

TRENDS IN FOOD CROPS AND NON- FOOD CROPS IN INDIA

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Abstract

Indian agriculture has been undergoing spectacular changes in recent period. These changes are manifestations of large scale commercialization and diversification taking place in the agricultural sector. The latest changes are basically responses of our agriculture to new economic environment ushered in by the process of liberalization. The present study takes the following as its objectives: To study the development of agriculture sector and its contribution to Indian economy. To examine the production trends of food and non-food crops in India. Before the advent of the British rule, crops such as cotton, tobacco and sugarcane were grown fairly extensively since land revenue had to be paid mostly in cash and the prices of these crops, relative to those of food grains, were much higher at that time. Even during the British rule, the situation did not change much.

Indian agriculture recorded a significant acceleration in growth and productivity after independence as compared with the pre-independence period. The major findings of the study are as follows. The contribution of the agriculture and allied sectors to total GDP at current prices in 2000-2001 is 23.35 percent and it gradually reduced and stood at 17.1 percent by the year 2009-10.

Key Words:

INTRODUCTION

Indian agriculture has been undergoing spectacular changes in recent period. These changes are manifestations of large scale commercialization and diversification taking place in the agricultural sector. They broadly include cultivation of new crops and varieties, increase in the share of area under cash crops, large scale spread of livestock activities and fisheries, pursuance of hi-tech agriculture in the areas of aquaculture, bio-technology, horticulture, processing, etc. The latest changes are basically responses of our agriculture to new economic environment ushered in by the process of liberalization.

Need for the Study

The studies reviewed here above have not focused on the specific issues on which the present study embarked on. The study is steered in the direction of assessing the trends in area, production and productivity of selected food and non-food crops in India. The present study also concentrates on analyzing the changes in the cropping pattern in India. Since most of the earlier studies have concentrated either on single crop or on macro level,

the present study assumes importance and further believed that it would fill the gap in the knowledge stream in this regard.

Significance of the Study

Agriculture will continue to play an important role in the economic development and poverty alleviation in India even in the era of economic liberalization and globalization. Generation of gainful employment and income for the rural poor, strengthening of household food and nutritional security and sustainable use of natural resources shall continue to be the main objectives of agricultural development in the country.

Objectives

The present study takes the following as its objectives:

1. To study the development of agriculture sector and its contribution to Indian economy.
2. To examine the production trends of food and non-food crops in India.

METHODOLOGY

The source material has been collected from secondary source. The method followed is historical

and descriptive. The material has been collected from the Libraries of Sri Krishnadevaraya University, Anantapur, Sri Venkateswara University, Tirupati, Osmania University, Hyderabad, Bangalore University, Bangalore, National Law School of India University, Nagarbhavi, Bangalore, Institute of Social and Economic Change, Nagarabavi, Bangalore. The material collected has been thoroughly analysed and utilized purposefully.

Sources of Data/Information

The present study is mainly based on secondary sources of data/information. The secondary data have been collected from the following sources:

- Directorate of Economics and Statistics, Hyderabad: Season and Crop Reports;
- Directorate of Economics and Statistics, Hyderabad: Statistical Abstracts of Andhra Pradesh;
- District Hand Books of Statistics from 2000 to 2010; and
- Research Publications from different Institutions and Journals.

Review of Literature

Dantwala (1978)¹ presented a brief review of the anatomy of agricultural growth in India and reported that the extent of irrigation is the main factor which explains growth rate in the country. With regard to rice farming, about 77 million hectares (53 per cent) of world rice area is irrigated. 70 to 75 per cent of world rice production also comes from irrigated areas.

Rath (1980)² examined the performance of agricultural production in India. An exponential trend function was used to estimate production, area and yield rates for the period from 1949-50 to 1977-78. The analysis indicated that the total agricultural production of India grew at an average rate of 2.38 per cent per year during the years 1955-56 to 1978-79. The rate of growth was found to be somewhat higher during the 10 years ending 1964-65 than during the subsequent 13 years when it was only about 2.42 per cent. It was also observed that the sustained growth of foodgrains was entirely due to cereals. Wheat recorded a growth rate of 3.9 per cent and rice of about 3 per cent. In the post-1965 period, with the advent of new High Yielding Varieties (HYVs), the growth rate of wheat almost doubled to 7.06 per cent of this about half was due to increase in area and other half due to increase in

productivity of the crop.

Mehra, Shakuntala (1981)³ while studying instability in Indian agriculture observed an increase in the standard deviation of production of all crops by 75 per cent and of food grains by 65 per cent during the decade from 1967-68 to 1977-78 over that of the 1950s to mid-1960s but the mean production of all crops including food grains increased by only 47 per cent during the period. There was even an increase in the coefficients of variation of production of food grain crops during the period.

Bhagat L.N.(1982)⁴ in his study on "Growth Rates of Output of Coarse Grains and Pulses in a Backward Economy: A Study of Temporal-Spatial Variations in Chotanagpur", examined the magnitude and direction of changes in area, yield rate and output of major coarse foodgrains and pulses in relation to their competing crops in the districts of Chotanagpur region in Bihar in the two sub-periods, i.e., pre-High Yielding Varieties (HYV) (1956-57 to 1965-66) and post-HYV (1967-68 to 1976-77) period along with the causes underlying these changes and variations. It was found that there was no marked difference in the growth rates of crops grown during the rabi season in the pre-HYV period but the growth rates of area and output of barley and gram were found to be much lower than that of wheat in the HYV period, indicating the farmers' preference for growing wheat as against barley and gram, however the reasons for comparatively higher growth of wheat area and output were not investigated.

Hazell, Peter, B.R. (1982)⁵ made an attempt to estimate the "Instability in Indian Foodgrain Production" and reported that the coefficient of variation of total cereal production was 5.85 per cent, during the period 1967-68 to 1977-78 when measured around the trend. This was nearly 50 per cent larger than the coefficient of variation (4.03 per cent) during the period 1954-55 to 1964-65. It is still quite modest by international standards but these fluctuations can cause substantial price instability because of the high proportion of production retained by farm families.

Historical Perspective

Before the advent of the British rule, crops such as cotton, tobacco and sugarcane were grown fairly extensively since land revenue had to be paid mostly in cash and the prices of these crops, relative to those of food grains, were much higher at that time. Even during the British rule, the situation did not change much. Though the primary concern of the rulers from

then onwards was the expansion of trade, some of the policies in pursuit of this objective introduced market forces into agriculture. In the process, land was rendered marketable in principle as the British vested the property rights on land with the individual farmers for the first time. This, coupled with the growth in population and infrastructural investments in irrigation, communication and transport, resulted in rise in land value. Besides, expanding trade opportunities in agricultural produce also brought forth inflow of finance from rent-seeking urban traders and money lenders to agriculture. This set off the emergence of a different outlook for farm enterprise from an enterprise that provided a source of livelihood to one that had the potential of a commercial venture.¹

Indian food crops refer to those crops which are cultivated with the objective of selling the produce and grains for human and live stock consumption. Indian food crops are categorized into various segments and they mainly include rice, wheat, corn (maize), coarse grains (sorghum and millets), and pulses (beans, dried peas, and lentils). Various factors such as soil texture, weather conditions and use of technology influence the growth and productivity of the principal food crops in India. Around 127.5 million hectares of land in India is used to grow food grains, which is about 75 per cent of the total planted area. More than 33 per cent of cropland is used for the cultivation of rice, about 29 per cent for coarse grains, and the rest evenly divided between wheat and pulses. The states which produce most of the Indian food crops are Punjab, Andhra Pradesh, Haryana, Uttar Pradesh, Jammu and Kashmir, Maharashtra, Bihar, West Bengal, Karnataka, Gujarat, Rajasthan, Tamil Nadu and Orissa. The major Indian food and non-food crops that are cultivated in different parts of the country are described below.

Types of Indian Food Crops

There are various types of Food Crops that are cultivated in India throughout the year as well as seasonally. These are;

Rice

Rice is India's pre-eminent crop and is the staple food of the people of the eastern and southern parts of the country. Rice is grown all across the nation and is available in umpteen varieties. In India, almost 2, 00,000 varieties of rice exist. Rice is cultivated under extensively changeable conditions of climate and

altitude. This dominant crop is basically rain-fed is those zones where the annual rainfall distribution is above 125 cm. Those regions are suitable for the cultivation of rice where the average temperature does not fall below approximately 20 degree Celsius. Rice is considered as the master crop in the coastal regions of India.¹

Wheat

One of the major Indian food crops, Wheat has played a formative role in the unfolding of India's history. It is the northern region of the country that has conventionally dominated the cultivation of wheat. In India, the abundant wheat producers are the states of Punjab and Haryana. Wheat is cultivated in clayey soil and is extensively used for bread making and other food items. India exports sufficient quantities of all types of wheat and extensive research efforts that are underway for improving its cereals and grain output in future. In fact, in the present times, India is the second largest wheat producer in the world. When fertilizers and proper irrigation methods are applied to certain varieties of crops (excluding the dwarf ones), they tend to grow taller. However, regular usage of irrigation and fertilizers badly affect the cultivation of wheat. It is also said that the conditions of India are not suitable for the cultivation of wheat because of its short and relatively dry winter season.²

Coarse Grains

Sorghum and millets are the chief coarse grains among all the Indian food crops. They are chiefly grown in dry areas of Indian subcontinent. Jowar is mainly grown in those areas where the average annual rainfall is less than 100 cm. This is particularly a rain-fed crop, mainly cultivated in states like Punjab, Haryana and Tamil Nadu in Kharif as well as in Rabi season.

Maize

Maize is a common food crop in northern and western India. It is mainly grown as a Kharif crop in the country. Dry and cool weather is suitable for the growth of maize. More than a few states of the country produce maize and these states are Manipur, Mizoram, Nagaland, some districts of West Bengal, Maharashtra, Madhya Pradesh and Karnataka.

Non-Food Crops

Several oilseeds are also cultivated in country. The

major oilseeds cultivated in the country consist of groundnuts and mustard seeds. Vegetable oil is the most common means of cooking. Sugarcane is another popular Indian non-food crop. Sugar is considered as a substantial ingredient of regular food intake. Sugarcane is usually grown in north and south India. ‘

Food Grains

India is the major producer of food grains. The deficit in food grain production before 1990s is gradually declined and India reached self sufficiency in the production of food grains. The table 3.1 gives the details of area, production and yield of food grains during 2000-01 to 2009-10.

The total production of food grains is 196.81 million tonnes in 2000-01 and it increased to 212.85 million tonnes in 2001-02. But it sharply declined to 174.77 million tonnes in 2002-03. This is due to prevailing drought conditions in the major food grain producing states. In 2003-04 the production again increased to 213.19 million tonnes. Again, in the following year it declined to 198.36 million tonnes. There after there is gradual increase during 2004-05 to 2008-09. In 2008-09 highest production of food grains (234.47 million tonnes) was registered. But it declined to 218.10 million tonnes in 2009-10. The yield of food grains is higher in Rabi season than Kharif season during 10 years of study. The yield per hectare during Kharif season in 2000-01 is 1357 Kilograms

Table 1 Season-wise Area, Production and Yield of Food grains

Year	Kharif			Rabi			Total			
	Area	Production	Yield	Area	Production	Yield	Area	Production	Growth%	Yield
2000-01	75.22	102.09	1357	45.83	94.73	2067	121.05	196.81	-	1626
2001-02	74.23	112.07	1510	48.55	100.78	2076	122.78	212.85	108.15	1734
2002-03	68.56	87.22	1272	45.30	87.55	1933	113.86	174.77	82.11	1535
2003-04	75.44	117.00	1551	48.01	96.19	2004	123.45	213.19	121.98	1727
2004-05	72.26	103.31	1430	47.82	95.05	2004	120.08	198.36	93.04	1652
2005-06	72.72	109.87	1511	48.88	98.73	2020	121.60	208.60	105.16	1715
2006-07	72.67	110.58	1522	51.04	106.71	2091	123.71	217.28	104.16	1756
2007-08	73.56	120.96	1644	50.51	109.82	2174	124.07	230.78	106.21	1860
2008-09	71.43	118.14	1654	51.40	116.33	2263	122.83	234.47	101.60	1909
2009-10	69.49	103.95	1496	51.84	114.15	2202	121.33	218.10	93.02	1798

Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, GOI. A - Area in Million Hectares, P - Production in Million Tonnes, Y - Yield in Kg. /Hectare.

The data in the table 1 indicates that the area under food grains in Kharif is gradually decreased from 75.22 million hectares in 2000-01 to 69.49 by 2009-10, except in 2003-04. In 2000-01 the area under food grains during Kharif is 75.22 million hectares and it declined to 69.49 million hectares by 2009-10. But in case of Rabi there is gradual increase in the area of food grains except 2004-05. The area under food grains in 2000-01 is 45.83 million hectares and it increased to 51.84 million hectares in 2009-10. This resulted minor fluctuations in the total area under food grains. With regard to production in Kharif season has more production is registered during 2000-01 to 2008-09. But in 2009-10 the Rabi season registered more production than the Kharif season.

Table 2 All-India Area, Production and Yield of Total Pulses. Area - Million Hectares, Production - Million Tonnes, Yield - Kg./Hectare

Year	Area	Production	Yield	Growth%	Area Under Irrigation (%)
2000-01	20.35	11.08	544	-	12.5
2001-02	22.01	13.37	607	111.58	13.3
2002-03	20.50	11.13	543	89.46	14.4
2003-04	23.46	14.91	635	116.94	13.6
2004-05	22.76	13.13	577	90.87	13.9
2005-06	22.39	13.39	598	103.64	15.0
2006-07	23.19	14.20	612	102.34	15.4
2007-08	23.63	14.76	625	102.12	16.2
2008-09	22.09	14.57	659	105.44	NA
2009-10*	23.35	14.60	625	94.84	NA

Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation. * Fourth Advance Estimates as released on 19.07.2010.

and in Rabi season it is 2067 Kgs per hectare. By 2008-09 the yield in Kharif and Rabi seasons is 1654 Kgs and 2263 kgs respectively. It slightly declined during last year of study. The total yield of food grains increased from 1626 Kgs per hectare in 2000-01 to 1909 kgs per hectare in 2008-09.

It is evident from the table 2 that the total area under pulses is not evenly distributed over the years. The area under pulses in 2000-01 is 20.35 million hectares and it increased to 22.01 million hectares in 2001-02. But it declined to 20.50 million hectares in 2002-03. It sharply increased to 23.46 million hectares and again it declined to 22.76 million hectares and in 2004-05, it further declined to 22.39 million hectares in 2005-06. In 2006-07 and 2007-08 it increased to 23.19 and 23.63 million hectares respectively. In 2008-09 it once again declined to 22.09 million hectares. During the last year of study the area under pulses stood at 23.35 million hectares. The same trends are observable in case of production of pulses. The yield per hectare is 544 Kgs per hectare in 2000-01 and it increased highest productivity of 659 Kgs per hectare in 2008-09. But the area of pulses under irrigation is gradually increasing year by year. The total pulses under irrigation in 2000-01 is 12.5 per cent of total pulses area. By 2007-08 the percentage enhanced to 16.2.

Oilseeds

The significant improvement in annual growth in indices of yield and area under oilseeds during 2000-01 to 2009-10 as compared to the 1980s has resulted in increase in the annual growth rate of production of oilseeds. India, however, still imports a significant proportion of its requirement of edible oil (table 3.3).

Table 3

All-India Area, Production and Yield of Nine Oilseeds.
Area - Million Hectares, Production - Million Tones', Yield - Kg./Hectare

Year	Area	Production	Growth%	Yield	Area Under Irrigation (%)
2000-01	22.77	18.44		810	23.0
2001-02	22.64	20.66	112.04	913	24.3
2002-03	21.49	14.84	71.83	691	22.7
2003-04	23.66	25.19	169.74	1064	24.5
2004-05	27.52	24.35	96.67	885	26.6
2005-06	27.86	27.98	114.91	1004	28.0
2006-07	26.51	24.29	86.81	916	28.3
2007-08	26.69	29.76	122.52	1115	27.1
2008-09	27.56	27.72	93.15	1006	27.1
2009-10	25.96	24.88	89.75	959	NA

Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation. Note. 1: Nine major oilseeds viz. groundnut, castor seed, sesamum, rapeseed & mustard and linseed, soya bean, Sunflower, Nigerseed and Saflower.

The table 3 reveals that the area under oilseeds in the country is highest (27.86 million hectares) in 2005-06. But highest production of 29.76 million tonnes was registered in 2007-08. On the other hand highest yield rate of 1115 kilograms per hectare is registered in 2007-08. The lowest area, production and yield were registered in the year 2002-03. The percentage of oilseed area under irrigation is gradually increased during first two years of study and declined in third year. There after the percentage of irrigated area increased from 24.5 per cent in 2003-04 to 28.30 per cent by 2006-07. The percentage of area under irrigation of nine oilseeds is remained same in 2007-08 and 2008-09. Indian agriculture recorded a significant acceleration in growth and productivity after independence as compared with the pre-independence period. The main factors which were instrumental in accelerating agricultural growth after independence included implementation of land reforms and large planned investments in irrigation and other rural infrastructure. The major findings of the study are as follows.

1. The importance of a particular sector can be measured by its contribution to total GDP of the nation. The contribution of the agriculture and allied sectors to total GDP appears gradually decreasing. The contribution of the agriculture and allied sectors to total GDP at current prices in 2000-2001 is 23.35 percent and it

gradually reduced and stood at 17.1 percent by the year 2009-10.

2. The share of agriculture and allied sector in total GCF is also not constant and showing downward trends over ten years period of study. During 2000-2001 and 2001-2002 the share of agriculture and allied sector in total GCF slightly increased. Thereafter the percentage of agriculture GCF to GCF gradually declined with some variations.
3. The percentage of agricultural imports to total national imports is less than the percentage of agricultural exports to total national imports. It denotes that in good number of agricultural products India is self-sufficient and is also having surpluses to export. But the percentage of agricultural exports to total national imports is showing declining trend. On the other hand the percentage of agricultural imports to total national imports is sharply declining, which is welcome development to note.
4. The study reveals that at national level that the area under food grains in Kharif is gradually decreased from 75.22 million hectares in 2000-01 to 69.49 by 2009-10, except in 2003-04. But in case of Rabi there is gradual increase in the area of food grains except 2004-05.

With regard to production, in Kharif season has more production is registered during 2000-01 to 2008-09. But in 2009-10 the Rabi season registered more production than the Kharif season. The total production of food grains is 196.81 million tonnes in 2000-01 and it increased to 212.85 million tonnes in 2001-02. But it sharply declined to 174.77 million tonnes in 2002-03. The yield of food grains is higher in Rabi season than Kharif season during 10 years of study.

CONCLUSION

Indian agriculture recorded a significant acceleration in growth and productivity after independence as compared with the pre-independence period. The major findings of the study are as follows. The contribution of the agriculture and allied sectors to total GDP at current prices in 2000-2001 is 23.35 percent and it gradually reduced and stood at 17.1 percent by the year 2009-10.

References

1. Chandy K. T., Crop Pattern and Productivity Trends, Booklet No. 510, Agricultural Situation in India: ASIS-7, p.6

2. Soils of India, Booklet No. 396, Soil Science: SSS – 29, p.5.
3. Singh, K. and Yadav, J.S.P. (1985), Growth response of shisham (*Dalbergia sissoo*) at different levels of soil salinity and sodicity. *Current Agriculture*, Vol.9, p.44.
4. Sharma, S.K. and K. G. Prasad. (1982). Role of soils study in social forestry programme, *Santaroma*, Vol.2, pp.61 - 62.
5. Griffith, A.L. (1948), Soil in relation to teak with special reference to laterization. *Silviculture (New Series)*. *Indian Forest Buletin*, Vol.141, p.52.
