

Organic farming in India: Need and future aspects

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Abstract:

India is the seventh largest country in the world, and in terms of agricultural land, diversity in climate and terrain, and long tradition of farming systems, it has a very high potential for organic farming. 68 % of the agricultural land is rainfed, and in these areas inputs of intensive agriculture have so far not been too much applied. Increasing export demands of organic produce such as cotton, oilseed, processed food and spices compelled policy makers to promote organic farming in India. Organic farming, a holistic way of farming, is one of these alternate forms that are aimed at sustainable agricultural production. It relies on crop rotations, green manures, organic manures, biofertilizers, composts and biological pest management for crop production excluding or strictly limiting the use of synthetic fertilizers, chemical pesticides, plant growth regulators and livestock feed additives.

Key words: Organic farming, biofertilizers, green manures , chemical pesticides, livestock feed

Introduction

Indian economy is one of the fastest growing economies among the developing countries in the world. Agricultural is the major source of livelihoods, particularly in the rural areas, where 55% of people have been living. Agriculture still contributes significantly to export earnings and is an important source of raw materials as well as demand for many industries. Indian economy is one of the fastest growing economies among the developing countries in the world. Agricultural is the major source of livelihoods, particularly in the rural areas, where 55% of people have been living. Agriculture still contributes significantly to export earnings and is an important source of raw materials as well as demand for many industries. Indian economy is one of the fastest growing economies among the developing countries in the world. In the present agricultural

scenario, crop yield is declining day by day despite maximization of chemical inputs. Vicious cycle of chemical farming is now exposed in the increasing crop unsustainability, higher input requirement, poor soil quality as well as recurrent pest and diseaseinfestation. Organic farming can solve many of these problems as this system helps to maintain soil productivity and effectively control pest by enhancing natural processes and cycles in harmony with environment. Today, it is clear to the agricultural community that organic farming is the best option for not only protecting/sustaining soil-plant –ecological relationship but to mitigate the adverse effect of climate change. In this background, an Indian organic farming practice called Inhana Rational Farming (IRF) Technology has demonstrated some promising results that have brought forth the relevance of organic farming in today’s agricultural scenario. Organic agricultural practices are largely based on IFOAM’s four principles of organic agriculture which are as:-

(a) Principle of Health:- Organic agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

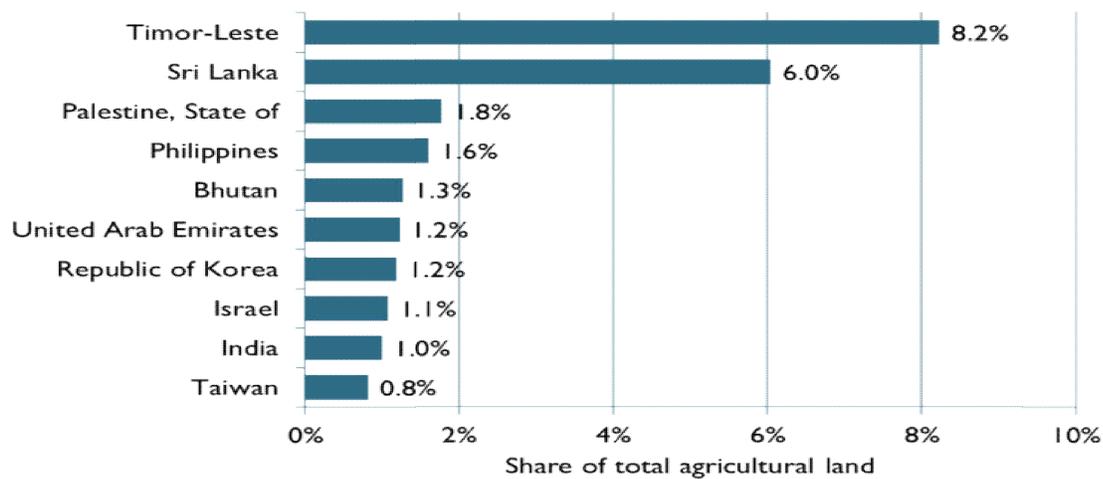
(b) Principle of Ecology:- Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them

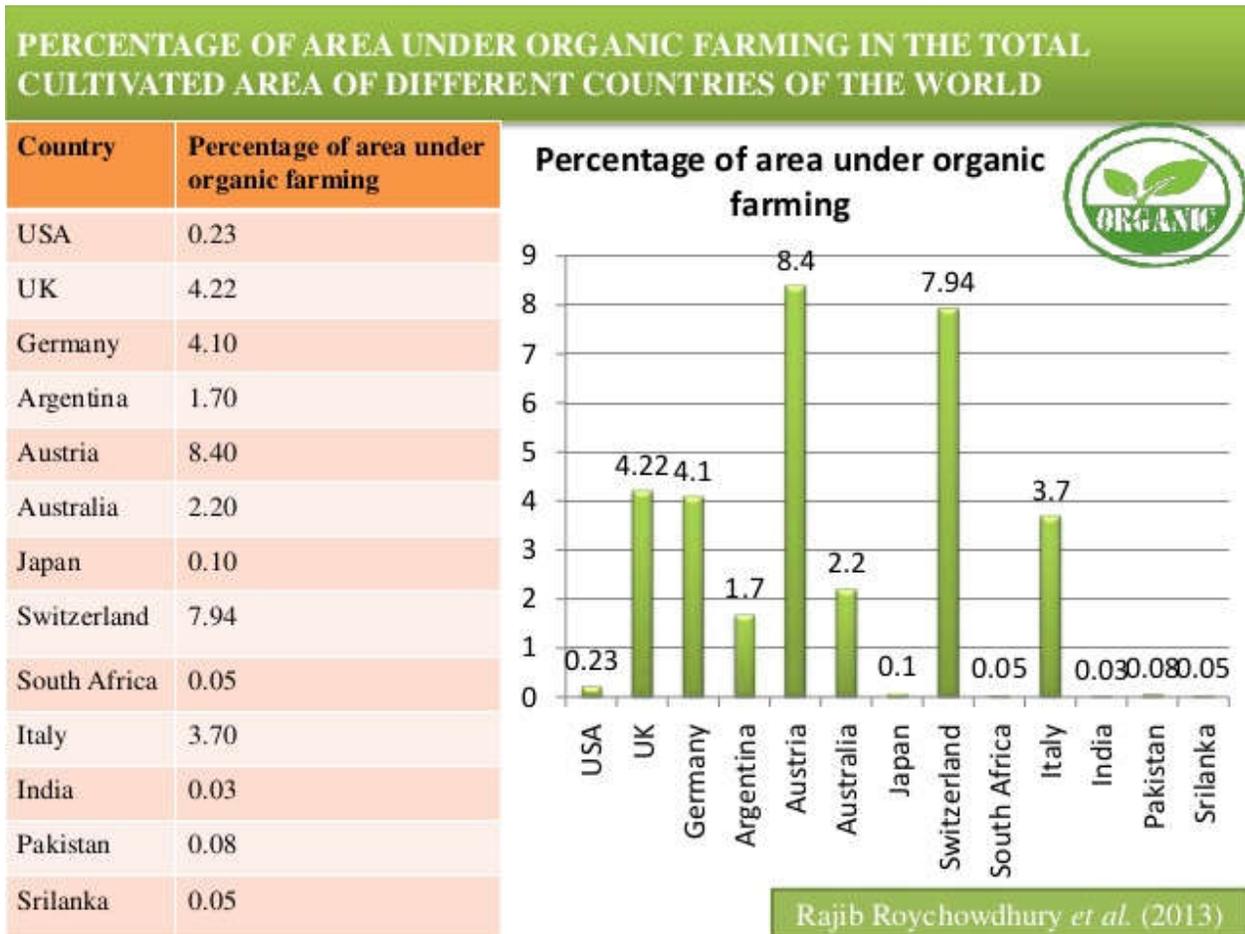
(c) Principle of Fairness:- Organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

(d) Principle of Care:- Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well being of current and future generations and the environment

Asia: The countries with the highest organic share of total agricultural land 2017

Source: FiBL survey 2019





Research methodology:-

This paper is based on secondary data and field observation of the researcher. Information about organic farming and its practices made both in India and abroad were collected from the published sources such as publications of European union, international federation of organic farming movements (IFOAM), International Trade Centre (ITC), National programme of organic production (NPOP), APEDA (Agricultural processed food products & export development)

Emergence of Organic Agriculture in India:-

India is endowed with various types of naturally available organic form of nutrients in different parts of the country and it will help for organic cultivation of crops substantial Indian economy is one of the fastest growing economies among the developing countries in the world. Agriculture is the major source of livelihoods, particularly in the rural areas, where 55% of people have been living. Agriculture still contributes significantly to export earnings and is an important source of raw materials as well as demand for many industries. The agriculture sector Indian economy is

one of the fastest growing economies among the developing countries in the world. Organic farming is mostly envisaged as the stoppage of synthetic inputs and their replacement by organic alternatives i.e use of organic manures and natural methods of plant protection instead of using synthetic fertilizers/pesticides. Organic farming is a far deeper concept that mere non-chemicalization. In real sense it refers to a comprehensive approach towards improvement of both health of underlying productivity of the soil and plant leading to the enrichment of the surrounding ecology; which is a pre-requisite criterion for sustainable agriculture. According to IFOAM, “Organic agriculture is a production system that sustains the health of soils, ecosystems and people”. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. The major objectivity of organic farming resides on development of a self-sustainable farming system in harmony with nature which delivers ecologically and economically.



Although, India had been traditionally organic and its farmers are 40 century farmers with large pool of traditional wisdom on best practices in organic agriculture, the modern standards based organic agriculture started only recently with the growing demand for organic food and fiber in the western world. National Programme for Organic Production (NPOP) launched during 2001 laid the foundation for systematic development of organic agriculture sector in the country. NPOP, which provides for an institutional framework for accreditation and certification of various facets of organic agriculture processes has earned international recognition and enjoys recognition agreements with European Union, Switzerland and USDA - NOP. NPOP is being managed and operated by the APEDA under Ministry of Commerce and Industry, Government of India. Started with just 42,000 ha during 2003-04, it has grown almost 42 fold, touching a figure of 1.78 million ha during 2017-18. Almost all types of agricultural, horticultural and non-

food crops are being grown under organic certification process. Livestock, aquaculture, animal feed processing and handling, mushroom production, sea weeds, aquatic plants and green house crop production have also been brought under the ambit of organic certification. Realizing the benefits of organic food, consumers are also demanding organically grown food and fiber and are willing to pay premium prices. But to tap the market, to win the trust of consumers and to prevent consumers from fraud and cheating there is an inevitable need for effective regulatory systems backed by credible certification system, ensuring that the entire production and processing process has been done in compliance of the National Standards for Organic Production (NSOP).

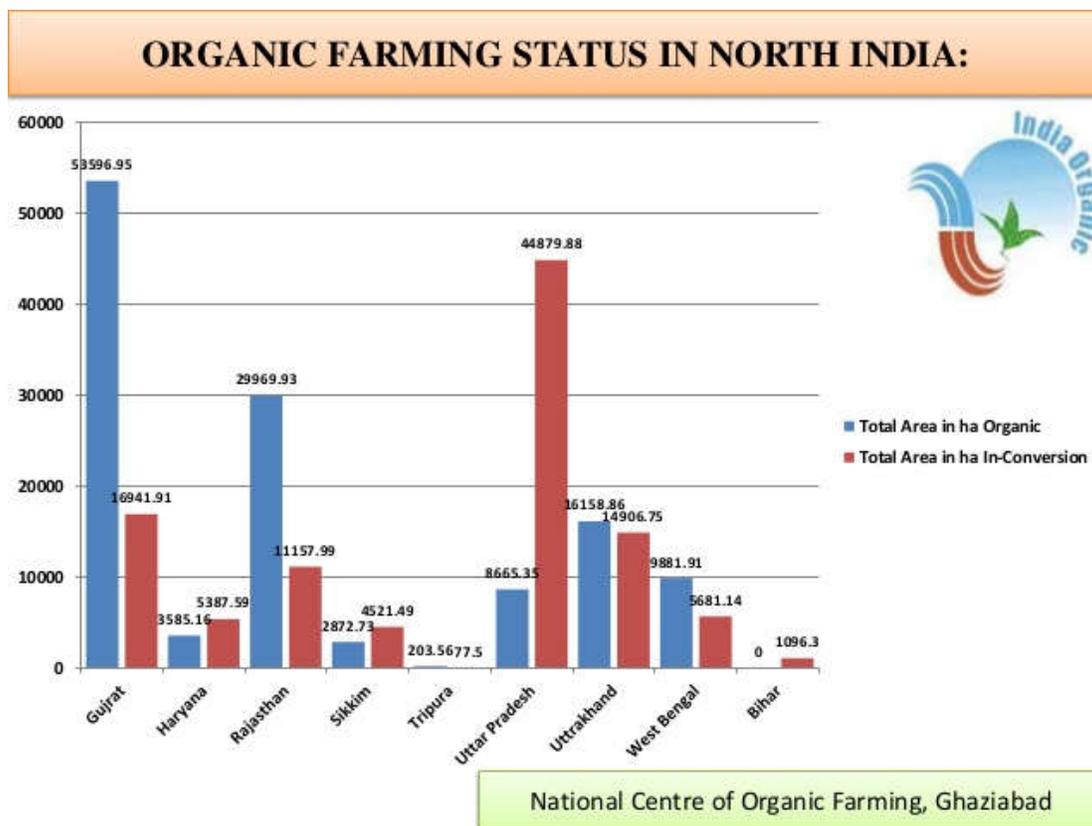
Organic Farming in India:

India holds a unique position among 172 countries practicing organic agriculture: it has 6, 50,000 organic producers, 699 processors, 669 exporters and 7,20,000 hectares under cultivation. But, with merely 0.4 per cent of total agricultural land under organic cultivation, the industry has a long journey ahead. India produced around 1.35 million MT of certified organic products which includes all varieties of food products namely Sugarcane, Oil Seeds, Cereals & Millets, Cotton, Pulses, Medicinal Plants, Tea, Fruits, Spices, Vegetables, Coffee etc. The production is not limited to the edible sector but also produces organic cotton fiber, functional food products. 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.

Organic cultivation in North-Eastern region		
(In hectares)		
State	Area	In conversion
Sikkim	74,094	1,982
Meghalaya	2,580	37,756
Assam	9,883	18,129
Nagaland	3,526	5,314
Arunachal	51	6,129
Manipur	158	5,240
Tripura	204	2,048
Mizoram	0	999
Total	90,496	77,597



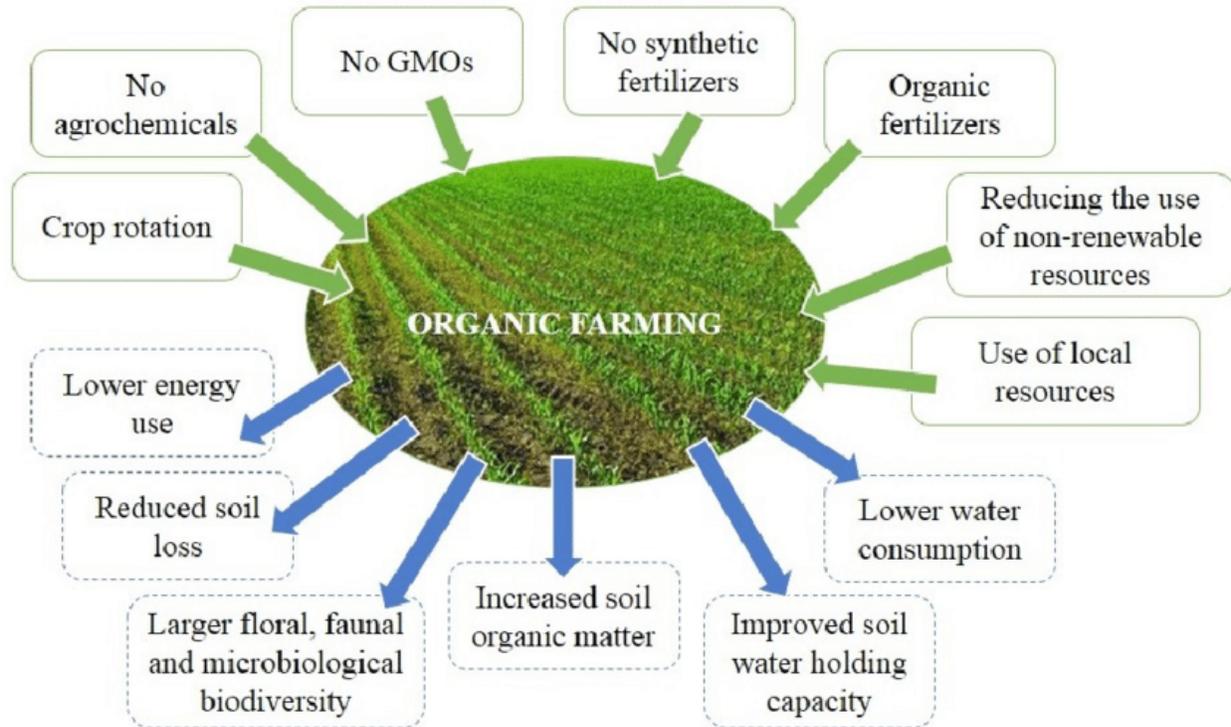
Source: APEDA



Need of organic farming:

1. It helps to maintain environment health by reducing the level of pollution.
2. It reduces human and animal health hazards by reducing the level of residues in the product.
3. It helps in keeping agricultural production at a sustainable level.
4. It reduces the cost of agricultural production and also improves the soil health.
5. It ensures optimum utilization of natural resources for short-term benefit and helps in conserving them for future generation.
6. It not only saves energy for both animal and machine, but also reduces risk of crop failure.
7. It improves the soil physical properties such as granulation, good tilth, good aeration, easy root penetration and improves water-holding capacity and reduces erosion.

8. It improves the soil's chemical properties such as supply and retention of soil nutrients, reduces nutrient loss into water bodies and environment and promotes favourable chemical reactions.



Organic Farming in world

According to the latest FiBL survey on certified organic agriculture worldwide, there were 50.9 million hectares of organic agricultural land in 2015, with the most organic agricultural land in Australia (22.7 m hectares) followed by Argentina (3.1 m hectares) and the United States (2 m hectares). There has been an increase in organic agricultural land in all regions with the exception of Latin America. A major relative increase of organic agricultural land was noted in many African countries, such as Kenya, Madagascar, Zimbabwe,.

Constraints faced by the Indian organic growers

Despite efforts from government and other agencies, subsidies and other schemes, area under organic farming is still less than 1% of total cultivated area in India. The farmers adopting organic farming face difficulty to survive and market their end products.

Absence of supportive policy

The most important constraint felt in the progress of organic farming is the inability of the government to take a firm decision to promote organic agriculture.

Loss of crop yield

Farmers adopting conventional organic farming face huge losses i.e. upto 71%, in the initial years. Also the time required to achieve crop sustainability under present organic cultivation system is still unknown and thereby resulting in high cultivation cost and economic unviability. According to an USDA Survey, the organic yields were lower in 84% areas. The organic yield gap is predominant for row crops, fruit crops and vegetables.

Non achievement of expected quality

Most of the organic produce fail to achieve the desired intrinsic and extrinsic qualities as expected under organic cultivation, and thereby lose the consumer base.

Failure of organic pest management

Following the conventional chemical approach of pest management utilizing weaker organic pesticides cannot resolve the pest/disease issues in organic agriculture. And this forms the major reason for crop failure under organic. Shortage of biomass and livestock Conventional farming practices, increased mechanization and decreasing per capita land holding. It has led to scarcity of bio- resource for compost production that forms a major bottleneck towards large scale organic conversion.

1. Lack of quality seeds supporting organic agriculture

Hybrid seeds are designed to respond to fertilizers and chemicals. Presently Genetic and fertilizer sensitive seed and planting materials rules the market with negligence on indigenous varieties, which are more suited for organic farming. There is a large vacuum in the availability of quality organic seeds and forms a major constraint for the farmers willing to adopt organic farming.

2. Lack of storage, transport & organized organic marketing system

The challenge posed by inadequate agricultural infrastructure and cold storage facilities translate to loss of produce due to spoilage. Additionally, poor road infrastructure especially in the hilly States, results in poor and delayed connectivity to farmer markets.

3. Vested interests of chemical and pesticide lobby

The seed, fertilizer and pesticide industry as also the importers of these inputs to the country have a stake in the conventional farming and their opposition to organic farming is one of the biggest hurdle towards dissemination of organic farming.

4. Lack of awareness and guideline for organic farming

There is lack of adequate research and development backup as well as training related to Organic Farming in India. Most of the farmers in the country have only vague ideas about organic farming and its advantages as against the conventional farming methods.

Inability to meet the export demand According to a study by Garibay and Jyoti (2013), Indian organic exports faces different constraints viz. high price expectations in relation to quality, inconsistent quality and residues, time consuming and complicated paper work etc. as result of the export demand is left unattended.

5. Complexity and high cost of organic certification system

Complexity regarding organic certification, high cost as well as time frame (3 years in most cases) forms one of the major constraints for small land holders.

6. Scarcity and high cost for quality analysis

There is scarcity of economic facilities for quality assessment of organic inputs and organic produce. As a result there is lack of quality mapping of most of the organic produce (especially for domestic market), which opens up the scope for spurious products in the niche organic market and thereby leads to the decrease in the consumer interest towards organic products.

In a nutshell, there has been dearth of comprehensive organic farming practice/s which can ensure ecologically and economically sustainable organic crop production without any time lag. It is true that there is lack of proper infrastructure and government support towards organic marketing. But at the same time higher marketability cannot be achieved only in the name of organic. To make this a reality, we need to bring forth a comprehensive organic package of practice that is Safe, Effective, Complete, Convenient and Economical - the 'Five Indispensable Criteria' for delivering truly sustainable and large scale organic agriculture.

7. Overcome the Technological Challenges

Inhana Rational Farming (IRF) Technology is based on the 'Element Energy Activation' (EEA) Principle S which is inspired by the evolutionary concept of Vedic philosophy IRF technology was first introduced as a complete organic package of practice in 2001(i) Energization of soil system i.e., enabling the soil to function naturally as an effective growth medium for plants

(Barik et al., 2014a) and (ii) Energization of plant system i.e., enabling higher NUE alongside better bio-chemical functions that leads to activation of the plants' host defense mechanism (Barik et al., 2014b). The Technology bears the essence of Trophobiosis theory and reaches to the root cause of pest interference and works towards amelioration of factors that favourably signal pest/disease advances.

Government initiatives towards the organic farming in india:-

With the growing demand for organic food in national and international markets, it became necessary to ensure that the agricultural products labeled as “organic” comply the basic standards of organic production and entire production process is verified by independent certification agencies. The National Programme for Organic Production (NPOP) launched during 2001 was the first such quality assurance initiative by the Government of India under Ministry of Commerce and Industry. The NPOP not only provided the institutional framework for accreditation of certification agencies and operationalization of certification programme through its accredited certification bodies but also ensures that the system effectively works and is monitored on regular basis. During 2004 the NPOP was brought under the ambit of Foreign Trade Development and Regulation (FTDR) Act wherein it was mandated that no organic products can be exported unless they are certified under NPOP.

Future prospects

Although, commercial organic agriculture with its rigorous quality assurance system is a new market controlled, consumer-centric agriculture system world over, but it has grown almost 25-30% per year during last 10 years. In spite of recession fears the growth of organic is going unaffected. The movement started with developed world is gradually picking up in developing countries. But demand is still concentrated in developed and most affluent countries. Local demand for organic food is growing. India is poised for faster growth with growing domestic market. Success of organic movement in India depends upon the growth of its own domestic markets. India has traditionally been a country of organic agriculture, but the growth of modern scientific, input intensive agriculture has pushed it to wall. But with the increasing awareness about the safety and quality of foods, long term sustainability of the system and accumulating evidences of being equally productive, the organic farming has emerged as an alternative system of farming which not only address the quality and sustainability concerns, but also ensures a debt free, profitable livelihood option.

Conclusion

Ecologically and economically sustainable organic farming is the pre-requisite for enabling wider adoptability, secured livelihoods and ensuring affordability at the consumer's end. India has a rich history of organic farming and the increasing domestic market of organic food can provide the necessary drive to the organic movement. Awareness program at both the consumer and farmers' level is necessary for bringing about large scale organic conversion. But most importantly innovative organic farming technologies like Inhana Rational Farming (IRF) can popularize the practice even among the resource poor farmers by ensuring ecologically and economically sustainable organic crop production in a time bound manner. Case studies of IRF Organic Practice also testify the corresponding GHG mitigation and adaptation potential as reflected in the high carbon sequestration, soil resource regeneration, high energy use efficiency as well as development of plant resilience; but the highlight remains its cost effectiveness and time bound results.

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