



## AN ANALYSIS OF AGRICULTURAL FOOD PRODUCTION AND PRODUCTIVITY IN INDIA

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### ABSTRACT

This paper deals with agriculture food production and productivity in India after the 20<sup>th</sup> century. It explains the basic definition of agriculture production and productivity. This article analyse the food grains under area production and along with coverage under irrigation in India. It also explains target and achievement of production of major crops during 10<sup>th</sup> 11<sup>th</sup> and 12<sup>th</sup> Five Year Plans and India's position in world agriculture in 2014. The paper concludes that the urgency for an integrated and efficient management policy director towards better utilisation Of Our Land and water resources along with improved seeds improve the productivity. This paper suggest that no farmers should also be educated in the method of sowing measuring and irrigating the high yield varieties of seeds.

**KEYWORDS :** agriculture production and productivity.

### INTRODUCTION

Improving agricultural production and productivity in developing countries like India, having huge population is a necessary criteria. Agriculture production means, the production of any growing crop on the surface of the land for the purpose of self- consumption or to be sold commercially. In India agricultural production has revamped after Green Revolution in the 1960. Even though the land resources limited in the short run, in the long run the land use is expanded to a certain extent that too at the cost of forest resources and untapped land resources in the seventh largest country in the world. It is important to keep in your mind that the country is the largest country next to China in terms of population. It is inevitable for countries like India to increase a farming activity to match with the growing population which is the fastest in the world. That is the reason why India had to engage in Green Revolution phase of farming activity and maintain self- sufficiency. India is successful in the production of agriculture products in maintaining the self- sufficiency. Production in India is generally classified into food crops and commercial crops. The major food crops that are cultivated in India are rice, wheat, pulses, coarse cereals etc. In India the net sown area is 143 million hectares out of the



total cultivable area of 186 million hectares. During the pre-green revolution period the additional area including marginal lands, fallow lands, wastelands and forest lands were brought under cultivation. In the post green revolution period, that is after 1965 the area under all crops could not increase significantly and the annual growth rate in area was also negligible.

### AGRICULTURAL PRODUCTIVITY

Agriculture productivity means the relationship between the agriculture output and one of the major inputs call land. Usually the term agricultural productivity is measured as the average yield per hectare of land. Apart from land the other form of agriculture productivity is productivity of labour engaged in agriculture but because of the marginal productivity of labour in agriculture is zero in countries like India, it is the land as a factor of production, is the only option to increase the productivity in agriculture. However productivity of land itself remains constant for long period of time. Even then increase in productivity comes through yield from land for India. Lower yield per unit area has become regular future of Indian agriculture. Agricultural efficacy is reflected in productivity and one of the way to measure it is in terms of yield per hectare of land cultivated with intensive agricultural practice.

### AREA, PRODUCTION, YIELD AND AREA UNDER IRRIGATION

The food grain production from 2000-2001 to 2015-16 is shown in table 1 for India. The secondary data source is obtained from Directorate of economics and statistics to analyse the production and productivity from 2000-2001 to 2015-16. The total area for food grain production in India from 2000-2001 to 2015-16 has been around 120 million hectares. In the year 2010-11, the total area for food grain production was the highest at 126.67 million hectares. The total area of food grain production in the year 2002-2003 was the lowest at around 113 million hectares. Except the Year 2002-03 the rest of the years have recorded more than 120 million hectares of total area of food grain production. There is not much variation in the total area for food grain production in the study period. The total production of food grains have shown record of 265 million tonnes in the year 2013-14. Even though total area for food grain production was maximum in the year 2010-11, the production of grains was only 244.49 million tons. In the year 2013-14 the total area of a food grain production was only 125 million hectares but the food grain production was highest at 265 million tonnes. There is a negative correlation between the total area for food grain production and the production of food grains in the study period. There is a substantial increase in the food grain production from the year 2000-2001 at 196.8 1 million tonnes to 252.22 million tonnes in the year 2015 16. It is evident from the data, that from the year 2010-11 onwards the production of food grains have been on the increase and consistent in the growth of food grain production. The reason for the increasing food grain production is the support of the government in both state and central level in the form of subsidies, loans at lowest rate of interest and other facilities to the farmers involved in crop production.

The yield in the study period for food grain production is also explained with the help of table 1. Yield is defined as the kilogram per hectare which is also considered as the productivity of food grains. The lowest yield is in the year 2002-2003 with 1535 kilograms per hectare which is the lowest productivity recorded in the study period due to lack of rain and other natural calamities across the country. The highest yield of food grains in India recorded in the year 2012-13 with 2129 kilograms per hectare which means the productivity of food grain is maximum in this year. Up to 2009-10 the yield was less compared to the following years. From 2010-11 food grain productivity in India has increased constantly. Incentives and subsidies by the government is the main reason for the increase in productivity of food grains in India. This is the main reason for the increase in the area

under irrigation which is shown in table 1. The area under irrigation is depicted in terms of percentage was 43.4 percent in the year 2000-2001 and it has increased to around 52% in just less than 15 years. From 2000-2001 to 2009-10 area, production, yield and area under irrigation shows fluctuations. The area under irrigation has increased gradually from 43.4 percent in the year 2000-2001 to 51.9 percent in the year 2013-14. There is a positive correlation between productivity and area under irrigation. As the yield increases the area under irrigation has also increased in the study period. From 2010-11 till 2015-16 the production of food grains and the productivity of food grains has been increasing. Various schemes introduced by the government in favour of food crop production has helped the farmers increase their productivity and also helped farmers to increase their percentage area under irrigation.

**Table 1: Foodgrains: All-India, Area, Production and Yield alongwith coverage under Irrigation.**

Area - Million Hectares  
Production - Million Tones  
Yield - Kg. /Hectare

year	Area	Production	Yield	Area Under Irrigation (%)
2000-01	121.05	196.81	1626	43.4
2001-02	122.78	212.85	1734	43.0
2002-03	113.86	174.77	1535	42.8
2003-04	123.45	213.19	1727	42.2
2004-05	120.08	198.36	1652	44.2
2005-06	121.60	208.60	1715	45.5
2006-07	123.71	217.28	1756	46.3
2007-08	124.07	230.78	1860	46.8
2008-09	122.83	234.47	1909	48.3
2009-10	121.33	218.11	1798	47.8
2010-11	126.67	244.49	1930	47.8
2011-12	124.75	259.29	2078	49.8
2012-13	120.78	257.13	2129	51.2
2013-14	125.04	265.04	2120	51.9
2014-15	124.30	252.02	2028	-
2015-16*	122.65	252.22	2056	-

Source; Directorate of Economics & Statistics, DAC&FW

\* 4th Advance Estimates

### Target and achievement of production of major crops

Table 2 explains target and achievement of production of major crops during 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> Five Year Plans. This part of the article examines food grain production such as rice, wheat, Coarse Cereals, pulses and commercial crops such as oilseeds, sugarcane, cotton and jute. The table explains that the rice target production in the 10<sup>th</sup> plan was not achieved and it was far less than the target. In the eleventh plan the achievement of rice production is short of target, but the gap between target and achievement has narrowed down compared to 10<sup>th</sup> five year plan. In the 12<sup>th</sup> Five Year Plan, the rice production shown that the gap between target and

achievement have further narrowed down and in fact, in the years 2012-13 and 2013-14 the achievement of rice production was more than the target fixed by India.

The same condition prevails in the production of wheat, Coarse Cereals and pulses. By looking at the target and achievement of production of these food grains, it is clearly understood that during the 10<sup>th</sup> and 11<sup>th</sup> plan the target production was not achieved but the twelfth five year plan the achievement was more than the target fixed. Focusing on the grains alone, one can clearly understand that the gap between target and achievement was not as wide as it is in the rice production and pulses production and in the 10<sup>th</sup> and 11<sup>th</sup> plan, food grain production target and achievements has got meager difference. The low production of one food grain was offset by more production of other type of food grain.

When it comes to commercial crops such as oilseeds, sugarcane and jute there is a huge gap between target and achievement in not just tenth plan but also in 11<sup>th</sup> and 12<sup>th</sup> plan periods. Except cotton, the other commercial crops production were short of target in all the three plans.

**Table2; Target and Achievement of Production of Major Crops during Tenth, Eleventh and Twelfth Five Year Plans**

Crop	Xth Plan		XIth Plan		2012-13		2013-14		2014-15		2015-16*	
	targ et	achieve ment	targ et	achieve ment	targ et	achieve ment	targ et	achieve ment	targ et	achieve ment	targ et	achieve ment
Rice	460.10	428.62	494.50	486.24	104.00	105.24	105.00	106.65	106.00	105.48	106.10	104.32
Wheat	386.56	351.71	399.00	421.80	88.00	93.51	92.50	95.85	94.00	86.53	94.75	93.50
Coarse Cereals	176.84	165.11	208.60	200.03	44.00	40.04	42.50	43.29	41.50	42.86	43.20	37.94
Pulses	76.60	66.76	81.00	79.32	18.24	18.34	19.00	19.25	19.50	17.15	20.05	16.47
Food grains	1100.10	1012.20	1183.10	1187.43	254.24	257.13	259.00	265.04	261.00	252.02	264.10	252.22
Oilseeds	133.88	116.65	160.15	144.85	33.50	30.94	31.00	32.75	33.00	27.51	33.00	25.30
Sugarcane	1417.50	1395.02	1655.00	1628.94	352.00	341.20	340.00	352.1	345.00	362.33	355.00	352.16
Cotton	80.00	79.91	134.00	140.38	35.00	34.22	35.00	35.90	35.00	34.80	35.15	30.14
Jute & Mesta	58.36	54.83	57.00	55.42	12.00	10.93	12.00	11.69	11.20	11.13	11.70	10.46

Source: Directorate of Economics & Statistics, DAC&FW

\* 4th Advance Estimates.

# Million Bales of 170 kg. each.

@ Million Bales of 180 kg. each.

### INDIA IN WORLD AGRICULTURE

India is a naturally endowed country in the world with the total area of 329 million hectares of the world total area of 13467 million hectares. Its share in the total area is 2.4 % and it is ranked 7<sup>th</sup> largest country. Out of the total area more than 90% is the land area. In the world's total land area 2.3% is occupied by India. Most important thing to be noted is arable land. As far as the arable land is concerned India accounted for 11% of the world share. When India is in the seventh place in the total area and land area, its position is second in the arable land list. Arable means suitable for growing crops. Next to America Indian holds the share of 11%, which is the second highest percentage of arable land available to any country in the world. Main reason for sustainable and self- sufficient food production for the second largest population in the world is the availability of highest percentage of arable lands in India. India has to make use of this natural Geographical potential. What is most bothering for India is its share of rural population in total population. India is first in the world total rural population with 25.5%. Even though India is in the second position in terms of arable land available in the world, its crop production is only 295 million tones which gives only third position in the world crop production. As far as the crop production is concerned India has to improve its production. India has the potential to further its crop production. As far as the pulses and fruits and vegetables are concerned, India has performed first and second positions respectively.

**Table 3; India's Position in World Agriculture in 2014**

Item	India	World	% Share	India's Rank	Next to
Total Area (Million Hectares)	329	13467	2.4	Seventh	Russian Federation, Canada, U.S.A., China, Brazil, Australia
Land Area	297	13009	2.3	Seventh	Russian Federation, China, U.S.A., Canada, Brazil, Australia
Arable Land	156	1417	11.0	Second	U.S.A.
Population (Million) Total	1295	7266	17.8	Second	China
Rural	857	3364	25.5	First	
Crop Production (Million Tonnes) (A) : Total Cereals	295	2819	10.5	Third	China, U.S.A
(B): Total Pulses	20	78	25.8	First	
Fruits & Vegetables	127	1169	10.8	Second	China

Production (Million Tonnes) (A) :Vegetables& Melons					
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Source: Directorate of Economics & Statistics, DAC&FW

\* 4th Advance Estimates

**SUGGESTIONS AND CONCLUSION**

In the post-green revolution period, improvement in agricultural productivity arising from the adoption of modern technique has contributed to growth in output. In spite of adopting modern technology, the growth rate in output, excepting wheat could not maintain a steady level. The total geographical area of the country is 328.7 million hectares, of which only 264.0 million hectares possess potential for biotic production. Of this, 'wastelands' account for 79.5 million hectares leaving only 184.5 million hectares. However, even this area cannot be regarded as being in good health. This proves the urgency for an integrated and efficient management policy directed towards better utilisation of our land and water resources.

Improved seeds can play an important role in increasing the productivity. This has been amply proved by the experience of many countries and also by the use of high-yielding varieties of wheat in Punjab, Haryana and Western Uttar Pradesh in our own country. Farmers should also be educated in the methods of sowing, maturing and irrigating the new high-yielding varieties of seeds. Total food grain production was to 234.47 million tonnes in 2008-09. The production of food grains declined to 218.11 million tonnes during 2009-10 due to long spells of drought in various parts of the country in 2009. Use of improved varieties of seeds, fertilizers, pesticides, insecticides, agricultural machinery and irrigation facilities, all require substantial money resources which small farmers do not usually possess. Therefore, it is necessary to strengthen the credit cooperative sector and free it from the clutches of large landowners.

**REFERENCE**

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