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ORGANIC AND NATURAL ECO-FRIENDLY FARMING: A REVIEW

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ABSTRACT

Chemical fertilizers, pesticides and fungicides are widely used in agriculture to improve crop yields. Most of the compounds used are synthetic, and their overuse causes environmental pollution and human health problems. Currently, several countries are working to reduce the use of agrochemicals. Organic agriculture is now emerging as a sustainable alternative to traditional agriculture using environmentally friendly strategies such as the application of organic fertilizers from plant and animal waste and pesticides based on plant extracts and microbials. However, the availability of commercial bio-pesticides and organic fertilizers is very limited because there are certain barriers to the commercialization of biological products. These barriers include small available quantities of raw materials and strict registration laws requiring toxicological tests and other studies that are expensive and time consuming. Healthy soil is the foundation upon which sustainable agriculture is built. Farming practices differ mainly based on soil inputs and crop protection measures. In conventional chemical farming practice, indiscriminate use of chemical fertilizers and pesticides destroy the beneficial soil micro flora change the soil nature and also contribute to the high crop production cost. Heavy metals from the polluted soil may enter the food chain in significant amounts and show adverse health effects. The essence of natural farming is to minimize the external inputs to the farm land, and nurture the soil fertility. It was shown that enrichment of soil occurs through propagation of beneficial soil microbes. It encourages the natural symbiosis of soil micro flora and crop plants. Mulching can maximizes the moisture content in the soil, forms the cover for the earthworms and minimizes the weed propagation. The objective of this review is to provide details about the various organic fertilizers and pesticides that do not have the same disadvantages as synthetic compounds in terms of persistence and toxicity.

Keywords: Organic farming, Natural farming, mulching, sustainable, organic fertilizers, bio-pesticides

Introduction

Organic farming is the process of cultivating crops without the use of chemical inputs such as fertilisers and pesticides by using traditional/natural inputs like compost, manure, green manure, and green leaf manure, as well as crop sanitation and crop rotation techniques (Kutama *et al*., 2013).

"Organic agriculture is a holistic production management system which promotes and enhances agro ecosystem health, including biodiversity, biological cycles, and soil biological activity," states the FAO/WHO Codex Alimentarius Commission. It highlights the employment of management techniques over off-farm inputs, keeping in mind that localised solutions are necessary due to area characteristics. This is achieved by fulfilling any specified function within the system by employing agronomic, biological, and mechanical means whenever possible, rather than synthetic components. The term "Organic" was first used by Northbourne in his 2003 book "Look at the Land". The idea of organic farming is not new to Indian farmers, even though the term was just recently coined. However, it lost significance during the green revolution, which was a crucial time for India's efforts to boost productivity and attain food security and sustainability. The green revolution brought stability to

food production by using more inputs, most of which came from chemical sources.

Due to the ongoing usage of chemicals, these toxins have accumulated in water, the food chain, and eventually in biological systems. Food that is safer and of higher quality is becoming more and more necessary, which makes the current situation worrisome. Furthermore, the stability of the global environment is being gravely disrupted by these traditional input sources, as they are non-renewable. For answering these issues organic farming can be the best possible solution. History and Evolution of Organic Farming: Sir Albert Howard who worked as agricultural researcher in India in early 1900s got inspired from the conventional farming practices that Indian farmers were following and took that knowledge to the west and introduced as Organic farming along with F. H. King, Rudolf Steiner andsome other fellow researchers. In 1940s, J. I. Rodale and his son Robert published "Organic Gardening and Farming Magazine" which consisted of many concepts of Organic farming. Later in 1960s, with the writings of Rachel Carson in Silent spring necessity for organic farming opened up manifold. Beginning 21st century, Consciousness of health and safety increased among the people making good demand for organic food (Adamchak, 2023).

Natural Farming (NF) is a one-of-a-kind chemical-free farming approach that is regarded as an agroecological approach (Rosset, 2012). Agro-ecological practice is believed to have been initiated by a Japanese farmer, Masanobu Fukuoka, the local customized version of which has been introduced in India by one of the Indian agriculturists Sh. Subash Palekar in the mid-1990s in the name of 'Zero Budget Natural Farming (ZBNF)'. The core of Natural Farming practices is the application of *Jeevamritha* and *Beejamritha*. *Jeevamritha* is a liquid fermented concoction of cow dung, cow urine, jaggery, pulses flour, and bund soil mixed with water, which contains a large number of beneficial microbes that act as a bio-stimulant promoting the activity of soil microorganisms as well as phyllospheric microorganisms when applied to the field/foliage. *Beejamritha* is also *Jeevamritha* without water that is used for seed treatment. Beneficial microbes are expected to colonize the roots and leaves of germinating seeds, assisting in the healthy growth of the plants. Other important components include *Achhadana* (bio-mulching), intercropping, and use of local seeds. Furthermore, natural farming also promotes various home-made formulations (*neemastra*, *agniastra*, and *bramhastra*, among others) that act as bio-pesticides (Mishra, 2018). These are used to control pests such as mealy bugs, sucking pests, fruit, stem and pod borer, leaf roller, etc. NF has been found to partially improve soil health and this may be because of quick building of heterotrophic microbial communities and flora and the increase in soil organic matter (Shyam *et al*., 2019, Smith *et al*., 2020, Kumar 2023, Saharan *et al*., 2023. Some studies have indicated a decrease in yield (Kumar 2023, Babalad and Navali 2021, Naik *et al*., 2021) whereas others showed no decrease (Kumar *et al*., 2019, Duddigan *et al*., 2022).

In the last couple of years, the government of India has promoted natural farming in big way to promote chemical-free farming. The Prime Minister of India in his address to the nation on the 76th Independence Day of India stated 'ZBNF is a promising tool to minimize the dependence of farmers on purchased inputs, it reduces the cost of agriculture by relying on traditional field-based technologies which also leads to improved soil health' (Duddigan *et al*., 2022). Schemes such as—*National Mission on Natural Farming*, *Paramparagat Krishi Vikas Yojana* (Conventional Agriculture Development Scheme) under the sub-mission of *Bharatiya Prakritik Krishi Paddhati (BPKP)*, Andhra Pradesh Community Natural Farming (APCNF), *Mission Organic Value Chain Development for North Eastern Regions (MOVCDNER)*, etc., are popularizing the adoption of natural farming among the farmers in different parts of the country. Under the BPKP scheme, a provision of financial assistance of INR 12,200/ha (Approx. 147 USD/ha) for 3 years is made for cluster formation, capacity building and continuous handholding, certification and residue analysis. The Indian Council of Agricultural Research (ICAR), the apex research body, has initiated a study on the evaluation of NF on certain crops (Press Information Bureau: PM Speech at National Conclave on Natural Farming, Shri Narendra Singh Tomar. 2019).

Scenario of Organic farming global level and India

Profitable organic sales are currently being conducted in 187 countries worldwide (FiBL and IFOAM, 2021). 72.3 million hectares of land, including the area under transition, were classified as organic agricultural land in 2019 (FiBL, 2021). With 35.9 million hectares, or over half of the world's organic area, Oceania has the most organic land, followed by Europe with 16.5 million hectares, or 23%. After that come Africa with 2 million hectares (3%), America with 5%, Asia with 8%, and Latin America with 11%. Asia is the region with the biggest percentage of organic farmers worldwide (51%),

followed by Africa (27%), Europe (14%), and Latin America (7%) (FiBL and IFOAM, 2021). Sales of organic food are expected to reach 380.84 trillion dollars by 2025, according to predictions (Organic Food Global Market Report, 2021). There are an estimated 2.8 million organic producers worldwide, and 108 nations adhere to organic rules (Rempelos *et al*., 2021).

In India, total of 5.71 million hectares is under organic farming. Out of this only 1.49 million hectares is cultivable area which constitutes 26% of the total area. Remaining area which is 4.22 million hectares constituting 74% is under forest lands from which forest products are being collected and supplied into market. With over 8,35,000 organic farmers, India has the highest number of organic food producers where there are 2.7 million producers globally during 2016. Acerage of organic farming has increased by 0.3 millio hectares in India during the period of 2015 to 2016 where at global level there was increase of 7.5 million hectares. During the same period the total organic production and exportrecorded were 11,80,105 MT and 3,09,767 MT, respectively. Sikkim was declared as organic state by government of India with 56,000 hectares of total cultivated area under organic cultivation. Madhya Pradesh has largest area with organic certification followed by Rajasthan with 4,64,859 and 1,51,609 ha, respectively (Source: Lok Sabha Unstarred Question No. 346 dated 18.07.2017).

Scenario of Natural Farming in India

Natural farming is gaining popularity in India. As of 2023, it is estimated that about 4.09 lakh hectares of land in India are under natural farming and total fund of Rs. 4587.17 lakh has been released in 8 States across the country including the State of Tamil Nadu. The leading states in terms of area under natural farming through the scheme BPKP:

- Andhra Pradesh (1.00 lakh hectares)
- Madhya Pradesh (0.99 lakh hectares)
- Chhattisgarh (0.85 lakh hectares)
- Kerala (0.84 lakh hectares)
- Odisha (0.24 lakh hectares)
- Himachal Pradesh (0.12 lakh hectares)
- Jharkhand (0.034 lakh hectares)
- Tamil Nadu (0.02 lakh hectares)

Among the various models of natural farming, the zero-budget natural farming (ZBNF) and Andhra Pradesh Community based Natural Farming (APCNF) models are widely used in India. As per the report of Niti Aayog, India can double the acreage of chemical-free farming to 15% immediately and grow it to 30% by 2030. The report says that this practice would not hurt national food security as the resultant loss in output and exports would be compensated by the reduction in fertiliser subsidies. The National Institute of Agricultural Extension Management (MANAGE), Hyderabad is the Nodal agency for promotion of natural farming in the country. The agency creates a large pool of natural farming experts through conduct of several capacity building programmes to the officials from different Central and State level institutes/ Departments of agriculture, SAUs, private sector organisations and also through various awareness campaigns to the farmers across the country. The Government of India has also launched a National Mission on Natural Farming (NMNF) during 2023 with the aim of motivating farmers to adopt chemical free farming and to enhance the reach of natural farming in the country to cover 10 million hectares of land under natural farming by the year 2025.

Fig. 1 : Four principles of Organic Farming

Four principles of Organic Farming

1. Principle of Health:

The term health signifies not only human health but every component involved in the ecosystem. Organic farming aims at well-being of humans, plants, animals and soil. It strongly states that for human beings to be healthy and sound, food should be pure which is possible only by healthy farming practices. Food produced through organic practices is of high quality in nutritional and safety aspects. For obtaining these results, usage of chemical fertilizers, pesticides, food additives and genetic modifications are strictly prohibited.

2. Principle of Ecology:

Farming systems in organic farming should concentrate on achieving balance among all the components. Ecological cycles within each production system should be focused so as to derive benefits in sustainable manner. Though organic farming can be taken up in monoculturing, care has to be taken to

maintain the diversity and to improve quality of environment.

3. Principle of Fairness:

Maintenance of equality and fairness must be ensured in every step of production process, to the components involved and to the farmers involved in farming and marketing of organic produce. Organisms either plants or animals in the production system should be provided with adequate number of resources for their survival. Wellbeing of producers, traders, distributors and consumers should be ensured. Produce should be available to large sector of people at affordable price.

4. Principle of Care:

Main motive of organic farming is to reach sustainability without compromising quantity or quality of food. Protection of the environmental health and all other organisms is vital for success of organic farming. In adopting better technologies and management, precaution and responsibility are the key factors. Scientific study and knowledge will help in achieving deeds yet they are not the lone solutions. Knowledge from practical experience, indigenous wisdom can also offer valid answers at most of the times in organic farming. Decisions ought to mirror the values and requirements of everyone potentially influenced, utilizing open and inclusive methods (Kumari and Raj, 2020).

Natural Farming Practice

No-Tillage: Annual tillage chemical fertilization and pesticide use consistently affect populations of earthworms. When tillage is avoided, soil moisture content is increased, augment the propagation of earthworms. Earthworms are known to make the soil porous and enrich the soil with their castings. Seeds are scattered and covered by straw before harvesting the previous crop. Seeds are germinated by the arrival of next favorable season. In ZBNF, this practice is not given prominence.

Mulching: Grain crops, healthy orchard trees are grown with a ground cover of vegetables, weeds and white clover. Mulching with straw improves soil moisture content and conducive to the growth of microorganisms and earthworms (Paoletti, 1999). It also improves seed germination without tillage. Growth of the covering plants like white clover holds back weeds effectively (Fukuoka, 1978). Growth of covering crops like legumes increases the nitrogen fixation in the soil Zaheer shah *et al*., Harvesting weed before flowering and covering the open land reduces the area for the crop weed and improves the organic matter content in the soil. With this practice usage of herbicides can be avoided.

Beejamruth: Application of Beejamruth is followed in ZBNF. It is a seed treatment mixture prepared from cow dung, cow urine, lime and a handful of soil (Palekar). Naturally occurring beneficial microorganisms are found in cow dung (Swaminathan *et al*., 2007). These microorganisms are cultured in the form of Beejamruth and applied to the seeds as inoculum. It is reported that seed treatment with beejamruth protects the crop from harmful soil-borne pathogens and also helpful in producing IAA and GA3.

Jeevamruth: Soil microorganisms play an active role in soil fertility as they involve in the cycle of nutrients like carbon and nitrogen, which are required for plant growth. They are responsible for the decomposition of the organic matter entering the soil and therefore in the recycling of nutrients in soil. PGPR, cyanobacteria and mycorrhiza constitute soil microorganisms Suslov, 1982 and Kloepper, 1994). They participate in decomposition, mineralization and nutrient supply to the plants. Phosphate Solubilizing Bacteria (PSB) and mycorrhizal fungi can also increase the availability of mineral nutrients (phosphorus) to plants (Katznelson *et al*., 1962, Rodríguez, 1994). Nitrogen-fixing bacteria can transform nitrogen in the atmosphere into soluble nitrogenous compounds useful for plant growth. These microorganisms, which improve the fertility status of the soil and contribute to plant growth. They may also show antagonism (biological control) to pathogens (Kloepper, 1993, Glick and Bashan, 1997). Soil is saturated with all the nutrients, but these are in the non-available form to the roots of the plants. Beneficial micro-organisms in Jeewamrith convert the nutrients in non-available form into dissolved form, when it is inoculated to the soil. Jeewamruth is either sprayed/sprinkled on the crop field or added to the irrigation tank in regular interval of 15 days until the soil is enriched.

Benefits of Organic farming

1. Health and Nutrition:

Ever since pandemic happened, perspective towards food has changed to greater good. People are much more conscious about consuming safe and sound food. As compared to India, in Western countries consumption of canned, processed food is relatively very high which is deriving increased demand for organic food in current days. Polyphenols are comparatively high in organic fruits and vegetables than normally produced ones. Organically produced products are free of chemicals or any pesticide residues

owing to their health benefits and safety (Kumar *et al*., 2023b).

2. Environmental safety:

Organic farming aims at environmental health and sustainability. Crop rotation and non-usage of chemical amendments creates lively environment for the soil flora and fauna to flourish thereby enhancing the soil status nutritionally and biologically. All the chemical pesticides and fertilizers that are applied to plants will ultimately reach soil. This can be avoided as it uses no pesticides and chemical fertilizers providing bettersoil texture, structure and physico-chemical properties of soil (Kumar *et al*., 2023b).

3. Influence on economic standards:

Organic products due to low production are high in demand and cost. Organic agriculture itself demands greater amount of inputs and labour than the conventional agriculture which increases the cost of production there by selling cost. Organic products usually are 10-40 % more costly than normally grown foods. The increasing awareness of safe food and health care especially in urban communities is hiking the demand and willingness to purchase at higher costs. This improved price also provides opportunity to the labour there by providing their livelihood (Kumar *et al*., 2023b). Fair trade alliance Kerala, an approach in Kerala for reaching the global markets is blessing the farmers with 20-50 % more price without involvement of middlemen (Karunakaran and Sadiq, 2019).

Effect of organic farming on soil properties:

1. Soil health: Soil health is the cornerstone of any farming system especially organic farming. A healthy soil supports infinite beneficial life forms from microbes to plants and animals. Soil consisting of interacting microorganisms, fungi and plants plays a crucial role in maintaining the soil food web facilitating nutrient recycling, disease suppression and plant resilience.

2. Structure and Composition: Amendments that are used in organic farming enhance soil to have a better physical structure that aids in better root growth and penetration, water infiltration, nutrient availability and also provides ease for carrying out cultural operation. Composition of nutrients, organic matter content, microbial content can also be maintained which usually are being affected in current agriculture scenario making the soil lifeless.

3. Soil fertility: Fertility refers to the innate ability of the soil to support plant life for better production. Microbes like bacteria, fungi, actinomycetes, algae, protozoa are part of soil ecosystem majorly involving in improving the productivity of soil. Small sized animals like parasitic nematodes, earthworms, many soil dwelling beneficial insects also share greater part of soil ecosystem. Heavy and continuous usage of chemical additives either it be fertilizers or pesticides, leads to loss of this soil flora and fauna. Organic farming since avoid usage of chemicals completely keeps micro biota safe and productive for the plants to sustain (Magdoff and Van Es, 2000). Cover crops has pivotal role in preventing soil erosion, moisture conservation, reducing weed growth and enhancing organic matter. Green manure crops improve soil structure along with soil nutritional status (Clark, 2008). It was unavoidable that yield during initial years of organic farming will be l10-25% less than the conventional farming but it was evident that yield gap was reduced with more years into organic farming and showcases higher nutrient use efficiency (Schrama *et al*., 2018).

Table 1: Measures in Organic Farming (Rempelos *et al*., 2021).

Management practice	Restricted measure	Permitted measures
Weed management	Synthetic chemicals (herbicides)	Tolerant varieties, mechanical weeding and mulching,
Pest management	Insecticides, Acaricides, genetically modified crops	Tolerant/ Resistant varieties Biological control agents, Entomopathogenic fungi, Botanicals, pyrethrum, Spinosad (microbial based)
Disease management	Fungicides, soil drenching chemicals	Necrotrophic mycoparasites (fungi that kills pathogenic fungi), Copper and Sulphur based fungicides
Nutrient management	Fertilizers like mineral Nitrogen, Potassium chloride (KCl), Phosphate fertilizers, Sulphate fertilizers	Crop rotation, manures, compost, Soil enriching microbes such as Azolla, Azospirillum, Symbiotic fungi like Mycorrhiza

Certification in organic farming:

Certification is a procedure which involves scrutiny of the organically produced food from seed to fruits and vegetables, poultry to meat and every edible item. Certification of seed generally is a double certification procedure as it is scrutinized once by seed certification team and again by organic certification team. International accreditation of organic foods is given by The International Organic Guarantee System-IFOAM where at national level it is being done by NATIONAL PROGRAM FOR ORGANIC PRODUCTION (NPOP), INDIA. International accreditation for organic products is currently given only by IFOAM making it the apex trademark for certification (Kumar *et al*., 2023a). National Program for Organic Production (NPOP): The responsibility of managing National Program for Organic Production was given to APEDA by Ministry of Commerce and Industries of India. European Commission, USDA and Swiss Commission accepted NPOP as equivalent to their accreditation bodies. Along with this APEDA is in negotiations with countries like South Korea, Japan, Canada, Taiwan for bilateral equivalent agreements (Kumar *et al*., 2023a).

Methods of certification

1. Participatory Guarantee System (PGS): It is most suitable certification for small farmers at domestic market with simple supply chain. Certification of producers is done through stake holders participation.
2. Third party certification: Third party certification as the name indicates involves accredited organic certification agencies under NPOP where APEDA acts as secretariat and also accreditation body (Kumar *et al*., 2023a).

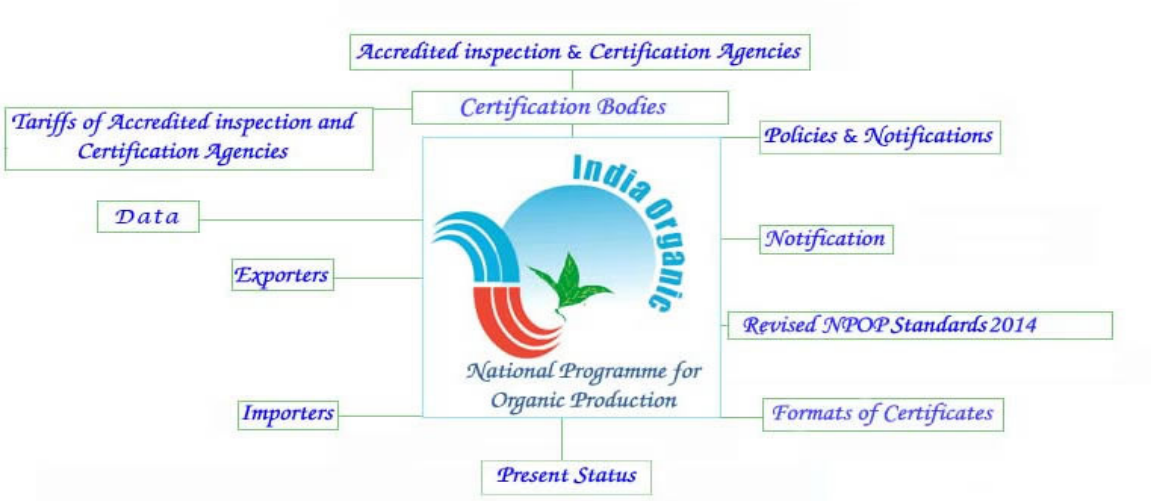

Fig. 2: Organic Certification System in India (http://apeda.gov.in/)

Steps involved in Organic certification (Nagendra, 2020)

1. Submission of Application form
2. Review and registration of Application by the board
3. Inspection and verification of field and submitted documents
4. Sample collection by certification agency/ board when needed
5. Grant of certificate to the eligible farmers by board

Benefits of Certification (USDA):

1. Availing of premium price for the produce
2. Access to national and international markets
3. Availability of technical assistance
4. Improve local and national economy
5. Assurance to consumers regarding quality of produce

Challenges in Certification: (Anonymous, 2023)

1. High cost of certification process
2. Uneven supply chain making marketing difficult
3. Compulsory transition period of three year owing to low income during initial years

Common challenges faced during organic food production:

1. Yield and productivity: As chemicals that give instant results cannot be used in organic farming, yield in the initial years will be much less when compared to the conventional farming.

2. Disease and pest management: Due to limited or no use of chemical pesticides, pest and disease management is a great task in organic farming.
3. Weed management: Management of weeds is a tedious process as herbicides are completely avoided.
4. Climate factors: Extreme weather conditions or sudden pest outbreaks cannot be managed with resources available in organic farming.
5. Nutrient supply: Balancing the nutrient availability and uptake by the plants will be a challenging operation as the organic amendments won't have nutrients in their readily available form.
6. Input requirement: Procurement of huge amounts of inputs such as compost, green leaf manure, vermi-compost etc is difficult. Preparation of many concoctions for pest and disease management is difficult as it demands relatively more amount of inputs than normal chemical treatments.
7. Certification: Certification procedures are difficult for farmers to understand and to follow for small scale farmers.
8. Marketing: Marketing the product is a task as market channels are very few even in urban areas and most of the agricultural crops/ farm produce is perishable.
9. Knowledge and understanding: Awareness, understanding the value of organic product and economic feasibility of the consumers is also a hindrance.
10. Cost: High cost of organic products due to less production is restricting their reach to greater community of India (Logesh *et al*., 2023).

Recommended solutions:
1. Advancement in Research: Development of tolerant/ resistant varieties to various weather parameters and high yielding varieties suitable to organic farming has to be done. Inputs to substitute chemical has to be studied and developed.
2. Climate resilience: Development of cultivation practices that can be suitable to changing environment has to be taken up regarding water conservation, efficient land use, pest management etc.
3. Integrated pest management: Combination of cultural, mechanical, physical, biological management practices from the beginning of the crop season can tackle pest. Resistant/ Tolerant varieties have to be developed.
4. Market access: Apart from urban population, many of the people don't have proper facilitation of organic/ farmers markets. Initiatives like establishment of farmer markets and support centers have to be established to connect farmers with consumers directly.
5. Financial aid: Initial establishment of organic farm for a farmer is a investment procedure as requires financial support. Government should provide schemes that can help farmers directly in fulfilling their technical purposes in field.
6. Extension: Training to the farmers should be provided in various aspects of organic farming to improve their skill. Field demonstrations and on field trials have greater impact.
7. Certification procedures: Since many farmers don't know these high-end certification procedures, establishment of help centers to guide farmers in certification can help them to get fruitful results.
8. Policies: Government policies should focus on reaching small and marginal farmers as much of Indian farming consists of small farmers. Providing subsidies, reducing taxes on inputs and charges has to be provided.
9. Cooperative and Institutional collaborations: Farmers should be tied up with research stations, universities, industries to facilitate easy access of resources and marketing the produce. (Mazurek-Kusiak *et al*., 2021).

Schemes for Organic farming in India:
ParamparagatKrishi Vikas Yojana (PKVY): It was launched in 2015 by Central Government of India wherein 100 per cent share is provided by Central government (in Union territories) and Central and State government share the fund in the ratio of 90:10 (in North eastern and Hilly states) & 60:40 (in all other states). It I implemented by state government in cluster basis of 20 hectares. Farmers are provided with financial assistance upto 1 hectare. Main target is to form 10,000 clusters with 2 lakh hectares of organic land in a conversion period of 3 years.
Mission Organic Value Chain Development for North-Eastern Regions (MOVCDNER): Ministry of Agriculture and Farmers Welfare, Government of India has launched this this scheme during 2015-16 to 2017-18 to support north-eastern states of India that includes Sikkim, Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Meghlaya and Tripura. It aims in developing supply chain and market access of organic products for facilitating bonding between consumers and growers. Improvising the facilities for certification, procurement, processing, marketing, branding are the aspects of development. (Source: Lok Sabha Unstarred Question No. 346 dated 18.07.2017).

Conclusion

For a healthier and sustainable future, organic farming is the best possible way of farming. With increasing demand for healthier food and health

prospects, environmental safety this provides with suitable solutions. Though constraints of production for global population is concerning as the yield is less in organic farming as compared to conventional farming, with developing technological world it can be made possible. Huge requirement of resources and process involved in certification and marketing are the main hurdles to be tackled. In many western countries since farming is done in large scale where huge hectares are owned by individual famers, adoption of this process can be a easy process when compared to India as we have major share of small and marginal farmers. Policies, subsidies on inputs, ease of certification have to be provided to farmers for better adoption of organic farming at national level. Natural farming is an agricultural revolution that will not only improve crop yields at minimum costs but will also help to increase farmers' incomes. With the pace at which soil degradation is happening globally, only 30 years of the harvest will remain for consumption. In order to save the world from a food crisis in the future, natural farming is considered to be an ideal solution. It is believed that the Government of India's long-term vision on sustainable agriculture with doubling the farmers' income could be achieved through the natural farming practice. Also, it is viewed that it is the right time to bring about this transition from chemical farming to natural farming by creation of vast awareness among the farming community through several schemes and capacity building programmes.

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