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TRENDS AND VARIABILITY OF RICE PRODUCTION IN INDIA

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ABSTRACT

Rice is one of the most important food crops of India. It feeds more than 50 per cent of the world's population. It is the staple food of most of the people in South-East Asia. This study has analysedthe trends in area, production and yield of rice. The study based on secondary data pertaining to the period 1970-71 to 2010-11. As a result of varied farming situations, there is a large variations in the area, production and productivity levels of rice around the India. West Bengal, Uttar Pradesh ,Andhra Pradesh, Punjab, Orissa, Bihar, Tamil Nadu, Madhya Pradesh, Assam, Haryana are the major rice growing states in the country. Productivity of rice in India is low due to unscientific use of fertilizers, soil moisture stress, incidence of insect pests and diseases, low inputs and cultivation of the crop on marginal and sub marginal lands etc.

KEYWORDS :*Rice, Area, Production, Productivity,Yield.*

INTRODUCTION :

Agriculture is a basic occupation. It is the oldest business in the world and nearly two-thirds of the population of the world is dependent on agriculture for its livelihood. Agricultural progress is normally regarded as a prerequisite of economic development. Agriculture is the foundation on which the entire superstructure of the growth of industrial and other sectors of the economy has to stand. Most industrialized nations of the present day world were once predominantly agricultural.

In India, agriculture is the main occupation. About 58 per cent of the population depends upon agriculture. It is the backbone of the Indian economy and is the oldest and the largest occupation of India. It is the centre around the entire economy revolves.

RICE CULTIVATION IN THE GLOBAL SCENARIO:

Agriculture is one of the most ancient occupations of mankind and still continues to play a significant role in the lives of people all over the world. Among the several food crops, rice is the staple food for 2.4 billion people. The principal rice producing countries of the world are China, India, Japan, Bangladesh, Thailand, Myanmar, Vietnam, Brazil, South Korea, Philippines and the United States.

Below table shows the production levels of the various major rice-growing countries in the world.

Table-01
Global Rice Production
(Production in MT)

SI. No.	Country	Production	Share (%)
1	China	82,05,40,458.00	44.32
2	India	30,52,00,000.00	16.48
3	Indonesia	13,80,90,282.00	7.46
4	Vietnam	8,73,23,140.00	4.72
5	Thailand	7,56,00,000.00	4.08
6	Bangladesh	6,77,79,264.00	3.66
7	Myanmar	6,60,00,000.00	3.56
8	Philippines	3,60,64,844.00	1.95
9	Brazil	2,30,99,762.00	1.25
10	Japan	2,13,08,000.00	1.15

Source: Food and Agricultural Organisation (FAO), 2012

Table -01 illustrate that the China is the largest producer of paddy,followed by India, Indonesia, Vietnam and Thailand. China contributes nearly44 percent of paddy production, followed by India (16 per cent),Indonesia (7 per cent), Vietnam (4 per cent) and Thailand (4 per cent). These five countries together contribute three-fourth of the total production of paddy.

In India 65 per cent of population preferred rice as staple food. It continues to play a vital role in the country's exports—constituting nearly 25 per cent of the total agricultural exports from the country.

Thailand was the world's leading exporter of rice for decades. However, due to farmers support price policy locally called pledging price, Thailand exports have fallen during 2012. It is estimated that Thailand due to this change in policy has lost 50 per cent of its customers during 2012, it is estimated that India exported 10 million tonnes of rice which is the largest in the world, Vietnam 7.2 million tonnes and Thailand 6.5 million tonnes.

RICE CULTIVATION IN INDIA:

In agriculture rice is one of the most important food crops of India and is second in importance throughout the world. In the world 90 per cent of the paddy cultivation and production contributed by the Asian countries. Among the rice growing countries, India has the largest area under cultivation, though in terms of volume of output, it is second to China. Productivity in India is much lower than in Egypt, Japan, China, Vietnam, USA and Indonesia and even below the world's average. It makes up 42 per cent of India's total food grain production and 45 per cent of the total cereal produced in the country. Each part of the plant has various uses. It is also used in medicine. Paddy bran oil is used for its medicinal properties and is also used as cooking oil.

One-third of the world's rice cultivation area is 83 million hectares of land in India. It is grown in almost all the states of India but is mostly concentrated in the river valleys, deltas and low-lying coastal

areas of north eastern and southern India. The rice producing states are Assam, West Bengal, Bihar, Madhya Pradesh, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Maharashtra, Gujarat, Uttar Pradesh and Jammu and Kashmir, which together contribute over 95 per cent of the country's crop. Of these, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu and Bihar are the major cultivators. In India, rice is often grown in areas with naturally favorable conditions like water-logging, high rainfall, salinity, alkalinity, acidity, high temperatures and high humidity. In parts of eastern and southern regions, the mean temperature throughout the year is favorable for rice cultivation and therefore many rice crops are raised in the course of a year. In the northern and western parts, temperature in winter season is fairly low and therefore rice is grown once a year during the months from May to November. It is to be noted that there is a vast diversity in the types of rice cultivation across the India. Each variety is suited to particular areas and conditions of the soil as well as the level of rainfall. State wise in area, production and yield of rice is given below in table no -02.

Table-02

State wise Area, Production and Yield of Rice in India 2011-12

States/Ut's	Area in ('000' hectares)	Share (%)	Production in ('000' tonnes)	Share (%)	Yield in (kg/ha.)	% to Average Yield
Andhra Pradesh	4096	9.31	12895	12.24	3148	131.55
Arunachal Pradesh	123.5	0.28	255	0.24	2065	86.29
Assam	2537	5.77	4516.3	4.29	1780	74.38
Bihar	3323.9	7.55	7162.6	6.8	2155	90.05
Chattisgarh	3773.8	8.58	6028.4	5.72	1597	66.74
Goa	47.2	0.11	121.8	0.12	2577	107.69
Gujarat	836	1.9	1790	1.7	2141	89.47
Haryana	1235	2.81	3759	3.57	3044	127.2
Himachal Pradesh	77.2	0.18	131.6	0.12	1705	71.25
Jammu & Kashmir	262.2	0.6	544.7	0.52	2078	86.84
Jharkhand	1469	3.34	3130.6	2.97	2131	89.05
Karnataka	1416	3.22	3955	3.76	2793	116.72
Kerala	208.2	0.47	569	0.54	2733	114.21
Madhya Pradesh	1662	3.78	2227.3	2.11	1340	56
Maharashtra	1543	3.51	2841	2.7	1841	76.93
Manipur	223.7	0.51	591	0.56	2642	110.41
Meghalaya	108.9	0.25	216.5	0.21	1988	83.08
Mizoram	38.5	0.09	54.3	0.05	1411	58.96
Nagaland	181.6	0.41	382.4	0.36	2106	88.01
Orissa	4004.5	9.1	5807	5.51	1450	60.59
Punjab	2818	6.4	10542	10.01	3741	156.33
Rajasthan	134.3	0.31	253.4	0.24	1886	78.81
Sikkim	12.1	0.03	20.9	0.02	1730	72.29
Tamil Nadu	1903.8	4.33	7458.7	7.08	3918	163.73
Tripura	266	0.6	718.3	0.68	2700	112.83
Uttar Pradesh	5947	13.51	14022	13.31	2358	98.54
UttaraKhand	280	0.64	594	0.56	2121	88.63
West Bengal	5433.7	12.35	14605.8	13.87	2688	112.33
A & N Islands	8.1	0.02	24	0.02	2960	123.69
D & N Haveli	10.7	0.02	18.6	0.02	1739	72.67
Delhi	6.9	0.02	29.6	0.03	4327	180.82
Daman & Diu	-	0	0	0	0	0
Pondicherry	16.6	0.04	42.1	0.04	2538	106.06
All India	44006.3	100	105311	100	2393	100

Source: Ministry of Agriculture, Government of India, 2012.

Table - 02 shows that State wise area, production and yield of rice in India.Rice is grown in all the states and UTs in the country. West Bengal is the largest producer of rice, followed by Uttar Pradesh, Andhra Pradesh, Punjab and Bihar. The state of Uttar Pradesh, West Bengal ranks first in area and production of rice respectively. West Bengal contributes 14605.8 thousand tonnes of rice production, followed by Uttar Pradesh (14022.0 thousand tonnes) and Andhra Pradesh (12895.0 thousand tonnes). These three states together contributed one third of the production of rice. Amongst yield levels, there is a high yield in Tamil Nadu and very low yield in Madhya Pradesh.

OBJECTIVE:

1. To analyse the trends in area under production of rice in the states in India.
2. To study the trends in production and productivity of rice in India.
3. To analyse the causes for low productivity in rice cultivation in India.
4. To analyse the trends in production of rice over the period of time.

METHODOLOGY:

The present study has been carried out on the basis of time-series data pertaining to the period from 1970-71 to 2010-11. The data was obtained from secondary sources like books, articles, reports, Government publications and related websites.

NEED FOR THE STUDY:

The present study is an attempt to review the entire arena of issues covering from area, production and yield of rice to provide a holistic picture of the crop from India perspective. This article is helpful to students, researchers and planners in making policy changes which are in tune with the current trends and realities of the nation.

Trends in Area Under Rice Production:-

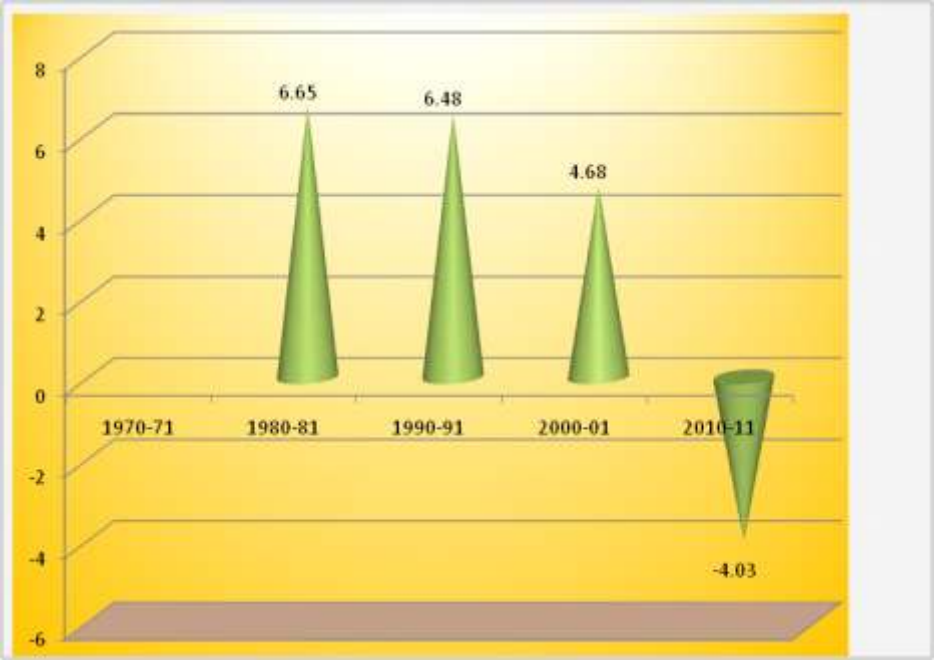
To analyse the trends in production of rice. It is essential to analyse the trends in area under production of rice.

Table-03
Trends in Area Under Production of Rice in India
(Million hectares)

	1970-71	Growth rate	1980-81	Growth rate	1990-91	Growth rate	2000-01	Growth rate	2010-11	Growth rate
Kharif	36.0	-	38.4	6.67	39.7	3.39	40.7	2.52	38.0	-6.63
Rabi	1.6	-	1.7	6.25	3.0	76.47	4.0	33.33	4.8	20.00
Total	37.6	-	40.1	6.65	42.7	6.48	44.7	4.68	42.9	-4.03

Source: Economic Survey, 2011-12.

Figure-1
Decadal Growth Rate of Trends in Area Under Production of Rice in India



The table-03 explains the total area of rice cultivation in both Kharif as well as Rabi seasons. In Kharif season, the highest area of cultivation i.e., 40.7 million hectares was found in the year 2000-01 and lowest area of cultivation i.e., 36.0 million hectares in 1970-71.Whereas, 38.4, 39.7 and 38.0 million hectares of area of cultivation was found in the year 1980-81, 1990-91 and 2010-11 respectively.

On the other hand in the Rabi season, the highest area of cultivation 4.8 million hectares was found in the year 2010-11, whereas, medium i.e., 1.7, 3.0, 4.0 million hectares of cultivation was found in the years 1980-81, 1990-91 and 2000-01 respectively and the lowest area of cultivation i.e., 1.6 million hectares was found in the year 1970-71.

From the above results it can be concluded that the highest area of rice cultivation was found in the year 2000-01 and the lowest area of rice cultivation was found in the year 1970-71 in both Kharif and Rabi seasons respectively.

Production of rice trends over the period 1970-71 to 2010-11:-

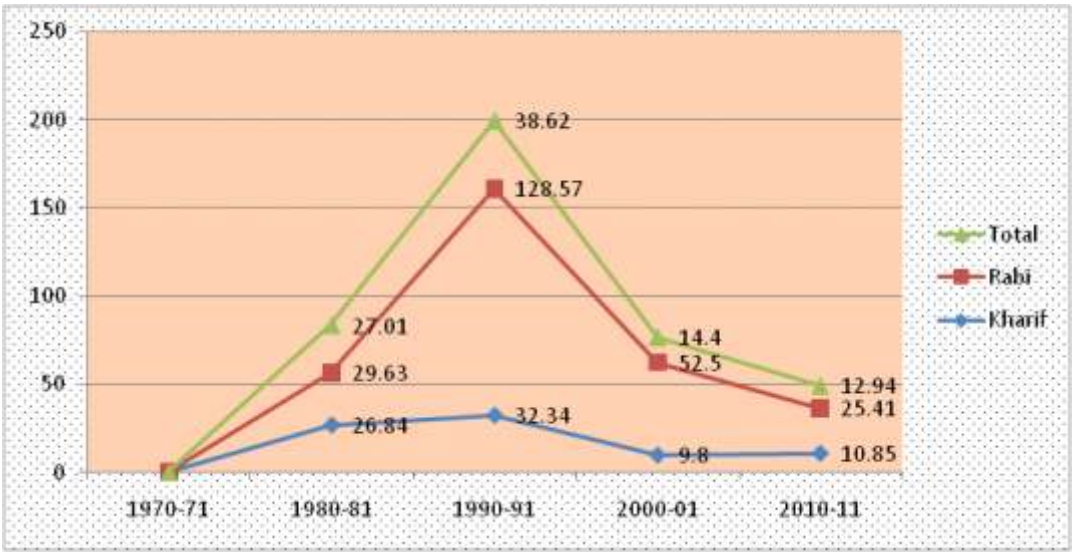
Table-04
Trends in Production of Rice in India

(Million tonnes)

	1970-71	Growth rate	1980-81	Growth rate	1990-91	Growth rate	2000-01	Growth rate	2010-11	Growth rate
Kharif	39.5	-	50.1	26.84	66.3	32.34	72.8	9.80	80.7	10.85
Rabi	2.7	-	3.5	29.63	8.0	128.57	12.2	52.5	15.3	25.41
Total	42.2	-	53.6	27.01	74.3	38.62	85.0	14.40	96.0	12.94

Source: Economic Survey, 2011-12.

Figure-2
Decadal Growth Rate of Trends in Production of Rice in India



The table-04 shows that 39.5, 50.1, 66.3, 72.8 and 80.7 million tonnes of rice produced during the year 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively in the Kharif season. It is observed that 80.7 million tonnes was the highest and 39.5 million tonnes was the lowest production during the year 2010-11 and 1970-71 respectively.

The 2.7, 3.5, 8.0, 12.2 and 15.3 million tonnes of rice produced during the year 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively in the Rabi season. Even in the Rabi season during 2010-11 having the highest production and 1970-71 having the lowest production of rice in India.

With respect to total production 42.2, 53.6, 74.3, 85.0 and 96.0 million tonnes of rice produced during the year 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively.

PRODUCTIVITY IN RICE CULTIVATION:-

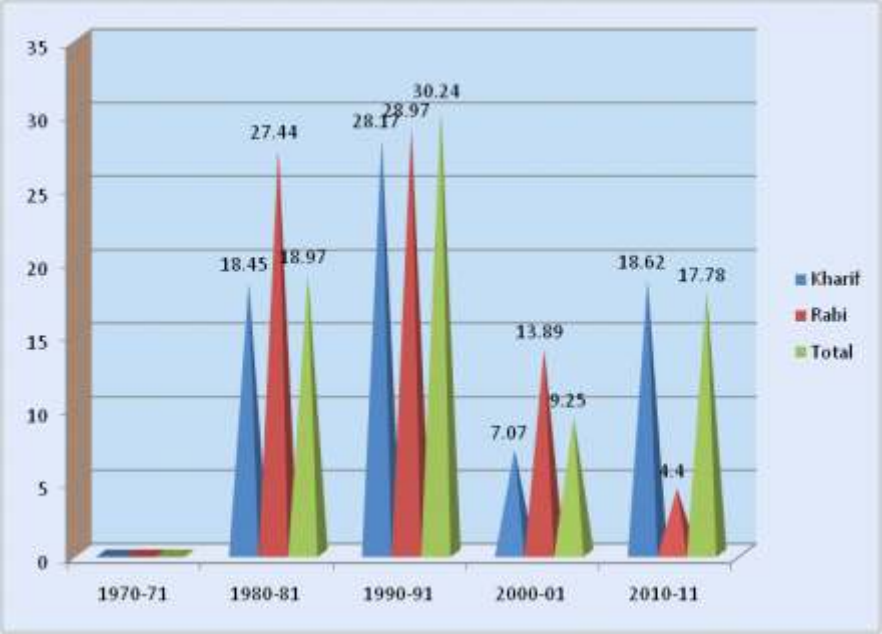
Table-05
Trends in Productivity Per Hectare of Rice in India

(Per hectare yield)

	1970-71	Growth rate	1980-81	Growth rate	1990-91	Growth rate	2000-01	Growth rate	2010-11	Growth rate
	1100	-	1303	18.45	1670	28.17	1788	7.07	2121	18.62
	1625	-	2071	27.44	2671	28.97	3042	13.89	3176	4.40
	1123	-	1336	18.97	1740	30.24	1901	9.25	2239	17.78

Source: Economic Survey, 2011-12.

Figure-3
Decadal Growth Rate of Trends in Productivity PerHectare of Rice in India



In the table-05 it can be found that 1100, 1303, 1670, 1788 and 2121 kg per hectare during the year 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively in Kharif season. Whereas, during 2010-11 having the highest productivity as compare to previous decades. Productivity is increasing continuously.

In Rabi season having highest productivity compare to Kharif season. In 1970-71 having the 1625 kg per hectare, 1980-81 having 2071 kg per hectare, 1990-91 are having the 2671 kg per hectare, 2000-01 were having the 3042 kg per hectare and 3176 kg per hectare during 2010-11 which was the highest as compare to the previous decades in India. Here also productivity is increasing continuously.

On the other hand, during 2010-11 having the highest productivity that 2239 kg per hectare and we can find the lowest i.e., 1123 kg per hectare in the during 1970-71. Similarly, in 1980-81 i.e., 1336, 1990-91 i.e., 1740 and 2000-01 i.e., 1901 kg per hectare respectively.

FINDINGS:

- In India Uttar Pradesh state has the highest area (13.51%) share and Sikkim is the lowest area (0.03%) share in cultivation under rice crop, among production of rice levels, West Bengal (13.87%) is the highest share and Sikkim, Mizoram (0.02%) states have lowest percentage of share contributed to the rice production and amongst yield levels; there is a high yield in Tamil Nadu (163.73%) and very low yield in Madhya Pradesh (56.00).
- The highest growth rate of area in rice cultivation was found in 1980-81 i.e., 6.67 per cent in Kharif and 76.47 per cent in Rabi season in 1990-91. The lowest growth rate of area was found in 2010-11 that was -6.63 percent and 6.25 per cent in 1980-81 with respect to Kharif and Rabi seasons.
- In 1990-91 had the highest growth rate i.e., 32.34 per cent and 128.57 per cent of rice production with respect to Kharif and Rabi seasons and in 2000-01 had lowest growth rate of rice production i.e., 9.80 per cent and 25.41 per cent with respect to Kharif and Rabi seasons.
- Productivity of rice was highest growth rate in 1990-91 i.e., 28.17 per cent and 28.97 per cent per hectare with respect to Kharif and Rabi seasons. The lowest growth rate of rice productivity was

found in 2000-01 that was 7.07 per cent and 4.40 per cent per hectare with respect to Kharif and Rabi seasons.

CONCLUSION:

Agriculture sector employed 52.1 per cent of the total workforce, despite a stable decline of its share in the GDP; it is still the largest economic sector and a significant role of the overall socio-economic development of India. Rice has been grown in India since 1970-71; Major share of rice is cultivated during Kharif season, a small share of rice is grown in Rabi /summer season. Indian rice production largely depends on monsoon rain and only 59 per cent rice area has assured irrigation, due to the special importance placed on agriculture in the five year plans and steady improvements in irrigation, technology, application of modern agricultural practices and provision of agricultural credit and subsidies since the green revolution in India. Therefore, the Indian states viz., Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Andhra Pradesh, Karnataka, Bihar, West Bengal, Gujarat and Maharashtra are key agricultural contributing states of India. Expansion of irrigation facilities and processing activity will help to increase production and exports of rice in India.

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