

# Organic Farming Potential as Sustainable Agriculture: A J&K Perspective

Arjit Khajuria, Dr. Deepak Jain

School of Business, Faculty of Management, Shri Mata Vaishno Devi University, Jammu, India

Email address: 15mmb009@smvdu.ac.in, deepak.jain@smvdu.ac.in

**Abstract**— Organic farming is an ecologically-based system that relies on preventative practices for weed, insect and disease problems, uses nontoxic methods to manage problems if they arise, and improves the natural resources of the land, including soil and water quality. This agriculture sector emerged as a result of people concerns about health and environment due to the intensification of agriculture technologies, and uses of chemicals, in both agriculture and food processing industry. These problems appeared and acknowledged by the developed countries, among others, are strictly related to environmental pollution and increasing problems of health degradation. Organic agriculture reduces the risk of yield failure, stabilizes returns and improves the quality of life of small farmers' families. There is need to develop systematic approach and plan for the development in organic farming in Jammu and Kashmir as the state has immense potential for organic farming. Capital-driven regulation by contracting firms further discourages small farm holders. An integrated effort is needed from government and nongovernment agencies to encourage farmers to adopt OF as a solution to climate change, health and sustainability issue. The paper discusses the need and potential of organic farming as a sustainable agriculture in the state.

## I. INTRODUCTION

Organic farming as holistic food production management system, which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system".

Organic farming is not only a specific agricultural production system, it is also a systemic and encompassing approach to sustainable livelihoods in general, where due account is given to relevant factors of influence for sustainable development and vulnerability, be this on physical, economic, or socio-cultural levels.

Organic farming has a long tradition as a farming system and it has been adapted for many climate zones and local conditions; as a result, much and detailed situation-specific information on organic farming is available. Organic farming is a form of agriculture that uses fertilizers and pesticides (which include herbicides, insecticides and fungicides) if they are considered natural ( such as bone meal from animals), but it excludes or strictly limits the use of various methods, including petrochemical fertilizers and pesticides; plant growth regulators such as hormones, antibiotic use in livestock, genetically modified organisms etc. Consequently it relies on techniques such as crop rotation, green manure, compost and biological pest control.

## II. AGRICULTURE IN J&K

Agriculture is the backbone of Jammu and Kashmir state and this sector provides employment directly or indirectly to around 70 per cent of the state population. Agriculture contributes about 65 per cent of the state revenue which

signifies the overdependence of the state on agriculture. The total geographical area of this state is 2, 22, 236 sq. km and its population is 1, 25, 48,926 (Census 2011). Jammu and Kashmir is a mountainous state in which Jammu region is predominantly sub-tropical while Kashmir and Ladakh regions are temperate. The average size of land holding of the state is only 0.73 hectare.

The Environment Sustainability Index of the state is worsening and is a matter of grave concern for the scientists and policy makers.

There are various factors which are responsible for the environmental catastrophe in the state. The use of fertilizers and other agrochemicals is on rise in the state which deteriorate the soil health. Organic farming is a method of farming in which we largely exclude the use of chemical fertilizers, pesticides, herbicides, growth hormones and we maintain the soil fertility by the organic manures, green manures, crop rotation etc. It is a unique system of farming which sustains the agro-ecosystem including biodiversity and soil biological activities. According to the National Commission on Farmers, organic farming should be the major tool for the second green revolution specially in the hilly areas.

Over the years, the farmers of the hilly state Jammu and Kashmir have adopted new agricultural technologies but still the state is having low productivity of almost all the crops. There is need to develop systematic approach and plan for the development in organic farming in Jammu and Kashmir as the state has immense potential for organic farming. Several steps have been taken by the Government in order to highlight the importance of organic agriculture in the growth of the state economy.

There is need to make rigorous efforts to promote organic farming in state as the state has immense scope in this sector. Soil health is deteriorating day- by- day due to indiscriminate use of chemical fertilizers in the soil. In order to sustain the health of soil organic farming is the best option. Organic

farming is picking up pace in the state and there is need of awareness and trainings of farmers for organic farming.

J&K has huge potential for organic farming as a large area in the state is already under semi-organic cultivation in hilly districts of the state due to the lack of availability of chemical fertilizers in these areas and the farmers of these areas hardly apply the chemical fertilizers. Basmati rice of R. S. Pura, rajmah of Bhaderwah, potato of Gurez and Machil and red rice of Tangdar, Kupwara, ginger and turmeric of Pouni, Reasi are major exportable organic products in the state and have the potential to fetch more returns in the market. There is need to explore markets in the country and abroad for saffron, basmati rice, rajmash, spices and various other agricultural produce from the state.

### III. NEED FOR ORGANIC FARMING

Modern crop farming has enhanced the food grain production but it has caused many problems to the environment and human health. Besides, it has contributed to global warming. The imbalanced use of agro-chemicals in soil and on plants is not only damaging the soil bacteria, fungi, actinomycetes etc. but has given rise to phenomenon like pest resistance and pest resurgence. Dependence on the external inputs like fertilizers, pesticides, machines etc. have increased rural indebtedness and created dependencies.

Our farmers have indulged in indiscriminate use of chemical fertilizers and pesticides. In order to increase the agricultural production and control of insect-pests and diseases, our farmers are increasingly depending on agro-chemicals. Now the people are questioning the impact of modern agriculture on environment, economic and social aspects. Many farmers are seeking the alternative practices that would make agriculture more sustainable and productive. Organic farming is the only alternative taking care of all ecological aspects. A natural balance needs to be maintained for sustainability of crop production system. Therefore, recycling of resources through organic farming approach is of paramount importance.

### IV. SCOPE AND POTENTIAL OF ORGANIC FARMING IN J&K

The farmers of Jammu & Kashmir can tap the opportunity of growing demand of organic products. Organic agriculture which is generally environment friendly maintains soil health and enhance biodiversity. Already large numbers of farmers of the state are growing spices, basmati rice, walnuts, herbs etc. organically. There is need to introduce organic farming commercially, scientifically and in a systematized way so that the farmers can get rich dividends and farming can become sustainable. Keeping the importance of organic products there is need to shift from chemical to organic farming.

Organic farming system is not new and it is being followed from ancient times. It is a method of farming system which primarily aimed at cultivating the land in such a way so that the soil health can be maintained. There is an immense scope for organic Basmati rice in the state which is grown on more than 35,000 hectares of land in the state and has a production of over 88,000 metric tonnes, besides rajmash, spices, saffron,

pulses and potato. There is need to provide logistic support for organic farming to the farmers so that they can maximum benefits from it.

Organic has brought farmers closer together. Disheartened by falling yields, many farmers, have taken to other jobs, like working in grocery shops or restaurants in the area. In the training sessions conducted by government, these farmers are brought together and introduced to the advantages of organic farming and how to make the process cost-effective for themselves, and to get more revenue. "The first year of shifting to organic farming is very crucial. The yield drops by a very high margin. For the amount of work done and the time spent, the expectations are high. It is that phase when most farmers give up, but realizing that they can make up for the loss in two to three years would go a long way."

### V. GOVERNMENT'S INITIATIVE TOWARDS PROMOTING ORGANIC FARMING

As part of the Centre's grand plan to convert the hilly areas of the country as exclusive zones of high-value organic farm products, the government has launched a scheme to encourage farmers in J&K to cultivate scientifically tested and commercially beneficial aromatic and medicinal plants in the state.

Under the scheme -- known as 'Jammu Kashmir Arogya Gram Yojna' — the government's key R&D body — Council for Scientific and Industrial Research (CSIR) — will help the farmers with expert guidance and provide them saplings of as many as nine varieties of medicinal and aromatic plants.

The plant varieties, selected for J&K, include five different varieties of:

- lemon grass (Cymbopogon)
- Rose (Rosa),
- Mint (Mentha),
- Ashwagandha (Withaniasomnifera)
- Phalsa fruit plant.

Initially, 1000 villages of Kathua, Jammu and Udhampur in the state will be covered under the scheme. Similar schemes will later be launched in other states, keeping in mind soil condition, suitable plant varieties and size and type of land holdings.

Different CSIR institutions like Indian Institute of Integrative Medicine (IIIM), Institute of Himalayan Bio-resource Technology (IHBT), Central Institute of Medicinal and Aromatic Plants, National Botanical Research Institute (NBRI) and North Eastern Institute of Science and Technology (NEIST) has associated with the implementation of the scheme, first in Jammu and Kashmir and then in other states. The central government has initially spent over Rs 25 crore on this scheme.

### VI. USING NATIVE SEEDS

In a big to encourage local and indigenous species, the farmers in J&K are supplied with local seeds. The native variety is heavier because it is packed with nutrients and vitamins whereas the other seeds are lighter as chemicals have stripped them of nutritional value.

#### VII. BENEFITS OF ORGANIC FARMING

- Recycling wastes of plant and animal origin in order to return nutrients to the land, thus minimizing the use of non-renewable resources.
- Reduce global warming by lowering emission of greenhouse gases hence temperature rise.
- Enhances biological diversity within the whole system and increase soil biological activity.
- Minimizes indiscriminate use of pesticides affects on human and animal health, biodiversity of wildlife etc. & cause of environmental pollution.
- Maintains long-term soil fertility and overcome micronutrient deficiency.
- Reduce energy loss for both animal and machine, and risk of crop failure.
- Promote the healthy use of soil, water, and air, as well as minimize all forms of gaseous pollution that may result from agricultural practices.
- Highly adaptive to climatic change due to application of traditional skills, farmer's knowledge, soil fertility building techniques and a high degree of diversity.

#### VIII. ORGANIC FOR A CLEAN ENVIRONMENT

“Going organic has also helped us serve the environment. There are lesser chemicals being drained into our water bodies. Our land is fertile for a longer period of time. More farmers are encouraged to do organic farming. Farmers who quit are now coming back via organic farming, and this is a positive trend.

India has 1.02 million hectares under organic cultivation today, catering to a consumer market that is worth 6000

crores. Organic begins with the farmer who uses zero pesticides or fertilizers on his farm and goes through rigorous certification processes in order to bring safe and wholesome food to consumers in the cities. Organic Farm Fresh is an ongoing series on the voices of farmers from across the country on cultivating organic food.

#### IX. CONCLUSION

It appears that India is lagging far behind in the adoption of organic farming. Following are some issues, which require attention at the government policy making levels to spread organic agriculture:

- Substantial financial support by the government at the central, state as well as at local level is necessary to promote organic farming.
- Market development for the organic produce is crucial factor to promote domestic sale.
- A vigorous campaign to highlight the benefits of organic farming against the conventional system is essential to increase the awareness among farmers and consumers.

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