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International Journal of Engineering Technology Research & Management
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ORGANIC FARMING

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ABSTRACT
Cultivation without synthetic pesticides, artificial fertilizers, growth hormones, antibiotics, or genetically modified organisms is known as organic farming. Growing worries about food availability, human health, and environmental degradation have drawn a lot of attention to organic agriculture on a global scale. This chapter looks at current developments, innovations, and trends in organic farming, offering insights into how the industry is evolving. Food cultures are also promoted by organic agriculture's revival of traditional varieties and reintroduction of traditional foods into the farming community's diets. Organic farming methods, which prioritize the use of natural inputs and ecological balance, are a sustainable alternative to conventional farming.

Keywords:
Advancements, Conventional farming, Growth hormone, Organic farming, Recent, Trends

INTRODUCTION:

Organic farming is not merely a set of agricultural practices; it is a profound philosophy that seeks to redefine humanity's relationship with the land. The most fundamental human activity is organic farming, which includes both crop production and animal domestication. Lord Northbound in 1940 coined the term "organic farming". The beginnings of the organic movement can be traced back to the beginning of the 1800s. In 1840 Justus Von Liebig developed a theory of mineral plant nutrition and with the help of this theory we easily understand the plant nutrition value and in which growing stage a plant needs which nutrient. Liebig believed that manure could be directly substituted by certain mineral salts. Benefits from organic farming might involve better food quality, conservation of non-renewable resources, and environmental protection (Charyulu *et al.*, 2017).

In organic farming, the soil is not just a substrate for plant growth; it is a living, dynamic entity. In addition to improving crop productivity, practices like composting, cover crops, and low tillage are used to improve soil health and create a symbiotic relationship between the land and the crops it supports. Increasing the productivity of the area under cultivation, lowering prices, and producing more efficient supplies with little to no harm to the environment and human population should be the main goals of agricultural development policies in emerging nations. Organic farming is getting more and more popular in a society where health issues and environmental issues are becoming more pressing. Organically grown food and food products are believed to meet these demands (Rembialkowska, 2007).

It is currently agriculture's essential future, organic farming, also referred to as biodynamic agriculture or ecological agriculture, is in balance with the natural world; that is, the methods used in organic farming have no negative impact on the environment as well as living beings. Since organic farming is more environmentally friendly than chemical-based farming, it is regarded as a good substitute in situations where the overuse of chemical-based fertilizers and pesticides has sparked worries about health risks and ecotoxicity. India comes under the ranks first in number of organic farmers and ninth in terms of area under organic farming. The total area under organic certification process (registered under National Programmed for Organic Production) is 3.67 million Hectare (2019-20). Among all the states, Madhya Pradesh has covered the largest area under organic certification followed by Rajasthan and Maharashtra. In 2016, Sikkim became the first State in the world to become fully organic and other States including Tripura and Uttarakhand have set similar targets. For the transformation of rural agriculture into a

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well-sustainable agriculture, organic farming might become a panacea that can build a plinth for sustainable agriculture reimburse conversion costs, and maintain the sustainability of soil. Yadava, (2019).

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Food production was necessary for human beings to live long and safe lives. It is clear from where this argument led to the importance of agriculture. An important amount of the household economy globally is derived from agriculture. People depend on agriculture to feed their families, earn a living, and start a business, no matter how small (Dorosh and Thurlow, 2018: Abhilash et al., 2021). In affluent countries, agriculture is a less popular source of income, but agriculture benefits everyone in the world, regardless of direct or indirect. As a result of the growing need for organic agricultural products on a global basis, a variety of job opportunities have arisen. (Mathlouthi *et al*., 2022).

The nitrogen use efficiency of cereal crops for the world, United States, China, and India in 2015 was estimated at 35%, 41%, 30%, and 21%, respectively, implying that 65% of all applied nitrogen was lost through leaching or emission within the soil system (Omara et al., 2019). This shift requires changes in farming methods, including limiting synthetic fertilizers and pesticides, increasing organic inputs, and understanding biological processes. The use of chemicals in agriculture has also had severe effects on the environment and human health. Over 98% of sprayed insecticides and 95% of herbicides have impacts on non-target species, air, water, and soil (Maksymiv, 2015). Farmers need training and awareness of current trends, with production methods influenced by local factors and crop rotation for nutrition.

REVIEW OF LITERATURE:

Mr. M. Elayaraja and Dr. C. Vijai, **(2020)** an investigation conducted there is growing awareness of the health advantages of the food that people eat, including their family members. As a result, items produced by organic farming have a degree. In the past, individuals would spend money on organic products, heartbeats, and high-quality local veggies. This resulted in a long lifespan and a stable manner of living. An overview of the advantages, difficulties, and current state of organic farming in India is given in this study.

Krishnaprabu S., (2019) in his study considers that there is scanty information on organic technology for all crops. Systematic research on development of suitable varieties/hybrids, plant nutrition and IPM techniques may lead to the increasing demand of organic produce both in retail marketing and export. The authors conclude that the farmers need to be organized in a group/ association for crop cultivation such as, Organic Farming Association of India, Institute of Natural Organic Agriculture.

Jayasree Das and Deepro Bhattacharyya (2018) in their study explored the challenges faced by organic farming in Sikkim and to cite causes and remedies of such challenges. The author concludes that organic farming is the only viable alternative that has presented itself. Sikkim's story is highlighted in this context because it has the guts to be the only state in the nation to grow all of its crops organically.

Area under Organic farming: The total area under organic farming in India is presented in table 1**.** It is evident from table 1, the total area under organic agriculture in India in 2020-21 is 43, 39, and 184.93 hectares. Among them 61.25 per cent of land is under organic agriculture in conversion. The area under wild harvest collection is 38.75 per cent.

Table No.1: Organic Certification Data under NPOP 2023-24

Cultivated Area (Organic)	17,11,107.27 Ha
Cultivated Area (In conversion)	27,64,729.64 Ha
Wild Harvest Collection Area	28,50,156.48 Ha

Source: Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Government of India.

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Table no. 2: Organic Certification production data 2023-24

Farm Production (Organic)	32,28,233.03 MT
Farm Production (In conversion)	3,22,248.24 MT
Wild Harvest Production	23,740.60 MT

Source: Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Government of India.

Table no. 3: Organic Export data 2023-24

Total Export Quantity	**2,61,029 MT**
Total Export value (INR)	**4007.91 Crore**
Total Export Value (US$)	**494.80 million USD**

Source: Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Government of India.

Table No.4: State Wise Cultivated Area under Organic Certification during 2023-24

S. NO.	State Name	Organic Area (In Ha)	Conversion Area(In Ha)	Total Area (In Ha)
1	Madhya Pradesh	6,12,816.04	5,35,420.03	11,48,236.07
2	Maharashtra	2,67,229.29	7,33,851.03	10,01,080.32
3	Rajasthan	2,15,299.44	3,64,792.79	5,80,092.22
4	Gujarat	92,333.51	5,88,486.48	6,80,819.99
5	Odisha	77,696.34	1,03,325.94	1,81,022.28
6	Sikkim	75,472.85	256.93	75,729.78
7	Uttar Pradesh	52,888.78	13,502.55	66,391.34
8	Uttarakhand	51,628.19	50,192.21	1,01,820.39
9	Kerala	36,208.78	8,055.13	44,263.91
10	Karnataka	30,612.23	40,473.76	71,085.99
11	Andhra Pradesh	25,876.73	37,801.96	63,678.69
12	Jammu & Kashmir	24,963.10	9,783.64	34,746.75

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13	Meghalaya	20,111.78	9,591.53	29,703.30
14	Bihar	19,086.93	9,975.19	29,062.13
15	Tamil Nadu	18,099.17	24,659.11	42,758.27
16	Assam	15,433.92	11,645.48	27,079.40
17	Chhattisgarh	11,289.44	3,854.69	15,144.13
18	Goa	11,180.12	1,107.28	12,287.40
19	Himachal Pradesh	8,181.83	1,152.46	9,334.28
20	Manipur	7,172.00	25,412.50	32,584.50
21	West Bengal	7,011.49	1,106.32	8,117.80
22	Tripura	5,884.31	14,597.06	20,481.36
23	Arunachal Pradesh	5,841.22	10,696.31	16,537.53
24	Telangana	5,399.72	79,465.44	84,865.16
25	Jharkhand	3,523.82	50,884.38	54,408.20
26	Nagaland	3,340.15	12,881.41	16,221.56
27	Mizoram	3,230.30	11,008.00	14,238.30
28	Haryana	2,260.07	665.27	2,925.33
29	Punjab	1,009.40	10,080.01	11,089.41
30	Pondicherry	21.17	0.34	21.51
31	New Delhi	5.17	4.44	9.60
Total:		17,11,107.27	27,64,729.64	44,75,836.90

Source: Information provided by the certification bodies accredited under NPOP on Tracenet

Principles of organic farming: Organic farming system is a method of farming system which primarily aimed at sustainable agricultural production in an eco-friendly pollution free environment and being followed from ancient time in India. Organic Production system, keep the environment and ecology alive and in good health by use of natural resources to harness desired agricultural production for human consumption. In Organic production, environment focus is on using naturally available resources as inputs, such as organic wastes (crop, animal and farm

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wastes, aquatic wastes) and other biological materials along with beneficial microbes (biofertilizers/ bio control agents) to release nutrients to crops and protect them from insect pest and diseases for increased agricultural production. The four principles of organic farming are as follows:

Principle of health: Health is the wholeness and integrity of living systems i.e. maintenance of physical, mental, social and ecological well-being. Organic Farming should sustain and improve the quality of the health of soils, plants, animals and humans. This principle points out that, healthy soil produces healthy crops that nurture the health of animals and people. In particular, organic farming is required to produce high quality, nutritious food that enhances health and well-being. To achieve this, organic farming should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

Principle of ecology: Organic farming should be based on the ecological system and cycles, working with them in a sustained manner, i.e. organic farming should root up with ecological systems within a specific production environment. For example, crops with living soil; animals in its farm ecosystem; fish and marine organisms with the aquatic environment, etc. Organic farming has to attain ecological balance through a well-designed farming system, by the establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the environment including landscapes, climate, habitats, biodiversity, air and water.

Principle of fairness: Fairness is nothing but equity, respect, justice and supervising of the common world, both among people and their relationship with other living beings. Similarly, organic farming should ensure fairness with the environment, life and all level of practices. It should also contribute food sovereignty, reduce poverty and also reduce social cost.

Principle of care: To preserve the health and welfare of the current and future generations as well as the environment, organic farming should be carried out responsibly and with prudence. By using the right technology and avoiding unreliable ones like genetic engineering, organic farming should be able to avoid major hazards. Decisions should be made through open, participatory processes that take into account the needs and values of everyone who may be impacted.

Table No.5: Organic and conventional agriculture are two different farming systems.

Organic Farming	Conventional Farming
Decentralization of resources	Centralization on limited sources
Independence from monitory inputs	Dependence on monitory inputs
Community participation and healthy competition	Competition only for maximum production by individuals
Harmony with nature for sustainable production	Dominance on nature for maximum output
Ecological diversity	Monopoly with limited crops
Restraint and tolerance	Exploitation and exertion

Table No.6: COMPONENT WISE DIFFERENCES

Component	Organic Farming	Conventional Farming
Land exhaustion	Use of natural resources to improve soil health.	Dependence on synthetic chemicals for primary nutrients.

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Fertilisers	Only fertilizers obtained through plant based or biological sources are used	Synthetic chemicals used
Nutrient quality	Healthy and nutritive production	Significant loss of nutrient quality in produce.
Impact on soil	Healthy soil with sustainable production potential	Ignorant about soil health
Impact on the environ ment	Harmony with ecology	Toxic effect on ecology.
Health safety	Production system is healthy for every component of ecology.	Detrimental to health, even for primary consumer.
Farming methods	Mix farming	Focused on crop production .
Lifestyle change for farmers	Towards sustainability…	Short-sighted approach…

Organic Farming in India

Dr. M.S. Swaminathan is credited with creating the "Green Revolution," however its benefits have now plateaued, and with diminishing returns, it is now necessary to develop alternative methods. In India, he is widely regarded as the founder of the Green Revolution. Expanding agricultural production and its steady, practical stabilization have become necessary due to a growing population in contrast to a declining amount of food and water. Furthermore, the overuse of artificial growth regulators and fertilizers has resulted in a problem known as "pollution." Survival depends on a natural balance between property and life. Organic and sustainable farming practices have grown in popularity as fossil fuels are non-renewable and facing extinction.

India produced 2.75 million MT of certified organic goods in 2019-20, including food items like oil seeds, sugar cane, cereals, millet, cotton, pulses, aromatic and medicinal plants, tea, coffee, fruits, spices, dry fruits, vegetables, processed meals, and more. The manufacturing process includes functional food items and organic cotton fiber. The total volume of export during 2019-20 was 6.389 lakh MT, with an export realization of around INR 4,686 crore (689 million USD). Countries that import organic products include the United States, the European Union, Canada, Switzerland, Australia, Japan, Israel, the United Arab Emirates, New Zealand, and Vietnam.

Types of Organic Farming

- **Pure organic farming:** In addition to using sustainable farming methods, organic farming has become one of the greatest options for both farmers and consumers. It is becoming more and more well-liked because of its health and nutritional advantages. It entails avoiding all inorganic chemicals and pesticides and using only organic manures and biopesticides (Kankam *et al*., 2020).
- **Integrated Organic Farming Systems:** An integrated strategy to pest and nutrient management is used in integrated organic farming systems to satisfy both financial and environmental requirements. There is very little to no technology needed for the labour of pure organic farmers. This is not the same as integrated organic farming practices, which use every technology available to increase the amount of organic produce

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produced while making people's lives easier. They still do not, however, include appreciable amounts of chemicals, fertilisers, pesticides, or other similar materials. while following organic guidelines.

- **Policies and programs for organic farming:** In an effort to encourage organic farming, the government has put in place a number of laws and programs that have benefited the economy.

1. **Organic villages were adopted under the Paramparagat Krishi Vikas Yojana (PKVY):** An organic farming strategy that was introduced in 2015. The most important NMSA initiative is soil health management, which is the focus of the PKVY plan. In hilly or rainy regions, less chemical fertiliser should be used. Additionally, organic producers receive subsidies.
2. **Rashtriya Krishi Vikas Yojana:** This program encourages the use of organic farming practices in the states. Districts develop agricultural strategies to give organic producers a maximum return on investment. The organic policy focuses on improving the health of the people, especially the marginalized sector.
3. **The North Eastern Region's Mission Organic Value Chain Development (MOVCDNER):** To promote organic farming in the northeastern states of Assam, Tripura, Meghalaya, Nagaland, Arunachal Pradesh, Manipur, and Sikkim, the ministry introduced the organic agricultural policy. Making ensuring the market has a dynamic value chain is the main goal. The plan includes plans how to store organic items and create market link tactics.
4. **Natural Farming on a Zero Budget:** By eschewing synthetic fertilisers, the method takes its cues from ancient Indian farming methods. The organic farming industry's economy depends on this policy.
5. **Agri-Export Policy:** The policy was launched in 2018, which is responsible for promoting organic farming and creating an impact on the market. This deals with the economic planning of organic farming.
6. **National Project on Organic farming (NPOF):** The project focuses on improving the organic production units, biopesticides, biofertilizers thereby reducing the dependency on chemical fertilizers. The scheme also provides certification programs and encourages organic farming. The scheme has the recognition of Switzerland and the European Union.

7. Standards for Organic Foods: Any organic food manufactured, sold and marketed is regulated as per the provisions of Food Safety and Standards (Organic Food) Regulations, 2017.

BENEFITS OF ORGANIC FARMING

1. **Better Taste and Nutrition:** Crops that are organically boast have a much better taste than other chemically used farmed ones. This is because they are given a much longer time to develop and are not pumped with artificial things. The sugar structures in these crops have more time to mature and develop into a tasty and nutritious product. The nutrient-rich organic soil and natural cultivation methods of crop contribute to the superior nutritional profile of organic produce, offering you a more healthful option.
2. **Reduces pesticide and chemical residue in soil:** By using less chemicals and pesticides, organic farming lessens the main environmental problems. The impact of organic farming on natural resources promotes interactions between the agro-ecosystem and environmental elements. Predation, pollination, carbon sequestration, nutrient cycling, waste recycling, soil stabilisation, soil health and conditioning, and flora and fauna are all guaranteed. also lessens the main environmental problems, such as water pollution, air pollution, and soil erosion.
3. **Conservation and Promotion of Biodiversity:** Organic farming contributes significantly to biodiversity promotion and environmental conservation. By removing harmful chemicals, organic farming reduces environmental pollution, preserves water quality, and minimises soil erosion. Additionally, organic agricultural practices enhance animal welfare, improve the nutritional value of food, and strengthen the national and regional economies. Since organic farming protects the planet's long-term health and the welfare of future generations, it is crucial for a sustainable future. Increasing soil fertility through crop rotation and fostering biodiversity through natural animal husbandry both contribute to improved health for all species. The beneficial species of the area, such the local flora and animals, are preserved and repopulated with the help of the absence of artificial pesticides and insecticides. In recent years, there has

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been a notable growth in the amount of studies on organic farming and biodiversity. More biodiversity is conserved and produced by organic farming than by other farming systems.

4. **Consumes Less Energy:** Unlike traditional farming methods that heavily rely on synthetic pesticides and mineral fertilisers, organic farming does not rely on these external agents. Steering clear of fertilisers advances the larger goal of energy saving. This is due to the substantial energy consumption involved in the production of synthetic fertilisers. It's reasonable to assume that organic agricultural systems use at least 30–50% less energy on average. Organic farms usually need more passes for certain plant protection methods, physically control weeds, or cultivate the soil more thoroughly than conventional farms. A survey conducted by the British Department for Environment, Food, and Rural Affairs found that compared to conventional farming, organic dairy farming and crops use 74% and 35% less energy, respectively.
5. **Long-term sustainability:** In organic farming, biodiversity and long-term sustainability are given top priority. On the other hand, conventional farming employs modern farming techniques that usually involve the use of synthetic fertilisers, pesticides, and genetically modified seeds. Organic farming is a long-term, sustainable way to produce food. One strategy to achieve the goals of sustainable agricultural development is organic farming. It often follows the sustainable farming concept and stays away from the use of artificial chemicals and genetically modified organisms. The various stakeholders who support organic farming must adopt a comprehensive strategy that emphasises soil and organic matter revitalisation, farmer capacity building, the provision of effective organic inputs, thorough certification standards, marketing, branding, consumer awareness, and farmer integration into the market-led value chain.
6. **Erosion Prevention and Water Management:** Higher levels of organic matter and well-structured soils are better at retaining water. This is particularly crucial in regions with erratic precipitation patterns and water scarcity. Two organic farming practices that assist crops retain more water and reducing their risk of drought stress are cover crops and little tillage. The sustainability of agriculture is seriously threatened by soil erosion. Erosion is less likely to occur in healthy soils with a strong structure and lots of ground cover. Cover crops and agroforestry are two techniques used by organic farmers to prevent soil erosion and preserve the fertility of the topsoil.
7. **Familiarity with the techniques:** Crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mineral-bearing rocks, and biological pest control are all used in organic farming systems to maintain soil productivity, supply plant nutrients, and manage weeds, insects, and other pests. Going back to the days before mechanization took over is what organic farming is all about. Farmers are therefore able to easily understand and adapt to organic agricultural practices that make use of traditional knowledge. In general, a farmer's ability to effectively use the natural resources at his disposal determines the agricultural practices he uses.

CHALLENGES IN ORGANIC FARMING

1. **Shortage of Biomass:** Crop wastes are mostly used as feed and fuel. Compared to artificial fertilizers, organic manures are more difficult for small and marginal growers to get. Many experts and experienced farmers are uncertain whether organic materials can supply all the nutrients in the required quantities. Even if this problem is remedied, they feel that the amount of organic matter that is currently available is not enough to meet the needs.
2. **Disparity of Supply and Demand:** Despite this, the market for organic food is now growing quickly. While non-perishable grains can be transported to any location, fruits and vegetables cannot be grown anyplace. There should be willing farmers, aggregators, and companies in the area where the demand is coming from, and it should be produced locally. However, the need for organic products is usually seen in urban areas that lack farmlands. The solutions to this disparity lie in intelligent transportation and dedicated supply channels.
3. **Time:** For example, organic farming requires greater interaction between the farmer and his crop in order to monitor, act quickly, and control weeds. A single farmer may naturally produce more crops using

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industrial methods than using exclusively organic ones because it takes more work than chemical or mechanical agriculture.

4. **High MRP:** Realising how much attention to detail organic farming demands, it is obvious that the results would be kept at a premium cost. These organic fruits and vegetables occupy most of the space once they are sold to the market. The majority of people behave in this way to promote organic products as a result. The market-sold goods cost half as much as non-organic ones. Therefore, we can draw the conclusion that organic products are expensive and that not all consumers are willing to pay for them.
5. **Lack of special infrastructure:** However, most large organic farms engage in industrialized agriculture, which involves the industrial movement of food from the field to the plate. Unfortunately, this means using the same harmful environmental methods as factory farms under the pretense of organic farming.

CONCLUSION

There has been a notable rise in the area under certified organic cultivation in recent years. Changes in demographics and technological advancements are causing innovations in agriculture. Organic farming is an intricate technique created by practitioners themselves over time. India is where organic farming first appeared. These emerging technologies must be used wisely due to the growing demands of modern agriculture. Vertical farming and organic farming can be used as viable alternatives to conventional agriculture to meet the changing needs and desires of humanity.

Way Forward: The demand for organic products has been rising rapidly due to increasing health consciousness and environmental concerns.

- A strategic focus is necessary to capitalise on the nation's potential. First and foremost, improving the effectiveness and financial viability of organic farming requires more research and development on methods of farming as well as improved knowledge dissemination in order to solve the issue of low production under organic farming.
- Technology integration may be crucial to the nation's organic farming industry's future. Moreover, research and development expenditures are essential to make organic farming more effective and appealing to a new generation of farmers. Precision farming methods, IT-based monitoring systems, and data analytics can maximise resource utilisation, give farmers real-time information, and increase crop yield.
- The creation of resilient crop types, the investigation of novel organic pest management strategies, and the application of creative measures to improve soil health will help ensure the long-term viability of organic farming.
- Improving current programs, offering monetary rewards, and resolving farmers' issues will foster an atmosphere encouraging the broad use of organic farming methods.

REFERENCES:

Abhilash, P. C., Bastianoni, S., Chen, W., DeFries, R., Fraceto, L. F., Fuckar, N. S., and Turner, B. L. (2021). Introducing 'Anthropocene Science': a new international journal for addressing human impact on the resilience of planet Earth. *Anthropocene Science*, *1*(1), 1-4.

Avery, A. (2007). Going organic crops & soils. *Amer Soc Agron.*40(1):8–12.

Charyulu, D. K., and Dwivedi, A. K. (2016), Economics of Organic Farming Vis- 'Vis Conventional Farming in India. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2859912.

Dorosh, P., and Thurlow, J. (2018). Beyond agriculture versus non-agriculture: decomposing sectoral growth–poverty linkages in five African countries. *World Development*, *109*, 440-451.

Elayaraja, M. M., Vijai, C. (2020). Organic farming in India: Benefits and Challenges. European Journal of Molecular & Clinical Medicine ISSN.7(11):2515-8260.

Elayaraja, M., Vijai, C. (2020). Organic farming in India: Benefits and Challenges. *European Journal of Molecular & Clinical Medicine.*7 (11);3021-3029.

iJETRM
International Journal of Engineering Technology Research & Management
Published By:
https://www.ijetrm.com/

FAO, (1998). Evaluating the potential contribution of organic agriculture to sustainability goals. Environment and Natural Resources Service. Sustainable Development Department. FAO's technical contribution to IFOAM's Scientific Conference, Argentina.pp 231-234.

FAO, Organic agriculture: what is organic agriculture? https:// www.fao.org/organicag/oa-faq/oa-faq1/en/ (accessed on 28 June 2024).

FAO/WHO Codex Alimentarius Commission, (1999) Organic Agriculture, Food and Agriculture Organization of the United Nations, Rome.

Garg, A. Balodi, R. (2014). Recent trends in agriculture: vertical farming and organic farming. *Adv Plants Agric Res*.1(4):142–144.

Gosling, P. (2005). Shepherd M. Long-term changes in soil fertility in organic arable farming systems in England, with particular reference to phosphorus and potassium. *Agriculture, ecosystems and environment*.105(1-2):425–432.

Gosling, P. Hodge, A., and Goodlass, G. (2006). Arbuscular mycorrhizal fungi and organic farming. *Agriculture, ecosystems and environment*.113(1-4): 17-35.

IFOAM, (1998). Basic Standards for organic production and processing. Germany: IFOAM Tholey-Theley.

India PIB, Bhartiya Prakritik Krishi Padhati, 2021; https:// pib.gov.in/PressReleasePage.aspx?PRID=1737751.

Jayasree Das and Deepro Bhattacharyya. (2018).“An Enquiry into the Challenges of Organic Farming in Sikkim”. Business Studies39: 1-2.

Krishnaprabu S., (2019). Organic farming in India: Concept, applications andPerspectives. International Conference on Physics and Photonics Processes in Nano Sciences. 7(1):130-137.

Lampkin, N. (2002). Organic Farming. Old Pond, Ipswich, England;

Maksymiv, I., (2015). Pesticides: benefits and hazards. J. Vasyl Stefanyk Precarpathian Nat. Univ. 2 (1), 70–76.

Mathlouthi, F., Ruggeri, R., and Rossini, F. (2022). Alternative solution to synthetic fertilizers for the starter fertilization of bread wheat under mediterranean climatic conditions. *Agronomy*, *12*(2), 511.

NITI Aayog, Natural Farming: NITI Aayog initiative, 2020; https://www.niti.gov.in/natural-farming-niti-initiative (accessed on 15 June 2023).

Omara, P., Aula, L., Oyebiyi, F., Raun, W.R. (2019). World cereal nitrogen use efficiency trends: review and current knowledge. *Agrosys. Geosci. Environ*. 2 (1), 1–8.

Reference 1. https://findanyanswer.com/what-are-the-types-of-organic-farming

Rembialkowska, E. (2007). Quality of plant products from organic agriculture. Journal Science of Food and Agriculture, 87: 2757–2762.

Reports

Stockdale, E. A., Lampkin, N.H. and Hovi, M. (2001). Agronomic and environmental implications of organic farming systems. *Adv Agron.*;70:261–327.

Willer, H., and Lernoud, J. (2014). The world of organic agriculture. Statistics and emerging trends in. 15th ed. Switzerland; p. 25-32.

World of Organic Agriculture 2018 report.

Yadava, A. K. (2019). Current Status of Organic Farming and Role of Government Institutions in India. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3431720.

http://grolink.se/resources/oa/benefits-of-organic-farming/

http://www.akmindia.in/organic-farming-pros-cons/

https://academic.oup.com/fqs/article/4/2/69/5861338

https://findanyanswer.com/what-are-the-types-of-organic-farming

https://pib.gov.in/Pressreleaseshare.aspx?PRID=1656146

REPORTS

1. ASSOCHAM report, 2018.
2. IFOAM Annual Report, 2019.
3. World of Organic Agriculture 2018 report.