

SUSTENANCE OF ORGANIC FARMING IN INDIA

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Abstract- Double digit growth has been the prime goal of all economies in this world and it can only be enabled by a country's development in three sectors such as – industrial, service and agriculture. Since independence India has successfully managed to increase its Gross domestic product (GDP) from industrial and service sectors. However, agriculture sector proved to be a difficult niche. Against this background, Green revolution was introduced in 1960s. It was an ambitious attempt to convert the existing agriculture system into a modern industrial system with usage of mechanized farming, better irrigation facilities, hybrid seeds, pesticides and fertilizers. In spite of all these efforts there was neither an increase in GDP nor decrease in the labor force that are dependent on agriculture. This brings forth the quest to find better alternatives to fight the crisis of reduced productivity (due to increased salinity of soil) and disguised unemployment. Organic farming seems to be the most plausible answer to the current crisis. This study aims to determine the feasibility and sustenance of organic farming in India. It also gains much more significance in view of underdevelopment of India due to the prolonged socio-economic negligence and unique topography. Worldwide research has shown that organic farming needs continuous monitoring and constant evaluation of farm practices for increasing the output. The development of organic farming is also subject to availability of organic inputs, marketing of organic products, institutional guidance. The education and income of the population also plays a vital role in increasing the prevalence of organic farming. An effort has been made to understand the share and value of organic products across different countries in the world. The market potential for organic products in India is assessed and its urgent need to tap potential further is high lightened, simultaneously an attempt is made to reduce the inputs constraints.

Basing on this conceptual framework, Time series data is used to investigate the relationship between growth in organic farming and availability of inputs such as bio-pesticide, bio-fertilizers and market facilities. This data has been obtained from the Agricultural and Processed Food Products Export Development Authority (APEDA), Participatory guarantee system website, International Federation of Organic Agricultural movements, National center on organic farming.

Keywords: Sustenance, Organic farming, Bio fertilizers, Bio pesticides.

ORGANIC AGRICULTURE AT INTERNATIONAL LEVEL

Organic agriculture development began in 1924 with a series of 8 lectures on agriculture given by Rudolf Steiner. Mr. Howard who is called father of organic farming used the term for first time in his book "An Agricultural testament".^{8*}

In 2007, United Nations Food and Agricultural Organization has stressed that organic farming can become a profitable agricultural process as the premium prices of products will be high. ^{9*}

At international level International Federation for Organic Movements is the umbrella organization which keeps worldwide record of the organic agricultural area, different types of organic crops cultivated, organic markets data etc. It is the organization which provides organic accreditation to certification bodies to decide the organic agricultural methods. Since 1990 the market for organic food and other products has grown rapidly, reaching 120 billion euros worldwide in 2020. This demand has driven a similar increase in organically managed farm land as of 2020 approximately 74.9 million Hec worldwide were farmed organically representing approximately 1.6% of total world farm land.

World: Growth of organic agricultural land and organic share 2000 - 2020

Source: FiBL-IFOAM-SOEL surveys 2001-2022

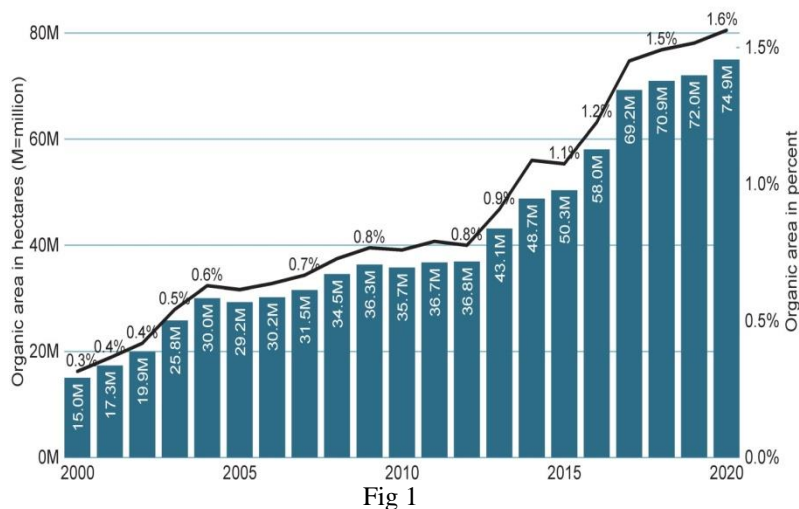


Fig 1 shows that the data on organic agriculture land in 2000-2020 was just 1.5 million hectares which is 0.3% of total agriculture land in world in 2000. This land grew to 74.9 million hectares forming 1.6% of total agriculture land in world. From 2000 to 2004 in a short period the increase was large, 0.3 basis points. The increase in organic land area stagnated from 2009-2013 due to depression in USA. From 2016 the growth increased quickly

- Organic agricultural land reached **74.9 million hectares**
- Area growth: **3.0 million hectares more** than in 2019, **4.1 percent increase**
- Area increase mainly due to **additional 1.7 million hectares in Latin America**
- **1.6 percent** of the agricultural land is **organic**
- In 18 countries 10 percent or more of the farmland is organic
- The total area dedicated to organic agriculture in Asia was more than 6.1 million hectares in 2020.
- The leading countries by area were India (2.7 million hectares) and China (over 2.4 million hectares). 3

Table 1 - Top 5 countries pursuing organic farming in world (Area in million hectares)

Organic farm land in billion	Area in In 2014	Area in 2015	Area in 2016	Area in 2017	Area In 2018	Area In 2019	Area In 2020
AUSTRALIA	22.6	22.10	27.14	35.6	35.69	35.69	35.7
ARGENTINA	3.06	3.07	3.01	3.38	3.63	3.67	4.5
URUGUAY	1.30	1.30	1.65	1.88	2.15	2.14	2.7
INDIA	0.7	1.18	1.49	1.78	1.94	2.30	2.7
FRANCE	1.11	1.32	1.53	1.74	2.04	2.24	2.5

Source-Fibl survey 2020

From table 1 World organics data given by IFOAM, since 2014 till 2019 the organic agriculture land has been increasing for Australia, Argentina, India, Uruguay and France specifying the peoples concern for growing organic products.

Table 2-Highest number of organic producers by country

Country	2016	2017	2018	2019	2020
INDIA	0.835	0.835	1.14	1.366	1.6
UGANDA	0.210	0.210	0.210	0.210	0.1
MEXICO	0.210	0.210	NA	NA	NA
ETHIOPIA	0.203	0.203	0.203	0.203	0.2
PHILLIPPINES	0.166	0.166	NA	NA	NA

Source -Fibl survey 2020

From table 2 -world organics data given by IFOAM, since 2016 till 2020 the organic agriculture producers in world has been increasing. The top 2 countries from 2016 -2020 has been India and Ethiopia, whereas Uganda, Mexico and Philippines could not sustain their posit

Table 3-Global market and consumer demand in billion euros

Year	Billion euros
2016	80
2017	92
2018	97
2019	106
2020	120

Source-Fibl survey2020

Table 3 shows the global market has been increasing from 80 billion euros in 2016 to 120 billion euros in 2020 creating huge opportunities to the organic producers

ORGANIC FARMING IN INDIA

There is a distinct movement in INDIA among the farmers, agriculture experts and scientists in the favour of organic farming. NGOs and private agencies have started advocating organic farming in major crops. As movement in India is increasing, we have to focus on feasibility of expanding organic farming here. The government since 2001 started implementing many programmes for development of organic farming in India. Because of efforts of government the total area under organic farming increased in India as given in below table.

Table 4 organic area in India

Year	Organic area (farmland) [ha]
2000	2775
2001	41000
2002	37050
2003	73500
2004	114037
2005	185937
2006	432259
2007	1030'311.00
2008	1018'469.60
2009	1180'000.00
2010	780000
2011	1084'266.01
2012	500000
2013	510000
2014	720000
2015	1180'000.00
2016	1490'000.00
2017	1780'000.00
2018	1938'220.79
2019	2299'222.37
2020	2657'889.33

Source -NCOF Annual report for respective years

Table 5 showing organic production in India in metric tons and value in million dollars

year	Production in mt	Value in million dollars
2015-2016	6321660.53	386.32
2016-2017	8760810.96	NA
2017-2018	17132676.09	NA
2018-2019	989255.06	NA
2019-2020	2047535.9	689
2020-2021	3399520.21	771.96

Source- NCOF Annual report for respective years *NA=Not available

The table 5 shows the amount of organic products produced in 2015-2016 to 2020-2021 in India. The analysis shows that production decreased in 2018-2019 to 2019-2020. The decrease may be attributed to covid situation prevailing in the world. However production increased from 2020-2021.

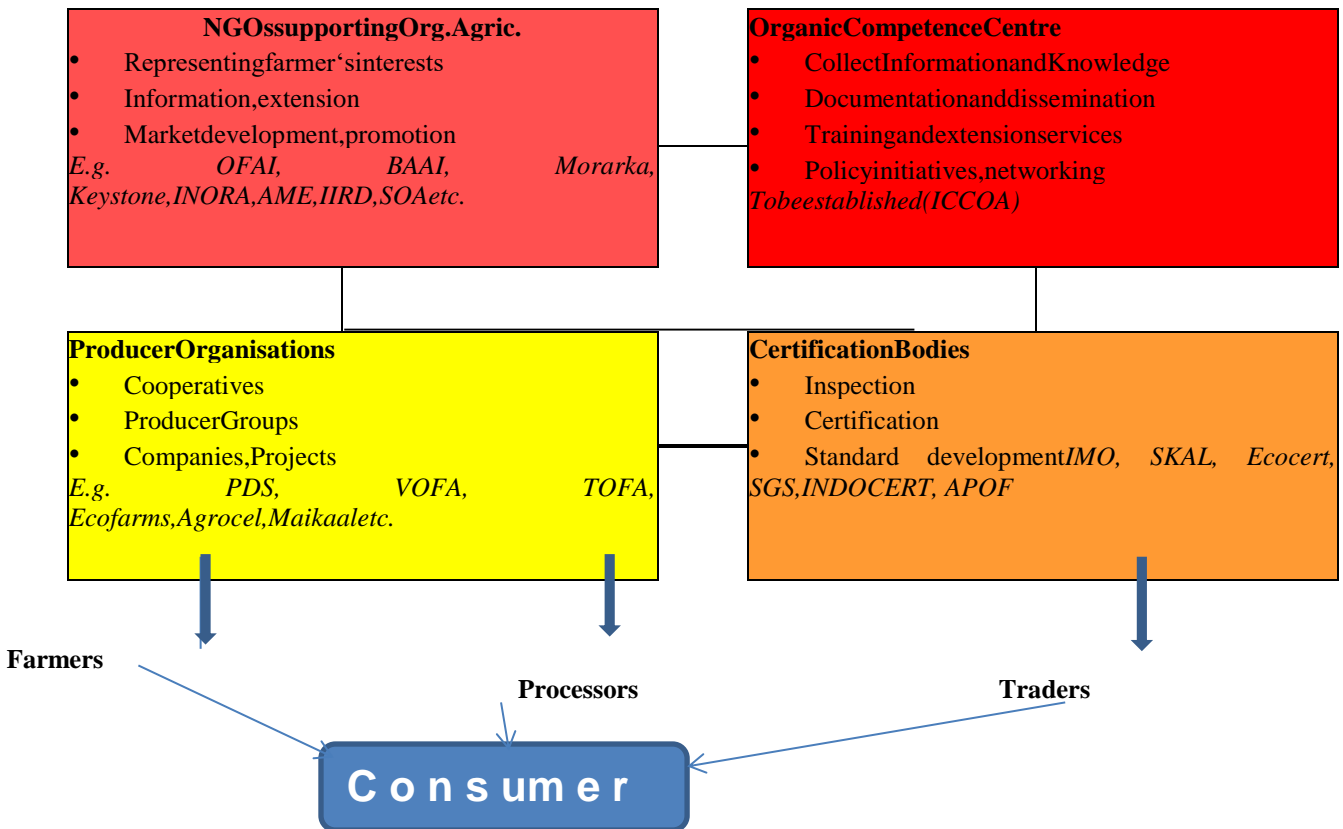
From Table 1, Table 2 it is clear that the total organic land and organic producers are increasing in India and it stands 1st in organic area and organic producers. Table 3 shows as how much of demand is there in world for organic markets and Table 5

shows the amount of goods that are produced in India and its corresponding values. Thus table 5 throws light on aspect that there is still a huge potential in India by which India can grab the market and become an leading producer of organic goods in world.

At all India level APEDA is the organization which is an accreditation body regarding the land and crops under organic farming. NPOF is constituted under ministry of Agriculture to maintain the record of organic products statistics.

ANALYSIS OF THE ORGANIC AGRICULTURE SECTOR IN INDIA

REGULATIONS Standards Accreditation <i>MoC, MoA, APEDA, Boards</i>	POLICIES Agr. Subsidies Support Schemes, <i>MoA, Planning Commission</i>	RESEARCH Universities Research Centres, <i>ICAR, SAU, Central Research</i>	EXTENSION Agricult. extension service <i>KVKs, State Depts., RAEOs</i>
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Source-ICCO Indian Competence Centre for Organic Agriculture

Table-Indian Organic Agriculture Statistics for last 10 years (2011-12 to 2020-21)

Sl No	Year	Area Under Organic Cultivation		Number of farmers		Organic Production (MT)		Biofertilizer production		Total Organic Manure Production (MT)
		NPOP	PGS-India	NPOP	PGS-India	NPOP	PGS-India	Liquid (in KL)	Career Based (MT)	
1	2011-12	5550405	0		0		0	40324.21		34863600
2	2012-13	5211141	0		0		0	46836.82		41157700
3	2013-14	4719816	6064.14		5809		23612.42	2922.38	53838.3	22941500
4	2014-15	5690000	9249.39		11118		1079*	4054.56	80696.45	22986200
5	2015-16	5710384	19281.91		19355		6321660.53	6240.92	88029.3	25478600
6	2016-17	4452987	96291.6		173846		8760810.96	7526.33	109020.11	28029900
7	2017-18	3566538	6455.29		84618		17132676.09	9033.06	121066.54	33872000
8	2018-19	3428639	124989.9		166571		989255.06	22555.27	70417.77	41100974
9	2019-20	3669801	222369.55		365253		2047535.9	30105.94	79446.61	60594104
10	2020-21	4339185	7568.3	1599010	12074	3496800.34	3399520.21	42239.94	192329.29	42940832

Source:

as per IFOAM FiBL The world of Organic Agriculture, Statistics and emerging trends for respective years

PGS-India Web Portal

*As per year wise certificate data available on PGS-India portal dashboard

NCOF Annual report for respective years

CONSOLIDATED ORGANIC AGRICULTURAL STATISTICS FOR THE YEAR 2020-21
<https://apeda.gov.in/apedawebsite/organic/data.htm>

Data Not available

Data from source yet to identified

As per the reports of APEDA, IFOAM given here, we notice that there is an increase in number of organic producers and organic agricultural land in India. Apart from this we also identify that organic manure production and utilization is also showing impact on organic production growth.

Now it is the time to identify the constrains like organic pesticide production, availability and consumption, marketing facilities for organic products, education and income of farmers in increasing the organic production in India

METHODOLOGY

The time series data is taken to analyse the relationship between growth of organic land and organic production in relation to bio fertilizer and bio pesticide utilization in organic production

CONCLUSION

The study aims to determine sustenance of organic farming in India. In view of its topography and Monsoon climate. The international and national experience shows that organic farming needs continuous monitoring and evaluation of farm practices for increasing the output. So Education and income of the people affects the prevalence of organic farming. Not only this has the availability of organic inputs, marketing of organic products, institutional guidance, Governments intervention played a crucial role for production of organic products.

REVIEW OF LITERATURE

1. **Committee on Agriculture of FAO of UNO:** The Organic Agriculture got international flat form during this committee session. Here discussion about opportunities, constraints of organic agriculture and public policies influencing the adoption of Organic agriculture practices surfaced.

2. **Conference on Sustainable Diet and Food Security symposium 2:** Food production challenges and Innovations: by Urs Niggli. Author says that great challenge for agriculture is to reduce the tradeoff between productivity and long-term sustainability. He writes about environmental impacts of organic farming and identified major research deficit in management of it.
3. **Organic Farming in India** :Relevance, problems and constraints: Dr.S.Narayanan. Department of Economic Analysis and Research of NABARD, is the author of this paper. It discusses the progress and present status of organic farming in major practicing countries in world and states in India. Here author speaks about advantages of consumption of organic products to humans and environment
4. **Base Paper on Organic Farming**-Indian Council for Agriculture and Research. This paper throws light on the extent of certified farm land in each state, agronomic aspects of organic farming, organic nutrients, bio pesticides, pest-disease-Weed management.
5. **Towards a Healthier Nation: Organic Farming and Government Policies** Dr.Manju speaks about the how organic food effects our life Expectancy
6. **New Vistas in Organic Agriculture** –prospects for future by V.C.Reddy, N.Jagadeesha, G.S Krishna Reddy, guides us how knowledge of organic farming brings new prospects to India
7. **Organic Agriculture and post 2015 development goals:** by Sunan tar Setboonsarng and Anil Markandya. In this book a case study paper is presented on Thailand. It creates a great impact on us when we study how authors were successful in finding out effect of organic agriculture on Thailand economy. Here they discuss the role of government in organic farming and how lack of knowledge on it is impacting the whole economy. They built a computable general equilibrium model to produce simulated comprehensive impacts of organic agriculture promotion on Thai economy
8. **The World of Organic Statistics and emerging trends 2021**(e-book of research institute of organic agriculture-, IFOAM FiBL organics international) by: Helga Willer, Jan Travnick, Claudia Meier, Bernhard Schlatter. In this e-book more than 100 authors gave current statistical information about organic farming from different places in the country. Here for first time we come across retail sales and international trade of organic products region wise. Data about Top ten countries among 187 countries in world in key indicators are given and they gave clear idea about legislations and support provided by different nations to encourage organic farming. The data is in the form of bar diagrams, pie diagrams, graphs, pictures providing us a good understanding of the topic
9. **Food and Agriculture Organization of the United Nations**, Rome, Italy paper on organic agriculture presented in COMMITTEE ON AGRICULTURE Fifteenth Session Rome, 25-29 January 1999, Red Room ORGANIC AGRICULTURE Item 8 of the Provisional Agenda
10. **Baker, B. (2005).** “Brief History of Organic Farming and the National Organic Program.” Organic Farming Compliance Handbook. Organic Materials Review Institute.
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12. **A Survey of Sustainable Development – Social and Economic Dimensions** (2001) (Eds.) Jonathan M.H, Timothy A.W, Kevin P.G and Neva R.G, ISLAND Press, Washington D.C
13. **Anderson M.D (1994) Economics of organic farming in USA**, the economics of organic farming – An international perspective, Edited by Lampkin N.H and Padel S., CAB International Publishers
14. **APEDA** (2010) •www.apeda.com accessed on 20th January, 2010
15. **Base Paper on Organic Farming** – ICAR
16. **NCOF** website