



## **GROWTH OF AGRICULTURE PRODUCTIVITY IN JHARKHAND**

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*Agriculture plays an important role in Jharkhand. Agriculture and allied activities continue to be key a sector of the economy of Jharkhand. About 75% of the population of Jharkhand lives in rural area, a large section of the population living in villages depends on agriculture and allied activities for their food, livelihood, employment and income for the agriculture is way of life. About 59% of the workforce is dependent on agriculture. The agriculture sector contributes about 15% to the GSDP (Gross State Domestic Product) of the state. Though the proportion of contribution is small and its marginally declining in recent years, the agriculture sector remains critical for the rural economy. Agriculture growth and diversification is necessary for ensuring food security enhancing income of farmers and generating vibrancy in the rural economy of the state. The agriculture of Jharkhand in comparison to its geographical area and population makes an insignificant contribution to the value of the output of this sector of the economy.*

### **INTRODUCTION**

Agriculture is the backbone of Indian economy because of its high share in employment and livelihood creation. The share of agriculture in the GDP has registered steady decline yet this sector provides direct employment to more than 50% of total workforce in the country and large proportion of the population depends upon agro based industries and trade of agriculture products. About 60% of the country is rural areas the main occupation is agriculture. So, a last large position of the land the country is used for agriculture and horticulture. If the productivity in agriculture and horticulture improves with the help of mechanization, advanced technology, this sector can leading role India's economic development.

Agriculture productivity is measured as the ratio of agricultural outputs to agricultural inputs. While industries products are usually measured by weight, their varying densities make measuring overall agricultural output difficult. Horticulture is the branch of agriculture that deals with the art, science, technology and business of vegetables garden plant growing. Agriculture is the main stay for 80% of rural population of the state. Agriculture is there employment and primary income generating activity. It is also an important sources of raw materials and demand for money industrial products. Particularly fertilizers, pesticides, agricultural implements and a verity of consumer good contribute significantly to expect.

The state of Jharkhand was formed by carving out chhotanagpur and santhal pargana region from Bihar on 14th November 2000. Jharkhand has a geographical area 79.7. lakhs hectare. About 23.6 lakhs hectare i.e. 29.61% is covered under forest and 38 lakhs hectare is the area of cultivable land in the state. The planning commission has fixed a target of 7.53% annual GDP growth rate during the 12th five year plan for Jharkhand.

The farming of this state depends largely on rainfall, 82% of which is received during four months from June to September. This state is a mono cropped region. Farming activities are confined largely during the Kharif season from June to November - December. After kharif season a very small position of net

sown area (17%) is brought under Rabi crops. As agriculture is seasonal in character, the rural workforce gets seasonal employment. About 70% of population of state, the major occupation is agriculture. Agriculture and allied activities continue to be key sector of the economy of Jharkhand. Agriculture refers to science or practice or farming, including cultivation of soil for the growing crops and the rearing of animals to providing food, wool, and other products. In recent time Horticulture is gaining importance all over the world and Jharkhand. Horticulture refers to science and art producing, improving marketing and using fruits, vegetables, flowers ornamental plant and medical plant. Rationally horticulture involves from area of study namely pomology (fruit culture), olericulture (vegetable culture), floriculture (culture of ornamental crops) and post harvest technology plantation crops management of like produce after harvest, include other crops like - Mushroom, bamboo, tea, coffee and rubber. Science growing and management of fruits vegetables including tubers, ornamental, medical and aromatic crops, spices, plantation crops their producing value addition and marketing .

### OBJECTIVES

This paper is being proposed with the following specific objectives: -

- To study the trend of growth of agriculture and horticulture productivity in Jharkhand.
- To compare the growth rates of productivity of agriculture and horticulture crops in Jharkhand

### REVIEW OF LITERATURE

Different social scientists have covered different aspects of agriculture and horticulture productivity.

#### Productivity In Agriculture

**Kumar and Rosegrant (1994)** attempt to assesses total factor productivity growth. The study revealed that increase in area production and productivity of crops was highly associated with their relative profitability. Rice area increased slowly since 1980 mainly through substitution from coarse cereals market infrastructure, research, canal irrigation, balanced sources of TFP, and Future productivity gains in Rice production would have to be achieved from the eastern and southern region of India.

**Bhalla and Alag (1983)** have examined the contribution of Indian agriculture in the productivity frame for the period 1980-83 to 1992-95 for the states in India. The contribution of area to the output growth has drastically diminished the expansion of gross cropped area through double cropping has increased. Since low yield and low value coarse cereals were replaced by high value oilseeds as well as Rice and Wheat, without and adversely affecting food grain output.

**Vidyarthi (1962)** represented that in agricultural villages near Ranchi a shift was visible in the cropping pattern especially towards vegetables. According to the data available with the directorate of Horticulture nearly 22,023 hectares of land was under different vegetable crops. Vegetables are produced and marketed largely by all size groups of farmers.

**Singh and Singh (1993)** examined the growth rates of area production and productivity of gram in different districts of Bihar; estimate the factors affecting the area, production and productivity of gram. Based on the district wise secondary time series data on area and annual rainfall from 1960-61 to 1989-90. Conclusion was that though the area under pulses was mostly predetermined and as the area under irrigation increased it was gradually substituted by cereal or each crop, the production

could be increased either by motivating area or by introducing pulses crops no traditional crop season.

**Adams and Bumb (1993)** tried to know the sources of district wise agricultural productivity in Rajasthan for 1971 covering all crops. The result the study showed that land productivity depended directly upon three things. Supplies of conventional inputs, the cropping pattern and cropping intensity and the use of modern mechanical and chemical technologies.

**Berabih and Herdra (2007)** examined the utilization of low level agricultural technologies, risks related to natural occurrences such as streams and diseases outbreak to be the major sources of the decline in productivity. As a result development in order to maximize land productivity. Horticulture production provider on opportunity for intensive production and increase small holders farmers participation in the market.

**Reddy (1998)** found that land quality labour, fertilizer herbicides and machinery influence productivity. According to Reddy if land is turned into mortangageble transferable commodity. Farmer can use it as security to obtain loans required for productivity thus exchanging investments this is only when the farmer has a title to the land, labour shortages can also result in very high cost especially at harvesting time.

#### Horticulture Productivity

**Mittal (2007)** growth of horticulture crops in the country is not only enthused by domestic needs but also by a large quantity of export requirements from other nations. The shift of cropping pattern in favour of horticulture in India in the past one and a half decades has been leveraged by economic feasibility, especially the fruits and vegetables.

**Smith (1990)** in Zimbabwe the most recent African nation to expand its horticultural exports in 1990 revealed that horticulture accounted for percent of the countrys agricultural output. The importance of this sector was recognized not as an earner foreign exchange but also as a provider of rural employment. As it was estimated that a hectare of horticulture crops created an average of 0.7 full time and 2.0 seasonal jobs, one of the height employment land ratio in the agriculture sector.

**Bhalla G.S. and Alagh Y.K. (1983)** made an attempt to economic the levels and change in labour productivity in 281 districts of India during 1962-65 to 1965-75 and to statistically explain the inter district variation in labour productivity in three regions by factor like intensity of use capital and other important , but additional variable like gross cropped area and fertilizers resulted in significant increase in the explanation of variation in labour productivity investment in modern equipment like factors and tube well a limited and even the working capital requirements were quite low in traditional agriculture productivity.

**Bezabih and Hadra (2007)** examined the utilization of low level agricultural technologies, risks related to national occurrences such as storms and diseases outbreak to be the major sources of the decline in productivity . As a result development in order to maximize level productivity . Vegetable production provides an opportunity for intensive production and increases small holders farmers participation in the market.

**Dharendra Nath Borthkm (1992)** elaborately pointed out and explores the overall potential and growth of horticulture in north east region . He maintains that north east region of India offers a favorable set of climate condition for cultivation of various types of horticultural crops such as fruits, vegetables, flowers, tuber and rhizomatous and spices etc. In case of fruits, the range varies from

highly temperate type like walnut , apple , orange etc. To sub-temperate as well as tropical crops , the development of horticulture has not picked up as desired because of a number of constraints i.e. lack of proper marketing, problems of transport, processing adequate technology as well as the we weak extension support in the field of horticulture.

**Dutta and Borah (2003)** mentioned that low yielding pattern of horticultural crops in the villages have due to the combination of a few factors like lack of proper market , lack of awareness of the improved ways of maintaining orchards etc. they opened for the need of some handhold support suggested for active succor from the NGOs. Some of such organization has already been actively working for the development of the villages under consideration.

**Lewis (1955)** was one of the first of many development economist attempting to explain the paradox. He viewed economic development as a process of relocating factors of production from an agricultural sector characterized by low productivity and the use of traditional technology to a modern industrial sector with higher productivity. Lewis's theory was interpreted as advocating industrialization and used to justify government policies that favored protection for domestic industries and explicitly or implicitly , taxed the agricultural sector.

**Poonyth ,Hassan, Kirsten and Calcaterra (2001)** stated that agriculture productivity is less than productivity of non-agricultural sectors. However , the growth of productivity of agriculture overtime is important for rural development and growth of other sectors in the economy. Thus other sectors depends on agriculture for inputs and declines therefore if productivity of agriculture declines this will automatically mean the productivity of other sector will decline .

**Sargent (1973)** highlighted that in primitive stages of agricultural development , agriculture remained the main occupation of the people . In the transitional stage of economic development carried immense burden in drive for economic growth. However during maturity phase the main emphasis still remains on the maintenance of balance role for agriculture, but horticulture becomes the more important. Fruits and vegetables have becomes greater importance in the past few years in the process of horticulture development.

**Tripathi et al (2008)** however , argued that and important is not only labor but also capital and labor productivity can improve agricultural productivity. They studied agricultural productivity growth in India and impact of labor, capital and land on agricultural productivity growth from 1967-70 to 2005-06. This meant all inputs had positive and significant influence on agricultural productivity growth.

## **METHODS**

The Present study is based on the analysis of Secondary data. Data considered from 2011-12 to 2016-17.

### **AGRICULTURESECTOR IN JHARKHAND**

The main agricultural crops in Jharkhand are Rice, Ragi, Red Gram, Mize, Wheat, Paddy, Niger, Pulse and Oilseeds. The main Horticulture crops of Jharkhand are Fruits, Vegetables and other tropical tuber crops, Ornamental medical end Aromatic plant.

The agricultural economy of the Jharkhand state is characterized by dependence on nature, low investment, low productivity, mono cropping with paddy irrigation facilities and small and marginal holdings. The net irrigated area is about 28% of the net sown area. The total cultivated land is only 38 lakhs hectares.

Table - 01  
Distribution Of Agricultural Land By Types Of Use

Particulars	Area(in lakh hectare)	Area ( %)
Total Geographical Area	79.71	
Total cultivable Area	38.00	
Net Sown Area	25.75	28.08
Irrigated Land	03.07	12.73
Current Fallow	08.87	11.12
Other Fallow	06.75	0.85
Forest	23.28	29.20
Barren Land	05.74	07.20
Non - Agricultural Use	06.86	08.60
Posture and Other Grazing Land	01.97	02.48
Cultivable Waste Land	02.74	03.44

Source:-Jharkhand State Profile ([www.sameti.org](http://www.sameti.org))

### Development in Agriculture and Allied Sector

The agricultural sector in Jharkhand is characterized by small net sown area, large arable waste, low irrigation coverage and small size land holding resulting in high dependence on monsoon, low diversification, low cropping intensity and low production and productivity. The cropping intensity, however, has improved in recent years and has reached to 125 percent in 2012-13 as reported by the Department of Agriculture. Nearly 80 per cent of the total land holdings in Jharkhand is below 2 hectares in size and there are only 1.1 per cent holdings whose size is greater than 10 hectares. The average size of the land holding is only 1.58 hectares<sup>3</sup>. The small size of land holdings has proved to be a hindrance in adoption of new and improved technology in the farms, thus, keeping the productivity and growth in production and productivity low in the state.

### Output and Growth of Agriculture and Allied Sector

The Agriculture and Allied Sector of Jharkhand, in comparison to its geographical area and population, makes an insignificant contribution to the value of the output of this sector of the country. It contributes only 1.8 percent to the value of the output of Agriculture and Allied sector of the country<sup>4</sup>. This sector in Jharkhand, however, has made an impressive growth since 2004-05; by an average annual rate of 5.7 percent per annum. Except for 2009-10, when the value of its output at

constant prices declined by 6.2 percent, it has made positive growth every year. The double digit growth in 2006-07 and 2008-09 has made a significant contribution in keeping its average growth impressive. Agriculture, the dominant sector within this sector as it contributes more than three fourths to the value of its total output and showed increasing trend during 2004-05 to 2012-13, mainly due to slow growth in forestry sector than growth achieved in this sector (6.1%).

Fig 01: Growth In Agriculture And Allied Sectors

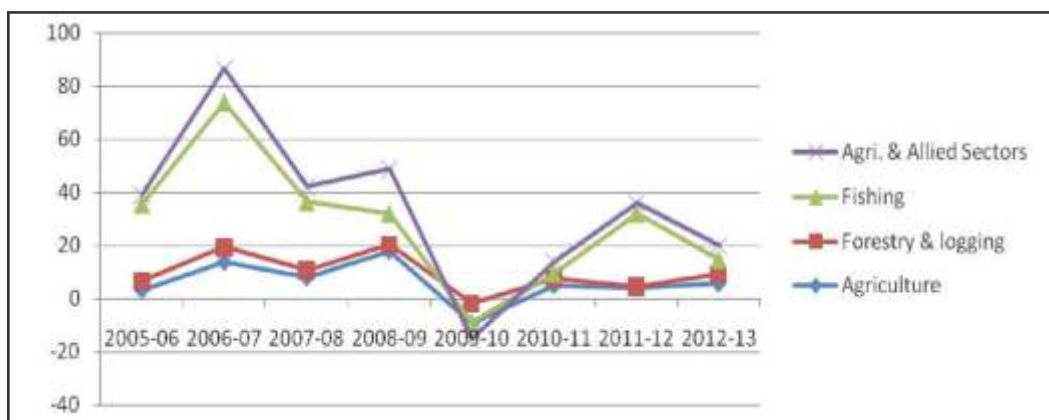


Table - 02:  
Production And Growth Rate Of Agriculture And Allied Sector  
(in Crore Rupees)

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Agriculture	6795	7023	7995	8642	10198	9251	9722	10108	10698
Growth rate		3.36	13.84	8.09	18.01	-9.29	5.09	3.97	5.84
Forestry & logging	2011	2076	2189	2248	2301	2474	2533	2548	2636
Growth rate		3.21	5.46	2.72	2.33	7.51	2.42	0.59	3.44
Fishing	111	143	221	278	311	289	294	375	396
Growth rate		28.92	54.65	25.54	11.73	-7.05	1.96	27.53	5.37
Agri. & Allied Sectors	8917	9242	10405	10988	12809	12013	12550	13032	13730
Growth rate		3.65	12.58	5.61	16.57	-6.21	4.46	3.84	5.36

Source: Central Statistical Organisation, ([www.mospi.nic.in](http://www.mospi.nic.in))

Growth of forestry sector has been sluggish in Jharkhand during last 9 years. It achieved less than one per cent growth in 2011-12 and grew at comparatively low rate than agriculture sector throughout during the period except in 2009-10 when state received the minimum rainfall of the decade.

Fishery has shown an outstanding growth in this period, growing at an average annual rate of 18.6 percent. In most of the years it has recorded a double digit growth. But since Jharkhand does not have perennial water sources, its contribution to Agriculture and Allied sector or to GSDP of the state is very small. Despite this growth, the value of its output was only 2.9 percent of the value of output of Agriculture and Allied sector and 0.39 percent of the GSDP of the state in 2011-12 and 2012-13.

In Jharkhand, about 95 per cent of the cultivated area is used for food-grain cultivation and the rest, only 5 percent, for growing cash crops. But food grains accounts for only about 1.8 percent of all-India food-grain production ([agricoop.nic.in](http://agricoop.nic.in)). The total food grain production has shown a very slow growth with very high year to year fluctuations. There was not much growth in kharif food grain crops but rabi food grain crops increased by six times during last six years in Jharkhand, mainly due to increase in their coverage and productivity.

The yield rate of total food grain production has always remained less than the national yield rate. In 2010-11 it was about 35 percent less than the national yield rate. The difference is more pronounced in Rabi Crops where the yield rate of the state has remained more than 40 percent less than the national rate between 2007-08 and 2011-12. The overall food-grain yield has shown wide year to year fluctuations and has also grown at a very slow pace.

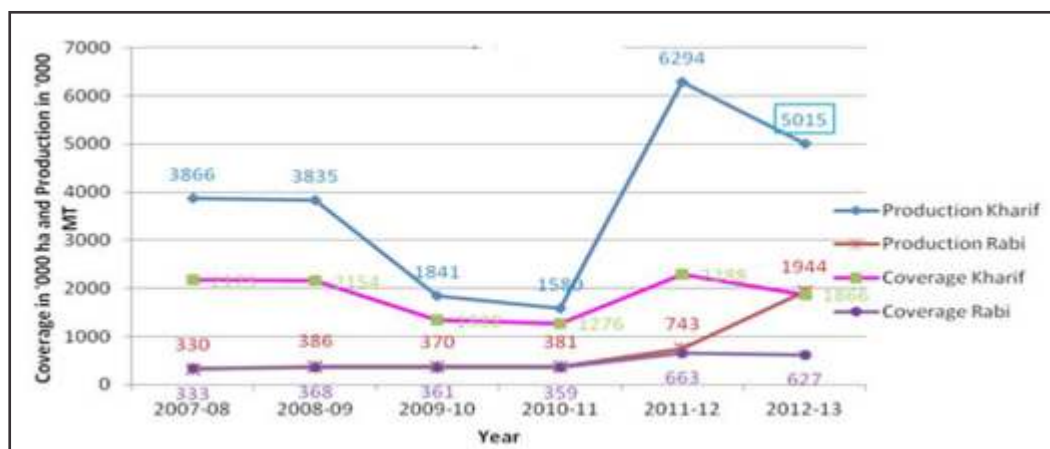
Table - 03 : Yield Of Major Crops In Jharkhand And India  
(Kg/hectare)

Crop	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Production Kharif	3866	3835	1841	1580	6294	5015
Production Rabi	330	386	370	381	743	1944
Coverage Kharif	2173	2154	1338	1276	2288	1866
Coverage Rabi	333	368	361	359	663	627

Source: Department of Agriculture and Sugar Cane Development, Govt. of Jharkhand



Fig02: Year Wise Crop Production And Crop Coverage  
(kharif & Rabi) During 11th Five Year Plan



Source: Department of Agriculture and Cane Development, Govt. of Jharkhand

Rice is the most important crop and area under this crop increased from 9.77 lakh hectares in 2009-10 to 14.14 lakh hectares in 2012-13 and production of rice increased by about three fold during last four years. It was mainly due to increase in paddy productivity from 1505 kilograms to 2833 kilograms during the period (Table 2.12). But there is a wide spatial variation in paddy productivity in Jharkhand. Per hectare paddy productivity was about 59 quintals in Chatra district whereas West Singhbhum district could produce only 14.70 quintal of paddy. Out of 24 districts, three districts had paddy productivity more than 40 quintals. Wheat and maize are not important crops in the state but area under these crops increased by one lakh hectares during last four years. Productivities of wheat and maize increased during last four years but still much below the national averages.

Pulses are nontraditional crops but are fast emerging as important crops. Area under pulses increased from 3 lakh hectares in 2009-10 to about 6 lakh hectares in 2012-13. Pulses productivity also showed increasing trend. However, there have been significant fluctuations during last four years. Area under oilseeds also increased from 1.40 lakh hectares in 2009-10 to 2.51 hectares in 2012-13. Per hectare productivity of oilseeds also increased from 475 kilograms to 790 kilograms during the period.



**Table - 04 : Area, Production And Productivity Of Principal Crops In Jharkhand  
During Last 5 Years**

(area In '000 Ha, Production In '000 Tonnes And Productivity In Kg/ha.)

Name of Crops		2009-10	2010-11	2011-12	2012-13	2013-14
Paddy	Area	977.376	717.366	1469.034	1414.462	166.91
	Production	1470.25	1176.938	4695.873	3991.222	350.511
	Productivity	1505	1557	3197	2833	2100
Wheat	Area	99.66	101.065	158.572	164.304	166.91
	Production	154.473	151.39	302.615	319.454	350.511
	Productivity	1550	1500	1908	1944	2100
Maize	Area	163.24	216.318	215.518	249.335	240.154
	Production	217.458	263.191	321.543	451.693	458.138
	Productivity	1332	1216	1446	1812	1908
Pulses	Area	300.436	406.992	591.532	586.965	555.007
	Production	220.186	267.093	494.674	686.219	507.609
	Productivity	733	656	921	1169	915
Oil seeds	Area	140.574	186.428	228.867	250.586	257.688
	Production	67.125	88.51	155.523	197.235	203.512
	Productivity	475	475	679	783	790

*Source: Department of Agriculture and Cane Development, Govt. of Jharkhand*

#### **TREND OF GROWTH OF AGRICULTURE PRODUCTIVITY IN JHARKHAND**

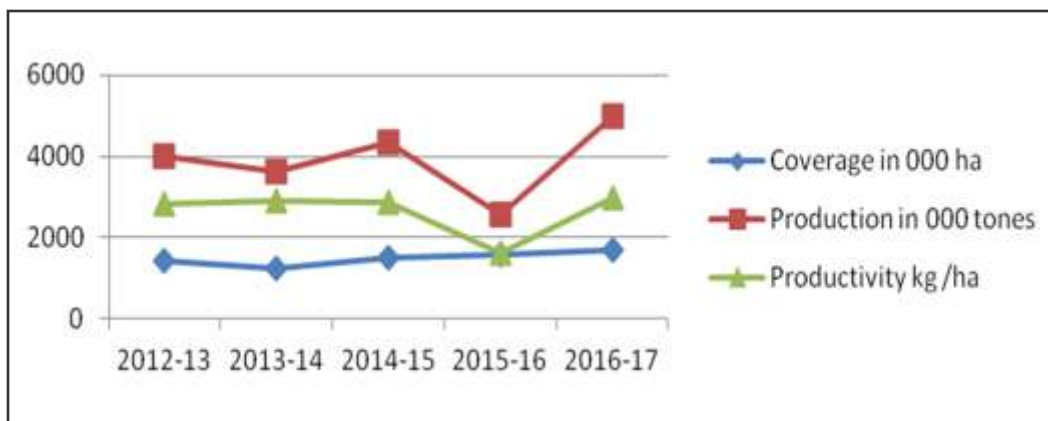
To study the trend of growth of agriculture productivity in Jharkhand. Data from 2011-12 to 2016-17 is considered. In this study the area of land, production and productivity is considered. On the basis information the trend of various crops is examined.

Table - 05: Growth In Paddy Productivity In Jharkhand

Year	Coverage in 000 ha	Production in 000 tones	Productivity kg /ha
2012-13	1414.462	3991.222	2833
2013-14	1255.873	3637.447	2896
2014-15	1502.177	4324.456	2879
2015-16	1588.879	2569.411	1617
2016-17	1678.960	4988.065	2971

Source : State Agricultural Management and Extension Training Institute SAMETI, Jharkhand

Fig 03: Trends Of Production And Productivity Of Paddy In Jharkhand



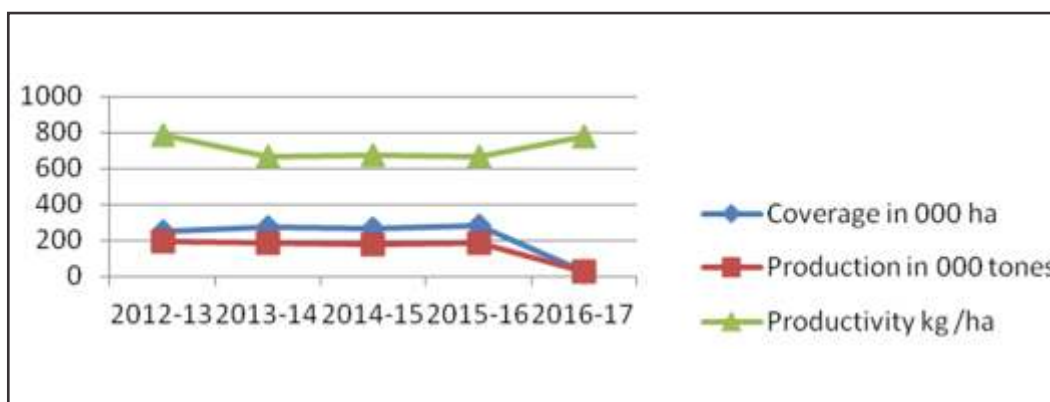
The above figure shows the production and productivity of paddy from 2012-13 to 2016-17 and total land area used in the respected year. In the year 2012-13 the total land area used was 1414.462 thousand hectare and the productivity of paddy in kg/ha was 2833. The paddy produced in this year was 3991.222 thousand tones. In the year 2013-14 the total land area used was 1255.873 thousand hectare and the productivity of paddy in kg/ha was 2896. The paddy produced in this year was 3637.447 thousand tones. In the year 2014-15 the total land area used was 1502.177 thousand hectare and the productivity of paddy in kg/ha was 2879. The paddy produced in this year was 4324.456 thousand tones. In the year 2015-16 the total land area used was 1588.879 thousand hectare and the productivity of paddy in kg/ha was 1617. The paddy produced in this year was 2569.411 thousand tones. In the year 2016-17 the total land area used was 1678.960 thousand hectare and the productivity of paddy in kg/ha was 2971. The paddy produced in this year was 4988.065 thousand tones.

Table - 06 : Growth in Maize Productivity in Jharkhand

Year	Coverage in 000 ha	Production in 000 tones	Productivity kg /ha
2012-13	249.335	451.693	1812
2013-14	256.942	517.029	2012
2014-15	289.009	384.932	1559
2016-17	286.231	578.066	2020

Source : State Agricultural Management and Extension Training Institute SAMETI , Jharkhand

Fig 04: Trends Of Production And Productivity Of Maize In Jharkhand



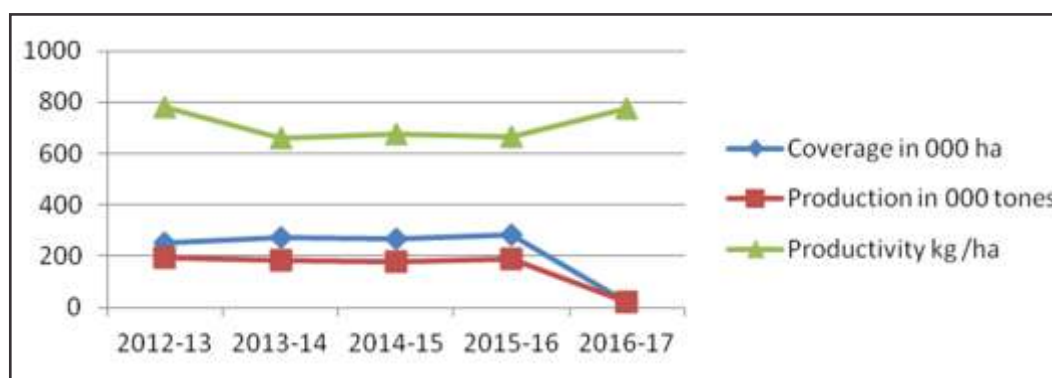
The above figure shows the production and productivity of Maize from 2012-13 to 2016-17 and total land area used in the respected year. In the year 2012-13 the total land area used was 249.335 thousand hectare and the productivity of maize in kg/ha was 1812. The maize produced in this year was 451.693 thousand tones. In the year 2013-14 the total land area used was 256.943 thousand hectare and the productivity of maize in kg/ha was 2012. The maize produced in this year was 517.029 thousand tones. In the year 2014-15 the total land area used was 289.009 thousand hectare and the productivity of maize in kg/ha was 1559. The maize produced in this year was 384.932 thousand tones. In the year 2016-17 the total land area used was 286.231 thousand hectare and the productivity of maize in kg/ha was 2020. The maize produced in this year was 578.066 thousand tones.

Table - 07 : Growth in Pulses Productivity in Jharkhand

Year	Coverage in 000 ha	Production in 000 tones	Productivity kg /ha
2012-13	586.965	686.219	1169
2013-14	566.841	578.635	1020
2014-15	594.661	597.068	1004
2015-16	553.493	495.134	895
2016-17	350.317	300.141	857

Source : State Agricultural Management and Extension Training Institute SAMETI , Jharkhand

Fig 05: Trends Of Production And Productivity Of Pulses In Jharkhand



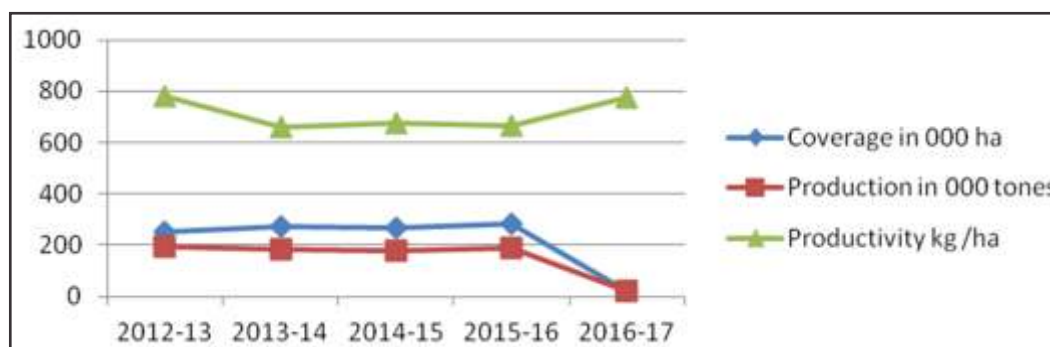
The above figure shows the production and productivity of pulses from 2012-13 to 2016-17 and total land area used in the respective year. In the year 2012-13 the total land area used was 586.965 thousand hectare and the productivity of pulses in kg/ha was 1169. The pulses produced in this year was 686.219 thousand tones. In the year 2013-14 the total land area used was 566.841 thousand hectare and the productivity of pulses in kg/ha was 1020. The pulses produced in this year was 578.635 thousand tones. In the year 2014-15 the total land area used was 594.661 thousand hectare and the productivity of pulses in kg/ha was 1004. The pulses produced in this year was 597.068 thousand tones. In the year 2015-16 the total land area used was 553.493 thousand hectare and the productivity of pulses in kg/ha was 895. The pulses produced in this year was 495.134 thousand tones. In the year 2016-17 the total land area used was 350.317 thousand hectare and the productivity of pulses in kg/ha was 857. The pulses produced in this year was 300.141 thousand tones.

Table - 08 : Growth in Oilseeds Productivity in Jharkhand

Year	Coverage in 000 ha	Production in 000 tones	Productivity kg /ha
2012-13	250.586	197.235	783
2013-14	275.816	182.852	663
2014-15	267.560	180.458	674
2015-16	283.187	188.448	665
2016-17	281.583	192.457	778

Source : State Agricultural Management and Extension Training Institute SAMETI , Jharkhand

Fig 06: Trends Of Production And Productivity Of Oilseeds In Jharkhand



The above figure shows the production and productivity of oilseeds from 2013-14 to 2016-17 and total land area used in the respected year. In the year 2012-13 the total land area used was 250.586 thousand hectare and the productivity of oilseeds in kg/ha was 738. The oilseeds produced in this year was 197.235 thousand tones. In the year 2013-14 the total land area used was 275.816 thousand hectare and the productivity of oilseeds in kg/ ha was 663. The oilseeds produced in this year was 182.852 thousand tones. In the year 2014-15 the total land area used was 267.560 thousand hectare and the productivity of oilseeds in kg/ha was 674. The oilseeds produced in this year was 182.852 thousand tones. In the year 2015-16 the total land area used was 283.187 thousand hectare and the productivity of oilseeds in kg/ha was 665. The oilseeds produced in this year was thousand tones. In the year 2016-17 the total land area used was 281.583 thousand hectare and the productivity of oilseeds in kg/ha was 778. The oilseeds produced in this year was 192.457 thousand tones.

## HORTICULTURE PRODUCTS IN JHARKHAND

Horticulture is also play in important role in Jharkhand. Jharkhand has the required climate and soil to grow virtually anything here. The region across its length and breath. The state government with the support of Horticulture and Agro Forestry Research Centre (HAFRC) helps by importing horticulture techniques to the farmer and the scope for the prospective entrepreneurs. Horticulture improves with the help of mechanization advance technology, this sector can leading role in Jharkhand economy development.

A part from agriculture products, growing of horticulture has added significance from the point of view of its contribution to national income and employment generation. From the economic point of view , cultivation of vegetables gives high returns. Horticulture crops which include vegetables have the potential of earning almost four times more income per hectare than food crops (Srivastava ,1993). Higher income elasticity and the growing demand for vegetables have crop plan. So in different five year plans emphasis has been given on the development of these crops.

In the 11th Five Year Plan more emphasis is being given to the horticultural industry as a sources of increasing employment potential, providing wider return for unit area earning much needed foreign exchange to the country.

## HORTICULTURAL CROPS

Production of horticultural crops is one of the important activities in Jharkhand. Presently horticultural crops cover about 28 per cent net sown area. Among horticultural crops, vegetable crops are the most important, cultivated on more than three-fourth area covered under horticultural crops in the state (Table 2.14). Fruits are the second most important group of horticultural crops grown on about one-fifth of the area covered by horticultural crops in the state. Area under spices showed a declining trend from 14 thousand hectares in 2001-02 to 7.61 thousand hectares in 2012-13. Flowers cover an insignificant area in Jharkhand although the climate is quite suitable for growing various flowers and there is a good market for flowers in the state.

Table - 09 : Area Under Horticultural Crops In Jharkhand During 2001- 13

(figures In '000hectares)

Year	Fruits	Vegetables	Spices	Flowers	Total
2000-01	29.9	149.8	N.A	N.A.	179.7
2001-02	31.5	158.5	14.7	0.07	204.77
2002-03	32.7	118.2	15.34	0.09	166.33
2003-04	31.8	110.6	16.82	0.09	159.31
2004-05	33.2	223.6	16.97	0.1	273.87
2005-06	33.3	224.2	17.09	0.13	274.72
2006-07	32.9	223.6	18.19	0.21	274.9
2007-08	37.6	238.9	18.19	0.11	294.8
2008-09	43.25	226.29	18.19	0.11	287.84
2009-10	43.95	229.63	18.19	0.11	291.88
2010-11	68.87	243.14	N.A	N.A.	312.01
2011-12	84.56 (22.44)	287.53 (76.32)	4.66 (1.24)	N.A.	376.748 (100.00)
2012-13	93.82 (22.19)	321.46 (76.02)	7.61 (1.80)	N.A.	422.89 (100.00)

Sources: Directorate of Horticulture, Department of Agriculture and Cane Development, GOI, Ranchi

Area under vegetables increased by more than two fold from 150 thousand hectares in 2000-01 to 321.46 thousand hectares in 2012-13. However, 32 per cent increase was observed during last three years. Productivity of vegetables has been hovering around 15 quintals per hectare during the last seven years whereas a spectacular increase in vegetables productivity was observed in 2004-5 (15.18/ha) when per hectare productivity increased by 400 kilograms over productivity of 2003-04 (10.82 qts/per ha 93.82 hectares in 2012-13).

Area under fruits also increased by about three fold during the last 13 years from 29.90 hectares in 2000-01 to 93.82 hectares in 2012-13. However, the area under fruits increased by more than two fold during last four years from 43.95 thousand hectares in 2009-10 to 93.82 hectares in 2012-13. Per hectare productivity of fruits increased from 8.87 quintals in 2000-01 to 8.87 quintals in 2004-05 but declined to 9.48 quintals in 2012-13.

## CONCLUSION

From the analysis it can be rightly say that the area of some crops increases and some decreases so, productivity and production of some important crops of Jharkhand are increase and some decrease. . Most of the farmers of Jharkhand faces economic problems. Paddy is important crops of Jharkhand.



Growth of Paddy is larger than other crops in Jharkhand. Agriculture productivity plays an important role in the sector of agricultural development in Jharkhand. The most important consideration affecting cropping pattern is the economic consideration.

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