International Journal of Ecology and Environmental Sciences
www.ecologyjournal.in
Online ISSN: 2664-7133, Print ISSN: 2664-7125
Received: 18-03-2022, Accepted: 04-04-2022, Published: 19-04-2022
Volume 4, Issue 2, 2022, Page No. 32-35

Review on organic farming of vegetables in India: problems and prospects

Pankaj Kumar Ray[1], Raj Narain Singh[2], Anjani Kumar[3]
[1] Department of Horticulture, Krishi Vigyan Kendra, Saharsa, Bihar, India
[2] Associate Director Extension Education, Bihar Agricultural University, Sabour, Bhagalpur, Bihar, India
[3] Director, ICAR-ATARI, Zone-IV, Patna, Bihar, India

Abstract
In 2016, India ranked first in the world in terms of organic producers, with 8.35 lakh (13.5%), and third in terms of organic land under cultivation, with 4.2 million hectare (10.5%). India has 111 IFOAM-Organics International affiliates in 2017, out of a total of 1003 from 127 nations. It is predicted that Indian organic farming would grow at a CAGR of more than 25% in the next years. This report examines the state of organic vegetable production in India during the last five years, from 2015 to 2019. The reason for choosing organic veggies is that they are easily available to the general public for immediate consumption, and India is the world's second largest producer of organic vegetables. According to recent research, organic veggies are safer to eat than non-organic vegetables since they contain less nitrate and cadmium, as well as less pesticide residues. Vegetable agriculture accounted for just 0.7 percent of organic land worldwide in 2016, whereas India supplied 14.3 percent of its organic land for vegetable cultivation in 2016. Fruits and vegetables, which accounted for 30% of India's agricultural production in 2009-10, were the most organic. Inadequate marketing regulations and channels, as well as the biological features of vegetables, are obstacles for organic producers.

Keywords: IFOAM-organics, organic farming, organic vegetable farmer

Introduction
Sikkim became the first “organic state” in Asia, and possibly the globe, in early 2016, attracting a lot of attention to the notion of organic farming. Organic farming may be described as the growing of crops without the use of synthetic agrochemicals such as pesticides, fertilizers, or genetically modified organisms in order to maintain soil, ecosystem, biodiversity, and human health. Organic farming was not a new method in Indian agriculture; it has been practiced from the dawn of civilization, long before the green revolution. Farmers employed a variety of organic waste to increase the soil's nutritional content, ranging from cow dung to compost, however this led in decreased productivity and production, which was insufficient to feed the Indian population post-independence. As a result, agricultural experts devised a strategy for achieving food grain self-sufficiency by combining hybrid varieties with greater usage of synthetic agro-chemicals. These embodied and disembodied components of new and promising technology produced excellent results, transforming India from a net importer of food grains to a net exporter. Long-term, indiscriminate use of agrochemicals produced better results in the short term, but has proven to be lethal in the long run, as soil fertility has declined and agricultural yield and production have remained stagnant. Farmers in India are returning to their origins and using traditional, organic farming methods. The damages produced by excessive use of synthetic chemicals on soil will have a long-term effect, requiring a longer recovery time, indicating the time-frame necessary for obtaining an organic farming certificate.

Status of vegetable production in India
In 2011, India's vegetable output was 146.55 million tonnes, and with a population of 1210 million, vegetable intake was 230.40 gram per person per day, up from 87.66 gram per person per day in 1951. The recommended daily ration (RDA) for vegetables is 300 gram per person per day, thus we still have a 30 million-tonne vegetable shortfall. Only 5% of vegetables are processed or exported, while 25% of post-harvest losses occur in the vegetable industry. With an ever-increasing population, the agriculture industry is under immense strain to feed the world's growing population while reducing land share. There is a perpetual conflict between the amount and quality of food that can be produced from a certain land restriction, because only one of them may be chosen as the goal, and the other must be sacrificed in order to achieve the other. It would have been preferable if both could have been accomplished at the same time.
According to the NSSO 66th round, there has been a significant shift in the Indian population's consumption basket, with consumers gravitating more toward non-food grain products such as fruits and vegetables. The main reasons for this shift in consumption habits are that Indians are getting more diet-conscious and health-conscious, their income levels are rising, and they are becoming more concerned with the quality of the product rather than the quantity. Vegetables are an example of an agricultural commodity that is consumed on a daily

basis and whose price varies according to the amount of aesthetic appeal, such as freshness and colour. Another aspect influencing its costs is the cultivation practices used to cultivate vegetables; customers are willing to pay a premium for organically grown veggies. The increased public knowledge of organic farming has allowed for the marketing, commercialization, and trading of organic agricultural products.

Status of organic vegetable farming

Asia is home to 41% (1.1 million) of the world's 2.7 million organic producers, with India accounting for 0.83 million. In 2016, Asia's total agricultural area allocated to organic farming was over 4.9 million hectares. The total area registered under India's National Programme for Organic Production was 3.56 million hectares as of March 31, 2018. 1.78 million hectares (50%) were used for organic agricultural cultivation, while 1.78 million hectares were used for wild harvest collecting. India is the world's ninth-largest producer of organic agricultural land and the first-largest producer of organic agricultural products. In 2016-17, India exported around 21.27 million tonnes of total agricultural commodities (worth Rs. 1,084 billion), comprising rice, animal products, fresh vegetables and fruits, and approximately 0.31 million tonnes of organic items worth Rs. 24.77 billion.

In 2016, the overall area under organic vegetable cultivation (0.43 million hectares) constituted 0.7% of the total area under vegetable production (62 million hectares) and 4.3% of the 10.6 million hectares accessible for organic farming worldwide. In comparison to 2015, the area under organic vegetable cultivation increased by 0.7% in 2016. Asia comprises around 16.33 percent of the total acreage accessible for organic food growing. In 2010, India exported 143 MT of organic veggies (0.24 percent of total organic production exported), whereas the country consumed 5000 MT (20 crores) of organic fruits and vegetables. India produced 10823.93 MT of organic vegetables in 2014-15, therefore we can infer that the output of organic vegetables has been increasing. The Indian government has created a uniform mark for organic goods called ‘Jaivik Bharat.’

Future challenges for organic vegetable farming

Organic farming focuses on preserving the ecosystem's reproductive and regenerative ability while also producing nutrient-dense food for human consumption. Numerous researches have shown that organic farming yields lesser productivity than inorganic farming. As a result, the challenge of how to reconcile productivity with product quality arises, as organic farming directly contradicts the goal of producing more from fewer resources in order to feed more mouths. Increased awareness and demand for organic products has resulted in an increase in output, yet organic farming confronts several challenges in its growth and development. An attempt has been made to outline them as well as the potential solutions for overcoming them.

Supply chain management

Organic goods confront inefficient and ineffective collecting channels, poorer output and productivity, insufficient storage, processing, shipping, and quality control facilities that meet global standards. Other difficulties that need to be addressed include a lack of training for farmers, producers, and processors. Vegetables are one of the most frequent perishable agricultural commodities, and if sufficient care is not taken during storage and transit, they are more likely to be lost, rendering them unfit for export. As a result, improvements in post-harvest handling of produce, such as the establishment of cold-storage facilities, the use of air-conditioned trucks for transportation, and the use of appropriate packaging materials, may be considered as solutions to some extent to address supply chain-related challenges. Quality management should be prioritized at each stage of the supply chain, and efforts should be made to build direct business relationships. Sales should be planned in accordance with production, and contract farming may be implemented to improve the supply chain's efficiency.

Food Origin and Mileage

The idea of food miles, which refers to the distance travelled by food from the farm gate to the fork, or from the point of production to the point of consumption, is critical in the case of organic food items. Due to the ever-increasing demand for organic products, most food firms are concerned about maintaining supply continuity and quantity. The key to reducing food miles is to streamline logistics, which means reorganizing and automating order, warehouse, and transportation processes by incorporating ICTs into their administration.

Size of farms and collaboration

Small and medium farms may only produce a few hundred tonnes, which is especially noticeable in perishable commodities like dairy, fruits, and vegetables, where market access and primary processing are critical. Small unorganized producers can be grouped together by creating cooperatives and producer businesses, which will allow them to pool their resources and apply for loans, build storage and processing facilities close to their operations, and improve their production and marketing methods.

Marketing and Sales Management

Marketability of organic goods is determined by societal acceptance and the environmental impact of the product, and obtaining it necessitates concerted efforts in capacity building and addressing production, logistical, and quality aspects. Organic certification is vital in agricultural product marketing, and grocery shops are one of the most appealing avenues for selling organic items. However, these supermarkets are frequently picky about

product quality, availability, and pricing. When it comes to organic veggies, tiny merchants also have them, but the quality of these crops cannot be guaranteed. A market survey is an essential tool for gathering information on target customers, their preferences, and consumption patterns. Other solutions for this limitation include proactive certification, the use of uniform packaging techniques, and generic advertisements.

Cost, Margins, Price Setting and Value Addition

The biggest marketing problem is setting prices for organic product in compared to conventional produce, which is highly elastic in nature. Organic product has a far greater cost of cultivation than traditional produce, thus the pricing method that is used in general cannot be applied to it. Organic product costs range greatly between different retail formats, firms, and product categories, which is also a big issue for the organic sector. This problem may be solved by defining a basic price for organic items in advance and then basing future pricing on the actual benefit-cost ratio of organic products. Farmers can minimize the cost of producing vegetables by using the Participatory Guarantee Scheme (PGS), and advantages can be boosted by implementing a condensed supply chain and setting premium rates for organic products.

Sector Development, Market assurance and Certification

The most important aspect of organic vegetable marketing is to establish the product's reputation through appropriate certification and acquire customer trust. National standards for organic agriculture are observed in many developing nations, but there is no effective control for the use of the term "organic." Organic goods' lack of confidence and misunderstanding may have long-term consequences for the organic business. To win customers' trust, proactive certification is required, especially if the product is not sold directly from the farm, but rather through a third party such as retail stores or marts.

Willingness to pay for the organic produce

People are growing more health-conscious and concerned about their diets, yet it is clear that they are unwilling to spend more for organic goods. Only a certain segment of the population can afford and is ready to pay for organic veggies. In order to minimize the cost of cultivation and raise knowledge about organic food, policy actions are required in this area (vegetables).

Transition Assistance

Because of the numerous direct and indirect expenditures involved in the conversion process, it may be a financially tough moment for farmers. During the early phases of the shift, large expenditures in farm-enterprises, such as soil fertility building and protection mechanisms, agricultural equipment, and storage, are also required. Organic approaches are often more labour demanding, resulting in higher wages and higher cultivation costs. There should be policies in place to assist farmers during the three-year conversion phase in the form of yearly payments, such as the DBTs and Kisan Samman Nidhi programmes.

Issues in Certification

Certifying requires a lot of paperwork, including a full farm history, the results of soil and water testing, an annual on-farm inspection, and fees to be paid to the certification authorities for yearly surveillance. The underlying expense, along with the lengthy method, as well as a lack of information and comprehension, is a barrier to organic certification in India, especially for small and marginal vegetable farmers. Efforts should be made to make the method as easy as possible and as cost-effective as possible. Furthermore, government assistance may be necessary to reduce certification costs, and public knowledge of the Participatory Guarantee Scheme should be raised.

Limited knowledge on organic farming

Organic vegetable production requires proper models/systems for cultivation that are tailored to specific climatic conditions and technology. Organic farming has a number of obstacles, including a lack of on-farm organic matter and access to external inputs, as well as organic postharvest processes and packing methods. Increased investment, research and development in organic farming practices and systems, specifically designed for particular crops and agro-climatic conditions, as well as the creation of suitable crop varieties and livestock breeds, would lead to a higher percentage of organic farming adoption.

Market intelligence

Data and statistics on production, productivity, area covered, export and import of organic products by category are either few or outdated. The cornerstone for developing policies is data and its analysis, but it is extremely difficult to do so in the absence of trustworthy data. Comprehensive research on the benefit-cost and cost of cultivation for organic farming in general, and organic vegetables in particular, are urgently needed.

Insurance cover for organic farming

Natural disasters affect both conventional and organic farming, as they both incur losses and farmers in both circumstances lose money. As a result, either organic farming should be included in crop insurance systems or a separate plan should be devised specifically for organic farming.

References

1. http://www.organic-world.net/yearbook/yearbook-2018. html retrieved on, 2019.
2. Lok sabha starred question no. 235, Organic Farming, Government of India, Ministry of Agriculture and Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare, 2016.
3. Potential for Trade of Organic Products from India, Occasional Paper No. 174, Export-Import Bank of India, 2015.
4. The Indian Organic Market: A New Paradigm in Agriculture, ASSOCHAM, India, 2018.
5. Vanitha SM, Chaurasia SNS, Singh PM, Prakash Naik S. Vegetable Statistics, Technical Bulletin No. 51, IIVR, Varanasi, 2013, 250.
6. www.pgsindia-ncof.gov.in retrieved on, 2019.