

Chemical and Organic Farming in India: An Overview

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Abstract - India ranks second worldwide in farm outputs. As per 2018, agriculture employed 50% of the Indian work force and contributed 17-18% to country's GDP. India exported \$38 billion worth of agricultural products in 2013, making it the seventh largest agricultural exporter worldwide and the sixth largest net exporter. Chemical fertilizers are major inputs of scientific agriculture. India is one of the major countries in the production and consumption of fertilizers. Fertilizer consumption was less than 1 million tones before the mid-1960s. With the introduction of high-yielding variety (HYV) seeds, there was acceleration in the growth of fertilizer consumption. The Government of India has also implemented the National Programme for Organic Production (NPOP). The national programme involves the accreditation programme for Certification Bodies, standards for organic production, promotion of organic farming etc. As on 31st March 2018, total area under organic certification process (registered under National Programme for Organic Production) is 3.56 million Hectare (2017-18). Against this backdrop, the present study is undertaken to present an overview of chemical and organic farming in India.

Keywords: Organic Farming, Inorganic Farming, Current Status.

I. INTRODUCTION

The history of Agriculture in India date back to Indus Valley Civilization and even before that in some places of southern India. India ranks second worldwide in farm outputs. As per 2018, agriculture employed 50% of the Indian work force and contributed 17-18% to country's GDP. India exported \$38 billion worth of agricultural products in 2013, making it the seventh largest agricultural exporter worldwide and the sixth largest net exporter. Being an organic country originally, the trend changed when the production did not meet the growing demand and the onset

of food scarcity. A shift to chemical farming started in the form of Green revolution in the 1960's. Organic fertilizers were replaced by chemical fertilizers and pesticides. However, the Green Revolution, within a few years showed its impact. The land started losing its fertility, pests became immune to fertilizers, health hazards were increased.

As a result the need for organic farming has been realized and with the Government initiatives, it is being practiced again in India.

Against this backdrop, the present study is undertaken to present an overview of chemical and organic farming in India.

II. OBJECTIVES OF THE STUDY

1. To present an overview of chemical and organic farming in India.
2. To summarize and conclude the facts of organic and inorganic farming.

III. STATUS OF CHEMICAL FARMING IN INDIA

Chemical fertilizers are major inputs of scientific agriculture. India is one of the major countries in the production and consumption of fertilizers.

Fertilizer consumption was less than 1 million tones before the mid-1960s. With the introduction of high-yielding variety (HYV) seeds, there was acceleration in the growth of fertilizer consumption.

TABLE I STATE WISE DEMAND OF CHEMICAL PESTICIDES DURING 2014-15 TO 2018-19

Sl. No.	States/UTs	2014-15	2015-16	2016-17	2017-18	2018-19
1	Andhra Pradesh	4350	4350	4150	4000	3950
2	Bihar	1003	1011	1147	1147	1147
3	Chhattisgarh	NR	NR	NR	NR	5642
4	Goa	13	43	NR	29	NR
5	Gujarat	6260	2300	1920	1907	2103
6	Haryana	4200	4200	4200	4200	4200
7	Himachal Pradesh	440	462	787	638	628

8	Jharkhand	683	690	690	650	625
9	Karnataka	1800	1900	1900	1900	1900
10	Kerala	1149	1149	1011	805	961
11	Madhya Pradesh	825	811	809	706	650
12	Maharashtra	9726	16327	16327	15004	15704
13	Orissa	1084	990	990	990	1189
14	Punjab	6370	6376	6374	6374	5765
15	Rajasthan	2525	2350	2325	2325	2330
16	Tamil Nadu	2141	2141	2160	2160	2122
17	Telangana	4320	4135	NR	5550	5642
18	Uttar Pradesh	10453	10854	10667	10676	11031
19	Uttarakhand	264	277	285	280	256
20	West Bengal	3800	4276	4080	4125	4125
SUB TOTAL		63420	66606	62004	65757	72515
North-Eastern						
21	Arunachal Pradesh	18	17	18	NR	5
22	Assam	215	NR	NR	241	347
23	Manipur	35	34	NR	28	NR
24	Meghalaya	30	NR	NR	NR	NR
25	Mizoram	1162	NR	1215	NR	171
26	Nagaland	25	26	26	26	28
27	Sikkim	NR	NR	NR	NR	NR
28	Tripura	510	393	428	370	NR
SUB TOTAL		1995	470	1687	665	550
Union Territories						
29	A & N Islands	4	NR	NR	NR	NR
30	Chandigarh	NR	NR	NR	NR	NR
31	Dadra & Nagar Haveli	NR	NR	NR	NR	NR
32	Daman & Diu	NR	NR	NR	NR	NR
33	Delhi	NR	NR	NR	NR	130
34	Jammu & Kashmir	2015	1964	2181	2290	2545
35	Ladakh	NR	NR	NR	NR	NR
36	Lakshadweep	NR	NR	NR	NR	NR
37	Pondicherry	48	50	50	50	48
SUB TOTAL		53	50	50	50	178
GRAND TOTAL		65468	67126	63740	66472	73244

Source: Directorate Of Plant Protection, Quarantine & Storage,GoI
As on 28.11.2019 Unit: M.T. Technical Grade

The above table shows the state wise and Union Territory wise demand of fertilizers in India. It could be seen that certain states like Maharashtra have increased demand for fertilizers over the years. States like Madhya Pradesh

have recorded decrease in the demand of chemical fertilizers in the selected years. Thus, the table exhibits the overall demand for the fertilizers in all the states and union territories of India.

TABLE II CONSUMPTION OF CHEMICAL PESTICIDES IN VARIOUS STATES/UTS DURING 2014-15 TO 2018-19

Sl. No.	States/UTs	2014-15	2015-16	2016-17	2017-18	2018-19
1	Andhra Pradesh	4050	2713	2015	1738	1689
2	Bihar	787	831	790	840	850
3	Chhattisgarh	1589	1625	1660	1685	1770
4	Goa	12	48	22	24	25
5	Gujarat	1730	1980	1713	1692	1608
6	Haryana	4070	4100	4050	4025	4015
7	Himachal Pradesh	379	450	341	467	322
8	Jharkhand	650	493	541	619	646
9	Karnataka	1793	1434	1288	1502	1524
10	Kerala	910	1123	895	1067	995
11	Madhya Pradesh	696	732	694	502	540
12	Maharashtra	8663	11665	13496	15568	11746
13	Orissa*	1278	994	1050	1633	1609
14	Punjab	5689	5743	5843	5835	5543
15	Rajasthan	2694	2475	2269	2307	2290
16	Tamil Nadu	2096	2096	2092	1929	1901
17	Telangana	2806	993	3436	4866	4894
18	Uttar Pradesh	9736	10457	10614	10824	11049
19	Uttarakhand	172	217	198	210	195
20	West Bengal	3060	3712	2624	2982	3190
Sub Total		52859	53881	55631	60316	56402
North-Eastern						
21	Arunachal Pradesh	18	17	18	NR	5
22	Assam	190	185	306	241	256
23	Manipur	31	30	33	27	NR
24	Meghalaya	28	NR	NR	NR	NR
25	Mizoram	805	NR	9	NR	26
26	Nagaland	20	20	20	20	21
27	Sikkim	<i>Organic State</i>	<i>Organic State</i>	<i>Organic State</i>	<i>Organic State</i>	<i>Organic State</i>
28	Tripura	346	293	298	330	349
Sub Total		1437	544	684	617	657
Union Territories						
29	Andaman & Nicobar	8	NR	NR	NR	NR
30	Chandigarh	NR	NR	NR	NR	NR
31	Dadra & Nagar Haveli	NR	NR	NR	NR	NR
32	Daman & Diu	NR	NR	NR	NR	NR
33	Delhi	NR	NR	88	NR	110
34	Jammu & Kashmir	1921	2251	2188	2430	2459
35	Ladakh	-	-	-	-	Formed in Oct,19
36	Lakshadweep	-	NR	NR	NR	NR
37	Pondicherry	42	43	43	43	42
Sub Total		1971	2295	2319	2473	2611
Grand Total		56268	56720	58634	63406	59670

Source: Directorate Of Plant Protection, Quarantine & Storage,GoI

As on 28.11.2019

Unit: Quantity in MT Tech .Grade

The consumption of pesticides in various states and Union Territories from 2014-15 to 2018-19 has been presented in the above table. Compared to the demand of chemical fertilizers, the consumption of fertilizers shows a decreasing trend in major states.

Due to the growing awareness of organic farming and soil deterioration the consumption of chemical fertilizers in various states of India presents a different scenario.

IV. STATUS OF ORGANIC FARMING IN INDIA

As per the available statistics, India's rank in terms of World's Organic Agricultural land was 9th and in terms of total number of producers was 1st as per 2018 data (Source: FIBL & IFOAM Year Book 2018). The Government of India has implemented the National Programme for Organic Production (NPOP). The national programme involves the

accreditation programme for Certification Bodies, Standards for organic production, promotion of organic farming etc. As on 31st March 2018, total area under organic certification process (registered under National Programme for Organic Production) is 3.56 million Hectare (2017-18). This includes 1.78 million ha (50%) cultivable area and another 1.78 million Hectare (50%) for wild harvest collection.

Among all the states, Madhya Pradesh has covered largest area under organic certification followed by Rajasthan, Maharashtra and Uttar Pradesh.

During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76000 ha) under organic certification.

TABLE III INSTALLED CAPACITY, PRODUCTION AND DISPATCHES OF BIO-FERTILIZER IN INDIA

Year	Installed production Capacity (tonnes)	Total Production (tonnes)	Total Dispatches (tonnes)	Unutilized capacity percentage
1992-93	5400.5	2005	1600.01	62.87
1993-94	6125.5	3084	2914	49.65
1994-95	8114.5	5800.5	4988.9	28.52
1995-96	10680.4	6692.3	6288.3	37.34
1996-97	12647	7406.6	6681.4	41.44
1998-99	16446	5972.1	5065.5	63.69
2001-02	15439.0	9019.2	8429.3	41.59
2002-03	18679.5	7181.7	7029.9	61.55
2003-04	18632	8701.4	8357	53.30
2004-05	NA	10479	10428	-
2005-06	NA	11752	11358	-
2006-07	43495	15871	15745	63.51
2007-08	67162	20111	20100	70.06
2008-09	68804	25065	25000	63.57
2009-10	68078	20040.3	20000	70.56

Source: Bio Fertilizer Statistics FAI.

The Installed Capacity, Production and Dispatches of Bio-Fertilizer during various years have been compiled and presented in the above table. 1992-2010 bio fertilizer production capacity has been increased tremendously along with total production and total utilization. The concern towards sustainable development has made organic farming a viable alternative for chemical farming. The increase in the production of bio fertilizer stands testimony to the fact that the organic farming has been booming over the years.

V. CONCLUSION

The study has presented the current status of both organic and inorganic inputs in a brief manner. In India, in last three decades, food grain productions increased from 50 million

tons to 170 million tons. This was with increased intensive farming with modern agricultural technologies ushered in Green revolution. However, due to its aggressive usage, now organic farming is preferred. It is worthwhile to note that a balance has been created between both the inputs by the Government initiatives. With the right amount of both the inputs, India is all set to lead as the agricultural giant in terms of production, consumption and export across the globe.

REFERENCES

- [1] Kumara Charyulu Deevi and Subho Biswas. 2011. *Organic Input Production and Marketing in India*, Allied Publisher Pvt Ltd, 13-15.
- [2] Retrieved from www.en.m.wikipedia.org.
- [3] Retrieved from www.woofindia.org
- [4] Retrieved from www.informaticsjournals.com.