *kuzhi* does not look good. There are patches where there is nothing and in few patches the crop growth is stunted. I applied DAP, Urea and potash but there is no improvement. Under normal circumstances one can expect 15 bags of paddy in 100 *kuzhi* of land. Now when I look at my crop in 150 *kuzhi* I do not think we will get more than three bags. I was happy with last year's yield. For some reason I did not consult the expert in the plant clinic this time. I have given soil for testing. After I get the results I should plan after discussing with the plant clinic people as to what crop could be cultivated after taking the remedial measures.

In the latest *kuruvai* season there was overall reduction in the yield of paddy in the village. Normally, for 100 *kuzhi* the yield will be around 15 bags. Only a few got 10 bags per 100 *kuzhi*. I also got 10 bags from 100 *kuzhi*. I got a profit of Rs 3500 (cost of one bag of paddy was Rs 750); the expenses incurred was Rs 4000. At least this was possible only because of plant clinic.

Now I can easily identify *vella poochi* which eats the sheaths of the crop and *ver poochi* which is long and yellow in colour. However, I am still unable to detect the attack of *kuruthu poochi* as it becomes visible to our eyes during grain formation stage only.

The cost of inputs has come down by 50 per cent with the inception of plant clinic in our village. Previously, the input dealers used to prescribe three-four chemicals for controlling pest/disease and for other growth related problems. We were spraying three times; now we are able to control pest/disease with one spraying. We are happy because we are able to reduce input cost. We are able to take preventive measures and take immediate steps to control pest/disease. Thanks to the plant clinic.

Name: Mr Shankar Narayanan

Age: 41 years

Education: Class 2

Village: Vilangudi

District: Thanjavur

My name is Shankaranarayan. I am 41 years old and I come from Vilangudi Village in Thanjavur district. I was not fortunate to study beyond Class 2. Agriculture is our primary occupation. My brothers and I were jointly operating the family land. It is only since six-seven years I started operating the lands on my own. I have nearly eight *maa* (three *maa* = one acre) of land which is equivalent to slightly less than three acres. I do not have bore pump facility. I use my brother's bore pump to irrigate my land. I cultivate rice and sesame. I do not cultivate any vegetables. During *kuruvai pattam* I cultivate rice variety of *adisaya ponni* and during *thaaladi* BPT and CO50; during *Chittirai* (April-May) or *thai* (January-February) *pattam* (season) I cultivate sesame.

I am one of those who have been using effectively the services of the plant clinic for the past two years. Though it has been functioning since more than three years I visited the plant clinic for the first time during *kuruvai* season (2014) when my rice crop was severely affected by *sempen* (mite). After that I have never missed going to the plant clinic to consult the plant doctor in carrying out my agricultural activities.

I did not use the facility available for more than a year. I did not pay attention when Ms Devika, the plant doctor from my village spoke about the services of the plant clinic; I have also heard people taking about the positive



aspects of the clinic. Even then I did not go to the plant clinic due to my indifferent attitude as I did not take it seriously. I continued to depend on the advisories provided by the input dealer who also happened to be my paternal uncle. He used to give me the inputs on credit. There were days when I had to wait for him at the shop to get his guidance to handle my crop problems.

My interaction with Murugan sir (staff from MSSRF and also trained as plant doctor) changed my attitude about the plant clinic and I felt convinced about the service. And, that was the time my rice crop was affected by *sempen* which was widely prevalent in our village. I took the affected crop to the clinic and I could save my crop by adopting the advisories provided at the clinic. The results of subsequent visits to the clinic have been good. These days I do not miss even a single clinic. It is held in three different places in our village and I attend all the sessions. I use that opportunity to get guidance or clarification regarding crop related issues.

I am very happy to share with you that for the first time in my life I could get cash earnings of more than a lakh (Rs 1, 01900) which I got after selling the BPT rice grown (during *thaaladi* season, 2015) in less 2.5 acres of my land. I was so excited and happy that I shook my hands with Sudakar sir and Murugan sir as I harvested 105 (62 kgs per bag) *eda moottai* of rice. It was a *periya saadanai* (achievement); no one has got this much; the normal average yield from 100 *kuzhi* would be around eight to nine bags but I got 13. Normally, BPT rice variety would not yield much if grown in *thaaladi* season. But I got good yield as I followed meticulously the advisories given at the plant clinic. I also sought their advice to improve the grain characteristics. The colour and quality of the grain was good that the merchant bought it and paid me (Rs 1, 01900) on the spot.

I got a good yield of *adisaya ponnai* rice cultivated in *kuruvai* season also. I got 12 bags from 100 *kuzhi* as against the normal average yield of eight to nine bags. During the tillering stage I confronted with some problem in my rice crop which I was unable to express to the plant doctor. I took the plant sample to the plant clinic and it was diagnosed that the attack was in the initial stage of laying eggs; they prescribed some preventive measures to be adopted which proved very effective. I do not remember the inputs names which I used for top dressing and foliar application. I was told to keep the bunds free of grassy weeds.

Now- a -days we get advisories as SMS through our mobile phones. We can refer to it whenever there is a need and we can also share it with others. After observing the crop performance in my field my brothers have also started attending the plant clinics. I take my wife also to the plant clinic. She also comes enthusiastically and encourages our neighbours to visit the clinic and get benefited.

Ms Devika, the plant doctor from our village is of great support to us. She would help us in identifying the crop problem and gives guidance to control pest/disease or to take preventive measures. She also helps us to contact the agricultural expert from MSSRF. He is always willing to help the farmers. He would guide me through the phone and in case there is a need he even visits the land. He would tell us in what stage the damage is and accordingly he would give us advisories. He would say that it is in the initial stage of laying eggs and one should take preventive measures. Sometimes he would suggest to bring the affected plant sample if there is a plant clinic scheduled in a nearby area.

The plant doctor and the agricultural expert do not confine to giving crop advisories they help us in other ways also. In case we do not get required inputs for the crop/land they would guide us to the possible places of availability. Once when I did not get the needed plant protection chemicals for my *kuruvai* crop the plant doctor after enquiring in Thanjavur gave an address of an input dealer in the same town. I immediately went to Thanjavur and got the inputs.

To an extent I can identify *ilia pen* (Thripps). Early in the morning if we touch the sheaths with our wet hands the insect would stick to the hands. I am happy to share with you that I am doing agriculture with interest and



enthusiasm these days. Gone are the days when I did agriculture in a monotonous manner. Thanks to plant clinic.

At every stage of the crop cycle I consult the plant clinic. I did not go in for sesame cultivation this time as there was no market value for it. Instead of that I am growing sun hemp based on the advice of the plant clinic. This will help to improve the soil fertility and will be useful for the rice crop cultivation. I am going to go for nursery raising around 15th of the next month (May 2016). I have decided to do this after consulting the agricultural expert.

My friend Mr Kaliya Perumal thought that he had lost his BPT rice planted in one acre of land. It was severely affected by *sempen* (Mite). He was planning to plough the land and start the process again. But fortunately, he consulted the plant clinic and followed the prescription given. Within ten days there was great improvement. He could harvest 30 bags. He lost two acres of crop where he did not follow the advisory. After experiencing the good result now he regularly visits the plant clinic to take appropriate preventive and other control measures to improve the crop yield. He stopped taking the advice of the input dealer. He used to depend on one input dealer from a place called Thirimanoor.

Plant clinic made a great impact during thaaladi season when the rice crop was severely affected by *ilai suruttu puzhu* (Leaf Folder). The farmers were saved from crop loss due to the intervention of the plant clinic. The farmers recognise the role of plant clinic in helping the farmers do agriculture with confidence. Adopting the right measures at right time helps the farmer to avoid risk and get increased yield. For example by following right plant protection advisory for my *kuruvai* crop I was able to prevent crop loss and also got good yield. The prescriptions advised at the plant clinic are simple and precise. Unlike the input dealer they do not prescribe unnecessary inputs. What is required for the crop problem is only suggested here.

The improved income due to enhanced crop yield helps me to educate my daughter without any difficulty. I have also cleared all my debts. Thanks to the plant clinic!

Name: Mr Sivakumar

Age: 29 Years

Education: Diploma in Air Conditioning

Occupation: Agriculture

Village: Manathidal - Koneri Rajapuram

District: Thanjavur

My name is Sivakumar and I belong to Manathidal-Koneri Rajapuram Village of Thiruvaiyaru Taluk. I am 29 years old and have Diploma in Air Conditioning. I own four acres of land where I cultivate crops such as rice in *kuruvai* and *thaaladi* seasons and black gram and sesame in *Chittirai pattam* (summer season)

I have known about the services and activities of the VRC of MSSRF in Thiruvaiyaru for a long time. I have participated in almost all the meetings and programmes (such as phone-in-programme) related to farming organised by the VRC of Thiruvaiyaru. I get SMS related to agriculture through my mobile phone from the VRC regularly. Apart from crop advisories I value the messages on weather and rainfall as well. I am also one of the many farmers who have been immensely benefitted by the plant clinic services.

We are really fortunate to have access to crop advisories through the plant clinic. What agricultural extension people are supposed to be doing, plant clinic is doing that work. We can approach the plant doctors and the agricultural experts for any crop related doubts. We can contact them over the phone and get guidance for our



crop related issues and problems. I take their guidance not only for enhancing yield, to control pest/disease attack but also in selecting crop varieties for different agricultural seasons. I normally go by the agricultural expert's guidance in choosing the crop for planting in a particular season. For example it was suggested that I could cultivate Auduthurai 36 and ADT 43 rice varieties for cultivation during *kuruvai* season (2014) as they are short term crops and could be harvested soon. As per the recommendation I chose the same and cultivated. I was happy with the crop performance. In the following season (*Samba*) I am planning to cultivate BPT 5204 and *vella ponna*.

My rice crop was affected by more than two pests/diseases. To control this Sudakar Sir prescribed only one chemical and it was very effective in controlling the pest attack. Crop yield was also good; it was profitable. For the same crop problem the input dealer would have suggested two different chemicals which means more expenditure.

The plant clinic also in a way encouraged me to do soil testing in my agricultural land in 2013. I came to know that organic carbon level was low to medium and similarly Potash level was also low to medium and level of Phosphorous was low. *Sunnambu thanmai* was very high. To rectify or balance the nutrient level, it was recommended to plough the land with *sanappu* (sunhemp), *thakka poondu* (Daincha) or farm yard manure (*thozhu uram*) so that PH range would come down. I ploughed the land with *sanappu* and *thakka poondu*.

The plant clinic activities are further supported by short text messages (Agricultural advisories) sent to our mobile phones from the VRC. When I get SMS stating that in 15-20 days it is going to rain I will immediately take efforts to prepare nursery (*naarrangal*) and transplanting. A few days ago most of the farmers in our village went in for harvesting of crops after getting SMS on rain forecast. So, prior to the rain, the farmers in our village could harvest well in advance of the rains; we could harvest around 400 acres of rice field out of 450 acres of land. We could do it without tension and loss of crop. We get agricultural advisories through SMS on possible attack of pest; under changing climatic conditions and when there is uncertainty we are able to take precautionary methods. About 12 farmers from our village get voice advisories from the VRC and we share with our fellow farmers.

The agricultural expert explains to us about the problem of the crop, its causes and the necessary remedial measures in a very simple manner that it can be easily understood and one could teach or share with the other farmer (*Adutha vivasayikku chollitharum alavirku chollitharugirar*) also. For example, he explained in detail how crop would look like when it is affected by *kuruthu poochi* (Stem borer). He said the stem would dry and become weak and there would be a cut inside the stem. I have come to know of the importance of foliar application of inputs. I was not aware of the proper utilisation of MAP (NP fertiliser) until I was told about it at the plant clinic.

The major advantage of plant clinic has been in the area of input utilisation by the farmers. Earlier we were not aware of the quantity of chemicals/pesticide/insecticide to be used. Now the awareness level has increased among the farmers. Indiscriminate use of inputs has come down; people are careful these days. Nearly 50 percent of input expenses have come down and there is increase in yield. Unlike the input dealer, only necessary inputs are prescribed at the plant clinic. He would also guide us about the proper method of utilising the input so that wastage can be avoided. The plant doctor guides the farmers about suitable time for spraying of inputs. We are told that by carrying out spraying on the right time during the day would avoid wastage of inputs and allow the plants to effectively absorb the input. So, the farmers including me have become aware of this aspect and follow the instructions of the plant clinic.

I am now careful in taking precautionary steps to safe guard the crops from pest/disease as I am aware of the symptoms of some common pest/disease attack. Thanks to the plant clinic where I learnt all this. Thank you.

**Name: Mr Srinivas**

Age: 42 Years

Education: Class 8

Occupation: Agriculture

Village: Thirupazhanam

District: Thanjavur

I am a farmer from Thirupazhanam Village and my name is Srinivasan. I am 42 years old and I have studied up to Class 8. We own three acres of agricultural land. I mainly cultivate paddy and *ulundhu* (black gram). This year (2014) I cultivated sesame. I have a paddy transplanting machine. I have a pump set. The late Sitarama Iyer who worked for agricultural development and encouraged farmers to adopt healthy agricultural practices was from our village.

I have come to know more about MSSRF ever since I started going to plant clinic for guidance and advice. For the past one year I have been regularly visiting the plant clinic conducted in our village. Plant clinics are of great help and use to the farming community. Agricultural extension officer does not normally visit our village; even if he visits he does not find time to meet the farmers and learn their problems or needs. The AO is also not up to date with the information and unable to guide us or provide advisory if we approach him with any crop related problem.

I have been participating in the plant clinic sessions and have also benefited through them. I have been able to save my sesame crop from near total loss when the crop was affected by a pest during the flowering stage. There was flower shedding. Fortunately I followed the prescription provided at the plant clinic (April, 2014) by the agricultural expert. I do not remember the names of the chemical he prescribed but they were effective in controlling the flower shedding in the crop. First time I sprayed a chemical contained in white colour tin and the chemical I used for the second time was from a yellow tin. If I had not done nearly 80 per cent of the crop would have got damaged. I got eight bags (800 kilos) from three acres whereas my friend Mr Babu got six bags from two acres. The difference in the yield was because he swung into action (based on the advice from the plant clinic) before the pest could damage the crop heavily but I sprayed the necessary inputs when the damage was rather severe. I had lost my hope on the crop; but I am happy to say that the yield was good. I used two bags (50 kg per bag) of urea and irrigated the crop twice. Not much expense was incurred to raise the crop. I am thankful to the plant clinic. In our area we have never applied chemicals or any other inputs to sesame so far. This was the first time some of us have used chemicals for sesame.

I prefer cultivating black gram in my field as it is profitable and it also helps to promote soil health. Black gram crop was affected by a disease which we locally referred to as *manja themal noi* (yellow mosaic virus) in Tamil language. This disease will affect the productivity of the crop. When I took the affected crop to the plant clinic (May 2014) I was told that it was due to an insect which spreads the virus but I could not see anything on the crop. Then I saw the crop in the microscope which was fully infested. I sprayed the recommended input to the crop and the *manja themal noi* got controlled. As suggested at the plant clinic I uprooted the plants affected by the insect from the field. As per plant clinic recommendation I sprayed water soluble fertiliser and growth promoter. I used weedicide to control the weeds. Earlier I used to get one or two bags of black from one acre of land now from two acres and 100 *kuzhi* I got 15 quintal (200 kilo more per acre). I must say that plant clinic contribution is much in this. After seeing me some of my fellow farmers also sprayed the insecticide whose plants were also affected by *manjal themal noi*. They were also happy with the results.

Similarly the paddy crop planted during the third season i.e summer cultivation (2014) was in a very bad condition. The crop turned yellow and dried up. The crop had stunted growth. I thought I had to plough the land



again and resort to replanting. Fortunately, the agricultural expert from the plant clinic who visited my field told me that there are very effective pesticides and nutrient tonics which could be used for minimising the crop damage. As suggested by him I carried out the remedial measures and benefitted through that. I do not know the name of the disease. Due to the encouragement and advice given by the agricultural expert I did not experience any loss. I apply bio fertiliser to the paddy crop field.

The agricultural expert and the plant clinic doctors visited when the sesame crop was in the field and also when black gram and paddy were in the field. This gives farmers like me encouragement and confidence. Farmers are confronted with new problems. We are not in a position to handle them. We feel at loss. Generally, farmers need to be repeatedly told and guided constantly. At a time when youngsters are losing interest in pursuing agriculture, interventions like this would go a long way in reassuring them to continue with their traditional occupation and in improving their livelihood.

I regularly go to the plant clinic whenever it is held in our village. I feel free with the plant clinic doctors or the agricultural expert to ask any doubt regarding cultivation. We do not feel inhibited to approach MSSRF. We do not get the same feeling with the agricultural department. I wish that MSSRF/CABI would help to promote the sustainable agricultural practices and organic farming. The farmers have forgotten to use the organic manure to the field! It should be revived. I am glad that the plant clinic promotes the use of bio inputs; only when there is a need they prescribe chemicals which are not harmful to the environment.

Name: Mr Sundaramoorthy

Age: 56 Years

Education: Class 5

Village: Mela Vilangudi

District: Thanjavur

My name is Sundaramoorthy and I come from a village called Mela Vilagudi. I had education up to primary school level. I have more than 30 years of experience in agriculture. I practice agriculture in twelve acres of land. Out of this 12 acres, I own five acres and I have taken three acres on lease and four for othi (leased in).

I have known about Village Knowledge Centre functioning in Vilangudi Village. For the past two years I am in regular contact with the Centre. The audio advisories sent from the VRC of Thiruvaiyaru are very useful and helpful. It motivates me to visit the field often.

I have been selling rice and sesame to government seed station for past several years. I was over confident of my abilities in handling the farming activities. I never used to pay much attention to others advice or suggestions. I was aware of the plant clinic conducted in our village which was initiated two years ago but did not take it seriously. What are they going to tell me that I do not know was my attitude. However, my attitude has completely changed now and I value the advice provided by the agricultural expert supporting the services of the plant clinic. The agricultural expert comes to our village whenever plant clinic is held. He along with the plant doctors visits the fields based on the farmers' request or on his own to identify and assess the pest/insect damage and other crop related issues. He and plant doctors also observe other adjacent fields. And if they notice any pest/disease attack they would point out that. Like this, once he had come to see my brother-in-law's field (which is adjacent to my field) affected by *kulai noi* (rice blast) to assess the extent of damage. I was not present when he had come to the field but later I was told that the agricultural expert looking at my field pointed out it was also affected by *kulai noi* (rice blast). He did not stop with that; he also told my brother-in-law to inform me about it and carry out the remedial measures to control the pest. Somehow this incident and



Sir's (the agricultural expert) gesture created an impact on me and I changed my 'I know it all' attitude. The agricultural expert and the plant doctor could have easily confined their guidance to the farmer whose field they had come to observe! I did not realise that my rice crop was affected by rice blast until my brother-in-law brought it to my notice. Gone are the days when I used to carry out agricultural activities on my own. I take the guidance of the plant clinic for all crop related matters.

I have been saved from great loss because of the plant clinic. I was able to take right control measures when my paddy crop was affected by *ilai suruttu puzhu* (leaf folder insect) last year and *ilai pen* (Thrip) in *kuruvai* season during last year and also this year (2014). This year, unusually, there was a heavy attack of *sempen* (White mite) during *kuruvai* season and normally we do not apply any pesticide during this season. We have not heard about this pest attack on paddy until recently. I could not identify the pest when it attacked my paddy crop. Once I saw the pest through the micro scope my confidence level improved. Thanks to plant clinic. The crop would have got completely wiped out had we not got the timely advice and guidance from the agricultural expert from the plant clinic. During this season (*kuruvai*) alone around 50 farmers would have gone with the crop samples to the plant clinic and also to the VRC and they were able to avoid crop loss. The *sempen* attack was very severe that most of us had to go for chemical pesticide application. The pesticides prescribed were not harmful to the crops. The agricultural expert visited the field at the right time of pest attack and gave prescriptions to control the same; this incident created a great impact on me and other farmers. There was a great loss of yield for those who did not come to the clinic. For the past two years we have been experiencing pest attack during *kuruvai*. It is probably because of over heat. Along with the plant clinic services, if nature is favourable and kind to farming the crop yield will increase. It is important that farmers should make use of the services of the plant clinic.

Due to the intervention of plant clinic input expenses have come down. Though I do not see any change in yield the fact that we are able to cut down on input is a gain for us (*selavu kuraindale palan koodathane?!*) Now based on the advice of the expert I am using only 50 kilos (per acre) DAP after ploughing of the land. Earlier I used to apply 75 kilos of DAP (per acre) five days after transplanting. Similarly, I have also reduced the quantity of urea from 25 kilos to 20 per acre. I was told that the land would not absorb more than this.

Earlier I used to carry out agricultural related work based on my experience but now I go by the recommendations- right from seed treatment to the end- provided by the agricultural expert. Farmers should keep in touch with the agricultural expert/plant doctor and make use of the plant clinic sessions when ever it is held in our village. Many farmers have come to know of chemicals/bio inputs that should be used for different pest and disease attack. Earlier, the farmers were totally dependent on the local input dealers. Whatever inputs they suggested the farmers used to apply them to their crop.

Both the plant doctor and the expert visit our fields and guide us as to what measures we have to take regarding cultivation of crops. I do not know in what manner I am going to repay them for their service. They pay attention to everything; they do not ignore anything. They render their service without looking at their watches. They consider our lands as their own and guide us well.

Having experienced the benefits of the plant clinic I encourage the farmers of my village to go the VRC of Thiruvaiyaru. Earlier I used to guide some of the farmers in our village. Now- a -days I do not do that. I either ask them to contact Ms Devika (plant clinic doctor) or the VRC in Thiruvaiyaru. They have benefitted a lot by following the crop advisories.

**Name: Ms Sundaravalli**

Age: 40 Years

Education: Class 12

Village: Pasupathi Koil

District: Thanjavur

I, Sundaravalli aged 40 years hail from a village called Pasupathi Koil in Thanjavur district. I have studied up to Class 12. Ours is a joint family and the family owns nearly six acres of land. We cultivate rice, black gram and Bengal gram in four acres and in the rest of the land we have coconut trees. We are cultivating banana intercropped with coconut since 2015. We also own four cows and we use the dung to manure our agricultural land.

I started to involve myself in agriculture after my brother-in-law passed away in November 2013. Till then he was taking care of the agriculture activities. I was engaged in carrying out household chores. Though I had participated in few of the government training programmes like SRI I did not get an opportunity to practice it in the field. I did not have any experience in managing the agriculture operations. Luckily for me, plant clinic came to my rescue to carry out the agricultural activities without difficulty. I did not have to depend on the other farmers for guidance. I started going to the plant clinic for advice and guidance after I took over the responsibility of carrying out family agricultural operation. I came to know about MSSRF three years ago through Ms Kalaivani who is a progressive farmer and also a plant doctor.

I also started attending Farm School sessions conducted by MSSRF in our village. I could use the knowledge I gained through the Farm School and also through the plant clinic crop advisories and other guidance related to carrying out agricultural operations. I have come to know of various aspects such as proper way of irrigating the land, balanced fertiliser application and adopting right dosage of insecticides/pesticides depending on the different stages of pest attack and so on. They advice us to go in for crop rotation. I believe in organic agriculture. But I understand that we have to resort to chemical application to avoid crop loss (if the pest attack is in critical stage).

My black gram crop was affected by *manjal noi* (Yellow leaf Mosaic virus?) (March April 2014) and when I showed the sample I was told to uproot the affected plant and remove it from the field. I was told at the plant clinic that the disease would spread through the roots. As advised I removed affected plants from the field. I did not know that this simple and easy method help to prevent spread of disease. I realise the importance of seed treatment now. After I started doing seed treatment the *manjoi noi* and other diseases do not affect the black gram crop.

I know the difference between disease and pest attack. I am also aware about the nutrient deficiency and I can identify to an extent if the crop is affected by nutrient deficiency or other pest/disease attack. I have also come to know the do and don'ts in carrying out agricultural operation. If there is any doubt I will call the agricultural expert at the VRC of Thiruvaiyaru. Recently (March,2016) when I noticed some pest/disease attack on my black gram crop I called the VRC and explained to Sudakar Sir (the agricultural expert) how the crop looked. He said it was due to Protonia pest. He recommended application of jaggery syrup (after boiling it to become paste like liquid) mixed with Methomyl and rice bran along the farm bunds. I did as prescribed by sir and the pest got controlled.

I have great confidence in plant doctors. I am very much satisfied with their services. My husband and others working in our land make fun of me for following exactly what the plant clinic prescription says. Mr Arunachalam and Ms Kalaivani, the plant doctors are very helpful and supportive.



We are able to do agriculture with minimum cost. I feel sad that with all the timely guidance and help from plant clinic I am unable to get increased profit. The crop grows well only to be eaten by peacocks. Peacock menace is too much but we are helpless as we cannot take any measures against it as it is our National bird. The only consoling factor is that we have not incurred heavy losses. We are able to manage. We cannot go in for tree crop cultivation as we need food for our household and fodder for our cattle.

I have heard farmers coming to the plant clinic saying that they have been able to cut down on input cost. Those who adopt the crop advisories of the plant clinic are certainly getting benefitted. All farmers from our village may not visit plant clinic but some of them are indirectly getting benefited through their neighbours /relatives who use plant clinic crop advisories.

Name: Mr Surodanan

Age: 33 Years

Education: Class 9

Village: Illuppakorai

District: Thanjavur

I, Surodanan aged 33 years come from a village called Illuppakorai from Thanjavur district. I studied up to Class 9. I come from a traditional agricultural family. We own 10 acres of agricultural land of which five acres constitute *nanjai* (wet lands) and the remaining five acres is *punjai* (dry lands). We know about MSSRF ever since it had set up VRC in Thiruvaiyaru. My mother takes part in most of the programmes of the VRC and the VKC. One of the significant interventions of MSSRF in association with CABI is the plant clinic which offers guidance at right time to the needy farmers. I am one of the regular users of the plant clinic. Previously agricultural extension officer used to visit the village. They do not come these days (How was it useful? And what is the difference). I was not aware of new technologies. There was no outside contact.

Conducting plant clinic in our village on regular basis particularly during main agricultural seasons has been of great use to farmers like me. The agricultural expert from MSSRF provides *vazhi muraigal* (appropriate steps) to farmers related to cultivation of crops. We are getting immediate solutions for our crop problems. We were at the mercy of the input dealer; whatever he prescribed for crop related problems and cultivation we blindly followed it. He would not tell us what kind of pest/disease had affected the crop. Often we were given unsold fertilisers/pesticides.

From crop selection, nursery raising to transplanting and throughout the cultivation of the crop I carry out my agricultural operations based on the advice of the plant clinic; based on agricultural expert's recommendation, I grow *thakka poondu* (Dhaincha- a green leaf manure ploughed into the land) in my land and after it is ploughed into the land I apply Azospirillum, Phosphobacteria and *Pseudomonas* (three kilos in each per acre). I did not know how to use (at what stage and how much) *neeriyal karai uram* (water soluble fertiliser) provided by IFFCO. IFFCO gives fertilisers that can be applied to the crop through foliar method. I was told that first application of the input should be between 22 days to 45 days after transplanting of rice and second one should be carried out after 15 days. But, due to labour shortage I could not carry out the second application that should have been done after 30 days. However, the yield was satisfying. I got 50 bags (62 kilos per bag) per acre. Earlier it used to be between 35-40 bags. If I spend Rs 20000 per acre I get Rs 15000 as returns after four months (Earlier what was the expenditure and returns). I also find there is improvement of more tillers. Earlier I used to get 10 *kattu* (bundle) of straw per 100 *kuzhi* now I get 15-20 bundles from the same area. Four to five bundles of straw is sufficient for my cattle feed; the remaining is sold to others.



Now to a great extent I have come to know of remedial measures for *manjal themal noi* (Yellow mosaic virus) in *ulundu* (black gram) and *kai puzhu* (pod borer). Timely application of right inputs in correct measurements helps in improving the yield and minimising risks. I apply DAP as basal application and after 15 days I apply Urea and Potash as top dressing. Earlier I used to apply DAP as top dressing and not as basal application. The agricultural expert from the plant clinic recommends chemical application for pest attack only when the crop face the risk of crossing economic thresh hold level. By and large bio inputs and environmentally safe chemicals are prescribed.

I cultivate black gram as per the guidance of the agricultural expert. From three acres I got a yield of 15 quintals; I got five quintals per acre. Had I not followed the instructions of the agricultural expert I would have incurred a yield loss of 1 1/2 quintal of black gram per acre. I must tell you that I would have got an extra quintal per acre if I had fully followed his instructions meticulously. I could do it only to an extent. Here after I would be very careful in adopting the instructions thoroughly.

I was not aware that one should uproot the *uludu* crop affected by *manjal themal noi* from the field. I was told that in order to arrest the spread of the disease/pest I should uproot and remove the affected plant. I was told that the disease is caused by the white flies. In order to control it I should apply neem oil within 15 days whether it is affected or not as a precautionary measure. Based on the plant clinic advice I harvest the black gram crop using sickle which enables the root part to remain in the soil which add to the fertility of the soil. After harvesting of black gram crop the land is ploughed along with the stubbles. Earlier we used to uproot the entire plant while harvesting.

After harvesting black gram I planted rice CR 1009. I did not apply Urea to the land before I planted rice variety CR 1009. The yield was good. Before, people used to hesitate to cultivate rice variety-CR 1009, a long duration crop. Now after seeing me many are opting for it. People used to hesitate as it is not a fine variety and fetches lesser rate in the market. It was based on his advice I started growing CR 1009 rice variety in *Samba* season. We understood that this variety is less susceptible to pest and disease. If we properly carry out all the operation in *Samba* season one could get a yield of 45 to 50 bags (One bag = 62 kilos). Seeing me many have taken to planting this variety. It fetches a good rate if we wait for some time and sell in the market. We do not have to spend on inputs to control pest/disease. Finer rice varieties fetch good price but they are susceptible for pest/disease attack.

I feel bad that I could not cultivate Co 6 variety of black gram which Sudhakar sir specially got for me, due to power problem to irrigate the land.

I had poor knowledge of technology/usage of inputs. Now I have come to understand that most of the crop losses were due to poor knowledge. I realise that I had incorrectly and excessively used the inputs because I depended on the input dealer for advice and input recommendation. It is quiet common for the farmers in the villages to approach or rely on the input dealers guidance and recommendation. He also supplied substandard inputs. These days I go to the input dealer only to buy the inputs and not to seek his advice for crop related problems.

I am glad at least to an extent I got sensitised to the harmful effects of indiscriminate use of the inputs. Thanks to the plant clinic; it plays a significant role in mitigating the crop loss.

**Name: Mr T Sammanadam**

Age: 83 Years

Education: Class 6

Occupation: Agriculture

Village: Punavasal

District: Thanjavur

Sammandam is my name and I am 83 years old. I am proud to say that I come from a traditional agricultural family from Punavasal Village from Thanjavur district. I own one acre of agricultural land. I use my neighbour's bore well water for irrigating my land for which I pay him. I cultivate paddy in two seasons and sesame in *kodai* (summer season). Even now I am actively involved in agriculture. I have participated in *Vayal Vazhi Palli* conducted by the Central Government where the focus was on rice cultivation as ours is a delta area. I have learnt about various technologies and practices related to rice cultivation. I always like to know about latest new agricultural technologies. This interest encouraged me to be associated with the VRC of Thiruvaiyaru since its inception and this association has given me the opportunity to be the leader of Farmers' Club.

I have participated in almost all the training/awareness programmes related to agriculture and veterinary organised by the VRC. I am getting agricultural advisories as SMS through my mobile phone from the VRC. The agricultural expert and soil scientist from the VRC visit our fields and give us appropriate advisories for crop and soil related problems. Awareness meeting on rotation of crops (*payir suzharchi murai*) was very useful to the farmers.

I attended plant clinic when it was first introduced in Iyyampatti Village and I instantly knew that it was going to create immense positive impact on farmers' lives and attitudes. My belief about the performance of the plant clinic, has been proved right. It was in March 2013 Plant clinic was introduced in our village. Though some of us were regular visitors to the VRC of Thiruvaiyaru with this intervention our village farmers association increased. The farmers including women farmers feel encouraged to talk to the plant doctors and agricultural expert about agricultural related issues not only during the plant clinic sessions but also over the phone. The farmers seek clarifications and suggestions / advice if they have any doubt or problems regarding agriculture. This guidance is very important for farmers to pursue their occupation with confidence and enthusiasm.

As I mentioned earlier, I usually go in for sesame cultivation during summer season. The sesame crop cultivated in one acre of my land got affected by *vadal noi* (Wilt) (in April–May 2013). I took the sample plant to the plant clinic held in our village. The disease appeared when the crop was in the capsule formation stage. I meticulously followed the advice given by the agricultural expert. As he prescribed I used *Pseudomonas* blended with farm yard manure for top dressing and I also sprayed the same through foliar method and through root for immediate arresting of *vadal noi*. I was extremely satisfied with the yield performance of my sesame crop. If I had not carried out the control measure as guided by the agricultural expert I would have incurred 50 per cent loss. The disease would have caused heavy loss in the yield. I am also happy to share with you that quality of the sesame grain was good; the colour was very good and striking. We use sesame oil in our daily cooking as the oil is of superior quality and aroma is also excellent.

In the following summer season I was advised to do seed treatment using **Trichoderma**. I was told that this would prevent diseases that spread through the roots of the crop. I also learnt that seed treatment if done properly would save crops from diseases like *vadal nai* (wilt), *ilai karugal noi* (leaf blight) and *ilai pulli* (leaf spot). I did seed treatment as advised by the plant clinic and it was effective in controlling the disease in the sesame crop. The plant clinic also guided me in water and fertiliser management. I used to harvest 80 kilos



from one acre of my land and now I harvest three-four quintals -four times more than the previous times. I am only telling you the minimum yield. It is a huge treasure-*idhu oru periya pudaiyal*. One kilo of sesame is sold at Rs 100-see the difference between 80 kilos and four quintals! If one is careful in following disease management, water management and fertiliser management he or she can get this much yield. Fungal attack is common in sesame crop. Pest attack on the crop is rare. Earlier, to control fungal disease (*poosanam*) and pest attack (*poochi*), we used to spray endosulphan and sometimes monocrotophos. We avoid using them now.

Paddy crop planted in my field (one acre) did not yield well. The agricultural expert at the plant clinic suggested to do soil sampling. Accordingly I gave for soil testing during the summer of 2013. The soil test result showed that nitrogen was less in the soil and the presence of Phosphorus was more. I was asked to reduce Phosphorus and potash usage. I was suggested to apply 120 kilo of Urea, 113 kilo of super phosphate and 20 kilo potash. In case super phosphate was not available I was suggested to apply DAP (113/3 of Urea). Prior to transplanting I applied 10 kilos of Zinc Sulphate mixed with sand and farmyard manure as top dressing. Apart from this I also spray *Pseudomonas* and Azospirillum. As recommended I also do seed treatment with *Pseudomonas* and Azospirillum. Once I started following the recommendation given at the plant clinic there is significant yield improvement. Earlier I used harvest 30 bags (60 kg = one bag) of paddy now it is between 45 to 50 bags. It is 40 per cent more than the previous harvests. There was no pest/disease attack. The growth of the crop was uniformly good

Previously, I and other farmers in the village generally used to apply urea and DAP in equal quantity and Potash as a basal application. Then at three different stages of crop growth we used to go in for top dressing using chemical fertilisers. Now, eight days after transplanting of paddy we apply Urea then on the 45th day I spray ALL 18.

Now I understand that since Potash is already available in the soil there is no need for basal application; it will be a waste and cause unnecessary expenditure and it is sufficient if we apply Potash during grain formation stage. By using the soil testing card we apply nitrogen. We are also aware that instead Super Phosphate we can apply DAP as basal application. Now as per the advice at the plant clinic we have reduced the quantity of urea. Now to a great extent we have reduced usage of chemical fertilisers.

As a result of soil testing and the recommendation followed thereafter, input/fertiliser expenses have been brought down considerably. I can say there is 50 per cent reduction in expenditure. I have also reduced the quantity of urea application. Urea would make the crop more prone to pest attack or the crop would be more susceptible to pest attack. If there is pest attack we have to resort to spraying of pesticides. Thus by reducing the quantity of Urea we are avoiding expenses on pesticides.

It is my wish that plant clinic should reach more and more farmers of our region.

Name: Ms Thilakavathy

Age: 33 Years

Education: Class 9

Occupation: Agriculture and daily wage labourer

Village: Arasur

District: Thanjavur

My name is Thilakavathy aged 33 years. I have had school education up to class 9. I help my husband in carrying out agricultural activities. We own two acres of *paduvai* (garden land) and one acre of *vayal*



(wet land). We have also taken one acre for *guthagai* (lease). We have nearly 70 coconut and 50 mango trees. I also go for daily wages as a construction worker or to work in lime kiln (*sunnambu kalavai*) to supplement the household income.

Many farmers from our village make use of the services of the plant clinic ever since it was introduced here. For a long time our coconut trees did not fruit well. When I told the officer (agricultural expert from the plant clinic) he visited our coconut field. He said that the trees have been affected by *gaanda miruga vandu* (Rhinoceros beetle). There were many holes in the fronds and it caused damage. It did not allow the frond to open up and grow. Sir told me that I could control the attack by keeping a pot containing a concoction of castor cake (200 g) powder and ground nut cake (200 g) powder mixed in 1 litre of water for every five coconut trees in the field. He said this concoction would attract the beetle and they would fall into the pot. This mud pot trap method proved effective and I was able to save affected trees. After three months of application I was happy to see fronds coming out. As a precautionary measure I was asked to keep naphthalene balls at the base of inter space in leaf sheath; this will prevent the beetle attack on the fronds. Also, I was told to place a mixer of *kurunai marundhu* with sand (Carbofuran) in the gaps between the fronds in extreme case of attack. For flowering I was told to apply 10 kgs farm yard manure, 0.75 kg of DAP, one kg of urea (1 kg) and 1.5 kgs of MOP per tree along with 20 g boron as a basal application. The trees have started to yield fruits.

The beetle had affected six trees and I have saved four of them. I have been able to prevent a loss of Rs 50000/-. Thanks to the plant clinic. Coconut tree gives income throughout the year. It is a good source of income if taken care of very well by us. Now I am confident to handle any problem with the help of the plant clinic. I have the confidence to safe guard my coconut trees.

I have helped few of my villagers (to carry out the remedial measures) whose coconut trees were damaged by the beetle attack. I shared with them the remedial measure and they followed it. They are happy with the results. I still remember the recommendation and prescription for controlling the beetle and for the growth of the tree for a better yield.

My husband also takes the guidance from the plant clinic. When there was some damage to our mango trees due to *nuni sambal noi* (Powdery mildew) my husband consulted the expert at the plant clinic for a remedy. I am not aware of the prescription but my husband did as advised at the plant clinic. The trees have recovered and started growing well.

We can carry out our farming activities with confidence and interest with the guidance and help of the plant clinic. I sincerely wish that the services of plant clinic would continue to be available for the farmers.

Name: Mr Vadivel

Age: 51 years

Education: Class 10

Village: Villiyannallur

District: Thanjavur

I am Vadivel aged 51 years. I come from a village called Villiyannallur in Thanjavur district. I have studied up to Class 10. Agriculture is the primary occupation of our household. I own three acres of agricultural land where I mainly cultivate rice in *samba* (September to December-January) and *kuruvai* (March-April to June) seasons and sesame in Thaladi (January-February to March-April). We rear cows.

I have been in contact with the VRC of MSSRF at Thiruvaiyaru for the past four-five years. I find agriculture and weather related advisories sent from MSSRF to our mobile phones very useful. These advisories help in



carrying out our agricultural operations. I am happy that these services from MSSRF are further strengthened by plant clinic intervention.

Plant clinic is regularly held in our neighbouring village, Vilangudi. I am one of the regular visitors to the plant clinic. In our village there are 100 households; at least 20 persons come to the clinic for crop advice. By observing us following certain remedial measures to control pest/disease or to improve the performance of the crop yield in our fields other farmers from neighbouring fields adopt the same if they also have similar problems in their crops. So without visiting the clinic also farmers get benefited by the services of plant clinic though not directly. As they see the agricultural expert visiting the fields of the farmers and providing advice they confidently adopt the prescription followed by me and other farmers visiting the plant clinic.

The plant clinic enables the farmers like me to prevent loss of crop from pest/disease attack. My paddy crop planted during *kuruvai* was affected by *sempen* (mite) and in samba season (2013) it was affected by *nel pazham noi* (False mut). On both the occasions the agricultural expert visited my field and gave guidance regarding the control measures to be adopted. In the case of *sempen* attack he said not to worry as it was in the early stage and that the crop could be saved. The sheaths had turned red in colour and the crop had become stunted. I followed the advice and I could see the result within five days. I told my neighbouring field farmers to follow the same remedial measures to control the pest. They were relieved and happy when they saw the pest disappearing from their crop after they carried out the necessary measures.

And, when rice crop planted during samba season was affected by *nel pazham* I was able avoid loss because of the prescription provided by the agricultural expert. It was in the critical stage when the expert visited my affected rice field. The colour of grains became dull. If the rice crop is affected by *nel pazham* one will normally face heavy loss. However, I did not incur any loss. I got 45 bags of yield from one acre. I sold it immediately for Rs 650 per bag. Otherwise I would have got Rs 1000. In the following *kuruvai* season I was very cautious and I got 50 bags from one acre. I sold one bag for Rs 900/-. The expenditure was Rs 20000/-

The plant clinic in most cases recommends simple methods using the locally available inputs; as a result of this the cost also comes down. Sesame planted during 2014 was affected by an insect (Aphids) due to which there was excretion of then like drops (like honeydew) and this sticking substance accumulated on the leaves and branches. The leaves started rolling, twisting and bending. The crop was nearly 50 days old. Normally this insect affects the crop after 50 days of plant growth. Duration of the crop is around 70-75 days. Sudakar Sir (Agricultural Expert) came to the field to have a look at the crop. The attack was in the mild stage and Sir advised me to spray neem oil mixed with 13 litres of water. On the advice of Sir I had also sprayed a tonic for the growth of crop which I did before spraying neem oil to control the insect attack. I got four bags of yield from one acre which was two bags more than the previous year. The expenses were also much less than the last year. I did not take care of the crop like this before.

For the first time I went for cotton (180 days duration) cultivation this year (June-July 2014). I took the advice of agricultural expert from the plant clinic before I decided to plant cotton in my field. I was satisfied with the yield of 10 quintal per acre. I would have got higher yield had I followed all the instructions of the expert; he said that one could get 15-20 quintals from an acre. For example, he advised me to do top tipping of the crop after 40 days. There was not sufficient spacing between the two crops which affected the yield. (The expert said that the spacing should be 120 cm *60 cm)

In general, these days the crops have become vulnerable to pest attack due to absence of *mel mazhai* (insufficient rain fall) at appropriate time. It results in increased cultivation cost and less yield. If there is *mel mazhai* we can easily cut down on expenses. Farmers in this region never used to resort to spraying chemicals/inputs during *kuruvai* season. Of late it is increasingly becoming common due to various pest attack



like *sempen* (Mite). However, we feel relieved and happy as we have access to guidance and help now to combat the problems through the plant clinic intervention. Because of this we are able to minimise our input expenditure and we are also getting better income than three years ago. One can get advice on what crop or variety could be cultivated in a particular season. I feel secure as I have access to expert's advice. I can contact him over the phone also. I get immediate response from him. I have been advised to do soil testing which I would do soon. Hope the services of plant clinic continues so that farmers like me can get benefited and carry out our agriculture with confidence.

Name: Mr Varadaraj

Age: 36 Years

Education: Class 4

Village: Villiya Nallur

District: Thanjavur

My name is Varadaraj. I am 36 years old and I reside in a village called Villiya Nallur adjacent to Vilangudi Village. I have two acres of land. I cultivate rice and paddy.

I came to know about plant clinic through Ms Devika who is a plant doctor from Vilangudi Village. I started going to the clinic regularly from 2013 after I participated in a training programme on coconut climbing and coconut management organised by MSSRF in association with Coconut Board.

Ever since I started going to the plant clinic I carry out my agricultural activities based only on the guidance of the plant doctor. The plant doctor and the agricultural expert visit our fields. We also have access to the expert's guidance or recommendation; we can contact him over the phone. The plant doctor and the expert are ever ready to help us. We can get guidance if we want to cultivate any particular crop rather than a usual one cultivated in a season.

I had planted IR 20 during *kuruvai pattam*(2015). When I tried pulling the rice seedling for transplanting purpose the roots of the seedlings got sliced or cut. I was little worried and I immediately contacted the agricultural expert at the VRC of Thiruvaiyaru. He told me to apply Gypsum to avoid root snapping while pulling. He also told me to wait for two days after applying Gypsum before pulling the rice seedling. I did as recommended by the expert and I could pull the seedling without any damage to the roots. Fifteen days after transplanting, the crop was affected by *ilai pen* (Thrips) and *sempen* (Mite). I followed the advisory and the pest got controlled. I got a good yield when compared to my neighbour. I was contemplating to plough the land again when the roots got snapped while pulling the seedlings. Had I done it and resorted to start the process again it would have been late by one month. The yield would have been affected. Also, only my crop would have been in the field while others would have completed the harvesting. So naturally my crop would have definitely attracted cattle. Fortunately, I listened to the expert and waited for a week after applying Gypsum to the field. I could pull the seedling without its roots getting sliced. The yield was good. I did not incur loss. Thanks to the plant clinic.

Last year I broadcasted black gram seeds immediately after irrigating the land; there was lot of weeds. I applied weedicide but it was immediately followed by heavy rain. Now (April 2016) the standing crop in the field is black gram. As per plant clinic suggestion I broadcasted seeds after three days of irrigating the land. There is not much weeds in the field. I followed proper ploughing method and irrigation practices. Following the advice of the plant clinic has helped me in weed management. It was also pointed out at the plant clinic that cultivating black gram after rice cultivation recuperates the soil with nutrients.



I find it very convenient to attend plant clinic sessions conducted in Vilangudi; some times it is also held in our village also. We are able to take precautionary or preventive measures on right time; the disease/pest gets controlled (*Payir Maruthauva Mugam ingu nadappadu migavum sowgariyamaga irukkiradhu. Enda nerathil enna marundhu adippadu enbadhu therigiradhu. Noi marrum poochi kattupadu agiradhu*). We can take our crops sample to the clinic. Based on the diagnosis they give us right crop advisory which is easy to follow and it is economical also. I can tell you that my input expenses have come down from Rs 1000/- to Rs 700/-

We do not have to depend on the input dealer for guidance. Generally, he suggested chemicals more than the required quantity and also prescribed additional chemicals which were not necessary. We did not take the crop sample to him. We used to explain how the crop looked. Sometimes I was not able to articulate well as to how the affected crop looked like and about the symptoms of the crop problem also. Now I can take the crop sample for getting advisory from the plant clinic. I am able to see the pest or the insect with my eyes through the microscope.

I have come to realise the importance of seed treatment (using bio inputs) now. I do seed treatment for both rice and also black gram. After I started doing seed treatment there is no pest or disease attack in the rice nursery. As I follow proper ploughing and irrigation method there is no weeds in my field now. I do not use weedicide also.

Personally, I find there is yield improvement in rice as well as black gram. I get more yield than my neighbour. Earlier I used to get 30 bags (62 kg per bag) now I get more than 40 bags from one acre and the cost of cultivation is also less now.

Thanks to the plant clinic.

Name: Mr Venkatesan

Age: 36 Years

Education: Class 10

Village: Mathur

District: Thanjavur

I, Venkatesan aged 36 years hail from a traditional agricultural family. I come from a village namely Mathur in Thanjavur district. I have had school education up to Class 10. We own one acre of land and have also leased in one acre. My brother and I work together on the fields. We have 100 coconut trees. During our childhood days, sugar cane used to be the main crop cultivated by our family. Now we focus on rose cultivation. We have taken to this crop since 12 years; it has some advantages. It is a perennial crop and we can get some income on daily basis. The only disadvantage is we have to miss out on our sleep. Plucking of flowers has to be done at night or early hours so that we can reach them to the market early in the morning. We also cultivate vegetable crops like ladies finger, egg plant, cluster bean etc.

I have come to know about plant clinic through one of the plant doctors from Pasupathi Koil. He told me about the purpose of conducting plant clinic in the village and how farmers are getting benefited by it. He also encouraged me to visit the clinic when it was going to be held next time in his village. Out of curiosity I visited the plant clinic held at Pasupathi Koil (which is nearer to our village) two years ago. I became convinced of its uses to the farmers. Since then I have been regularly visiting the clinic in that village.

Plant clinic is a great boon to farmers like me. We get immediate solutions -simple and effective - for our crop problems. My rose crop was affected by termite attack; about 250 plants were badly affected. The affected crop's twigs, branches and twigs turned black and started drying up. When I approached the plant clinic with



affected sample plants I was told that it was due to *ver poochi* (also known as *ver karaiyan*). Locally, it is referred to as *sedhil poochi*. As a remedy, it was recommended spraying of marigold flowers extract on the affected crops. I was told that this solution has medicinal properties and it would control the termite damage. I was also told that spraying of marigold extract would help control *ver poochi* in the early stage of the attack. I did as recommended by the plant clinic and the response was good. As suggested by Sir (agricultural expert from MSSRF) I have also planted marigold plants in rose crop field to keep off the pest or restrict pest attack. I have planted marigold plants as trap crop which are still very young. At present there are around 3500-3700 rose plants in the two acres of the land.

I have come to the plant clinic (conducted in Pasupathi Koil) today as I find the rose crop is being attacked by the *ver karaiyan* like the earlier time. I wanted to show the affected crop first to Sir before taking the remedial measures. He confirmed that it was due to *ver karaiyan* and advised me to spray the solution of marigold flowers. I am sure it will quickly control the pest. I have requested Sir to visit my field and he said he would come this evening.

We are able recognise this particular attack (*ver poochi*) which is common in rose plants cultivated here. As we are undertaking remedial measures promptly the pest attack is controlled quickly. The quicker the treatment the faster would be the pest control. This limits the stress on the crop and also lessens the stress on us.

I have come to know of the importance and benefits of using bio inputs such as *Pseudomonas*. Earlier I used to apply only chemical inputs to my crops. Now, mostly I go in for bio input applications. Sometimes I use a combination of bio and chemical inputs. Earlier I used to apply chemicals at least four times. Now, as I use bio inputs the effect of it lasts for a longer time and the pest attack is reduced. Unless there is a severe pest attack chemical application is not normally recommended at the plant clinic.

Our family (my brother and I) have benefited a lot through the plant clinic. I find that my confidence level and interest have increased ever since I came in contact with plant clinic conducted by MSSRF/CABI. Our household income has improved now. These days my rose crop yield good quality flowers. The flower yield has also increased. We are getting increased income now. As I told you we can earn income on daily basis by selling the flowers in the market. As the quality of the flowers (size and the colour) is good it fetches better rate. Before the plant clinic intervention we used to get around Rs 400 per day; now it is nearly Rs 1000 which is 11/2 times more than the earlier days. We are able to run the family without difficulty. I am able to take care of my son's education. I am paying fees without borrowing from others. We are getting sufficient income to meet the household expenditure.

There was lot of uncertainty while doing agriculture. It has considerably been reduced now. There is not much stress now in doing agriculture. Cost of cultivation has come down. Previously I used to apply whatever inputs I felt was good for the crop. I also used to adopt certain practices looking at my neighbouring farmer. It did not strike me that I should verify before adopting it. I no longer do anything blindly without getting confirmation from the plant clinic.

I find that my confidence level and interest have increased ever since I came in contact with plant clinic conducted by MSSRF/CABI. With access to regular crop advisories and guidance from plant clinic I am positive that I can make good profit by doing agriculture. There are youngsters like me who are interested in taking up agriculture as a full time job. We do not have to go abroad to earn income for the family. We can earn that money by doing agriculture in our fields (*Veli naadu pogavendam; vivasayathil sambathikkalam enra nambikkai vandulladu ippo*).



MSSRF staff and the plant doctors are understanding and are ever ready to help the farmers. We can contact them over the phone if we need some help or advice related to our crops. I and few others from village regularly visit the plant clinic whenever it is held in Pasupathi Koil. We are informed well in advance when a plant clinic is scheduled in that village. Plant doctors from Pasupathi Koil and also staff from MSSRF inform us about it. On my request three plant clinics have been conducted in our village so far. Farmers from this village have started taking interest in plant clinic and started to take its guidance in cultivating their crops. It would be very useful if it is conducted once a month. We are going to have soil testing done for our lands with the help of MSSRF.

Because of my association with MSSRF through plant clinic, I got an opportunity to undergo training on coconut tree climbing and management of coconut crop. As we have coconut trees this training proves very useful in plucking the coconut without depending on the outside labour and take good care of the trees also.

We are thankful to MSSRF and CABI for helping the farmers to improve their livelihood.

Name: Mr Venkatesan

Age: 39 Years

Education: Class 10

Occupation: Agriculture

Village: Panaiyur

District: Thanjavur

Venkatesan is my name. I hail from Panaiyur Village from Thanjavur district. I am 39 years old and have studied up to Class 10. Agriculture is our traditional occupation. I have three acres of agricultural land where I normally cultivate crops such as rice, sesame and banana. Vegetable cultivation is profitable but I do not undertake it as it requires lot of effort and time. It involves attention on daily basis. I owned a harvester which I used to rent out to my fellow farmers in the village. I have sold it recently.

I have known about MSSRF ever since the Village Knowledge Centre was set up in this village. Through the VKC, the VRC in Thiruvaiyaru conducts programmes related to agriculture and veterinary. I have participated in most of these programmes. My first participation was in a programme that focused on livestock rearing and management. I have also attended an agricultural meeting held in Coimbatore. The VRC also organises other programmes like tailoring classes for women in our village. In association with Nehru Yuva Kendra, the VRC conducted tailoring class through which 15 young women have already been benefitted and they are ready to take up stitching of clothes to improve the financial condition of their respective household sooner or later.

We are grateful to the VRC of Thiruvaiyaru for organising the plant clinics in our village. Not only from our village but also farmers from neighbouring village Kaduveli also make use of the services of the plant clinic. Out of 130 households in our village 50 are primarily engaged in agriculture. Minimum 15 persons attend the clinic and benefit. Some may not directly benefit from the clinic but they get benefitted through the other farmers who visit the clinics and adopt the recommended advisories. For example when sesame was affected by *Aswini poochi* (Aphid) the entire village followed the recommendation provided at the plant clinic. The pest got controlled and the farmers were happy.

I have never done seed treatment for sesame until May 2014. On the advice of the plant clinic held in our village I did seed treatment last year. The yield from two acres of land increased from 300 kilos to 450 kilos. Normally for one acre of land I apply 50 kilos of Complex and 30 kilos of Urea as basal application. It was



also suggested to me to apply *Pseudomonas* and Phospo bacteria before broadcasting of sesame seeds in the field. As sesame cultivation affects the fertility this was recommended to prevent the same. However, I could not do it as the bio inputs were not available. Getting bio inputs such as *Trichoderma Viride*, *Pseudomonas*, Phospobacteria and so on is difficult here.

I have also been doing seed treatment for rice for the past three years and I see the difference in the growth of the crop. Taking the advice of the plant clinic I and some others in our village have been able to control pests and disease in rice and sesame.

I normally consult the agricultural expert at the plant clinic/VRC for agricultural related issues. However, I feel bad that I could not carry out corm treatment (using BHC powder and *erumbu marundhu*) for my banana crop (planted in *Adi*(July-August) *pattam*) as recommended by the plant clinic. It was mainly due to non availability of labour and lack of time. I am facing the consequence now-the crop has been affected by pest. I could have reaped a good harvest. It is three months old now (October 2014). The banana now is fetching a very good price in the market. It is a lesson for me. I should have taken little more effort though there was non - availability of labour and done the corm treatment and other related recommendation of the plant clinic.

Awareness on pest and disease has been created among the farmers because of plant clinic. For example, if the top portion of the rice crop looked dried we used to think it was due to wind effect or heat. But now we have come to know that it is not due to heat and it is due to fungal infection. When the fungal disease affected my rice crop I was recommended to apply 10 litres (per acre) of clear cow dung solution. Before I could do that rain came and the crop got cleared of the fungal attack.

Through our mobile phones we get advisories related to crop cultivation regularly. They are timely. They act as reminders to follow certain practices or to take precautions. Based on one such advisory I applied Zink Sulphate to rice nursery raised during the *samba* season (2014). We (the farmers) share the information with each other in our village.

Name: Mr Vijayakumar

Age: 33 Years

Education: Class 10

Occupation: Agriculture and runs a grocery shop

Village: Rajendiram

District: Thanjavur

I am Vijayakumar from Rajendiram Village. I am 33 years old and I have studied up to Class 10. We are traditionally agriculturalists. We own eight *ma* (3 *ma*=one acre) of land. We run a small grocery shop for additional income. I am interested in doing organic farming. So I try to avoid usage of chemical inputs to my field.

I have been participating in Village Knowledge Centre's activities for the past four-five years. I am a member of Farmers Club. Services rendered by the VKC are very useful to the villagers. I am a regular reader of *Namma Ooru Seidhi*, a local news letter of MSSRF and I have been getting short text messages from the VRC of Thiruvaiyaru. The SMS particularly the weather forecast is very helpful and useful to people like me. It helps me to plan my agricultural activities. Depending on the forecast I delay the transplanting/ advance or postpone the harvesting activity. I do not venture out if unfavourable weather is predicted. I share this information with others. Information on Employment opportunities are also sent through SMS. As far as I know three persons have got employment in government sector and another person has started his own business. Employment opportunities and other important information are announced through public address system of the VKC.



Conducting plant clinic in our village is a useful intervention; it is a great service to the farming community. However, I am hesitant to do whatever is being suggested or prescribed at the plant clinic. This is because elders at home may not like it (*Chinna pulla vellama veeduvandu seradhu enbragal*). I have heard people in our village making fun of Sridhar (plant doctor from this village) doing agriculture different from traditional practice. He adopted *orrai narru murai* (reduced number of hills -to one or two hills while transplanting). According to them as the paddy crop in his field looks scanty even after reaching weeding stage they feel it might not yield well. We have to wait and see the result!

I am gradually coming out of the hesitation. I like to use only organic inputs to my field. I assumed that the prescriptions advised at the plant clinic are mostly based on chemicals. So, though I used to be present in all the sessions of the plant clinic and encouraged people to participate I did not use the service for a long time. Now my attitude is changing; I understand that the agricultural expert at the plant clinic prescribes only safe chemicals; only when the crop damage is very severe chemical pesticides are advised.

Paddy cultivated in my land had stunted growth; number of tillers were less and not satisfactory. The agricultural expert at the plant clinic advised me to do soil sampling and water sampling and I got the findings. It was found that water had more calcium content (*chunnambu neer*). Based on the advice I carried out the remedial measures

I seek the advice and suggestions of the agricultural expert- like what should be done for improved harvest of crops, whether I can try alternate crop. Earlier I used to cultivate only paddy. After the harvest of paddy the land would remain fallow. But now after the harvest of paddy I grow black gram on the guidance of the plant clinic. For yield improvement I was suggested to apply bio inputs (*Azospirillum*, *Phasopobacteria* and *Pseudomonas* proportion) after the ploughing of the land and to transplant the rice seedlings three days after. I applied urea (11/2 bags per acre) and sprayed Zinc sulphate two days after weeding. I was happy with the result. Growth of the tillers was good and the colour of the crop was excellent. Unfortunately, during grain formation time there was heavy rain and there was no proper water drainage facility which resulted in heavy damage to the crop. One consoling factor was that I did not go in for basal application after transplanting of paddy which was the usual practice. That time based on the advice given in plant clinic I applied micronutrients which had cost only Rs 300 whereas had I gone in for basal application of inputs it would have cost me Rs 3000. I could at least avoid this expense.

I am happy I am using bio inputs to the field. In case a farmer wants an alternate solution the expert provides the same. He gives alternate remedial measures in case a farmer expresses a need for the same. The agricultural expert based in Thiruvaiyaru and the plant doctor, Mr Sridhar are accessible. They are willing to help the farmers and give guidance. In case a farmer approaches Sridhar for any guidance regarding pest/disease problem he would contact the expert for confirmation before suggesting any recommendation. Some farmers directly contact the expert through mobile phone; the response is really good and encouraging.

Name: Ms Viji

Age: 40 Years

Education: Class 8

Occupation: Agriculture (Vegetable cultivation)

Village: Panaiyur

District: Thanjavur

I, Viji come from a village by name Panaiyur. I have had school education up to Class 8. We are primarily agriculturalists. We mainly cultivate vegetables for the market and also banana. We have only 100 *kuzhi* of land and we have leased in three *maa* (three *maa*=one acre) of land.



We grow vegetable crops such as ladies finger, cluster bean, and pumpkin and so on in 100 *kuzhi* of land. The pumpkin plants looked very unhealthy and the leaves of the plant wilted. My husband bought some chemical from Thanjavur and applied on the plant; there was no change in the condition of the plant. Then we observed leaves of the other vegetable plants getting curled up. Fortunately, I went to the plant clinic held in our village to seek guidance to handle the problem. This was my first visit to the plant clinic. The plant doctor and the agricultural expert visited my vegetable garden. When he saw the pumpkin plants, the agriculture expert recommended removing of the entire debris of pumpkin plants. He pointed out that spreading of disease /pest on other vegetable crops were due to the pest damaged pumpkin crop. He stated that it was a main breeding ground for the insect/pest that affects the crops. He said the pest/insect that affected the vegetable crops were *ilai pen* (Thrips) and *Aswini poochi* (Aphids). My husband bought the recommended tonic and another input which looked like jeera seeds (Thiamethoxam); the same was sprayed in recommended proportions. The very next day we could see the effect of the spray. We found the dead insects/pest. The vegetable crops were saved from further damage and we were happy when they showed signs of healthy growth. I saw the *ilai pen* that affected vegetable crops through the microscope. The eggs of the insects looked like a grape fruit bunch. When the insect was pressed it became reddish. We were not aware that dried/dead plant would be a breeding ground for pest and disease.

When there was *maavu poochi* (Mealy bug) attack on *sundaikai chedi* (**Solanum** sp), I was advised to spray neem oil (5 ml) mixed with one litre of water to control the pest/insect. I was also told that care should be taken to see that all the stems get sprayed properly. I learnt that the insect would be at the base portion of the leaves. The plant doctor /the agricultural expert do not stop with giving crop advisories; they explain to us about the cause and how a particular recommendation should be carried out giving reasons for that.

I feel bad that I did not pay any attention to the plant clinic activities all these days. I also feel sad that I could not do banana corm treatment as suggested by the agricultural expert before planting as we did not have money to buy the necessary inputs to do the treatment. I took the saplings to the plant clinic; looking at the sapling the recommendation was given.

Plant clinic should be conducted regularly so that poor farmers like us can benefit and improve our livelihood.



M.S. Swaminathan Research Foundation
Third Cross Street, Taramani Institutional Area
Taramani, Chennai 600113