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Geneticist warns against dangers of fiddling with Nature



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﻿The buzz around sustainable agriculture has been growing and the idea of Green Revolution has moved on to Evergreen revolution. P C Kesavan, a radiation biologist and distinguished fellow at M S Swaminathan Research Foundation, in an interview with Meera Vankipuram, talks about why India needs sustainable agriculture, the hazards of genetically modified food and how technology can help. He is the former director of the biomedical group of Bhabha Atomic Research Centre, and former professor and dean, school of life sciences at JNU.

Government has reportedly asked research institutions to self-finance projects and develop revenue models. Will this help or hinder research?

Scientific research is not a quick thing, only biotechnology gives fast results. If you want me to put a gene into something, I can do it much faster because everything is streamlined. But in other cases we need time, equipment and laboratory support. In these days of intellectual property rights and patenting, other countries are advanced in scientific research. If the government does not support research, the next generation will find a knowledge gap that is unbridgeable.

Dr Swaminathan has spoken about an `evergreen revolution', with the focus being on cultivating crops without damaging soil fertility. What is the role of technology in sustainable agriculture?

We should consider eco-friendly technologies. There is interdependence among all beings -every other being is directly or indirectly linked and makes this planet habitable. Technology should not ruin that. Nowadays, there is indiscriminate use of pesticides, and almost all of them are endocrine disruptors (chemicals that interfere with the hormone system causing tumors and other disorders). Today farming families in Punjab have the highest number of cancer affected cases in the world. Some of the current farming practices are bad for the environment and soil health. At MSSRF , we focus on eco-agriculture and eco-enterprises for developing long-term livelihood opportunities ­ these are done by blending frontier technologies with traditional wisdom and ecological prudence of farmers and tribals.

The Centre is reportedly considering a proposal to permit commercial cultivation of genetically modified mustard when earlier it had halted Bt brinjal. What are your views on GM crops?

Genetic engineering causes disruption of coordinated molecular and cellular functions that evolved over millions of years. The immediate consequence of that is the other genes that were functioning normally begin to become abnormal. That is why people find unintended effects, for example enzymes become allergens. Science has not solved these riddles, because there aren't enough funds for research. Instead there are more attractive propositions for researchers in commercial ventures. Science and ethics are weak against the push for technology by commercial enterprises.

But GM companies claim these crops are pest-resistant, can increase yield, and reduce pesticide use?

Companies should work towards weather-resistant crop varieties.But they cannot offer this as it is difficult to achieve, they go for the easier option of putting genes that can offer resistance to insects and weeds. As biologists we know that there is both competition and harmony in the natural world. Parasitism is good and bad, but this was disrupted by chemical pesticides. Now the government is thinking of releasing genetically modified mustard, which the companies claim is resistant to herbicides, but some of which are also carcinogenic. In my opinion, it should not have been experimented upon at all.

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