

Constraints in organic farming:

An Indian perspective

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Agricultural development strategy needs to be geared towards increasing the productivity of land under cultivation, reduced cost, higher input use efficiency with little or no harm to both human and the environment. Strategy of promoting eco-friendly farming involves modification of the present systems of farming in the area of soil nutrient restoration to encourage the use of organic materials and is termed as organic farming. Furthermore, the adverse impact of synthetic chemicals (fertilizers, pesticides, livestock feed additives etc.) on environment and human health coupled with increase in awareness has renewed the interest of consumers for organic foods. The lessons learnt from the long term field experiments indicated a declining trend in productivity and degradation of soil resource due to intensified cropping with constant fertilizer inputs without addition of manure. This article attempts to analyze the problems in adopting and expanding organic farming in India.

Key words: Organic farming, Organic produce

INDIA is home to 30% of the total organic producers in the world, but accounts for just 2.59% (1.5 million ha) of the total organic cultivation area of 57.8 million ha, according to the World of Organic Agriculture 2018 report. At the same time, most organic farmers are struggling due to poor policy measures, rising input costs and limited market as reported by the Associated Chambers of Commerce and Industry of India (ASSOCHAM). The key issues that hinder adoption of organic farming in India are: reduced yield, non-availability of sufficient organic supplements, bio-fertilizers, integration of livestock, certification constraints, high input cost, ecology, marketing and policy support. Capital driven regulation by contracting firms further discourages small farm holders in adopting organic farming. It has been argued that organic farming is productive and sustainable when practiced scientifically. Further, an integrated

effort is needed from government and NGOs in the form of subsidies, agriculture extension services and research, to encourage farmers to adopt organic farming.

Origin and development of organic farming in India

India has traditionally practiced organic agriculture, but the advent of green revolution technologies led to the increased use of chemicals. In recent years, however, limitation of agriculture based on chemical use and intensive irrigation has become apparent. There has been a resurgence of interest in organic agriculture mainly due to two concerns, decline in crop yield in certain areas as a result of inter alia excessive use of chemical inputs, decreased soil fertility, environmental awareness and health awareness. Also, it is generally perceived that the organically grown produce is environmentally safer and more nutritious than conventionally grown produce.

The 10th five-year plan encouraged the promotion of organic farming using organic wastes, and Integrated Pest Management (IPM) and Integrated Nutrient Management (INM) practices. Even the 9th five-year plan had emphasized the promotion of sustainable agriculture. The government of India has also launched the National Programme for Organic Production (NPOP) in the year 2001. As per the available statistics, India occupies 9th rank in terms of World's Organic Agricultural land and stands 1st in terms of total number of producers as per 2018 data of FIBL & IFOAM. According to the Agricultural and Processed Food Product Export Development Authority (APEDA), as on 31st March 2018, total area under organic certification process (registered under National Programme for Organic Production) is 3.56 million ha (2017-18). This includes 1.78 million ha (50%) cultivable area and another 1.78 million ha (50%) for wild harvest

collection. Among all the states, Madhya Pradesh has covered largest area under organic certification followed by Rajasthan, Maharashtra and Uttar Pradesh. During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76,000 ha) under organic certification.

The states of Uttarakhand and Sikkim have been declared as 'Organic States'. India produced around 1.70 million MT (2017-18) of certified organic products which includes all varieties of food products namely oil seeds, sugar cane, cereals and millets, cotton, pulses, medicinal plants, tea, fruits, spices, dry fruits, vegetables, coffee etc. The production is not limited to the edible sector but also produces organic cotton fibre, functional food products etc. Among different states Madhya Pradesh is the largest producer followed by Maharashtra, Karnataka, Uttar Pradesh and Rajasthan. In terms of commodities, oil seeds is the single largest category followed by sugar crops, cereals and millets, fibre crops, pulses, medicinal, herbal and aromatic plants and spices and condiments.

Prospects of organic farming

Consumer acceptance

Consumers are now turning to organic food because they believe it is tastier, as well as healthier, both for themselves and environment due to awareness of environmental degradation related issues. The emergence of organic shops in market creates the awareness to stimulate the customer need and demand. The concern regarding to organic agriculture rise now a days is essential in preserving the environment and improving public health. Another reason for organic products prominence is the opposition to genetically modified food. It has also been reported that organic food consumption is not only related to health aspects or taste of the product itself but often to values such as altruism, ecology, spirituality and sometimes combined with an alternative lifestyle. Most of the consumers are unfamiliar with

organic farming and processing standards but they are aware of its central features such as "chemical free", "cage free" or "natural" and see therefore a "plus" in food quality, a reason to purchase organic foods.

Environment friendly

Pest-control: Organic farming is environment-friendly. Because it is well known that use of chemicals have led towards destruction of many beneficial insect species and have caused environmental degradation. For instance, Korean researchers have reported that avoiding pesticides in paddy fields encourages the muddy loach fish, which effectively controlled mosquitoes that spread malaria and Japanese encephalitis.

Higher biodiversity: Organic farming also provides energy for microbial activity and this has been suggested as an indicator of microbial biodiversity. It is an indicator of change in soil properties, as the size and activity of the microbial quotient is directly related to the amount and quality of carbon available. Organic farms, often explore more biodiversity than conventional farms because it usually has more trees, a wider diversity of crops and many different natural predators, which control pests and help prevent disease.

Better soil health: Increasing soil organic matter by organic farming has the added benefit of improving soil quality and thereby enhancing the long-term sustainability of agriculture. Increase in crop yields during the initial years of organic farming have been attributed to gradual improvements in soil properties, such as the capacity of the soil microbial community to mineralize N. Thus, organic production systems have the potential to achieve sustainability of agricultural systems.

Problems in adopting organic farming

Yield reduction in conversion to organic farms: Yields in irrigated farms usually go down during the conversion period from conventional to organic farming. The crop yields are boosted by artificial fertilizers while it takes time for the soil fertility

to get boosted through organic farming. However, after conversion, yields are gradually improved and become many a time equal, if not higher than under the conventional farming after 4-5 years of practicing organic agriculture. Problems are evident even in Sikkim, which has been recognized as the country's first organic state in 2018. A survey by Delhi-based Centre for Science and Environment shows that the state's transition to organic farming is yet to become a true success. The survey found that the phasing out of chemicals in Sikkim was not complemented by a simultaneous increase in availability of and access to organic manure. Farmers also complained of low productivity during the transition from conventional chemical farming to organic farming. Pest attack on organic crops is another reason cited by the farmers for low productivity and demanded education and training to deal with it. Similarly, nearly 98% farmers in Rajasthan are aware of ecological hazards of conventional chemical-based farming, but fear of decline in production and unavailability of organic inputs in the market discourage them from switching to organic farming, says a 2015 study conducted by the Consumer Unity and Trust Society.

Increasing pest and weeds: One of the foremost challenges is the rampant use of pesticides and chemicals for weeds under conventional farming. This has caused an evolution of the resistant pest and weeds species and thereby, made them increasingly immune to chemicals. This is the first hurdle in the transition from conventional farming to organic farming. As organic farming prohibits synthetic pesticides, the vulnerable farmer is at the mercy of severe attack from mutant pests. The situation becomes worse not only with the discovery of newer variants of pest and diseases but also because of the traditional methods of pest control that fail to prevent the damage to crops.

Resource need: Livestock resources have played multifaceted roles strengthening indigenous agricultural practices and generating

income and livelihoods for farmers in India. However, with the advent of technologies in agriculture, livestock population in our country is rapidly declining. The total livestock population consisting of cattle, buffalo, sheep, goat, pig, horses and ponies, mules, donkeys, camels, mithun and yak in the country is 512.05 million in 2012. The total livestock population has decreased by about 3.33% over the previous census. The decline for cattle, sheep, goats and pigs has been 4.10, 9.07, 3.82 and 7.54% respectively. Advent of technology in agriculture coupled with inadequate feed supply is the major determinant reducing attraction of common people towards livestock production and thus availability of manure, even to small farm holders. Natural pastures, crop residues and kitchen wastes are the major feed components in India. The area under natural pasture in India is rapidly declining as a result of expanding urban and agricultural areas. Since, organic supplements are required in bulk, their production, collection, transportation, storage and application may further be impeded by constrained labour and transport facilities for areas away from the site of production/ collection. A major part of rural population in India is poor and use animal manure for domestic fuel. This further limits availability of animal manure for soil amendment. In a typical rural household in India, about 1,500-2,000 kg (dry weight basis) of cattle manure is used as domestic fuel annually. Also, most of crop residues are removed from the fields for use as fodder and fuel. A decrease in area under natural pasture creates tremendous pressure on crop residues to be used as fodder. This together with rising use of crop residues as in rural sectors has resulted in rare use of residue as mulch.

Certification: The cost involved in the certification and a time lag of three years (conversion stage) is the major constraint for small land holder farmers in India, for adopting organic farming. Organic produce needs certification to ensure that all synthetic inputs are prohibited and

soil building approaches are followed. The certification process aims at converting the growing area to comply with requirement of standards within a period of 3 years, for this reason farmers who want to adopt organic management become bound to wait for minimum of 3 years under certification procedure which is essential for purging of chemical residues. The certification systems are not only cumbersome and time-consuming, but also expensive. It is important to eliminate confusion over multiple certification systems and multiple ministries regulating organic production and sales. In fact, FSSAI is reconsidering its regulations on organic food that kicked in from July 1, 2018, after farmers' protests. The government, meanwhile, has not done enough to address the hurdles. Paramparagat Krishi Vikas Yojana (PKVY)-the Centre's free certification programme for organic farmers is an example. A 2018 report on the implementation of PKVY highlights that all states, except Tripura, Odisha and Karnataka, have failed to utilize even 50% of their funds under the scheme. While the Centre has increased allocation for the scheme by 44% for the current year, corrective measures are needed to ensure that the states become responsible and contribute toward organic India.

Technical know-how: Farmers also face a number of constraints such as lack of technical know-how, for example organic farming practices and production methods, and lack of market information, which market and distribution channel to choose, which commodity/products to produce, competition, market access etc.

Lack of clarity: Organic farming is still hampered by lack of clarity. Consumers were not always sure about what was really covered by organic farming and the restriction it implied.

Marketing: The domestic market for organics is undeveloped in India. Lack of domestic marketing channels adds to the difficulties faced by the farmers converting to organic methods in agriculture.

Policy support: Policies have long

been focused on generating external solutions to farmers' needs. It has encouraged dependencies on external inputs, though they are more costly, environmentally damaging and therefore, economically inefficient when compared to the resource-conserving options. Despite serious efforts of some NGOs it appears that India is lagging far behind in the adoption of organic farming. For laying the spade work for the spread of organic agriculture in the country, certain issues require attention at government policy making levels.

Lack of infrastructure and cold storage facility: The difficulties of an organic farmer do not end with harvesting of produce. Severe lack of suitable infrastructure is proving to be the weakness for organic farming and its produce. Maximum organic farming is practiced for fruits and vegetable production, which is highly perishable in nature. The challenges posed by inadequate agriculture infrastructure and cold storage facilities translate to loss of produce due to spoilage. Additionally, poor road infrastructure especially in the hilly states, result in poor and delayed connectivity to farmer markets.

Organic farming fraught with hurdles: According to the Indian Council of Agricultural Research, productivity on an average dips by 6.7% in the first year, and the government needs to have a plan in place to support farmers during the transition. The report on Doubling of Farmers' Income by Ashok Dalwai committee, too, echoes the concern of the farmers who claim up to 30% drop in yields when embracing organic. It takes about a decade to attain pre-conversion yield levels, according to the committee report. To ensure marketing of organic produce, connecting farmers with the domestic and global supply chain is extremely important. But a new ICRIER study found the supply chain to be underdeveloped. As a result, the small and mid-size farmers located in hilly regions and tribal belts find it extremely difficult to access the market.

Expensive organic produce discourages customers, affects sales: Even after the produce reaches

the markets, consumers find them expensive and discouraging. Associated Chambers of Commerce and Industry of India (ASSOCHAM) said that ₹ 1,200-1,500/month is the additional expenditure if a consumer switches to organic food. Farmers said that their organic produce are usually more expensive due to higher labour cost and comparatively lower yields. According to the ASSOCHAM report, post-harvest handling of relatively small quantities of organic foods also results in higher costs because of the mandatory segregation of organic and conventional produce, especially for processing and transportation. Specialized farmer training costs, processing and inventory holding costs (without chemical additives), and increased packaging, logistics and distribution costs (due to low volumes), contribute to the high price of organic food products.

CONCLUSION

Research in organic farming has increased considerably in the developing countries recently, but there is still a need for targeted research activities to help promote and develop organic farming. Presently there is lack of government subsidies or support to make conversion to organic status easier and cheaper. The question about yield and financial viability of organic farming are crucial and there are no empirical studies available in the Indian context comparing the economic and ecological returns of organic farm *vis-à-vis* conventional farms. Organic agriculture has been neglected in the agriculture policy, and therefore there is less government assistance for the promotion of organic agriculture in the form of subsidies, agricultural extension services and official research. Therefore, there is a need for research support to develop

feasible and sustainable organic agriculture techniques, which are site specific. Given proper encouragement, organic farming has a tremendous potential in India. Also, efforts should be made to declare North-eastern region of India as organic states as they have number of advantages for organic food production such as minimal use of fertilizer (12 kg/ha in hills) and pesticides, plentiful availability of plant biomass (weeds, shrubs and forest litter) and reasonable amount of organic manure (47 million tonnes) and diverse climatic conditions for growing a wide range of crops. Additionally, relatively high SOC concentrations (15.0–35.0 g/kg) offer the opportunity for moving towards scientific organic farming.

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