

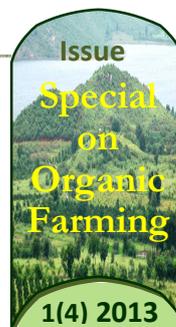


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Editorial

Promoting Organic Farming: Logically and Holistically

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The green revolution that started in mid of 20th century with the use of chemicals as remedy to feed the world by increasing food production, given impression of grand success for 2-3 decades but gradually become a costly, unfriendly to environment and society and unable to meet the input and output demand of future agriculture. This also affected not only the productivity of agriculture *per se* but also the regenerative capacity of natural resources like soil, sharp decrease in population of beneficial flora and fauna (particularly pollinators), deficiency of micronutrients e.g. Zinc, Iron, Boron etc., resistance in pest to pesticides, secondary salinization, decline of ground water table, decrease in soil organic carbon content etc. are being observed and this is the actual cause of unsustainable trend. In this unsustainable trend even after using more and more external inputs the productivity will not follow to positive trend.

Now after soil health deterioration the more serious thing is that the conventional chemical farming (CF) is staring disturbance in life of producer/farmer, by several diseases (cancer, birth of deformed children etc.). Since the end of the 1990s, increased incidence of farmer suicides in India has been the most dramatic outcome of the hopelessness faced by many farmers, due to a combination of factors like high input prices, crop failure, indebtedness, etc. An estimated 27% of Indian farmers did not like farming because it was not profitable. In all, 40% felt that, given a choice, they would take up some other career.

Organic Farming (OF): The Best Option

In late 1970s farmers world over realized the adverse effects of conventional farming and started their own efforts to develop a sustainable system, in 1990s consumers also getting realized about ill effects of produce with pesticides and due to that demand of safe and sustainable food production was increasing that forced to policy makers to promote such systems and one such system is now very well recognized is OF that consider agriculture is nature's system and long term productivity can be maintained only by understanding and providing all possible support so that nature can work at its best to meet the three goals of agricultural development. These are: (a) achieve sustainable growth in agriculture and raise incomes by increasing productivity (land, labor), diversification to high value agriculture and rural non-farm by maintaining food security; (b) sharing growth (equity) by focusing on small and marginal farmers, lagging regions, women etc.; (c) third is to maintain sustainability of agriculture by focusing on environmental concerns.

A Logical System

Most of literature that promotes chemical farming, presents OF as an old, orthodox, conservative and least supported by the scientific approach that have low productivity. It is also being presented as non feasible because of non availability of sufficient inputs and discarded the utility of OF as plants can't differentiate the source of nutrient i.e. organic or chemical. A skeptic environment has been created by the supporters of CF that if organic system is adopted the world will go under starvation.

On the contrary organic farming is not only based on scientific principals but also able to meet the challenges of future agriculture, whereas chemicals fail in these criteria. This all described below.

1. **Low cost with comparable yield to CF:** In organic production system, no external synthetic chemical is used, moreover emphasis is given on recycling of locally available resource. With this approach cost of production can be reduced upto 10-30% as compared to conventional chemical farming (CF) in irrigated areas. However, yield was comparable or slightly low to CF and that is presently easily compensated by premium price but in future, research and development certainly make OF comparable productive to CF that to with sustainability. In a comprehensive study the unit cost of production was found lower in OF, compared to CF and there is ample scope of improving efficiency under Organic Agriculture (OA). Interestingly in rainfed areas OA yields 7-15 % more due to better nutrient and rainwater management.
2. **Substitute of low & reducing supply of fertilizers and burden of subsidy:** To some extent nitrogenous fertilizers and most part of other fertilizers are imported from various countries. Supply of Phosphate and Potash fertilizers is going to be reduced in future as their natural reserves are shrinking. Nitrogen fertilizers are produced with the use of petroleum products and its reserves also decreasing. Therefore planning has to be done to find out a system that least dependent on these fertilizers. Moreover, most of the fertilizers companies give priority to irrigated areas (like Punjab, U.P., Haryana, and Maharashtra states in India) and supply in rainfed areas are remained short supplied. Therefore, to reduce dependency on imported fertilizers and recurring problem of short supply in rainfed areas, opting OA is the only solution. In India, subsidy (Rs.1200 billion) on fertilizers which goes mainly to irrigated areas not only encouraged over use but also improper use of fertilizers. Therefore, this subsidy needs to be rationalized and part of need to be diverted to the rainfed/dryland areas for promoting organic agriculture. This will be a remedy of several problems arises due to CF.
3. **Maintaining soil health:** Organic system improves soil physical, chemical and biological properties in long term that helps to maintain productivity. A comprehensive analysis strongly supports this development with OF. In Rice-wheat system, soil microbial population (Actinomycetes, Bacteria, Fungi and BGA) enhanced due to the application of organic amendments in comparison to recommended fertilizer application. Soil organic carbon and

available phosphorus contents were also found to be significantly increased due to organic farming practice over chemical fertilizer application. Increasing trend of soil organic carbon content was observed with OF in low rainfall areas.

4. **Growing demand of organic food:** Indian is a growing economy and the demand of organic produce within the country is also increasing at a very fast rate, and at the same time being open economy consumers are free to buy a quality food with low price produced from international market. Therefore, if India wants to discourage import, indigenous organic produce has to be made available in market. In a survey it has been found that within India presently potential market of Rs.23000 million for organic produce that will increase as the consumer awareness increases.
5. **Mitigating effect of climate change:** Worldwide 90 million tons of mineral oil or natural gas are processed to get Nitrogenous fertilizers every year. This generates 250 million tons of CO₂ emission. On the contrary, organic farms return 575 to 700 kg CO₂ to the soil. Organic farming thus reduces CO₂ emission by eliminating synthetic fertilizers, and at the same time reduces atmospheric concentration of this gas by storing in the soil, a win-win system. Further, soils with higher humus content can adapt to the adverse effect of climate change. It has been found that organic system provided better yield during climatic extremes (that happens due to climate change) as compared to conventional system.

Therefore organic farming is a need of present time and becoming more relevant to meet the challenges of future agriculture.

Holistic Promotion

Although considerable development has been done in India for enhancing production to marketing of organic produce. The most interesting aspect of leaving CF by farmers despite of high financial and technical support and shift to OF with little support, is showing OF system viability. In 1999 only 40000 ha agriculture area in India was recorded as certified organic that increased upto 240000 ha in 2011 (six times) within a decade, if the non certified organic areas (mainly drylands) is also be added this will be much high figure. Therefore, it is the need of the hour that a multi-direction action plan has to be prepared for wider adoption and marketing of organic produce. The programming can be done to get active participation of all stakeholders in policy making, research, marketing and production.

Policy in terms of supporting rules & regulations, subsidies, facilities, allocation of budget & personnel etc. can alone is sufficient if executed properly. The best example is Cuba (Latin America), where organic farming was made a national policy and now whole of the country is organic. Similarly South Korea developed good system for organic production that include direct subsidy to farmers. Although in India, organic movement was started in early 80s but it got momentum only after 2001 when Govt. of India lunched National Programme for Organic Production (NPOP). Later on many of Govt. agencies have started to give priority to organic

farming. Similarly some of the states like Uttarakhand, Sikkim and other NEH states in India have been declared as organic state and they are taking lead. Some other states e.g. Madhya Pradesh, Karnataka, Maharashtra, Bihar, Himachal Pradesh etc. declared policy for promotion of organic farming. For better development of organic agriculture in India, additional measures need to be taken. They are:

- **Priority to OA in ongoing programmes:** Organic states need not to be promoted as a new program that may cause overburden as additional program. It would be better if OA is given priority in all rural development programmes e.g. watershed, SGSY, MNREGA. Food security mission, horticulture mission etc. Government of India is now focusing eastern India as place for second green revolution and OA need to be given priority in that mission.
- **Development of organic clusters of villages:** Available clusters of villages of watershed programs (mainly in drylands) may be converted into organic cluster of villages by providing technical support. This will help a lot for technical feasibility of OA, making cost effective and also make easier the group certification process. The cluster may also be promoted for ecotourism.
- **Incentives to OF:** Farmers may be given incentive for carbon sequestration and environmental improvement services under OF.
- **Integrated efforts of supporting agencies:** Individual agency may not work efficiently for promotion of organic farming; for example KVIC have a scheme of margin money to establish vermi-compost unit but they are unable to ensure the use of produce of such unit. Similarly ICAR/SAUs have wealth of information but unable to provide financial support. Thus there is need of integrated programs by all related agencies. Even several ministries e.g agriculture, commerce, water resource, human resource, consumer affairs, science & technology, tourism and culture (for eco-tourism) etc. need to join hands for OF. Further, agriculture is a subject that mainly governed by the policies of state governments and funding receives mainly from Central government, therefore all the states need to be involved while making policies for OF at national level.

Conclusion

Organic farming is a holistic production system runs with the efficient use and recycling of locally available resources. The need is to adopt holistic approach for promotion of organic farming by taking cooperation of all stakeholders. Additionally, research on development of easy & economic technologies, development of processing and marketing infrastructure and financial well as technical support for quality organic production will make a catalyzing effect on adoption and production.