



GREEN FARMING STRATEGIC VISION : 6

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Eco-friendly pest management strategies can contribute to sustainable agriculture

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Agriculture is the backbone of Indian economy and livelihood of 52% of country's population is associated with agriculture. With introduction of Green revolution in the late sixties, the production of food grains could be quadruplicated (50.8 million tonnes in 1950-51 to 234.4 million tonnes in 2008-09). This spectacular achievement was possible with exotic hybrid seeds, synthetic fertilizers and pesticides, farm mechanization, irrigation facilities and easy access to bank loans. In plant protection, high doses and spurious formulations of pesticides, faulty calibration of equipment and improper application resulted in several adverse effects in the agro-ecosystem, pest and diseases complexes, reduction in number and diversity of natural enemies, environmental pollution, and resurgence/outbreaks of pests and disease pathogens. Only recently, studies on long term after-effects of neglecting traditional knowledge and using chemicals have been initiated.

Plant protection is one of the critical component of crop production as pests (insects, mites, rodents, wild animals), plant diseases caused by bacteria, fungi, viruses and nematodes and weeds are destroying crops causing considerable economic loss in crop production and deterioration in quality of farm produce. Therefore, concept of pest control has been changed to pest management in which whole pest population is not wiped out but is kept below the economic threshold. This is possible with several means such as, cultural practices, physical and mechanical means, biological control agents, pest/disease resistant crop genotypes. The recent measures include chemical pesticides with low toxicity (antifeedants, sterilants and growth regulators), genetically modified (GM) crops and use of plant products/botanical pesticides.

Each component has its merits and constraints in utilization. Nevertheless, the GM seeds are excluded from the list of organic components of pest management. Considering economic status of the poor and average farmers, a combination of cultural practices, mix and inter-cropping, insect trapping (light/pheromone traps, trap crops) and spraying of biopesticides including neem-based crude preparations would be practical and cheaper, and would form a base for a future sustainable agriculture. Plant products are easy to prepare and apply to crops, indigenous plant material is abundantly available, application cost is low and no technical expertise is needed. Thus, integration of all ecofriendly and compatible measures should prove beneficial to farmers by reducing plant protection cost and to consumers to get chemical-free foods. In fact, rapid change in today's consumerism is expected in near future. Therefore, there is an urgent need to implement Integrated Pest Management (IPM) in all crops by adopting available components to make the strategy eco-friendly, replicable, effective and affordable to average and small farmers. For this, extension activity needs to be further strengthened with infrastructure, financial aid and farmers' network, especially for marketing of organic farm produce. It is hoped that research and development, and information technology would complement the IPM implementation for the second Green revolution.

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