BASELINE SURVEY REPORT

Strengthening Livelihoods and Enhancing Food and Nutrition Security of Small and Marginal Farmers in Koraput District of Odisha through a Farming System Model

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About the Report

This report is a documentation of findings of the baseline survey undertaken in 2018-19 as part of the project titled: “Strengthening Livelihoods and Enhancing Food and Nutrition Security of Small and Marginal Farmers in Koraput District of Odisha through a Farming System Model (FSMK) in Koraput district of Odisha”.

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Contents

List of Tables

List of Figures

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1. Background

Nutrition-sensitive agriculture is a food-based approach to agricultural development that puts consumption of nutritionally rich foods and dietary diversity at the heart of overcoming malnutrition and micronutrient deficiencies (FAO 2014). This approach also entails targeting poor households, promoting gender equity, and providing nutrition education so that household resources are used to improve household members' nutrition, especially that of women and young children.

Many studies list the pathways linking agriculture and nutrition (World Bank 2007, FAO 2013a, Kadiyala et al 2014). Gulati et al (2012) explored the relationship between agricultural performance and malnutrition across 20 major Indian states and stated that agricultural productivity can be a powerful tool to reduce undernutrition. A study on the feasibility of a farming systems approach to improve dietary diversity - a Farming System for Nutrition (FSN) study was undertaken by the M. S. Swaminathan Research Foundation (MSSRF) during 2013-2018, under the research programme on Leveraging Agriculture for Nutrition in South Asia (LANSA)[1]. The study was conducted in two agro ecologically different locations: five villages in Wardha district (Maharashtra) and seven villages in Koraput district (Odisha). The study generated evidence that production diversity leads to improved household dietary diversity and provided a framework for designing nutrition-sensitive farming systems in different agro-ecological zones of the country.

Farming system for nutrition interventions under the study included introduction of improved/biofortified varieties of cereals, millets and pulses, encouraging intercropping and double cropping, and recommending the package of practices to be followed; promoting nutrition gardens of fruits and all the three groups of vegetables (leafy vegetables, roots and tubers and other vegetables); and increasing access to animal source foods, viz. poultry in Wardha district and fishery in Koraput district. Nutrition education was provided at all levels of the community. At the end of the study, it was observed that nutrition sensitive agriculture

[1] http://lansasouthasia.org/lansasouthasia//content/farming-system-nutrition

practices had been adopted by 405 (62%) farmers in the seven villages in Koraput and additional 192 farmers in 18 neighbouring villages; household dietary diversity was observed to have increased from 4.7 to 5.3[2].

Keeping this as evidence, the current study aims to demonstrate the approach across an entire gram Panchayat in Koraput, listed as an aspirational district by the government of India. According to Government of Odisha (2011), more than 70 per cent of the farmers in Koraput are small and marginal landholders with an average landholding of 1.63 hectare and operational holding of 0.6 hectare. Agriculture is the primary occupation of people in the district and it is predominantly rainfed farming. *Kharif* is the main cropping season and paddy is the major crop followed by finger millet, little millet, niger, maize, sorghum and pigeon pea. Green gram, black gram and vegetables are cultivated in *rabi* season over small areas. Scheduled Tribe (ST) communities account for 51 per cent of the district's population. The levels of malnutrition are high with 40% of the children under 5 years stunted and 61% anaemic; and 36% of adult women underweight and 63% anaemic, according to the National Family Health Survey – 4 [3]. This report presents the baseline status of the study villages in terms of socio-demographic profile, agriculture pattern, home garden, livestock, food consumption pattern, household dietary diversity and level of nutrition awareness.

2. Methodology

2.1 Study Location

Mathpada panchayat comprising of 39 villages and eight villages of Doraguda panchayat in Boipariguda block constitute the study area. A house listing survey was undertaken in November-December 2018, to understand the socio demographic profile of the study villages. There are 1575 households in the 47 villages that fall in the study area. Detailed information on the study villages is given in house listing survey report (Panda et al., 2019).

2.2 Baseline Survey

Baseline survey was conducted for a subsample of households during March–April 2019, in order to understand the prevailing agriculture pattern, livestock, food consumption pattern and level of nutrition awareness. A subsample of 315 households (20% of total households) was selected by random sampling method using SPSS statistical software (version 20). It was ensured that the distribution of socio economic variables and land class remained similar to

[2] http://59.160.153.188/library/sites/default/files/IndiaImpact%20brief%20NSA-4pg-online.pdf
[3] http://rchiips.org/nfhs/NFHS-4Reports/Odisha.pdf

the total population. Table 1 show the number of households selected from each village and Table 2 lists the surveys conducted. The survey schedules are given in annexure 3.

Table 1: Number of households selected from each village for baseline survey

Gram Panchayat	Revenue Village	Village	Actual No. of households	Sample households
Mathapada	Arapoi	Arapoi	21	3
	Badaatala	Badaatala	25	6
	Baringpod	Baringpodar	47	8
	Dengapaka	Dengapakana	23	6
		Kendumala	13	4
		Khemabadiaguda	5	1
	Goipadar	Bada andari	23	7
		Goipadar	51	11
		Handikhal	11	1
		Sana andari	26	7
	Jhilimili	Jhilimiliguda	44	11
		Kamaramala	5	2
		Pradhanimala	7	1
	Mathapada	Banuaguda	55	9
		Baraguda	22	2
		Boiragiguda*	4	-
		Dalabhata	67	8
		Dalapur	37	8
		Haradaguda	27	2
		Japguda	19	1
		Kenduguda	20	6
		Khadakiaguda	18	5
		Kupuliguda	12	5
		Ladkaguda	58	14
		Malaguda	11	2
		Masiaguda	35	4
		Mathapada	68	17
		Mundaguda	68	13
		Murjiaguda	45	9
		Nuaguda	69	15
		Punjabiguda	15	3
		Semiliguda	10	2
		Siraguda	34	7
		Tentulipadar	102	17
		Tipaguda	80	16
	Musapadar	Musapadar	46	6
	Nisinapak	Nisinapakhna	82	16
		Ramaguda	15	2
	Rupaguda	Rupaguda	53	15
Doraguda	Bergaon	B.Kenduguda	16	3
		Bendraguda	31	7
	Doraguda	Kusumguda	28	9
	Miluguda	Bhejaguda	16	2
		Khatalapadar	10	3
		Miluguda	12	3
	Minarbali	Kudalguda	38	8
		Dumuriguda	51	8
Total			**1575**	**315**

*As the village had only 4 households, the village was not included in the random sampling

Table 2: List of surveys conducted

Sl. No:	Particulars	Period of data collection
1.	Household Food Consumption Pattern	March 2019
2.	Household Dietary Diversity (24 hour diet recall)	
3.	Nutrition Knowledge	
4.	Agriculture, Home Garden and Fishery Details	April 2019

2.2.1 Socio economic characteristics

The socio economic and demographic details of 315 households were extracted from the house listing survey.

2.2.2 Agriculture, home garden, fishery and poultry

Details on crops cultivated in upland, medium land and lowland in *kharif* for the period of June to November 2018 and *rabi* season for the period of December 2017 to May 2018; total operational land, crops grown in irrigated and rainfed land, quantity produced, consumed, sold and stored for seed purpose were collected. Home garden details on vegetables and fruits grown last year, total home garden area, production, quantity self-consumed or sold or shared with friends and neighbours were collected. Information on agricultural practices particularly land preparation, seed practices, method of sowing, organic nutrient management practices, integrated pest management (IPM), value addition and marketing details were also collected.

Household fishery details like total pond size, types of fishes grown, total output during January to December 2018, quantity self-consumed or sold or shared, price of selling the fish, management practices and types feed used were collected. Household poultry details like number of poultry, egg and meat production during December 2018 to February 2019, quantity of egg sold or kept for reproduction or self-consumed or shared were collected. Details on mushroom cultivation were also collected.

Information on skill training attended by the household members was recorded.

2.2.3 Food frequency and household dietary diversity

Frequency and quantity of food items consumed during the month of February 2019 and their sources were recorded. The food consumption information was collected from the women of

the household or from the person responsible for cooking. Nutrients in the food consumed were calculated based on the Indian Food Composition Tables (2017) published by the Indian Council for Medical Research (ICMR). The food group intake and nutrient intake was compared with the RDI (recommended dietary intake) and RDA (recommended dietary allowance) given by ICMR (2011).

Food items consumed at different time periods during the previous 24 hours was collected by recall method and household dietary diversity score (HDDS) was calculated based on the method followed by Kennedy et al., (2013). The food items were grouped into 12 food groups and number of food groups consumed per day by a household was calculated as HDDS.

2.2.4 Nutritional Awareness

Nutritional knowledge on the importance of healthy diet, nutrients in food, anaemia, vitamin A, infant and young child feeding practices, importance of first 1000 days and WASH was collected from the women of the household.

3. Results

3.1 Socio- demographic profile of the selected households

Majority of the population are scheduled tribes (74%) followed by scheduled caste (13%), other backward classes (12%) and 1% belong to general category. Most of the houses are semi-pucca houses (56%) followed by kutcha houses (33%) and pucca houses (11%). The family size is 1 to 4 members in 52% of households, 5 to 8 members in 47% of households and more than 8 members in 1% of households. Drinking water is sourced from tube well or bore well by 85% of the households; only 10% and 4% of the household source tap water and open well or dug well, respectively and 1% household source drinking water from surface water. Toilet facility is found in 70% of the households; however, they are not being used due to unavailability of water.

Backyard home garden area is available in 80% of the households and 81% of the households have poultry. Few households (8%) have pond. Most of the households (48%) have less than 1 hectare of land followed by 31% of households having 1 to 2 hectares of land, 8% having 2 to 4 hectares, 2% having 4 to 10 hectares and 11% of the households are landless. Table 3 shows the socio-demographic profile of the sample households.

Table 3: Socio demographic profile of the sample households

Characteristics	No. of households	Percentage of households
Total households	315	
Caste		
SC	40	12.70
ST	233	73.96
OBC	37	11.75
General	5	1.59
Family Size		
1 to 4	163	51.70
5 to 8	149	47.30
>8	3	1.00
House Type		
Kutcha	103	32.70
Semi pucca	177	56.19
Pucca	35	11.11
Source of drinking water		
Open well/dug well	13	4.13
Surface water	4	1.27
Tap water supply	31	9.84
Tube well/bore well	267	84.76
Education of head of household		
Illiterate	234	74.29
Primary (up to class 5)	39	12.38
Middle school (6 - 8 class)	18	5.71
Secondary (9 and 10 class)	20	6.35
Graduate and above	4	1.27
Occupation of head of household		
Farmer	151	47.94
Agriculture Worker	62	19.68
Non Agriculture labour	67	21.27
Business	18	5.71
Salaried worker	5	1.59
Pension	5	1.59
Not in labour force	7	2.22
Toilet facility		
Yes	222	70.48
No	93	29.52
Ration card		
Yes	287	91.11
No	28	8.89
Household having home garden		
Yes	251	79.68
No	64	20.32

Household having pond		
Yes	26	8.25
No	289	91.75
Household having poultry		
Yes	254	80.63
No	61	19.37
Land class		
Landless	34	10.79
Marginal (below 1.00 ha.)	152	48.25
Small (1.00 - 2.00 ha.)	97	30.79
Semi-medium (2.00 - 4.00 ha.)	24	7.63
Medium (4.00 - 10.00 ha.)	8	2.54

3.2 Agriculture, Home garden, poultry and fishery

3.2.1 Agriculture

There were 280 households cultivating in *kharif* in about 752.40 acres and 34 households cultivating in *rabi* in about 28.78 acres (33 of these households cultivated in both *kharif* and *rabi* seasons).

Figure 1 shows the share of total cultivated land during *kharif* (June to November 2018) between different land types; 49% was upland, 10% medium land and 41% low land. Figure 2 shows 50% of the 280 cultivating households cultivated crops in low land and upland, followed by 15% of households cultivating only in low land during *kharif* season; only 14% cultivated in all 3 types of land.

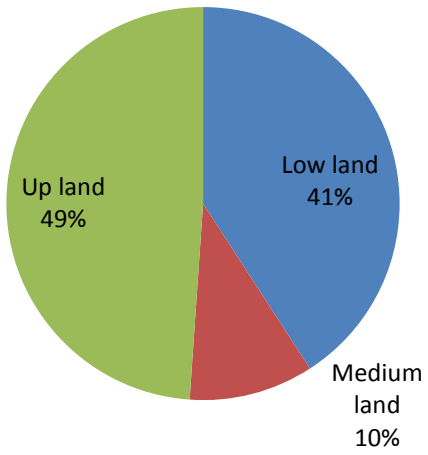

Figure 1: Share of different land types in area cultivated *kharif* season (%)

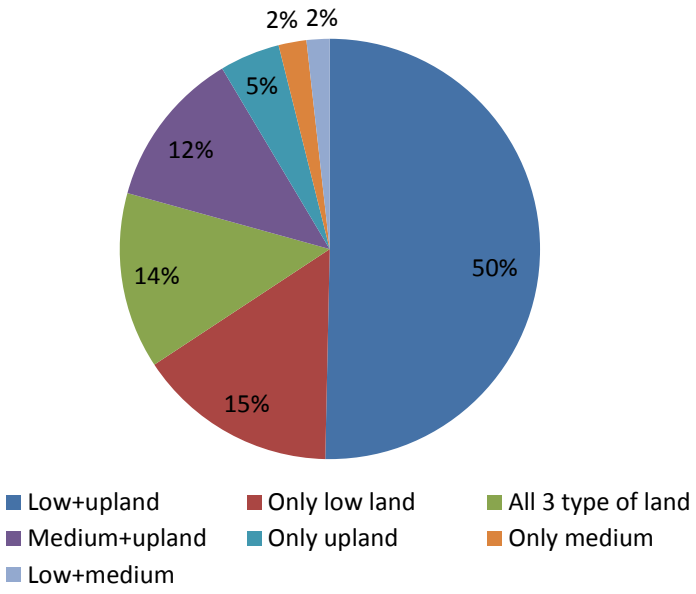

Figure 2: Households cultivating crops in different land types in *kharif* season

Paddy was cultivated in 52% of total cultivated area followed by 20% under little millet, 17% under finger millet and 11% under other crops (Figure 3). Figure 4 shows that 41% of households grow 3 types of crops (paddy, little millet and finger millet) during *kharif* season; 26% of households grow 2 types of crops (paddy and finger millet) and 21% of households grow only paddy.

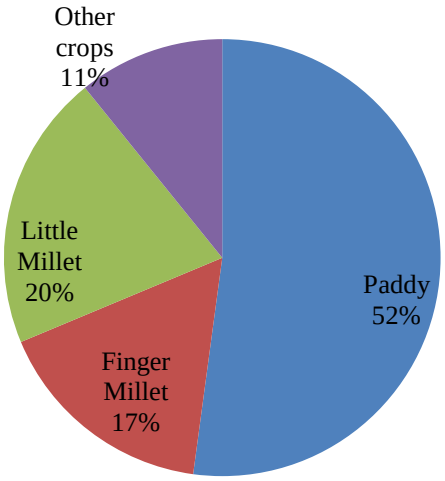

Figure 3: Share of area according to cultivated crops in *kharif* season (%)

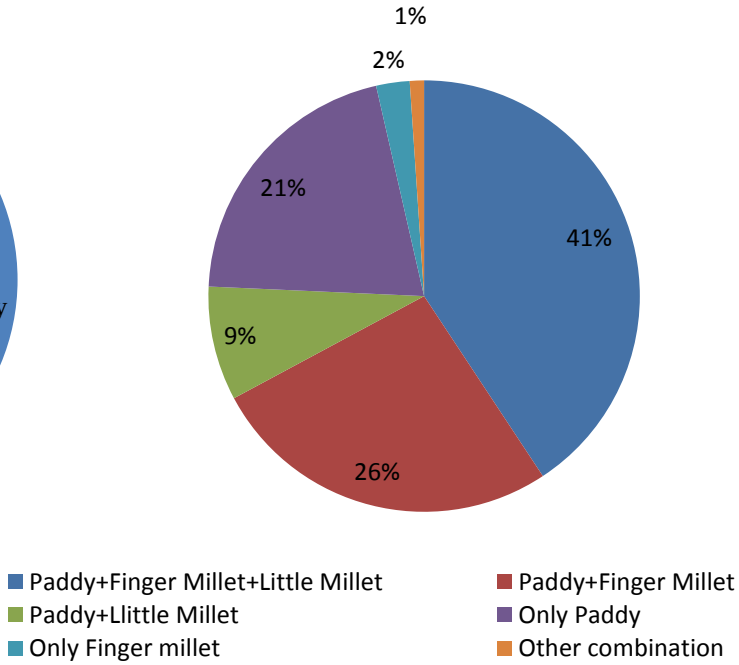

Figure 4: Households growing different crops during *kharif* season

Most of the households cultivated two varieties of paddy - Pratikhya and 1001 in low land. Finger millet, little millet, horse gram, niger were cultivated in upland and few households also cultivated other crops like maize, pigeon pea and black gram. One household reported cultivating vegetables in upland and little millet, maize and broad beans in medium land.

During *rabi* season, paddy was cultivated by 28 households in low land, green gram by 2 households and black gram by one household. Vegetables were cultivated in upland by two households. Overall during *rabi* season, 26 households cultivated in low land, 5 households in upland and 3 households cultivated in low and upland. No crops were cultivated in medium land.

About eight households reported cashew cultivation.

Production and consumption of crops cultivated:

Paddy: 270 households cultivated paddy; 260 households cultivated in lowland, 84 in medium land and 19 in upland, with some overlap between the three groups. Table 4 gives details of average area and yield.

Table 4: Average land area and yield under different land types: Paddy

Type of Land	No. of Households (HH)	Avg area/HH (acre)	Avg Yield (qtl/ acre)
Low Land	260	1.18	9.40
Medium Land	84	0.83	6.66
Up Land	19	0.78	2.39

Out of 270 households that cultivated paddy, 265 households reported average self consumption of 86% of cultivated paddy. Remaining 5 households sold the entire produce in the market.

Finger millet: The crop was cultivated in upland by 196 households; the average area per household was 0.64 acres with average yield of 1.85 quintal/acre. Out of the 196 households that cultivated finger millet, 185 households reported to have consumed an average of 85% of finger millet produced.

Little millet: During *kharif* season, 141 households cultivated little millet in upland; the average area per household was 1.09 acres and average yield was 2.39 quintal/acre. About 20% of households reported self consumption of 42% of little millet harvested.

Pigeon pea: Four households cultivated pigeon pea in upland during *kharif* season; the average area per household was 0.33 acres and average yield was 1.73 quintal/acre. An average of 92% of cultivated pigeon was self-consumed by 3 households and one household reported to have sold to market. About 39 households reported cultivating pigeon pea in backyard/ home garden.

Horse gram: Twenty one households reported horse gram cultivation during *kharif* season on upland. The average area per household under horse gram cultivation was 0.53 acre and the

average yield was 3.82 quintal/acre. An average self consumption of 74% of horse gram produced was reported by each household.

3.2.2 Home Garden

Average home garden area per household was 15 cents[4]. The home garden was operational for an average of 5 months of the year and 251 households reported cultivating vegetables.

Table 5 shows the number of households by number of vegetables cultivated and Table 6 shows different types of vegetables that were cultivated in the home garden. It was observed that one household cultivated sugarcane and sorghum in the home garden. It was also seen that 127 households reported cultivating maize; it was mostly grown on the border of the home garden and consumed as tender maize cobs. Table 7 gives the number of households growing major vegetables and fruits and percentage of fruits and vegetables consumed from the own production.

Table 5: Number of vegetables cultivated and number and percentage of households cultivating

Number of vegetables	No. of households	Percentage of households
One	19	7.57
Two	36	14.34
Three	55	21.91
Four	75	29.88
Five	31	12.35
Six	18	7.17
Seven	11	4.38
Eight	1	0.4
Nine	3	1.2
Ten	1	0.4
Eleven	1	0.4
Total	**251**	**100**

[4] One cent is equal to 0.01 acre

Table 6: Vegetables grown in home garden and number of households cultivating each vegetable

Vegetables*	No. of Households	Vegetables	No. of Households
Broad bean	163	Mango	6
Maize	127	French bean	6
Pumpkin	96	Amaranthus	6
Cow pea	53	Sweet potato	6
Brinjal	41	Cluster beans	5
Pigeon pea	39	Spine gourd	5
Tomato	38	Cabbage	4
Beans	29	Cucumber	4
Papaya	21	Finger millet	4
Bitter gourd	15	Horse gram	4
Ladies finger	13	Guava	2
Ridge gourd	12	Niger	2
Drumstick	10	Cashewnut	2
Banana	10	Pumpkin leaves	2
Cauliflower	10	Snake gourd	2
Yam	11	Tapioca	2
Ivy gourd	9	Turmeric	2
Bottle gourd	8	Castor	1
Field bean	8	Drumstick leaves	1
Colocasia	8	Local pea	1
Onion	8	Orange flesh sweet potato	1
Radish	8	Sorghum	1
Green chilli	7	Sugar cane	1

*vegetables that had no production have been excluded

Table 7: Production and consumption of major vegetables and fruits

Vegetables	No. of Households producing fruits and vegetables	Average Proportion consumed* (%)
Broad bean	163	86
Pumpkin	96	81
Cow pea	53	94
Brinjal	41	60
Tomato	38	53
Beans	29	62
Papaya	21	79

*Average proportion of own production of fruits and vegetables consumed per household; remaining quantity of vegetables produced was shared with neighbours and some households reported selling it.

3.2.3 Agriculture practices

***Land preparation practices*:**

Households were asked about awareness regarding and adoption of different land preparation practices. Table 8 gives the details.

Table 8: Awareness and adoption of land preparation practices

Land preparation practices		Yes		No	
		HHs	%	HHs	%
Bunding and Bund repair	Awareness	306	97.1	9	2.9
	Adopted	275	87.3	40	12.7
Bush cutting/cleaning	Awareness	300	95.2	15	4.8
	Adopted	276	87.6	39	12.4
Gravel removal	Awareness	274	87.0	41	13.0
	Adopted	212	67.3	103	32.7
Soil testing	Awareness	78	24.7	237	75.3
	Adopted	19	6.0	296	94.0

Twenty seven landless households reported that they are aware of land preparation practices as they work as agricultural wage labourers but have not adopted as they are landless.

***Seed Management Practices (2017-18)*:**

i. Seed variety:

Rice: Out of 270 households cultivating paddy, 71% of households reported using improved variety for cultivation. Hybrid paddy variety was used by 10% of households; 9% used traditional variety and another 9% used traditional + improved variety. Four households used improved variety + hybrid variety and one household used traditional + hybrid variety.
Finger millet: 95% of the 217 households cultivating finger millet used traditional variety and 5% used improved variety.

Pigeon pea: Out of 4 households cultivating pigeon pea, 3 households reported to have used traditional variety and 1 household used improved variety.

Green gram: Only 2 households cultivated green gram; 1 household used traditional variety and 1 household used improved variety.

Black gram: All 5 households which cultivated black gram used traditional variety.

ii. Sources of seed:

Paddy: About 56% of the 270 rice cultivating households, sourced paddy seed from market while 15% sourced from government and 13% of the households used their own seeds. Few households (6%) borrowed seed from other farmers; 4% of households sourced from own stored seeds and local market and 3% of households reported to have sourced from own seeds and government supply. Remaining households sourced either from own/other farmers/government supply/market.

Finger millet: Out of 217 households, 83% households used their own seeds; 5% of the households sourced seeds from market; 5% from other farmers and 4% from government and remaining 3% sourced from combination of different sources (own plus market plus government).

Pigeon pea: Out of 4 households cultivating pigeon pea, 2 households sourced from local market and 2 households sourced from own seed production.

Green gram: Out of the 2 households which cultivated green gram, 1 household sourced seeds from another farmer and 1 household sourced it from government.

Black gram: 5 households used their own seeds for cultivating black gram and 1 household used seeds from other farmers.

iii. Awareness of seed treatment practices and practise for the last 3 years:

Paddy: Majority (93%) of households of the 270 paddy cultivating households were not aware of paddy seed treatment and only 7% households reported that they are aware of seed treatment practices. 95% of households had not practised paddy seed treatment in the last 3 years and 5% reported that they had practised seed treatment practises.

Finger millet: Out of 217 households (including 21 households who did not get production due to dry spell during germination) that cultivated finger millet, 97% of the households were not aware of seed treatment practices and 99% of the households had not practised it in the last 3 years.

Pigeon pea: All 4 households cultivating pigeon pea reported that they are not aware of seed treatment practises.

Green gram: 2 households that cultivated green gram were not aware of seed treatment and had not practised it.

Black gram: Similar to green gram, 5 households that cultivated black gram were not aware of seed treatment and had not practised it.

iv. Seed Storage practise:

Paddy: 92% of the households did not follow any method to store paddy seeds; 4% of households reported that they store paddy seed by traditional method using bamboo basket closed with paddy straw and then with mud and cow dung and 4% by modern method using jute bags.

Finger millet: 86% of the households stored seeds without any seed treatment; 12% stored by traditional method and 2% used modern method.

Pigeon pea: Two households cultivating pigeon pea do not store pigeon pea seeds and 2 households store pigeon pea seeds without any treatment.

***Method of sowing*:**

Paddy: Normal transplanting method was practised for sowing by 72% of the 270 paddy cultivating households. Remaining 17% of households practise broadcasting method; 6% reported that they practise both broadcasting and normal transplanting method; only 2% of households reported line transplanting. Line sowing was reported by 2 households and broadcasting + line sowing and broadcasting + line transplanting by one household each.

Out of 217 households that were cultivating finger millet, 86% of households reported to have used broadcast method for sowing followed by normal transplanting (7% of households) and line transplanting (5% of households). About 2% of households reported line sowing method.

Green gram and black gram was cultivated by 5 and 9 households respectively using broadcasting method.

***Organic nutrient management practices*:**

About 79% of the households were aware of farmyard manure; 76% of the households about sheep penning; 69% about crop residue; 26% about vermi-composting and 16% about biofertilizer (market and homemade). Practise of using farmyard manure was reported by 58% of households; sheep penning by 31% of households; crop residue by 30%; biofertilizer from market by 7% and homemade biofertilizers (own preparation like handi khata, jeeva mruta, etc.,) by 3% of households.

Out of 230 households that own cattle or cow, 49% of households reported using cow dung or urine as bio inputs. Out of 315 households, 4 households reported having vermi-compost pit.

***Integrated Pest Management (IPM)*:**

About 13% of households reported that they know about botanical extracts; 8% reported knowledge of pheromone traps; 2% regarding bio-pesticides; and 33% about ash application. But IPM was practised by very few households, 4% of households used botanical extracts; 3% used pheromone traps; 14% of households practised ash application and only one household used bio-pesticides.

***Value addition of agriculture produce*:**

Value addition was reported by only 4 households; 3 households reported processing finger millet to produce liquor and 1 household reported processing rice to make rice balls (*Laddu*).

***Marketing of agriculture produce*:**

During the year 2017-18, it was reported that private dealers outside the village played a major role in marketing of agricultural produce.

Majority of the paddy cultivating households (47%) marketed their produce outside the village to private dealers; 25% of the households sold it to trader within village; 16% of households sold it in nearby mandi; 9% sold it in weekly market; 3% to trader within the

village, nearest mandi and to traders outside the village. Finger millet was marketed outside the village to private dealer by 38% of households; 25% reported to have sold to within village to trader; 25% in weekly market; 8% in nearby mandi and 4% to weekly market and private dealers outside village.

Similar pattern was observed in marketing of little millet, 54% of households sold it to private dealer outside village; 24% to trader within village and 22% of household sold it in weekly market. Out of 8 households who reported marketing of pulses, 6 households sold it to trader within village; one household reported to have sold in nearest mandi and one household to private dealer outside village.

3.2.4 Fishery

Fishery cultivation during January to December 2018 was reported by 26 households. The average fish pond area was 19 cents. It was reported that the pond was operational on an average for 8 months in a year. Out of the 26 households who have pond, 18 reported to have harvested fish. Catla, Grass carp, Magur, Mirgal, Prawn, Rohu, Silver carp and small fishes were reported to be cultivated. About 13 households cultivated only one type of fish and 5 households cultivated 2 types of fish.

Seventeen households reported practise of fish management practices; pond drying was practised by 14 households; mud removing by 5 households; dyke repairing by 7 households; pond and dyke repairing by 4 households; removal of predatory fish by 4 households; liming by 2 households and fertilising by 4 households.

Only 6 households reported use of feed for aquaculture; 1 household used formulated feed and 5 households used locally available ingredients like rice bran, wheat bran, maize bran, groundnut oil cake and mustard cake.

3.2.5 Poultry

A majority of the sample households (81%) reported having poultry during December 2018 to February 2019. About 189 households owned rooster or cock; 71% of the 189 households had 1 to 2 roosters/cocks, 23% had 3 to 5 and 6% had more than six. About 253 households owned hens: 58% of the 253 households had 1 to 2 hens; 34% had 3 to 5 hens and 8% had more than 6 hens. Egg production was reported by 218 households. Average production of

egg during December 2018 to February 2019 was 20 eggs per household. Out of 218 households who reported egg production, about 66 households consumed egg from their own production and the average consumption was 2 eggs/household/month. During the reporting period, 216 households reported that average of 18 eggs/household was used for reproduction purposes.

3.2.6 Skill Training

Forty four households reported that atleast one member of their household had attended a skill training programme during the three year period, 2016-2018. Table 9 gives the list of training programmes attended.

Table 9: List of skill trainings attended by member of sample households (2016-18)

List of training	No. of households
Improved agronomic practice	11
Value addition	11
Integrated pest management	7
Mushroom cultivation	7
Seed selection	5
Vermi-composting	4
Seed treatment	3
Integrated nutrient management	2
Agarbati making	1
FSN model	1
ITI electronics	1
Livelihood	1
Livestock	1
Pre-stock management	1
Vegetable cultivation	1

3.3 Food Consumption pattern

3.3.1 Food Frequency

Table 10 shows the consumption of foods by food groups (g/CU/day). It was observed that all the households consume cereals and millets, vegetables and fats and oil daily. Rice and finger millet are the major cereals and millets consumed. The quantity consumed was more than the recommended level (462 g/day against Recommended Dietary Intake (RDI) of 375g/day[5]). Consumption of other vegetables met the RDI and that of leafy vegetables was a little less

[5] Standard given by Indian Council of Medical Research for different food groups

than the RDI. Consumption of all the other food groups was less than the recommended level. Sugar was reported to be consumed by 86% of households and the quantity consumed was equal to the recommended level. Wild foods were reported to be consumed by 23% of households.

Table 10: Average consumption of food groups (g / CU / day)

Food groups	N	Mean ±SD	RDI*
Cereals and Millets	315	462.32 ± 158.50	375
Pulses and legumes	312	44.66 ± 34.53	75
Other vegetables	315	202.74 ± 126.32	200
Leafy vegetables	315	84.43 ± 58.68	100
Roots and tubers	315	111.65 ± 63.90	200
Fruits	307	46.59 ± 45.36	100
Milk and milk products	123	26.56 ± 36.28	300
Meat and poultry	274	24.69 ± 24.75	
Fishes and sea foods	250	17.42 ± 17.73	
Nuts and oil seeds	266	7.63 ± 9.26	
Fats and oils	314	16.47 ± 11.12	25
Sugars	272	20.95 ± 19.18	20
Wild foods	72	12.42 ± 15.28	

*RDI: Recommended Dietary Intake

Table 11 shows the nutrients consumed per day per CU. Nutrients like protein and fat almost met the recommended level. As the consumption of other vegetables was more than the recommended level, dietary folate and vitamin C intake was more than the recommended levels. The consumption of vitamin A was far below the recommended level along with all the other nutrients.

Table 11: Mean and Median consumption of nutrients (CU / day)

Nutrients	Mean ± SD	Median	RDA*
Protein, g	60.8 ± 23.2	57.1	60
Fat, g	27.2 ± 15.5	23.4	25
Energy, kcal	2159.4 ± 735.2	2076.4	2320
Calcium, mg	483.0 ± 243.8	443.5	600
Iron, mg	12.2 ± 5.5	11.3	17
Vitamin A, µg	335.2 ± 270.8	279.9	600
Thiamine, mg	0.8 ± 0.4	0.8	1.2
Riboflavin, mg	0.7 ± 0.3	0.6	1.4
Niacin, mg	11.9 ± 4.4	11.2	16
Folate, µg	411.8 ± 288.4	333.3	200
Vitamin C, mg	123.1 ± 72.9	113.8	40

RDA: Recommended Dietary Allowances

Table 12 shows the frequency distribution of households according to consumption of more or less than 70% RDI.

It is seen that a majority of the households consume ≥70% RDI cereals and millets, pulses, other vegetables and sugars. Fifty per cent of households consumed ≥70% of RDI of leafy vegetables.

Table 12: **Frequency distribution of households as per > or < than 70% RDI of different food groups (percentage)**

Food groups	No. of households	≥70%* RDI	<70%* RDI
Cereals and millets	315	91.7	8.3
Pulses and legumes	315	81.3	18.7
Other vegetables	315	66.0	34.0
Leafy vegetables	315	50.2	49.8
Roots and tubers	315	26.0	74.0
Fruits	307	21.2	78.8
Milk and milk products	123	0.8	99.2
Fats and oils	315	36.5	63.5
Sugars	315	51.7	48.3

RDI: Recommended Dietary Intake

*RDI is calculated by adding Estimated Average Requirement and 2 standard deviation[6]; CU: One consumption unit is defined as the calorie consumption of an average adult man, weighing 60kg, doing sedentary type of work.

Consumption of major food crops and their sourcing

Rice: Raw milled rice was consumed by almost all households (97%) daily and few households consumed parboiled rice. The quantity consumed was 397 g/CU/day. Average price of the rice was Rs.20-25/kg. About 40% of households source rice from the public distribution system (PDS) + own production, 22% source from PDS + market, 20% source from PDS + market + own production and 6% from PDS only.

Millet: Finger millet (Ragi) was the major millet consumed by 93% of households. Average consumption of ragi was 56.7 g/CU/day. Majority of the households (85%) consumed ragi daily and 6% of households consumed on alternative days. The average market price was Rs.25/kg. About 53% of households source finger millet from own production, 42% of households source ragi from market and remaining households reported to source from market + own production.

[6] https://www.ncbi.nlm.nih.gov/books/NBK109829/

Pigeon pea: Pigeon pea is reported to be consumed in two forms; tender (as vegetable) and dried (as pulses). Out of 86 households reporting consumption of pigeon pea (tender) twice in a month was reported by 3% of households, once a week by 8% of households, 5% consumed once in a month, 3% consumed twice/thrice in a week and 2.2% of household consumed on alternative days. About 66.3% of households reported to have sourced pigeon pea (tender) from market, 29.1% from home production and 4.7% of households sourced from others like friend/relatives/forest. The average consumption of pigeon pea (tender) was 8.27 g/CU/day.

Out of 154 households reporting consumption of pigeon pea (dried), consumption was reported twice in a month by 15% of households, 20% of households consumed once in a week, 3% consumed once in a month, 7% consumed twice/thrice in a week and 3% of households consumed on alternative days. About 83% households sourced pigeon pea (dried) from market, 14% sourced from home production, 3% sourced from others. The average price of pigeon pea (dried) was Rs.80/kg.

Horse gram: About 26% of 196 households reported that they consume horse gram once in a week, 21% of households consumed twice in a month, 8% of households consumed twice/thrice in a week, 6% of households consumed once in a month and 2% consumed on alternative days in a month. The average consumption of horse gram was 8.41g/CU/day. Out of the household who have reported consumption, horse gram was sourced from market by 62% of households, 29% of households sourced from own production and 9% of households from others. The average market price was Rs.50/kg.

Green gram: Green gram was consumed in two forms: whole and dhal (split).

The average consumption green gram dhal was 8.61 g/CU/day. About 47 % of households consumed green gram dhal. The green gram dhal was consumed by 22% of households once in a week, 16% of households consumed twice in a month and 4% of households consumed twice/thrice in a week. Majority of the households (98%) purchased green gram from market. The average market price of green gram dhal was Rs.80/kg.

Green gram whole was consumed by 11% of households. The average consumption was 5.13 g/CU/day. The frequency consumption of green gram whole was twice in a month by 5% of households, once in a week by 3% of households, once in a month by 2% of households and

twice/thrice in a week by 5% of households. Majority (94%) of the households sourced green gram whole from market. The average price of green gram whole was Rs.70/ kg.

Frequency of consumption of other foods items, average quantity of consumption and their sources are given as annexure 1 and 2.

3.3.2 Household Dietary Diversity

Dietary diversity was calculated using household dietary diversity score (HDDS). The results showed that HDDS ranged from 3 to 9 out of 12 food groups and the mean HDDS is 6.42. About 34% of the households consumed 7 food groups per day followed by 28% consuming 6 food groups per day and 8 (16% households) and 5 (15% households) food groups per day. Table 13 shows the mean HDDS and percentage of households as per HDDS.

Table 13: Mean and distribution of households based on HDDS

Particulars		
No. of households	315	
Mean	6.42	
Min –max	3-9	
Scores	**No. of households**	**Per cent**
3	7	2.2
4	11	3.5
5	47	14.9
6	88	27.9
7	106	33.7
8	52	16.5
9	4	1.3

From table 14, it can be observed that majority of the households (49%) have low dietary diversity and 34% have medium dietary diversity. List of food groups under each category that are consumed by more than 50% of the households are listed in Table 13. Pulses were consumed by medium and high dietary diversity consuming households and milk was consumed additionally by high dietary diversity consuming households. It was observed that fruits, meat, eggs and fishes were not consumed.

Table 14: Food groups consumed by >50% of households by dietary diversity tertiles

Tertiles	No. of household	Percentage of households	Foods that were consumed by >50% of households
Low Dietary Diversity (≤6)	153	48.6	Cereals White tubers and roots Vegetables Oils and Fats Spices
Medium Dietary Diversity (7)	106	33.6	Cereals Legumes, nuts and seeds Vegetables White tuber and roots Oils and Fats Sweets Spices
High Dietary Diversity (≥8)	56	17.8	Cereals White tuber and roots Vegetables Legumes, nuts and seeds Milk and milk products Oils and Fats Sweets Spices

The meal pattern, i.e., breakfast, lunch and dinner showed that 62% of the households consume only 2 meals a day, generally lunch and dinner; 33% consume 3 meals a day. One household reported to have consumed only one meal a day.

3.3.3 Nutrition Knowledge

About 50% of households had knowledge about balanced diet and 18% of the households know about the importance of fruits and vegetables.

Knowledge on anemia was reported by 61 households; however, 6 of these households did not know the symptoms and 9 households did not know about iron rich foods. Importance of taking iron and folic acid was reported by 19 households; 20 households reported that iron tablets were taken during pregnancy period, but 19 of them did not know why they were taken.

Knowledge of vitamin A was reported by only 4 households, out of which 3 households did not know the symptoms of Vitamin A Deficiency (VAD). Importance of yellow coloured fruits and vegetables as source of vitamin A was reported only by 7 households.

Good dietary practices like washing fruits and vegetables before eating was reported by 82% of the 315 households. But the knowledge about washing vegetables before cutting was reported only by 22% of the households.

About 127 households reported treating water before drinking; 70 households allow the water to stand and settle before drinking; 31 households reported boiling water; 13 households practise straining water through cloth before drinking; 6 households reported that they strain through cloth and allow the water to stand and settle; 1 household reported practising solar disinfection and one household reported of using water filter. Almost all the households reported washing of hands. Table 15 shows the baseline level of nutrition knowledge of the households.

Table 15: Nutrition knowledge level of the households

Categories	No. of households (315)	% of households
Knowledge on Food and Nutrition		
Have knowledge on balanced diet	159	50.5
Importance of fruits and vegetables	58	18.4
Knowledge on Health		
Heard about anemia	61	19.4
But did not know the symptoms	6	
But did not know the foods rich in iron	9	
Knowledge on symptoms of VAD	4	1.2
But did not know about VAD	3	
Importance of Yellow fruits and vegetables	7	
Knowledge on iron and folic acid tablets during pregnancy	19	6
Only iron tablets	20	
But did not know why iron and folic acid is taken	19	
Good dietary practices		
Washing fruits and vegetables with clean water before eating	258	81.9
Knowledge on washing vegetables before cutting	70	22.2
Treating water for safe drinking	127	40.3
Boil and strain	1	
Boil and let it stand and settle	2	
Boil	31	
Add bleach/chlorine	1	
Strain through cloth and let it stand and settle	6	
Strain through cloth	13	
Solar disinfection	1	

Let it stand and settle	70	
Water filter	1	
Hygiene		
Washing hands	313	99.4
Knowledge on IYCF		
Initiation of breast feeding	301	95.6
Exclusive breast feeding	168	53.3
Initiation of complementary feeding	166	52.7
Effect of low nutrition during first 1000 days	44	14
Nutrition messages		
Has heard nutrition messages	74	23.5

About 96% of the households had knowledge regarding early initiation of breastfeeding and 53% of households had knowledge of exclusive breastfeeding and complementary feeding. Knowledge of first 1000 days was minimum; only 14% of the households said that they know the effect of low nutrition during first 1000 days. About 23% of the households reported that they have received nutrition messages from Anganwadi centres, ANM, AWW, other women, School meetings, PHC, ASHA, NGO, Media (TV/newspaper), senior family members and village meetings at GP or block.

4. Conclusion

The baseline survey of the study location shows that majority of the population belong to scheduled tribes. Nearly half of the households are marginal and small farmers. Most of the crops are grown in upland during *kharif* season; paddy is cultivated majorly in low land. In *rabi* season, a few households cultivate paddy in low land. Majority of the households have home garden area and few vegetables re cultivated in large quantity; only a few households grow variety of vegetables in smaller quantities. Some households even grow crops like maize in home garden area. Farm households are aware of land preparation practices but its adoption and practice was found to be very less. Knowledge on soil testing is less. Improved paddy seed variety is used for cultivation while traditional seed variety is used for the cultivation of finger millet, maize, pigeon pea, green gram and black gram. Seeds are mostly purchased from the market and a few households use their own seeds. Knowledge on seed treatment practices and seed storage practices is found to be less. Transplanting method is practised for the cultivation of paddy and broadcasting method is practised for the cultivation of finger miller and pulses. Most of the farm households are aware about organic nutrient management but knowledge on integrated pest management is found to be less. Marketing of

the produce is mostly done with private dealers outside the village. Few households have fish ponds and very few households cultivate fish. Majority of the households own poultry.

Food consumption pattern shows that diet is based on cereals, other vegetables, tubers and fats and sometimes pulses; average household dietary diversity score is 6.42. Except proteins and fats, consumption of all other nutrients is less than the recommended levels. Most of the households consume two meals a day. Knowledge regarding health, sanitation and hygiene and nutrition during the first 1000 days was found to be less.

Based on the findings, interventions have been designed to promote the understanding and practice of nutrition sensitive agriculture. Intensification and diversification of food production by promoting and providing nutrient dense improved variety of seeds of predominant crops with improved package of practices is being done as a part of intervention. Promotion of nutrition garden at household and institutional levels, increasing availability of animal source foods through pisciculture are also thrust areas. In parallel, capacity building programmes and awareness on nutrition and health and sanitation are being provided in order to bring the linkage between agriculture and nutrition. Selected men and women from the study villages have been identified and are being trained to be community hunger fighters. An endline survey will be done in late 2020-21, to assess the impact of the interventions.

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Annexure 1: Average quantity of food items consumed (per cu/day in grams) and frequency of consumption of food items by households (%)

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
Cereals and millets	Rice (raw milled)	311	397.787	97.14	1.59	-	-	-	-	1.27
	Ragi/finger millet	293	56.707	84.76	5.71	0.95	1.27	0.32	-	6.98
	Rice flakes	100	8.504	0.32	0.63	1.59	6.67	13.97	8.57	68.25
	Puffed rice	98	10.892	0.32	2.54	5.40	10.79	11.11	0.95	68.89
	Maize (tender)	48	11.871	-	0.32	-	2.54	7.94	4.44	84.76
	Semolina (suji)	46	8.120	-	0.32	0.95	3.17	5.71	4.44	85.40
	Wheat	22	27.275	0.95	0.95	0.32	2.22	2.54	-	93.02
	Maize (dry)	21	4.716	-	-	0.32	2.86	2.86	0.63	93.33
	Little millet	19	14.554	-	-	0.63	1.27	2.86	1.27	93.97
	Foxtail millet	5	4.940	-	-	-	-	0.63	0.95	98.41
	Sorghum	5	18.414	0.63	-	-	0.95	-	-	98.41
	Rice parboiled	4	337.540	1.27	-	-	-	-	-	98.73
Pulses and legumes	Lentil	265	12.457	-	12.38	21.90	33.65	13.97	2.22	15.87
	Horse gram	196	8.251	-	2.22	7.62	25.71	20.63	6.03	37.78
	Black gram dhal	159	6.223	-	0.32	2.22	14.92	24.44	8.57	49.52
	Pigeon/pea/red gram	154	11.000	1.59	3.17	6.67	20.32	14.29	2.86	51.11
	Green gram dhal	148	8.613	-	1.90	4.44	21.59	16.51	2.54	53.02
	Broad bean	120	10.192	-	3.49	6.67	13.02	12.38	2.54	61.90
	Peas dry	118	6.990	-	1.59	2.54	17.46	13.65	2.22	62.54
	Bengal gram dhal	93	8.031	-	0.95	2.54	11.43	13.65	0.95	70.48
	Rice bean dhal	90	5.024	-	-	0.32	8.25	14.60	5.40	71.43
	Bengal gram whole	71	6.722	-	-	1.59	9.52	8.57	2.86	77.46
	Cow pea	64	6.468	0.32	-	2.86	6.67	6.67	3.81	79.68
	Peas green	57	9.904	-	0.95	1.90	7.94	5.71	1.59	81.90

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
	Green gram whole	34	5.128	-	-	0.63	3.17	5.08	1.90	89.21
	Bengal gram roasted	30	3.795	-	0.32	0.63	2.22	5.08	1.27	90.48
	Rajmah	3	7.030	-	-	0.32	-	0.63	-	99.05
	Horse gram dhal	1	32.470	-	0.32	-	-	-	-	99.68
	Lakdi dhal	1	10.500	-	-	-	0.32	-	-	99.68
Leafy vegetables	Cabbage	295	44.436	0.63	23.17	27.94	28.89	11.75	1.27	6.35
	Amaranthus	277	13.700	-	4.76	18.10	40.32	20.00	4.76	12.06
	Onion (stalks)	236	8.835	-	5.40	12.06	30.79	20.00	6.67	25.08
	Radish leaves	199	8.712	-	1.59	4.76	27.94	23.17	5.71	36.83
	Cauliflower leaves	187	15.219	-	2.54	11.11	28.89	13.65	3.17	40.63
	Bathua leaves	122	6.129	-	-	0.63	12.38	17.46	8.25	61.27
	Sunusunia leaves	117	5.008	-	-	1.27	7.62	19.05	9.21	62.86
	Drumstic leaves	112	6.736	-	0.32	2.22	12.38	13.65	6.98	64.44
	Pumpkin leaves	83	7.591	-	-	0.63	10.79	11.11	3.81	73.65
	Colacasia leaves	17	4.164	-	-	0.32	1.90	2.54	0.63	94.60
	Mustard leaves	17	3.290	-	-	-	0.63	2.22	2.54	94.60
	Barada leaves	13	4.655	-	-	-	1.27	1.90	0.95	95.87
	Indian spinachi (poi)	13	3.713	-	-	-	0.63	1.59	1.90	95.87
	Spinach (palak)	12	3.178	-	-	-	0.32	0.95	2.54	96.19
	Kalama leaves	6	3.015	-	-	-	-	1.27	0.63	98.10
Roots and tubes	Potato	306	50.078	25.71	54.29	12.38	3.81	0.95	-	2.86
	Onion big	272	35.656	69.52	11.43	3.17	2.22	-	-	13.65
	Radish	218	13.599	-	3.49	11.75	28.89	20.95	4.13	30.79
	Yam ordinary	172	11.186	-	0.63	2.22	15.24	28.25	8.25	45.40
	Colocasia	158	11.271	-	0.95	3.81	10.79	24.44	10.16	49.84
	Sweet potato	105	12.230	-	0.63	1.90	11.75	13.97	5.08	66.67
	Onion small	88	16.993	5.08	7.94	6.35	6.67	1.59	0.32	72.06

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
	Tapioca	58	8.545	-	-	0.95	3.81	7.30	6.35	81.59
	Carrot	22	5.807	-	-	0.32	2.54	1.27	2.86	93.02
	Arrowroot	8	1.710	-	-	-	0.32	0.63	1.59	97.46
	Beetroot	4	6.053	-	-	-	-	0.63	0.63	98.73
	Kasha kanda	2	21.140	-	-	-	0.63	-	-	99.37
	Sarenda kanda	1	12.400	-	-	-	0.32	-	-	99.68
Other vegetables	Tomato	315	53.448	73.65	23.49	2.54	0.32	-	-	-
	Brinjal	291	38.007	1.90	33.02	23.17	23.81	9.52	0.95	7.62
	Beans	274	15.544	-	5.40	21.90	38.41	17.46	3.81	13.02
	Cauliflower	261	36.350	-	12.06	28.57	29.52	10.79	1.90	17.14
	Broad bean	244	18.920	0.32	13.97	13.33	37.14	10.16	2.54	22.54
	Jackfruit tender	202	15.630	-	0.32	1.59	20.32	30.79	11.11	35.87
	Papaya green	200	15.551	-	0.32	1.59	25.40	26.03	10.16	36.51
	Bitter gourd	196	8.429	-	0.32	2.22	19.68	28.57	11.43	37.78
	Drumstick	190	6.360	-	0.63	3.17	21.27	24.44	10.79	39.68
	Green pea (tender)	152	10.526	-	2.22	5.08	23.17	13.33	4.44	51.75
	Pumpkin	140	10.236	-	0.32	1.27	14.92	22.54	5.40	55.56
	Ivy gourd	122	9.094	-	1.27	2.86	11.11	18.10	5.40	61.27
	Raw banana	121	6.619	-	-	-	6.67	20.95	10.79	61.59
	Pigeon pea (tender)	86	8.267	-	2.22	3.17	8.25	8.89	4.76	72.70
	Bottle gourd	71	12.149	-	-	0.95	4.44	8.25	8.89	77.46
	Ladies finger	66	5.251	-	-	-	2.22	8.89	9.84	79.05
	French bean	42	5.550	-	-	-	2.86	8.25	2.22	86.67
	Cow pea (tender)	38	9.632	-	0.32	1.59	4.13	4.13	1.90	87.94
	Cucumber	31	8.702	-	-	-	2.86	4.44	2.54	90.16
	Parwar	27	3.928	-	-	-	0.95	3.81	3.81	91.43
	Spine gourd/kankoda	26	4.359	-	-	-	1.27	4.44	2.54	91.75

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
	Plantain stem	25	5.721	-	-	-	0.95	1.59	5.40	92.06
	Ridge gourd	21	6.994	-	-	-	-	4.13	2.54	93.33
	Cluster bean	10	4.302	-	-	-	0.32	2.22	0.63	96.83
	Knol khol	10	9.735	-	-	-	1.90	0.95	0.32	96.83
	Ash gourd	9	6.563	-	-	-	0.95	1.59	0.32	97.14
	Colocasia stem	7	3.954	-	-	-	1.27	0.95	-	97.78
	Snake gourd	2	3.605	-	-	-	-	-	0.63	99.37
Fruits	Banana	253	15.082	-	1.59	3.49	33.97	27.94	13.33	19.68
	Grapes	187	6.042	-	0.32	1.27	15.87	28.89	13.02	40.63
	Kendu	180	10.383	0.32	3.81	7.30	17.46	20.32	7.94	42.86
	Guava	168	11.063	-	3.49	8.57	19.68	14.92	6.67	46.67
	Orange	162	11.205	-	-	1.90	13.97	23.17	12.38	48.57
	Apple	152	9.562	-	-	1.27	11.11	20.00	15.87	51.75
	Lime	123	3.112	0.32	1.90	4.13	9.84	16.51	6.35	60.95
	Papaya	111	11.581	-	-	0.32	10.79	11.11	13.02	64.76
	Zizypus	70	5.246	-	0.63	2.22	6.98	7.62	4.76	77.78
	Amla	39	2.315	-	0.32	-	1.59	3.81	6.67	87.62
	Date palm	24	2.608	-	-	-	0.63	5.71	1.27	92.38
	Figs	12	3.901	-	-	-	0.95	1.27	1.59	96.19
	Custard apple	7	8.839	-	-	-	0.95	0.32	0.95	97.78
	Bael	4	8.570	-	-	-	0.32	0.95	-	98.73
	Pomegranate	2	3.545	-	-	-	-	0.32	0.32	99.37
	Custer apple	1	2.980	-	-	-	-	-	0.32	99.68
	Pineapple	1	9.650	-	-	-	-	0.32	-	99.68
	Watermelon	1	10.820	-	-	-	-	0.32	-	99.68
Milk and milk products	Curd	83	7.344	-	-	0.95	8.57	11.75	5.08	73.65
	Milk	46	51.543	6.03	2.86	1.59	2.54	0.95	0.63	85.40

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
	Paneer	35	6.790	-	-	-	1.59	5.40	4.13	88.89
	Amul powder	4	12.055	0.32	0.63	-	0.32	-	-	98.73
Fishes and sea foods	Small fish (dry)	138	5.976	-	1.90	2.22	19.68	13.97	6.03	56.19
	Small fish (fresh)	110	6.470	-	0.32	0.32	4.44	17.14	12.70	65.08
	Rohu	101	13.418	-	-	-	3.49	13.97	14.60	67.94
	Prawn (dry)	68	3.077	-	-	0.32	8.25	9.84	3.17	78.41
	Catla	50	15.673	-	-	-	1.59	6.67	7.62	84.13
	Crabs	27	5.580	-	-	-	0.63	3.17	4.76	91.43
	Tengna (kantia)	18	3.827	-	-	-	0.32	0.95	4.44	94.29
	Magur	17	6.458	-	-	-	-	2.22	3.17	94.60
	Prawn (fresh)	16	2.849	-	-	-	0.32	1.90	2.86	94.92
	Tilapia	7	10.864	-	-	-	0.32	1.59	0.32	97.78
	Mirgal	2	7.900	-	-	-	-	0.32	0.32	99.37
	Snake fish (kochia)	2	2.225	-	-	-	-	-	0.63	99.37
Meat and poultry	Egg chicken	237	10.431	0.32	2.86	3.49	20.63	36.83	11.11	24.76
	Chicken meat	229	15.264	-	0.32	1.27	12.38	33.02	25.71	27.30
	Goat meat	61	7.875	-	-	-	1.27	4.76	13.33	80.63
	Quail	24	4.483	-	-	-	1.27	1.27	5.08	92.38
	Duck meat	6	7.555	-	-	-	-	0.32	1.59	98.10
	Snail	5	2.870	-	-	-	-	0.63	0.95	98.41
	Beef	4	22.525	-	-	-	-	0.95	0.32	98.73
	Rat	2	6.290	-	-	-	-	0.32	0.32	99.37
	Wild pig meat	2	5.090	-	-	-	-	-	0.63	99.37
	Egg duck	1	1.980	-	-	-	-	-	0.32	99.68
	Rabbit	1	3.430	-	-	-	-	-	0.32	99.68
	Sheep	1	31.750	-	-	-	0.32	-	-	99.68
Fats and oils	Cooking oil	314	16.432	57.14	33.02	6.35	3.17	-	-	0.32

Food group	Food items	Number of households	Mean (g/cu/day)	Daily	Alternative days	Twice/tries in a week	Once in a week	Twice in a month	Once in a month	Never
	Ghee	5	2.380	-	-	0.63	-	0.95	-	98.41
Nuts and oil seeds	Coconut	246	5.615	-	0.32	2.86	33.02	30.48	11.43	21.90
	Groundnut roasted	54	3.809	-	-	-	3.17	11.11	2.86	82.86
	Coconut tender	33	5.876	-	-	0.32	2.86	5.08	2.22	89.52
	Sesamum (til seed)	17	5.705	-	-	-	1.27	2.86	1.27	94.60
	Groundnut boiled	15	9.287	-	-	-	0.32	2.22	2.22	95.24
	Cashewnut	3	0.833	-	-	-	-	0.63	0.32	99.05
	Groundnut fresh	1	9.320	-	-	-	0.32	-	-	99.68
Sugars	Sugar	271	20.598	69.52	8.57	1.90	3.17	1.27	1.59	13.97
	Jaggery cane	30	3.200	-	-	0.32	0.95	5.40	2.86	90.48
	Jaggery date palm	3	6.433	-	-	-	0.95	-	-	99.05
Wild foods	Kasha kanda	41	6.900	-	-	0.32	0.95	6.35	5.40	86.98
	Chiting kanda	28	5.045	-	-	-	0.95	3.49	4.44	91.11
	Pith kanda	26	7.522	-	-	0.32	0.95	2.86	4.13	91.75
	Sarenda kanda	18	7.767	-	0.32	-	1.27	2.54	1.59	94.29
	Cheranga kanda	4	12.978	-	-	-	-	1.27	-	98.73
	Red ant	3	1.410	-	-	-	-	0.63	0.32	99.05
	Kosa kanda	2	7.495	-	-	-	-	0.63	-	99.37
	Tamarind	2	6.830	-	0.63	-	-	-	-	99.37
	Yam ordinary	2	6.460	-	-	-	-	0.63	-	99.37
	Baria kanda	1	1.280	-	-	-	-	-	0.32	99.68
	Mushroom	1	6.160	-	-	-	-	-	0.32	99.68
	Targai kanda	1	13.740	-	-	-	-	0.32	-	99.68

Annexure 2: Sourcing of food items by households (in percentage)

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	hp+o	mkt+hp+o	pds	pds+mkt	pds+hp	pds+o	pds+mkt+hp	pds+mkt+hp+o
Cereals and millets	Rice (raw milled)	311	2.89	5.47	-	1.93	-	0.96	5.79	21.86	40.19	0.32	19.61	0.96
	Finger millet	293	41.98	52.90	0.34	3.41	-	0.68	-	-	-	-	-	-
	Rice flakes	100	78.00	-	22.00	-	-	-	-	-	-	-	-	-
	Puffed rice	98	93.88	2.04	4.08	-	-	-	-	-	-	-	-	-
	Maize (tender)	48	83.33	10.42	6.25	-	-	-	-	-	-	-	-	-
	Semolina (suji)	46	95.65	-	4.35	-	-	-	-	-	-	-	-	-
	Wheat	22	100.00	-	-	-	-	-	-	-	-	-	-	-
	Maize (dry)	21	14.29	76.19	4.76	-	4.76	-	-	-	-	-	-	-
	Little millet	19	21.05	73.68	-	-	5.26	-	-	-	-	-	-	-
	Foxtail millet	5	40.00	40.00	20.00	-	-	-	-	-	-	-	-	-
	Sorghum	5	40.00	60.00	-	-	-	-	-	-	-	-	-	-
	Rice parboiled	4	-	-	-	-	-	-	50.00	50.00	-	-	-	-

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
Pulses and legumes	Lentil	265	99.25	-	0.75	-	-	-
	Horse gram	196	61.73	29.08	8.67	-	-	0.51
	Black gram dhal	159	72.96	18.87	7.55	-	0.63	-
	Pigeon/pea/red gram	154	82.47	14.29	2.60	-	0.65	-
	Green gram dhal	148	97.97	0.68	1.35	-	-	-
	Broad bean	120	34.17	61.67	3.33	0.83	-	-
	Peas dry	118	93.22	3.39	3.39	-	-	-
	Bengal gram dhal	93	96.77	2.15	-	-	1.08	-
	Rice bean dhal	90	98.89	-	1.11	-	-	-
	Bengal gram whole	71	100.00	-	-	-	-	-
	Cow pea	64	39.06	59.38	1.56	-	-	-
	Peas green	57	77.19	17.54	5.26	-	-	-
	Green gram whole	34	94.12	2.94	2.94	-	-	-
	Bengal gram roasted	30	100.00	-	-	-	-	-
	Rajmah	3	100.00	-	-	-	-	-
	Horse gram dhal	1	-	100.00	-	-	-	-
	Lakdi dhal	1	100.00	-	-	-	-	-
Leafy vegetables	Cabbage	295	95.25	2.71	1.36	-	0.68	-
	Amaranthus	277	88.45	9.03	1.44	0.72	-	0.36
	Onion (stalks)	236	95.76	3.39	0.42	-	0.42	-
	Radish leaves	199	86.43	11.56	1.51	-	0.50	-
	Cauliflower leaves	187	90.37	4.81	4.81	-	-	-
	Bathua leaves	122	68.85	9.02	19.67	-	1.64	0.82
	Sunusunia leaves	117	40.17	11.11	47.86	-	0.85	-
	Drumstic leaves	112	43.75	33.04	22.32	-	-	0.89

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
	Pumpkin leaves	83	45.78	44.58	8.43	1.20	-	-
	Colacasia leaves	17	23.53	47.06	29.41	-	-	-
	Mustard leaves	17	82.35	11.76	5.88	-	-	-
	Barada leaves	13	61.54	23.08	15.38	-	-	-
	Indian spinachi (poi)	13	76.92	15.38	7.69	-	-	-
	Spinach (palak)	12	91.67	-	8.33	-	-	-
	Kalama leaves	6	66.67	-	33.33	-	-	-
Roots and tubes	Potato	306	99.02	0.33	0.33	-	0.33	-
	Onion big	272	98.16	1.10	0.37	-	0.37	-
	Radish	218	86.24	11.47	1.38	-	0.92	-
	Yam ordinary	172	43.02	47.09	8.72	-	0.58	0.58
	Colocasia	158	41.77	49.37	8.86	-	-	-
	Sweet potato	105	77.14	18.10	1.90	1.90	-	0.95
	Onion small	88	97.73	1.14	1.14	-	-	-
	Tapioca	58	74.14	20.69	3.45	-	1.72	-
	Carrot	22	95.45	-	4.55	-	-	-
	Arrowroot	8	75.00	25.00	-	-	-	-
	Beetroot	4	75.00	-	25.00	-	-	-
	Kasha kanda	2	-	-	100.00	-	-	-
	Sarenda kanda	1	-	-	100.00	-	-	-
Other vegetables	Tomato	315	89.21	7.62	0.32	0.95	1.59	0.32
	Brinjal	291	90.03	7.22	1.72	0.34	0.69	-
	Beans	274	93.07	4.38	1.46	0.36	0.73	-
	Cauliflower	261	92.34	4.98	1.15	0.38	1.15	-
	Broad bean	244	39.75	52.05	6.15	2.05	-	-

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
	Jackfruit tender	202	8.91	57.92	31.68	-	-	1.49
	Papaya green	200	34.50	42.00	21.50	1.00	0.50	0.50
	Bitter gourd	196	81.63	9.69	7.14	0.51	1.02	-
	Drumstick	190	78.95	15.26	5.79	-	-	-
	Green pea (tender)	152	96.71	1.97	1.32	-	-	-
	Pumpkin	140	52.14	36.43	11.43	-	-	-
	Ivy gourd	122	59.02	35.25	4.92	-	0.82	-
	Raw banana	121	59.50	16.53	22.31	0.83	-	0.83
	Pigeon pea (tender)	86	66.28	29.07	4.65	-	-	-
	Bottle gourd	71	69.01	22.54	8.45	-	-	-
	Ladies finger	66	95.45	3.03	1.52	-	-	-
	French bean	42	83.33	16.67	-	-	-	-
	Cow pea (tender)	38	63.16	36.84	-	-	-	-
	Cucumber	31	90.32	6.45	3.23	-	-	-
	Parwar	27	100.00	-	-	-	-	-
	Spine gourd/kankoda	26	84.62	15.38	-	-	-	-
	Plantain stem	25	44.00	32.00	24.00	-	-	-
	Ridge gourd	21	76.19	23.81	-	-	-	-
	Cluster bean	10	80.00	20.00	-	-	-	-
	Knol khol	10	70.00	30.00	-	-	-	-
	Ash gourd	9	88.89	11.11	-	-	-	-
	Colocasia stem	7	28.57	71.43	-	-	-	-
	Snake gourd	2	100.00	-	-	-	-	-
Fruits	Banana	253	92.09	5.93	1.19	0.40	-	0.40
	Grapes	187	99.47	-	0.53	-	-	-

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
	Kendu	180	16.11	2.78	81.11	-	-	-
	Guava	168	13.10	27.38	58.33	-	0.60	0.60
	Orange	162	100.00	-	-	-	-	-
	Apple	152	100.00	-	-	-	-	-
	Lime	123	92.68	4.88	2.44	-	-	-
	Papaya	111	29.73	54.95	15.32	-	-	-
	Zizypus	70	51.43	12.86	35.71	-	-	-
	Amla	39	46.15	2.56	48.72	-	-	2.56
	Date palm	24	95.83	4.17	-	-	-	-
	Figs	12	-	-	100.00	-	-	-
	Custard apple	7	71.43	14.29	14.29	-	-	-
	Bael	4	75.00	-	25.00	-	-	-
	Pomegranate	2	100.00	-	-	-	-	-
	Custer apple	1	100.00	-	-	-	-	-
	Pineapple	1	-	100.00	-	-	-	-
	Watermelon	1	100.00	-	-	-	-	-
Milk and milk products	Curd	83	89.16	8.43	2.41	-	-	-
	Milk	46	45.65	45.65	8.70	-	-	-
	Paneer	35	100.00	-	-	-	-	-
	Amul powder	4	100.00	-	-	-	-	-
Fishes and sea foods	Small fish (dry)	138	92.03	-	7.97	-	-	-
	Small fish (fresh)	110	61.82	2.73	35.45	-	-	-
	Rohu	101	92.08	2.97	3.96	-	0.99	-
	Prawn (dry)	68	98.53	-	1.47	-	-	-
	Catla	50	96.00	2.00	-	-	2.00	-

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
	Crabs	27	14.81	7.41	77.78	-	-	-
	Tengna (kantia)	18	44.44	-	50.00	-	5.56	-
	Magur	17	76.47	17.65	5.88	-	-	-
	Prawn (fresh)	16	56.25	-	43.75	-	-	-
	Tilapia	7	71.43	-	28.57	-	-	-
	Mirgal	2	100.00	-	-	-	-	-
	Snake fish (kochia)	2	50.00	-	50.00	-	-	-
Meat and poultry	Egg chicken	237	89.03	4.22	5.91	-	0.84	-
	Chicken meat	229	77.73	18.78	2.18	1.31	-	-
	Goat meat	61	81.97	6.56	11.48	-	-	-
	Quail	24	62.50	-	37.50	-	-	-
	Duck meat	6	83.33	-	16.67	-	-	-
	Snail	5	-	-	100.00	-	-	-
	Beef	4	100.00	-	-	-	-	-
	Rat	2	-	-	100.00	-	-	-
	Wild pig meat	2	-	-	100.00	-	-	-
	Egg duck	1	100.00	-	-	-	-	-
	Rabbit	1	-	-	100.00	-	-	-
	Sheep	1	-	100.00	-	-	-	-
Fats and oils	Cooking oil	314	100.00	-	-	-	-	-
	Ghee	5	80.00	20.00	-	-	-	-
Nuts and oil seeds	Coconut	246	93.50	2.85	1.22	2.03	0.41	-
	Groundnut roasted	54	96.30	1.85	-	-	1.85	-
	Coconut tender	33	72.73	24.24	3.03	-	-	-
	Sesamum (til seed)	17	70.59	23.53	5.88	-	-	-

Food group	Food items	Number of households	Market (mkt)	Home production (hp)	Others (o)	mkt+hp	mkt+o	hp+o
	Groundnut boiled	15	93.33	-	6.67	-	-	-
	Cashewnut	3	100.00	-	-	-	-	-
	Groundnut fresh	1	100.00	-	-	-	-	-
Sugars	Sugar	271	100.00	-	-	-	-	-
	Jaggery cane	30	93.33	-	6.67	-	-	-
	Jaggery date palm	3	100.00	-	-	-	-	-
Wild foods	Kasha kanda	41	24.39	-	75.61	-	-	-
	Chiting kanda	28	10.71	3.57	85.71	-	-	-
	Pith kanda	26	26.92	-	73.08	-	-	-
	Sarenda kanda	18	27.78	-	72.22	-	-	-
	Cheranga kanda	4	-	-	100.00	-	-	-
	Red ant	3	33.33	-	66.67	-	-	-
	Kosa kanda	2	-	-	100.00	-	-	-
	Tamarind	2	50.00	-	50.00	-	-	-
	Yam ordinary	2	-	-	100.00	-	-	-
	Baria kanda	1	-	-	100.00	-	-	-
	Mushroom	1	100.00	-	-	-	-	-
	Targai kanda	1	-	-	100.00	-	-	-

Annexure 3. Survey questionnaires

Schedule 2: Agriculture, Home Garden and Fishery Details - Baseline

1. Household Farm Details in *Kharif* (June to November 2018)

1.1 Did you cultivate in *kharif* season: Yes=1; No=2 ( )

1.2 If yes total operational land …….. (Acres) (*Note: Operational land includes own land as well as leased in – irrigated and rainfed*)

Sl. No:	Crop Name	Variety Name	Area (Acres)			Total Output (Qtl.kg)	Qty - Self Cons (Qtl.kg)	Qty – Sold (Qtl.kg)	If sold Price/ Qtl (Rs.)	Stored Qty – Seed (kgs)	Remarks
			Irrig.	Rainfed	Total						
Upland											
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
Medium land											
1.											
2.											
3.											
4.											
5.											
6.											
7.											
Low land											
1.											
2.											
3.											
4.											
5.											
6.											

Note: Provide details of vegetables if grown in farm land for commercial purpose

2. Household Farm Details in *Rabi* (December 2017 to May 2018)

2.1 Did you cultivate in Rabi season: Yes=1; No=2 ( )

2.2 If yes total operational land …….. (Acres) (*Note: Operational land includes own land as well as leased in – irrigated and rainfed*)

Sl. No:	Crop Name	Variety Name	Area (Acres)			Total Output (Qtl.kg)	Qty - Self Cons (Qtl.kg)	Qty – Sold (Qtl.kg)	If sold Price/ Qtl (Rs.)	Stored Qty – Seed (kgs)	Remarks
			Irrig.	Rainfed	Total						
Upland											
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
Medium land											
1.											
2.											
3.											
4.											
5.											
6.											
7.											
Low land											
1.											
2.											
3.											
4.											
5.											
6.											

Note: Provide details of vegetables if grown in farm land for commercial purpose

3. Did you grow vegetables / Fruits in the home garden (January to December 2018)

3.1 Did you grow vegetables or fruits in last year: Yes=1; No=2 ( )

3.2 If yes, total area in (Cent) _____

3.3 Number of months home garden was operational: ____

Sl. No:	Vegetables/ Fruits Name	Total Output (Kg)	Self-cons (Kg)	Sharing with neighbours and friends (Kg)	Qty - Sold (Kg)	If sold, Price/Kg (Rs.)	Remarks
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							
21.							
22.							
23.							
24.							
25.							

4. Agriculture practices:

4.1 Land Preparation

Practices	**Awareness (Yes=1/No=2)**	**Adopted any time during last 3 years (Yes=1/No=2)**	**Remarks**
Bunding, Bund repair			
Bush cutting/cleaning			
Gravel removal			
Soil Test			
Any other Specify_____			

4.2 Seed Practices (2017-18)

Name of Crop	**Rice**	**Finger millet**	**Maize + pigeon pea**	**Green gram**	**Black Gram**
Type of Variety Traditional:1 High yielding:2 Hybrid: 3					
Source of Seed Own: 1 Other farmers: 2 Local market: 3 Govt. Supply: 4 Any other: 5					
Are you aware of the seed treatment practice? (Yes=1/No=2)					
Have you practiced seed treatment any time during last 3 years? (Yes=1/No=2)					
Seed storage practice: Traditional: 1 Modern: 2 Without any treatment: 3					

4.3 Method of sowing:

4.3.1 Method of sowing ***Rice*** ( )

1. Broadcasting 2. Line Sowing 3. Normal Transplanting 4. Line Transplanting

4.3.2 Method of sowing ***Finger Millet*** ( )

1. Broadcasting 2. Line Sowing 3. Normal Transplanting 4. Line Transplanting

4.3.3 Method of sowing ***Maize-Pigeon pea*** ( )

1. Mono cropping 2.Mixed Cropping 3. Inter Cropping

4.3.4 Method of sowing ***Green Gram*** ( )

1. Broadcasting 2. Line Sowing

4.3.5 Method of sowing ***Black Gram*** ( )

1. Broadcasting 2. Line Sowing

4.4 Organic Nutrient Management practices

Sl. No:	**Nutrient management practice**	**Awareness (Yes=1/No=2)**	**Adopted any time during last 3 years (Yes=1/No=2)**	**Remarks**
1.	Farm Yard Manure/Composting			
2.	Sheep penning			
3.	Crop residue			
4.	Vermi-composting			
5.	Bio fertilisers (market)			
6.	Bio fertilisers (own preparation like handi khata, jeeva mruta, etc.,)			

4.4a Do you have cattle/cows/etc? Yes=1; No=2 ( )

4.4b If yes, do you prepare bio inputs using cow dung or cow urine? Yes =1; No=2 ( )

4.4c Do you have vermin-compost pit? Yes =1; No=2 ( )

4.5 Integrated Pest Management (IPM)

IPM	Awareness (Yes=1/No=2)	Adopted any time during last 3 years (Yes=1/No=2)	Remarks
Botanical Extracts			
Pheromone Traps			
Bio-pesticides			
Ash application			
Any Other			

4.6 Do you practice any processing or value addition? Yes =1 / No = 2 ( )

4.6a If yes, give details.

Sl. No:	Name of the Crop	Value addition practice
1.		
2.		
3.		
4.		
5.		

4.7 Marketing Details (2017-18)

Crop	Marketing Channel Used Sold within village to trader = 1 Sold in nearest Mandi= 2 Sold outside village to pvt. dealer=3 Sold in weekly market =4 Any other, Specify= 5	Remarks
Paddy		
Finger millet		
Maize		
Little millet		
Pulses		

5 Household Fishery Details:(January to December 2018)

5.1 Do you have a fish pond? Yes=1; No=2 ( )

5.2 Total Fish pond area _____(cent)

5.3. Duration of fish pond being operational _____ months

Sl. No:	Fish Name	Total Output (kg)	Qty - Self Cons (kg)	Sharing with neighbours and friends (Kg)	Qty – Sold (kg)	Price/ kg (Rs.)
1.	Rohu					
2.	Catla					
3.	Mirgal					
4.	Tilapia					
5.	Magur					
6.	Tengna (Kantia)					
7.	Prawn (fresh)					
8.	Snake fish (Kochia)					
9.	Small fish					
10.						
11.						
12.						

5. 4 Do you follow any management practices for fish farming? Yes =1; No=2 ( )

5.5 If yes, which ones?

Practices	Yes=1/No=2	Practices	Yes=1/No=2
a. Pond drying		e. Removing of predatory fishes	
b. Mud removing		f. Liming	
c. Dyke repairing		g. Fertilising	
d. Pond and dyke cleaning		h. Any other	

5.6 Do you use feed for aquaculture ? Yes=1 No=2 ( )

5.6a If yes, what type of feed? ( )

1. Formulated feed (Pellet/floating)
2. Locally available ingredients (rice bran/wheat bran/maize bran/groundnut oil cake/mustard oil cake)
3. Others Specify_____

6 Household Poultry Details: (December 2018 – February 2019)

6.1 Do you have poultry? Yes=1; No=2 ( )

6. Do you have poultry?_____

6.3 Number of Hen (adult female) _____

Sl.No:	Poultry production	Total Output	Self Cons	Sharing with neighbors and friends	Reproduction	Sold	If sold Price/no. or kg	Remarks
1.	Egg (number)							
2.	Meat (kg) (number of birds)							

7 Do you cultivate mushrooms? Yes =1; No=2 ( )

7.1 If yes, how do you utilise it? ( )

Consume=1; Sell =2; Distributed to neighbours/relatives = 3

8. Skill Training

Have you/your family member in your household, attended any skill training: Yes=1; No=2 ( )

If yes, give details:

Sl. No:	Details of Skill Training received over the last 3 years (2016 onwards)	Yes=1; No=2	Name of Organisation/Govt agency involved in Training
1.	Seed treatment		
2.	Improved agronomic practice		
3.	Integrated Pest Management		
4.	Integrated Nutrient Management		
5.	Seed selection		
6.	Value addition		
7.	Mushroom cultivation		
8.	Vermi-composting		
9.			
10.			
11.			
12.			

Schedule 3: Household Food Consumption Pattern – Baseline

Note: Reference period – previous month (1 month) – For the month of February 2019

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
Cereals and Millets						
1.	Rice (raw milled)					
2.	Rice parboiled					
3.	Wheat					
4.	Rice Flakes					
5.	Semolina (Suji)					
6.	Puffed rice					
7.	Ragi/finger millet					
8.	Sorghum					
9.	Foxtail Millet					
10.	Little millet					
11.	Maize (Tender)					
12.	Maize (Dry)					
13.						
Pulses and Legumes						
14.	Bengal gram whole					
15.	Bengal gram dhal					
16.	Bengal gram roasted					
17.	Black gram dhal					
18.	Green gram whole					
19.	Green gram dhal					
20.	Pigeon pea/red gram					
21.	Peas green					
22.	Peas dry					
23.	Rajmah					

Code for Major source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Code only for rice and wheat:

only PDS= 8	PDS +Mkt=9	PDS + HP=10	PDS + O= 11	PDS + Mkt + HP = 12	PDS + Mkt + HP + O = 13

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
24.	Lentil					
25.	Rice bean dhal					
26.	Horse gram					
27.	Cow pea					
28.	Broad Bean					
29.						
30.						
Leafy Vegetables						
31.	Amaranthus					
32.	Indian Spinach (Poi)					
33.	Radish leaves					
34.	Drumstick leaves					
35.	Cabbage					
36.	Spinach (Palak)					
37.	Pumpkin leaves					
38.	Barada Leaves					
39.	Cauliflower leaves					
40.	Sunusunia leaves					
41.	Colocasia leaves					
42.	Mustard leaves					
43.	Bathua leaves					
44.	Kalama leaves					
45.	Onion (stalks)					
46.						
47.						
Roots and Tubers						
48.	Carrot					
49.	Colocasia					
50.	Beetroot					
51.	Onion big					
52.	Onion small					
53.	Potato					
54.	Radish					
55.	Sweet potato					

Code for Major source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
56.	Tapioca					
57.	Yam ordinary					
58.	Yam Elephant					
59.	Arrowroot					
60.						
Other Vegetables						
61.	Ash gourd					
62.	Beans					
63.	Broad beans					
64.	Bottle gourd					
65.	Bitter gourd					
66.	Brinjal					
67.	Cauliflower					
68.	Cluster bean					
69.	Colocasia stem					
70.	Cow pea (tender)					
71.	Drumstick					
72.	French bean					
73.	Jackfruit tender					
74.	Ivy gourd					
75.	Spine gourd/Kankoda					
76.	Pumpkin					
77.	Ridge gourd					
78.	Ladies finger					
79.	Papaya green					
80.	Parwar					
81.	Plantain green/ raw banana					
82.	Plantain stem					
83.	Snake gourd					
84.	Cucumber					
85.	Tomato					
86.	Pigeon pea (tender)					
87.	Green pea (tender)					
88.						

Code for Major source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
Nuts and Oil seeds						
89.	Coconut tender					
90.	Coconut					
91.	Groundnut fresh					
92.	Groundnut boiled					
93.	Groundnut roasted					
94.	Sesamum (Til seed)					
95.	Cashewnut					
96.						
97.						
98.						
Fruits						
99.	Amla					
100.	Apple					
101.	Bael					
102.	Banana					
103.	Custard apple					
104.	Date palm					
105.	Grapes					
106.	Guava					
107.	Lime					
108.	Orange					
109.	Papaya					
110.	Pineapple					
111.	Zizypus					
112.	Kendu					
113.	Figs					
114.						
115.						
116.						
117.						

Code for Major Source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
Fishes and Sea Foods						
118.	Rohu					
119.	Catla					
120.	Mirgal					
121.	Tilapia					
122.	Magur					
123.	Tengna (Kantia)					
124.	Crabs					
125.	Prawn (fresh)					
126.	Prawn (dry)					
127.	Small fish (fresh)					
128.	Small fish (dry)					
129.	Frog					
130.	Tortoise					
131.	Snake fish (Kochia)					
132.						
Meat and Poultry						
133.	Egg duck					
134.	Egg chicken					
135.	Chicken meat					
136.	Goat meat					
137.	Snail					
138.	Beef					
139.	Pork (pig meat)					
140.	Rat					
141.	Snake					
142.	Duck meat					
143.	Quail					
144.	Rabbit					
145.						
146.						
Milk & Milk products						
147.	Milk					
148.	Curd					
149.	Paneer					
150.						

Code for Major Source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Sl. No:	Food Group	Number of days consumed in a month	Raw amounts consumed (g) Per HH/Day	Major Source Code	Market Price (Rs./Kg)	Remarks
Fats and Oils						
151.	Butter					
152.	Ghee					
153.	Vanaspathi/Dalda					
154.	Cooking oil					
155.						
Sugars						
156.	Sugar					
157.	Jaggery date palm					
158.	Jaggery cane					
159.						
Wild Foods						
160.						
161.						
162.						
163.						
164.						
165.						

Code for Major source

only market (Mkt) = 1	only home production (HP)=2	Others (O) (neighbours, friends, relatives, forest, wages)= 3	
Mkt + HP = 4	Mkt + O = 5	HP + O=6	Mkt + HP + O =7

Schedule 4: Household Dietary Diversity *(24 hour diet recall)* – Baseline

Note:

Make sure that the household do have any guest or festival or fasting previous day

Ask the respondent what they ate from early morning (from the time they woke up) to the time that they went to sleep on ***the previous day***. Include the snacks/foods that they consumed outside.

Time	Name of the dish	Ingredients used to prepare the dish	Remarks (Mention if consumed outside*)
Early Morning			
Breakfast			

Time	Name of the dish	Ingredients used to prepare the dish	Remarks (Mention if consumed outside*)
Lunch			

Time	Name of the dish	Ingredients used to prepare the dish	Remarks (Mention if consumed outside*)
Evening			
Dinner			
Bedtime			

*outside- anganwadi centres, hotels, relatives or neighbours house, snacks from petty shops/tea shops

Schedule 5: Nutrition Knowledge - Baseline

Note: Some questions will have multiple answers

1. To lead a healthy life, our food should include ( )
    1. Only cereals (rice/wheat/ragi)
    2. Only Pulses (Lentils/ pigeon pea)
    3. Only fruits and vegetables
    4. Only animal foods (meat/egg/milk)
    5. Should include cereals, pulses, fruits, vegetables and animal foods
    6. Don't Know
2. Fruits and vegetables are important because ( )
    1. They give energy
    2. They provide vitamins and minerals to our body
    3. They are colourful and tasty
    4. Don't know
3. Have you heard about anaemia/iron deficiency? ( )
    1. Yes 2. No

If answered yes, ask 3a & b questions or proceed to question no. 4

3a. If Yes, how do you know that someone has anaemia? *(Tick the appropriate boxes)*

- ☐ 1. Less energy/weakness
- ☐ 2. Paleness
- ☐ 3. Spoon nails/bent nails
- ☐ 4. More likely to become sick (less immunity to infections)
- ☐ 5. All the above
- ☐ 6. Don't know

3b. Name foods that are rich in iron: 1. _____2._____3._____4. Don't know

4. Yellow and orange colour fruits and vegetables like papaya, pumpkin, mango provide _____ to our body ( )
    1. Vitamin A
    2. Vitamin B complex
    3. Energy
    4. Minerals
    5. Don't know

If answered Vitamin A, ask 4a question or proceed to question no. 5

4a. How can you know that someone who lacks vitamin A in his or her body? *(Tick the appropriate boxes)*

- ☐ 1. Weakness/feels less energetic
- ☐ 2. Be more likely to become sick (less immunity to infections)
- ☐ 3. Eye problems: night blindness (inability to see at dusk and in dim light), dry eyes, corneal damage, blindness
- ☐ 4. Other (Specify)_____
- ☐ 5. Don't know

5. What should you do *first* - before eating raw fruits and vegetables? ( )
    1. Wash them with clean water
    2. Wipe them with cloth
    3. Do nothing (Just eat it)
    4. Other (specify)_____

6. When do you wash vegetables?
    1. Before cutting
    2. After cutting
    3. Do not wash

7. You have to wash your hands *(Tick the appropriate boxes)*

    ☐ 1. After going to the toilet/latrine
    ☐ 2. Before preparing/handling food
    ☐ 3. Before feeding a child
    ☐ 4. Before and after eating
    ☐ 5. After handling garbage
    ☐ 6. Other (Specify)_____
    ☐ 7. Don't know

8. Do you treat water to make it safe for drinking? 1.Yes 2.No ( )

If answered yes, ask 8a question or proceed to question no.9

8a. If yes, how? (*Tick the appropriate boxes)*

    ☐ 1. Boil it
    ☐ 2. Add bleach/chlorine
    ☐ 3. Strain it through a cloth
    ☐ 4. Use a water filter (ceramic, sand, composite, etc.)
    ☐ 5. Use solar disinfection
    ☐ 6. Let it stand and settle
    ☐ 7. Other (Specify)_____
    ☐ 8. Don't know/no answer

9. What is the first food a newborn baby should receive? ( )
    1. Only breastmilk
    2. Water
    3. Sugar water
    4. Honey
    5. Other (specify)_____
    6. Don't know

10. How long should a baby receive only breastmilk/exclusive breastfeeding? ( )
    1. From birth to 2 months
    2. From birth to 4 months
    3. From birth to 6 months
    4. Other (specify)_____
    5. Don't know

11.At what age should babies start eating foods (complementary food) in addition to breastmilk? ( )

1. After 3 months
2. After 5 months
3. After 6 months
4. Other (specify)_____
5. Don't know

If answered after 6 months, ask 11a question or proceed to question no. 12

11a. Why is it important to give foods in addition to breastmilk to babies? *(Tick the appropriate boxes)*

- ☐ 1. Breastmilk alone is not sufficient (enough)
- ☐ 2. Breastmilk cannot supply all the nutrients needed for growth
- ☐ 3. Baby needs more food in addition to breastmilk
- ☐ 4. Others, Specify_____
- ☐ 5. Don't know

12. Pregnant women need two types of tablets, what are they? ( )

1. Iron tablets
2. Folic acid tablets
3. Both 1 & 2
4. Don't know

If answered 3, ask 12a question or proceed to question no. 13

12a. Why are folic acid and iron important? ( )

- ☐ For normal development of unborn baby
- ☐ To prevent birth defects
- ☐ Other (Specify)_____
- ☐ Don't know

13. First 1000 days of life means: ( )

1. From woman's pregnancy to her child's second birthday
2. From first day of child birth to child's third birthday
3. From first day of child birth to complete 1000 days
4. Don't know

14. If a child did not get proper nutrition during first 1000 days, it will affect: ( )

1. Brain development
2. Physical development
3. Both 1 & 2
4. Don't know

15. Have you received nutrition and health related information/messages? 1. Yes 2. No ( )

15a . If yes, who promoted the messages? *(Tick the appropriate boxes)*

- ☐ 1. PHC
- ☐ 2. ASHA
- ☐ 3. NGO
- ☐ 4. Television/Radio/newspaper
- ☐ 5. Any other (Specify)_____