

## Vision for holistic and sustainable Organic Farming in Jammu & Kashmir: Future Thrusts

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### Introduction

Organic farming is a production system that relies on ecosystem management rather than the flow of external agricultural inputs. It considers potential environmental and social impacts by eliminating the use of synthetic inputs and replacing them with site-specific management practices that maintain and increase long-term soil fertility, employment opportunities and mitigation and adaptation to climate change. Organic agriculture is practiced worldwide by 1.2 million producers in 141 countries, with the production of organically grown food continuing to steadily increase by 15 percent per year. While most of the organic markets are in developed countries, developing countries are becoming important suppliers as organic practices are particularly suited for the conditions of their farmers, especially smallholders living in rainfed areas. Farmers in resource-constrained countries traditionally use few external inputs but many of the environmental, social, and economic benefits of organic management, which translate into ecological intensification, are hampered by a lack of appropriate agro-ecological knowledge.

### Background and Justification

Agriculture is the backbone of Jammu and Kashmir. It 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 the Jammu region is predominantly sub-tropical while the Kashmir region is temperate. The average size of landholding 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 synthetic fertilizers and other agrochemicals is on rising in the state which deteriorates 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 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 especially in the hilly areas.

Over the years, the farmers of the hilly state of 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. There is need to make rigorous efforts to promote organic farming in state as it 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.

### **Scope of organic farming in Jammu and Kashmir**

Organic farming is a practice been adopted by the farming community of the state for ages. But in due course of time when chemical fertilizers and pesticides came into the supply of plant nutrients and control of diseases, the noble practice slowly started fading and chemicals took over in certain crops over a period of time. Still the consumption of fertilizers and pesticides is very low as compared to other states of India and far below the national average. The present fertilizer consumption in J&K is 38.3 kg/ha. In contrast the estimated quantity of nutrients mined by crops in Kashmir is 48 kg/ha. Many of the crops never encountered chemicals and have been growing at the strength of organic inputs. Green revolution launched in India in the early seventies enhanced chemical use leading to enhanced production and productivity of crops under irrigated agriculture. But in a mountainous state like Jammu & Kashmir, chemical use did not have a significant impact on production and productivity. Now, when the entire world is concerned about the maintenance



of the environment and ecology for better living it is time for all of us to think about it seriously and support the cause. It is always better to think of sustainable and long-lasting options than quick result-oriented options that have a deteriorating effect on ecology and the environment. Rather it is important for us to do away with the options which have more harm than benefit. Concern for the people of the state for a healthy and wealthy living in a sustainable way keeping due care of ecology and environment has to be taken as the prime duty. Thus considering all these aspects we have better options for boosting organic production in J&K.

### **Potential of Organic Farming in Jammu & Kashmir**

Jammu and Kashmir has enormous potential in organic farming that can in turn generate employment and revenue. According to the study “(Organic Jammu and Kashmir: Avenues of Job Creation & Capital Formation, Assocham,2013)”, organic agriculture has the potential to earn a whopping Rs 10,600 crore and generate exports worth Rs 600 crore in Jammu and Kashmir in the next five years. In addition, it can generate over 80 lakh jobs in J&K during the aforesaid period. The study claims that the adoption of organic farming can increase the net per capita income of a farmer from Rs 7050 to Rs 17,625 in the next five years, around 250% increase. 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, rajmash of Bhaderwah, potato, pulses of Gurez and Machil and red rice & walnut 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. The farmers of Jammu & Kashmir can tap the opportunity of growing demand for organic products. Organic agriculture which is generally environment friendly maintains soil health and enhances biodiversity. Already large numbers of farmers of the state are growing spices, basmati rice, walnuts, herbs etc. organically. There is a 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 in view, the importance of organic products there is a need to shift from chemical to organic farming. There is 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. Over 95% of the land under organic fruit cultivation grows walnut. Under organic cultivation, 1.85 lakh tonne of fruit is produced in Kashmir and 85,000 tonne in the Jammu region. Anantnag and Kupwara top the state in walnut cultivation with 11,939 and 8,797 hectares under the fruit. Over the past 40 years, the state has seen an astronomical rise in walnut production from 10,500 tonne to 2.7 lakh tonne in 2012. The cultivation of organic fruit has also seen a steady rise over the past decade.

There is need to provide logistic support for organic farming. Modern crop farming has enhanced 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 agrochemicals in soil and on plants is not only damaging the soil bacteria, fungi, actinomycetes etc. but has given rise to phenomena 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 the 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 agrochemicals. Now the people are questioning the impact of modern agriculture on the environmental, economic and social aspects. Many farmers are seeking alternative practices that would make agriculture more sustainable and productive. Organic farming is the only alternative to taking care of all ecological aspects. A natural balance needs to be maintained for the sustainability of crop production system. Nutrients are provided to crops for increased sustainable production in an eco-friendly and pollution-free environment. The aim is to create an integrated, human, environmentally and economically sustainable production system that maximizes reliance on farm derived renewable resources and management of ecological and biological processes and interactions so as to provide an acceptable level of crop, livestock, and human nutrition, protection from pests and diseases and appropriate return. It differs from other systems by the certification procedures, specific standards, and a specific labeling scheme. The emerging challenge for food security and environmental sustainability can be mitigated by the organic farming. Good market demand for organic products will have a positive impact on the socio-economic status of the farmers.

Therefore, keeping in view the tremendous scope of organic farming in Jammu & Kashmir, it is important to create technical capacity, generate scientific knowledge and identify constraints and strategies to overcome them. It is essential that organic farming promotion, research and technical capacity building is taken up in the Union Territory.

**The practices of organic farming shall be based on the following main agenda.**

- Nutrient Management
- Pest Management
- Disease Management
- Moisture Management

**Reasons for adoption of organic farming in Jammu & Kashmir**

- Farming under rainfed conditions with low productivity.
- Kashmir farmers are traditionally organic.
- Soil is rich in organic matter
- Very low consumption of chemical fertilizers and pesticides
- About 50,000 Ha area under organic by default where fertilizer has never been applied
- Tourism spin-off–To promote Tourism through Organic Village concept

**Our strengths**

- Jammu & Kashmir has its own strengths and natural resources which will enable the conversion process easier and adoptable.
- Rich biodiversity – ample scope for on farm production of organic manure which is the main item in the menu of Organic Farming.
- Soil has not absorbed much of chemicals -Average Fertilizer consumption –18.1 kgs/ha and negligible pesticide consumption.
- Soil is rich in organic matter content which ranges from 2-8 % organic carbon.
- More than 50,000 ha area is under organic cultivation with forest cover where fertilizer and pesticides have never been applied.

**Areas and Crops to be declared organic in Kashmir**

The following crops which are being grown organically by default in the areas for decades in Kashmir can be declared complete organic in the first instance.

S. No	Name of crop	District	Area/Locality/ Village
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1	Walnut	Kupwara, Anantnag and Shopian	Karna, Chowkibal, Lolab, Kindi and Awoora
2	Rajmash	Kupwara & Bandipore	Machil, Budnamoun ,Karna, Gurez
3	Black cumin	Bandipore	Gurez
4	pulses	Kupwara & Bandipore	Machil, Budnamoun ,Karna, Gurez
5	potato	Kupwara & Bandipore	Machil, Budnamaun ,Karna, Gurez
6	red rice	Kupwara	Karna
7	saffron	Pulwama	Pampore
8	Barley	Kupwara	Keran
9	Basmati rice	R.S. Pura	R. S. Pura
10	Rajmash	Bhaderwah	Bhaderwah
11	Ginger and turmeric	Reasi	Pouni
12	Maize	Kupwara	Kindi areas of kupwara
13	Honey	Kupwara & Bandipora	Lolab, Kalaroose, Awoora

### **Problems/ issues to be addressed by adopting organic farming**

The following grave problems faced by the agriculture system in the regions would be addressed by the adoption of Organic farming in J&K.

1. Depleting soil health/organic matter
2. Imbalance in fertilizer use
3. Emerging multi-nutrient deficiencies
4. Declining nutrient use efficiency
5. Declining crop response ratio
6. Negative soil nutrient balance
7. Agro-ecosystem pollution
8. Low farm yield

### **Purpose and intension of Organic Farming in the state**

Organic farming in the state shall be promoted with the following purpose and intention.

1. To produce food of high nutritional quality in sufficient quantity.
2. To work with the natural system rather than seeking to dominate them.



3. To encourage and enhance biological cycles within farming system-involving microorganisms, soil flora, fauna, plants, and animals.
4. To maintain and increase the long-term fertility of the soil.
5. To use, as far as possible, renewable resources. To work as much as possible, within a closed system, with regard to organic matter and nutrient elements.
6. To give all livestock conditions of life those allow them to perform all aspects of their innate behaviour.
7. To avoid all forms of pollution that may result from agricultural techniques.
8. To maintain the genetic diversity of the agricultural system and its surroundings, including the plants and wildlife habitats.
9. To allow agricultural producers adequate returns and satisfaction from their work including safe drinking water.
10. To Conserve and extend traditional knowledge related to agriculture.
11. To create and ensure a domestic market for organic products controlled by the farmers.

### **Role of SKUAST-Kashmir in promotion of organic farming in J&K, UT**

#### **The state Agriculture University is expected to play the following role**

1. Teaching, Research, and Extension for promotion of organic farming in Kashmir through technical capacity building of all the stakeholders including human resource development, technology development, transfer of technology, promotion and production of quality organic and biological inputs, awareness creation and publicity through print and electronic media.
2. Statutory quality control requirements of bio-fertilizers and organic fertilizers under the Fertilizer (Control) Order (FCO), 1985, including revision of standards and testing protocols keeping in view the advances in research and technology and bringing remaining organic inputs under quality control regime.
3. Capacity building for soil health assessment, organic input resource management and market development.
4. To facilitate, encourage and promote the development of organic agriculture in the UT of J&K

5. To encourage production and use of organic and biological sources of nutrients like bio-fertilizers, organic manure, compost for sustained soil health and fertility and improving soil organic carbon and to promote production and use of bio-pesticides, bio-control agents, etc as alternative inputs in organic farming.
6. To act as the nodal agency for the implementation of a quality control regime for biofertilizers and organic fertilizers, as per the requirement of FCO.
7. To formulate and define standards for other unregulated organic and biological inputs and bring them under quality control mechanism, define/upgrade standards and testing protocols.
8. Develop, maintain, undertake regular efficacy testing and ensure a steady supply of mother cultures of bio-fertilizer and other beneficial microorganisms for nutrient mobilization and plant protection to the biological input production industry.
9. To run short-term certificate courses on the organic system and on-farm resource management.
10. To organize regular training and refresher courses for officials of Agriculture and other allied departments, quality control analysts /inspectors associated with the implementation of Fertilizer (Control) Order 1985 (FCO).
11. To impart training on certification systems like organic management, input production, and other related aspects to certification and inspection agencies, extension agencies, farmers, industries, and organizations engaged in the production, and promotion of inputs for organic farming.
12. To initiate research on validation of established indigenous practices, inputs and technologies leading to the development of the package of practices.
13. To initiate studies/surveys on biological soil health assessment under different farming systems, practices.
14. To act as regional information and data collection centre on all aspects of organic farming and dissemination of information through print and electronic media.
15. Technical support to existing certification systems in terms of standards formulation, designing implementation protocols, evaluation and surveillance. Policy, implementation, and surveillance support to alternative farmers' group-centric low-cost certification system.





16. Awareness creation through seminars/conferences/trade fairs and publicity through print and electronic media.
17. Support State Governments in the evaluation and monitoring of various organic agriculture schemes.
18. Certification through JK Organic Certification Agency
19. On-farm Production of Inputs
20. Off-farm certified inputs.
21. Market linkage development.
22. Branding with brand logo.

### **Recommendations**

- The farmers who are already engaged in organic farming and cultivating vegetables, spices, dry fruits, etc. through this practice should receive benefits and support from the government so that other farmers also feel encouraged to adopt organic agriculture practices.
- The Agriculture Department should create a separate wing that would only deal with organic farming and extend support to farmers with necessary resources and also teach them the best practices related to this agriculture system.
- The farmers should be provided timely financial and technical assistance that include seeds at low cost, low interest or zero-interest loans, relief during a natural calamity, tillers, brush cutters, and other equipment at subsidized rates.
- The government should organize mass awareness programs related to the practice of organic farming and assist, financially and technically, two or more farmers from every village of the Union Territory to take up the practice, this could set precedence throughout the rest of the UT as well.
- The government should enact laws and constitute an enforcement agency to ensure the quality and genuineness of organic farming products.
- The government recently opened an organic market in Srinagar and the same initiative needs to be taken in every district of Jammu and Kashmir so that the organic agriculture produce finds an identity and generates a unique status in the market.
- Government should handle the post-harvesting activities to facilitate farmers' linkage with the market so that they are not exploited by middlemen.



- A vast chunk of untapped land, take for example land in Gurez valley, in Jammu and Kashmir has a huge potential for organic farming. The government should identify the same and take steps to declare it as certified organic land.
- The government should encourage research in organic farming and invite relevant scholars to help the farmers implement best practices in agricultural activities.

