

Organic Agriculture- A Boon to the Northeast India

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SUMMARY

The North–Eastern Region of India comprising eight states viz., Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim has a total geographical area of 2.62 lakh sq km. There is tremendous scope for organic agriculture in the north-eastern region of India, because the use of inorganic fertilizers and chemicals is least in the region. Low Soil pH, high organic matter in the soil as compared to other parts of the country, lower plain lands, medium plateau cum hilly terrains, high rainfall, less population density, maintaining livestock in every household, response to fertilizers and manures, low intensive agriculture system, special Govt. policies and subsidies to north-eastern region makes it ideal to adopt versatile cropping system. Organic farming is a system of production that relies on animal manures, organic wastes, crop rotations, legumes and aspects of biological pest control. Keeping the above potentialities in mind, policy makers and business investors should dig into the organic market of northeast and set it as corridor to the other states of India.

INTRODUCTION

Organic farming is a system of production that relies on animal manures, organic wastes, crop rotations, legumes and aspects of biological pest control. It avoids (or legumes excludes) the use of synthetically produced fertilizers, pesticides, growth regulators and livestock additives. It is based on the minimal cost of the off-farm inputs and management practices that restore maintain and sustain ecological harmony. Organic crop production in the organic farming system is gradually gaining momentum worldwide. Organic farming or the organic crop production is not a new concept to the farmers of the country. Indian farmers were all organic farmers before the advent of synthetic fertilizers, pesticides, mechanization, etc. It was mostly during the mid sixties and afterwards that farmers started using the synthetically produced inputs (fertilizers, pesticides, etc.), which brought about “Green revolution” in our country. Currently, India has 10th ranks among the top ten countries of the world in terms of cultivable land under organic certification. Among all the states, Madhya Pradesh has covered largest area under organic certification followed by Himachal Pradesh and Rajasthan.

The North–Eastern Region of India comprising eight states viz., Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim has a total geographical area of 2.62 lakh sq km. The North-eastern region accounted eight per cent of the total area and 3.4 per cent of total cultivable area of our country. Approximately, 84 per cent of the soil in the region is acidic and low in available phosphorus and zinc but high to medium in available nitrogen and potash. There is tremendous scope for organic agriculture in the north eastern region of India, because the use of inorganic fertilizers and chemicals is least in the region. The production system is characterized by low cropping intensity i.e. about 131.4 per cent, based on mono cropping and subsistence farming marred with land of steep slopes leading to high soil erosion and thus, loss of soil fertility, high soil acidity and light texture of soil leading to leaching losses of nutrients through percolation under high rainfall conditions. Moreover, organic matter in the soil in the NE region is significantly high as compared to other parts of the country. Considering that there is nearly 5.5 million ha of cultivated land available in the North-East, organic farming barely

covers 3 per cent of arable land. During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76000 ha) under organic certification. Rather, we should think rationally and select only those areas that remained organic due to wisdom and/or by default. Hill regions of the country can be easily converted to organic food production zone mainly to meet domestic and international demand and for higher farm income.

Potentialities of North Eastern Region of India for Organic Farming

- Land is almost virgin and the crops are grown virtually organic or organic by default in an area of about 18 lakh ha.
- Thin population density per square kilometer (13-340 compared to 324 at national level).
- Use of inorganic fertilizers and chemicals is meagre in the region.
- All the households are maintaining livestock producing sufficient quantity of on-farm manures can say every house hold is a mini integrated farming system model.
- Promotional schemes for agriculture and related industrial investments for NER.
- Another Agri-Export Zone (AEZ) established for ginger in Sikkim.
- Agri-Export Zone (AEZ) set up in Tripura for organic cultivation of pineapple.
- The region has a potential of about 47mt of organic manure including 37 mt from animal excreta and 9 million tons from crop residues.
- Negligible yield gap in transition phase

Statewise Area under organic farming (ha) in North East

State Area under organic farming (ha)	State Area under organic farming (ha)	Area in Conversion (ha)
Assam	9883	18,129
Arunachal Pradesh	51	6,129
Manipur	158	5,240
Meghalaya	2,580	37,756
Mizoram	0	999
Nagaland	3,526	5,314
Sikkim	74,094	1,982
Tripura	204	2,048
Total	90,496	77,597

Source: APEDA

Organic farming's prospects in context to NE zone

Farmers use low input intensive agriculture with the low levels of modern input use, traditional farming techniques, lack of farm mechanization, subsistence farming, low level of productivity, poor infrastructure, etc. in this region Organic farming is often more labour intensive than conventional agriculture which can be managed in this region since the family are larger with average land holdings of 2.5 ha. Labour saving technologies and methods can be applied like use of cover crops to control of weeds and protect against soil erosion, direct mulching with crop residues, and reduced tillage. FYM, compost, crop residue, non-edible oil cakes, green manuring, intercropping with legumes, biofertilizers and by products of agro industries are the major sources of plant nutrients. High forest cover results in more litter production in the nearby crop fields. Moreover, the region receives plentiful rainfall (2400 mm/year) accounting for around 10 per cent (42.50 mhm) of the country's total precipitation of 420 mhm leads to profuse production of biomass, which may be utilized as a valuable

organic nutrient sources for sustainable crop production. The farmer's knowledge on Indigenous Technology knowledge (ITKs) on selection of varieties, cultural practices, use of plant based formulations also be effectively used. Studies have found that about 15 t FYM along with crop residue recycling is sufficient to get a yield similar to recommended NPK from second/third year onwards whereas 30 t FYM manure application are reported to be used to get equivalent yield of rice-wheat system after three years of conversion in IGP. These organic sources besides supplying N, P, and K also make unavailable sources of elemental nitrogen, bound phosphates, micronutrients, and decomposed plant residues into an available form to facilitate the plants to absorb the nutrients.

Choice of crops for organic cultivation

1. Cereal crops: Purple rice, aromatic rice due to their heavy demands in domestic, national, and international markets, maize.
2. Pulses Red gram, black gram
3. Fruit crops: Pineapple (45 % production of total pineapple production in India is in NE region), oranges (NE is the 4th largest producer in India banana, passion fruit, lemon, passion fruit, Tamarind, Walnut).
4. Spices: Ginger (huge demand because of low fibre quality, Cardamon (54 per cent share from Sikkim), Black pepper, Turmeric, clove.
5. Oilseeds: Mustard, Sunflower.
6. Cash crops: Tea, cashewnut.

Constraints faced by the farmers

1. Improper Govt. policy cover on organic cultivation issues.
2. Marketing Problems.
3. Inadequate Supporting Infrastructure.
4. Financial support for certification process.
5. Supply of quality organic seeds.
6. Use of bio-fertilizers and bio pesticides, organic manures and preparation of various composts requires awareness and willingness on the part of the farming community. Farmers are also lacking in their knowledge about nutrient supplementation between the cropping systems.
7. Climatic condition, low temperature low mineralization.

Recent advances in the NE region

According to the estimates available with the Agricultural and Processed Food Products Export Development Authority (APEDA), as of 2017-18, nearly 90,500 hectares of land in the NE region is already under organic cultivation. Even though Sikkim accounts for more than three-fourths of this, other States such as Meghalaya and Assam have shown tremendous progress in embracing organic farming. As per the available statistics, another 77,600 hectares is the process of switching over to organic cultivation. The conversion process normally takes three years. Realizing the potential of organic farming in the North Eastern Region of the country Ministry of Agriculture and Farmer Welfare has launched a Central Sector Scheme entitled "Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)" for implementation in the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, during the 12th plan period. The scheme aims at development of certified organic production in a value chain mode to link growers with consumers and to support the development of entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing marketing and brand building initiative. As per the official data, MOVCDNER has helped bring an area of

45,920 hectares under organic cultivation as against the targeted 50,000 hectares, mobilised 48,950 farmers, created 97 farmer-producer companies and 2,469 farmer interest groups. Considering that the size of landholdings is small, a cluster model of organic cultivation is promoted under MOVCDNER. Developing right kind of infrastructure is the key for the development of organic farming in the Northeast. Setting up of processing units in the north-east can further flourish the organic market in the coming years.

CONCLUSION

Organic agriculture is holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. The North Eastern Region of India has huge potential for organic crop production. However, the productivity of the region is far behind the national average, which may be increases by the adoption of suitable agro-techniques. Moreover, organic produce are expected to fetch premium price (at least 25 per cent more) and therefore should be economical to the poor farmers. Organic produce are known to be richer in micronutrients, vitamins and other quality parameters.

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