



IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY



VOLUME : 7 ISSUE : 03 Print / Issue Publication Date: 29-Aug-2022



ISSN : 2455-2143



DOI : 10.33564/IJEAST.2022.v07i03.010

Indexed In



WWW.IJEAST.COM

editor@ijeast.com



PERFORMANCE OF INDIAN AGRICULTURE AND RURAL DEVELOPMENT: NEED FOR REFORMS

Prof.Dr. Kannan Vishwanath
The Chinese University of Hong Kong.

Abstract: The agriculture sector is playing an important role in India. Agriculture has always been the backbone of the Indian economy. The significance of agriculture in India arises from the fact that the development in agriculture is an essential condition for the development of the national economy. To achieve this, the Government has been launching a number of plans and programmes all through after independence. But, the first major success came out in the form of the green revolution in the mid sixties. Green revolution has already proved that the achievement of productivity is technically feasible. Therefore, the paper attempts to examine the performance of Indian agriculture and livelihood impact on agricultural development in India. The paper finds clearly that the adoption of new economic policy is the main factor, which determines the productivity of agriculture in the Indian economy. However, it has to be supported by other important agricultural inputs like production, investment etc. However, the new technology that was successfully implemented in the case of major food grains, basically rice and wheat; need to be extended to other food grains and also to the non-food grain crops. Similarly, there is a need to extend the new technology in agriculture to the dry land farming systems also. However, we should be very cautious in over using the ecologically incompatible inputs like chemical fertilizers and pesticides.

Key words: Agriculture, Production, cropping pattern, Green revolution, Food Management, Growth.

I. INTRODUCTION

Agriculture plays an essential role in the process of economic development of less developed countries like India. Besides providing food to nation, agriculture releases labour, provides saving, contributes to market of industrial goods and earns foreign exchange. Agricultural development is an integral part of overall economic development. In India, agriculture was the main source of national income and occupation at the time of Independence. Agriculture and allied activities contributed nearly 50 percent to India's national income. Around 72 percent of total working population was engaged in

agriculture. These confirm that Indian economy was a backward and agricultural based economy at the time of Independence. After 61 year of Independence, the share of agriculture in total national income declined from 50 percent in 1950 to 18 percent in 2007-08. But even today more than 60 percent of workforce is engaged in agriculture. In spite of this, it is also an important feature of agriculture that is to be noted that growth of other sectors and overall economy depends on the performance of agriculture to a considerable extent. Because of these reasons agriculture continues to be the dominant sector in Indian Economy. Since independence India has made much progress in agriculture. Indian agriculture, which grew at the rate of about 1 percent per annum during the fifty years before Independence, has grown at the rate of about 2.6 percent per annum in the post-Independence era. Expansion of area was the main source of growth in the period of fifties and sixties after that the contribution of increased land area under agricultural production has declined overtime and increase in productivity became the main source of growth in agricultural production. Another important facet of progress in agriculture is its success in eradicating of its dependence on imported food grains. Indian agriculture has progressed not only in output and yield terms but the structural changes have also contributed.

All these developments in Indian agriculture are contributed by a series of steps initiated by Indian Government. Land reforms, inauguration of Agricultural Price Commission with objective to ensure remunerative prices to producers, new agricultural strategy¹, investment in research and extension services, provision of credit facilities, and improving rural infrastructure are some of these steps. In this context, the present paper extensively evaluates performance and progress of Indian agriculture since Independence. Besides comparing facts and figures, we also examined sources of agricultural growth and instability of Indian agriculture for evaluating performance and progress of Indian agriculture. The paper also finds out determinates of agricultural production by using production function approach and verifies the results of decomposition of agricultural growth.



Objectives:

1. to describe the introduce the performance of agriculture and rural development
2. to study the Review of literature of the agriculture
3. to evaluate the performance and challenges of the Indian Agriculture including rural development
4. to analyze the concept of agriculture and food management is related to the food security
5. to examine the procurement and food subsidy with relates to the public distribution system.
6. to analyze the issue of cost-specific growth in the economy

Methodology:

It is the general paper. In this paper, to collect the secondary data and analyze the concept wise. The source of the Ministry of Agriculture, Govt. of India, and Ministry of Agriculture, state of Andhra Pradesh. In this paper to collect the secondary data for district hand book, and published journals, magazines and published govt. reports etc.

Review

According to the Working Group for the 11th Plan, the agriculture sector during the 10th Plan experienced slackness in demand as well as supply, leading to a mismatch in supply and demand. This mismatch, accentuated in the later part of the plan period that caused concern on the food security front. Several factors constraining supply were identified as important causes for the deceleration in growth of agriculture. This sharp erosion of total factor productivity in agriculture was found to be on account of multiple factors relating to technology fatigue, soil fatigue, declining fertilizer response rate, depleting water resources, irrigation potential, and capital stock. The externalities of climatic aberrations and market uncertainties were found to be further contributing to the supply inconsistency. Therefore, it was observed that the supply front cannot be left on its own and specific interventions would be needed to augment supply and to reduce the eventualities of demand-supply mismatch in the quest for sustainable agricultural growth. To address these critical issues, it was pointed out that focused attention was needed on five core areas, namely seeds, nutritional management, water management, management of chemicals, and energy (Planning Commission 2006).

The food grains production is subject to short run fluctuations given the agriculture's dependence on weather and rainfall. These short run fluctuations in production cause ripples in food security as has been experienced during the recent past. We need to enhance productivity of food crops to raise the overall level of food grains production to turn our agriculture not only self-sufficient but also a net exporter. We need to lay emphasis on productivity improvement, public investment in irrigation, infrastructure development, efficient use of water, and plant nutrition. We

also need to put in resources for research and development (Kumar 1998; Shenngen et al. 1999; Evenson et al. 1999).

The Indian economy has undergone structural changes over time with the anticipated decline in the share of agriculture in the GDP. Despite a fall in its share from 55.1 per cent in 1950-51 to 17.0 per cent in 2008-09, the importance of agriculture has not diminished for two major reasons. First, the country achieved self-sufficiency in food production at the macro level, but still is a food deficit country facing massive challenges of high prevalence of malnourished children and high incidence of rural poverty. The pressure on agriculture to produce more and raise farmers' income is high. Second, the dependence of the rural workforce on agriculture for employment has not declined in proportion to the sectoral contribution to GDP. This has resulted in widening the income disparity between the agricultural and non-agricultural sectors (Chand and Chauhan, 1999). The experiences of developed countries show that transfer of labour force from agriculture to non-agriculture, in particular the manufacturing sector took place. This had brought enhanced productivity growth in agriculture and hence higher income (Gollin et al., 2002). However, India's manufacturing sector witnessed volatile growth and its share in GDP has almost remained constant at 15 per cent for the last three decades. Further, given the fact that the current economic growth pattern is driven by the service sector, labour absorption outside agriculture will be slow until rural education improves dramatically in the near future. Under these circumstances, higher growth in agriculture assumes great importance and is a matter of concern for policy planners and research scholars in recent times (Chand et al., 2007).

Sustained agricultural growth, which is facilitated through constant policy and institutional support has the potential to augment growth in the rural economy and associated secondary activities like food processing and retail trading. However, agriculture-led rural industrialisation has not received due attention from policy makers in the country notwithstanding the fact that maintaining the growth of agricultural per se was lost sight of during the 1990s (Sen, 1992; Bhalla and Singh, 2001; Rao, 2003;). In fact, the growth performance of agriculture at the national level was splendid during the 1980s and its deceleration during the 1990s was attributed to the reduction in and/or stagnation of public expenditure on agricultural infrastructure, defunct extension services and biased economic reforms (Thamarajakshi, 1999; Balakrishnan, 2000; Hirashima, 2000; Mahendradev, 2000; Vyas, 2001; Rao, 2003).

However, there has been a renewed policy thrust from the government since mid-2000s to revive agricultural growth through various development programmes such as interest subvention on crop loans, the National Food Security Mission, the National Agriculture Development Programme (Rashtriya Krishi Vikas Yojana) and the Pulses Development Programme. These programmes are likely to



affect agricultural growth and farmers' income in the country by providing greater flexibility to the state governments to allocate resources to the priority areas of development. Aside, patterns and trends in India's agricultural growth is a well-researched subject. Systematic efforts were made to analyse growth in crop output and its elements through decomposition analysis (Minhas and Vaidyanathan, 1965; Sagar, 1977; Sagar, 1980; Sarma and Subrahmanyam, 1984; Majumdar and Basu, 2005, Joshi et al., 2006). Historical aspects of agricultural growth, disparity and impact on farmers' income and employment have been studied by several scholars. Some recent studies include those of Sawant and Achuthan (1995), Rao (1998), Bhalla and Singh (2001), Radhadrishna (2002), Bhalla and Singh (2009) and Vaidyanathan (2010). Some studies also looked at the effect of agricultural technology on growth of crop output and its instability (Cummings and Ray, 1969; Hazell, 1982; Mahendradev, 1987; Deshpande, 1988; Vaidyanathan, 1992; Chand and Raju, 2009). The present study contributes to the existing knowledge base on Indian agriculture in a way that it estimates the crop output growth model through econometric method. The study also discusses the trends and patterns in agricultural growth at the national and state levels.

II. INDIAN AGRICULTURE: PERFORMANCE AND CHALLENGES

Agriculture is a critical sector of the Indian economy. Though its contribution to the overall Gross Domestic Product (GDP) of the country has fallen from about 30 percent in 1990-91 to less than 15 percent in 2011-12, a trend that is expected in the development process of any economy, agriculture yet forms the backbone of development. An average Indian still spends almost half of his/her total expenditure on food, while roughly half of India's work force is still engaged in agriculture for its livelihood. Being both a source of livelihood and food security for a vast majority of low income, poor and vulnerable sections of society, its performance assumes greater significance in view of the proposed National Food Security Bill and the ongoing Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme. The experience from BRICS countries indicates that a one percentage growth in agriculture is at least two to three times more effective in reducing poverty than the same growth emanating from non-agriculture sectors. Given that India is still home to the largest number of poor and malnourished people in the world, a higher priority to agriculture will achieve the goals of reducing poverty and malnutrition as well as of inclusive growth. Since agriculture forms there source base for a number of agro-based industries and agro-services, it would be more meaningful to view agriculture not as farming alone but as a holistic value chain, which includes farming, wholesaling,

warehousing (including logistics), processing, and retailing. Further, it may be noted that in the last two Five Year Plans, it is clearly mentioned that for the economy to grow at 9 per cent, it is important that agriculture should grow at least by 4 per cent per annum.

Achieving an 8-9 percent rate of growth in overall GDP may not deliver much in terms of poverty reduction unless agricultural growth accelerates. At the same time 'growth with inclusiveness' can be achieved only when agriculture growth accelerates and is also widely shared amongst people and regions of the country. All these factors point to just one thing: that agriculture has to be kept at the centre of any reform agenda or planning process, in order to make a significant dent on poverty and malnutrition, and to ensure long-term food security for the people. This chapter briefly reviews the status and performance of agriculture, especially during the last two decades, and also presents what could be the way forward, given our objectives of accelerated growth, inclusiveness and the reducing of poverty and hunger.

Growth Performance of Agriculture

The growth performance of the agriculture sector has been fluctuating across the plan periods. It witnessed a growth rate of 4.8 per cent during the Eighth plan period (1992-97). However, the agrarian situation saw a downturn towards the beginning of the Ninth plan period (1997-2002) and the Tenth plan period (2002-07), when the agricultural growth rate came down to 2.5 percent and 2.4 percent respectively. This crippling growth rate of 2.4 percent in agriculture as against a robust annual average overall growth rate of 7.6 per cent for the economy during the tenth plan period was clearly a cause for concern. The trend rate of growth during the period 1992-93 to 2010-11 is 2.8 percent while the average annual rate of growth in agriculture & allied sectors GDP during the same period is 3.2 percent.

The Eleventh Plan had sought to reverse the deceleration of agricultural growth which occurred in the Ninth Plan and continued into the Tenth Plan. It has had some success in that food grain production touched a new peak of 250.42 million tonnes in 2011-12. Agricultural GDP growth has accelerated to an average 3.9 percent growth during 2005-06 to 2010-11, partly because of initiatives taken since 2004. As per the latest advance estimate of National Income released by the Central Statistics Office (CSO), agriculture and allied sectors are likely to grow at 2.5 percent during 2011-12 as against 7 percent during the previous year at constant (2004-05) prices. The Approach Paper to Twelfth Plan drafted by Planning Commission estimates that with a revision of the farm sector GDP growth rates for 2010-11 and the expected good harvest in 2011-12, the average growth in agriculture & allied sectors in the Eleventh Plan may be higher at 3.3-3.5 percent per year against a target of 4 percent.



The increasing divergence between the growth trends of the total economy and that of agriculture & allied sectors suggests an under performance by agriculture. It is also significant that unlike the overall economic growth pattern, agricultural performance in India has been quite volatile (the Coefficient of Variation (CV) during 2000-01 to 2010-11 was 1.6 compared to 1.1 during 1992-93 to 1999-2000). This is almost six times more than the CV observed in the overall GDP growth of the country indicating that high and perhaps increasing volatility is a real challenge in agriculture, which is likely to increase in the years to come in the wake of climate change.

III. AGRICULTURE AND FOOD MANAGEMENT

The agriculture sector registered an annual growth of 3.8 per cent in value added in the decade since 2004-05 on the back of increase in real prices (31 per cent during 2004-05 to 2011-12). The committee set up by the Ministry of Agriculture under the chairmanship of S. Mahendra Dev to come up with updated methodology to compute terms of trade between agriculture and non-agricultural has observed that, during 2004-05 and 2013-14, terms of trade have

become favorable for agriculture. The ratio of WPI agriculture to WPI non-agriculture has also risen steeply after 2005- 06. A rising concern in recent times has been the high level of food inflation, seasonal and short-term price spikes in some commodities like onions, tomatoes, and potatoes which have become more frequent, more severe, and more lasting, hurting consumers and causing economic instability. A strategy of price-led growth in agriculture is, therefore, not sustainable; also the room for increasing production through raising cropped area is virtually non-existent. Hence the strategy for growth in agriculture has to rely more on non-price factors, viz., yield and productivity.

Performance of the Agricultural Sector

According to the new series of national income released by the CSO, at 2011-12 prices the share of agriculture in total GDP is 18 per cent in 2013-14. As against a growth target of 4 per cent for agriculture and allied sectors in the Twelfth Plan, the growth registered in the first year at 2011- 12 prices was 1.2 per cent, 3.7 per cent in 2013- 14, and 1.1 per cent in 2014-15 (Table-1).

Table-1: Agriculture sector -Key indicators (per cent at 2011-12 prices)

SLNo.	Item	2011-12	2012-13	2013-14	2014-15
1	Growth in GDP in agriculture & allied sectors	0	1.2	3.7	1.1
	Share of agriculture & allied sectors in total GDP	18.4	18	18	0
	Crops	12	11.7	11.8	0
	Livestock	4	4	3.9	0
	Forestry and logging	1.6	1.5	1.4	0
	Fishing	0.8	0.8	0.9	0
2	Share of agriculture & allied sectors in total GCF	8.6	7.7	7.9	N.A
	Crops	7.4	6.5	6.6	0
	Livestock	0.8	0.7	0.7	0
	Forestry and logging	0.1	0.1	0.1	0
	Fishing	0.4	0.4	0.4	0
3	GCF in agriculture & allied sectors as per cent to GDP of the sector (at current 2011-12 prices)	18.3	15.5	14.8	0

Source: CSO, Note: GCF is Gross Capital Formation

Area, Production and Yield

Table-2 gives area, production, and yield figures for different crops in 2013-14. In 2013- 14, total food grain production has been estimated at 265.6 million tonnes as per the second Advance Estimates (AE), which is higher by 8.5 million tonnes than the 2012-13 production and 22.1 million tonnes than average food grain production during the last five years. 5.21 As per the 2nd Advance Estimates for 2014-15, total food grains production in the country is estimated

at 257.07 million tonnes which is the fourth highest quantity of annual food grains production in the country. It may be noted that despite deficiency of 12% in the monsoon rainfall during the year, the loss in production has been restricted to just around 3% over the previous year and has exceeded the average production during the last five years by 8.15 million tonnes.



Table-2: Area, Production, and Yield (2013-14*)

(Area: million ha; Prod: million tonnes; Yield: kg/ha)

Group/commodity	Area	Percent change in area	Production	Percent change in Production	Yield	Percent change in yield
Foodgrains ^a	126	4.3	264.8	3	2101	-1.3
Rice	43.9	2.7	106.5	1.3	2424	-1.5
Wheat	31.2	4	95.9	2.6	3075	-1.3
Jowar	5.8	-6.1	5.4	1.7	850	-8.2
Maize	9.4	8.3	24.4	9.2	2566	-0.7
Bajra	7.9	8	9.2	5.5	1198	2.9
Pulses	25.2	8.3	19.3	5.3	764	-3.2
Gram	10.2	20.3	9.9	12.3	967	-6.7
Tur	3.9	0	3.3	9.7	848	9.2
Oilseeds	28.5	7.6	32.9	6.4	1153	-1.3
Groundnut	5.5	17.6	9.7	105.8	1750	75.9
Rapeseed and Mustard	6.7	4.7	8	-0.5	1188	-5.9
Cotton ^b	11.7	-2.3	36.7	7.2	532	9.4
Sugarcane	5	0	350	2.6	70	0

Source: Directorate of Economics & Statistics, Department of Agriculture & Cooperation.

Notes: *Fourth AE.

a Includes cereals, coarse cereals, and pulses.

b Bales of 170 kg.

As compared to last year's production of 265.57 million tonnes, current year's production of food grains is lower by 8.5 million tonnes. This decline has occurred on account of lower production of rice, coarse, cereals and pulses due to

erratic rainfall conditions during the monsoon season-2014. To improve resilience of the agricultural sector and bolster food security—including availability and affordable access—our strategy for agriculture has to focus on improving yield and productivity. Though yield/productivity in food grains and pulses has increased post-2000, the yield gaps vis-à-vis other countries are wide and even within different states yields vary widely, showing that there are possibilities of raising production by increasing yield of most of the crops without necessarily increasing prices (Table-3).

Table-3: Average, Maximum, and Minimum Yield of Major Crops 2013-14

Yield (kg/ha)

Crops	All-India average	Maximum	Status	Minimum	Status
Rice	2416	Punjab	3952	Madhy Pradesh	1474
Wheat	3145	Punjab	5017	Andhra Pradesh	500
Maize	2676	Tamil Nadu	5372	Assam	898
Jowar	957	Andhra Pradesh	1661	West Bengal	280
Gram	960	Andhra Pradesh	1439	Tamil Nadu	653
Tur	813	Bihar	1667	Andhra Pradesh	542
groundnut	1764	Gujarat	2668	Himachal Pradesh	600
Rapeseed & Mustard	1185	Gujarat	1723	Tamil Nadu	241
Soyabean	1012	Andhra Pradesh	1612	Uttar Pradesh	577
Sugarcane	70522	West Bengal	114273	Jammu & Kashmir	1000
Cotton	510	Punjab	750	Maharashtra	358

Source: Directorate of Economics & Statistics, Department of Agriculture & Cooperation



Note: # thousand bales of 170 kg each

An inverse relationship is noticed between increase in yield over time and the average cost of production of various crops in real terms. For example, for Rabi crops a 10 per cent increase in yield resulted in a 2.1 per cent to 8.1 per cent decline in the average cost of production of various crops in real terms. (Price Policy for Kharif Crops, February 2014, pp. 67—69, CACP). This clearly points towards the fact that productivity increases, especially in low productivity states/regions, can significantly contribute towards reducing cost-push food inflation. Yield is contingent upon several factors like variety and quality of seeds, soil quality, and irrigation including quality of water, fertilizers including their proportion-pesticides, labour, and extension services. Prices received by farmers and the certainty or assurance of getting a particular price also incentivize farmers to take to a particular crop and use quality inputs in its cultivation. The status of some of these factors in India is described in the following paragraphs.

IV. PROCUREMENT AND FOOD SUBSIDY

To enhance efficiency of procurement and public distribution and to extend the benefits of MSP to local farmers, the Decentralized Procurement (DCP) scheme has been adopted by some state governments. The central government is urging all state governments to adopt the DCP scheme so that costs of distribution can be saved and outreach of price support mechanism to the farmers in hitherto weaker areas can be improved. To overcome the problem of gaps in the flow of information about procurement operations on day-to-day basis, an Online Procurement Monitoring System (OPMS) has been evolved

for reporting and monitoring on a daily basis, procurement operations for wheat, paddy, and coarse grains in the country.

Two decisions that will impact procurement and stocks of rice and wheat from kharif marketing season (KMS) 2014-15 and rabi marketing season (RMS) 2015-16 are: (a) to limit procurement from states that are declaring bonus over and above the MSP to the extent of targeted PDS (TPDS)/other welfare schemes (OWS) requirements (In the case of non-DCP states declaring bonus, the FCI will not take part in MSP operations in those states.) and (b) To cap the percentage of levy on rice at 25 per cent. This decision has successfully led to dropping of the practice of giving bonus over and above MSP for paddy in states like Chhattisgarh and Madhya Pradesh in KMS 2014-15 and it is expected that the state governments of Madhya Pradesh and Rajasthan will avoid giving bonus for wheat also in RMS 2015-16 in view of this policy. The procurement levels in KMS 2014-15 are lower in both Chhattisgarh and Madhya Pradesh as compared to the previous year and there is re-emergence of competition in the market. Table-4 gives procurement, off-stake and stock figures from 2003.

Buffer Stocks

The buffer norms for food grains in the central pool which were in existence since April 2005 have been revised in the backdrop of increased off-take of food grains under the TPDS in the last few years and with the coming into force of the NFSA with effect from 5 July 2013.

Table-4: Public Distribution System: Procurement, Off-Take, and Stocks
(Million tonnes)

Year	Procurement			Off-take			Stocks		
	Rice	Wheat	Total	Rice	Wheat	Total	Rice	Wheat	Total
2003-04	22.9	15.8	38.7	25	24.3	49.3	13.1	6.9	20.7
2004-05	24.7	16.8	41.5	23.2	18.3	41.5	13.3	4.1	18
2005-06	27.6	14.8	42.4	25.1	17.2	42.3	13.7	2	16.6
2006-07	25.1	9.2	34.3	25.1	11.7	36.8	13.2	4.7	17.9
2007-08	28.7	11.1	39.9	25.2	12.2	37.4	13.8	5.8	19.8
2008-09	34.1	22.7	56.8	24.6	14.9	39.5	21.6	13.4	35.6
2009-10	32	25.4	57.4	27.4	22.4	49.7	26.7	16.1	43.3
2010-11	34.2	22.5	56.7	29.9	23.1	53	28.8	15.4	44.3
2011-12	35	28.3	63.4	32.1	24.2	56.3	33.4	20	53.4
2012-13	34	38.2	72.2	32.6	30.1	62.8	35.5	24.2	59.8
2013-14	31.3	25.1	56.4	29.2	28.2	57.4	30.6	17.8	49.5
2014-15*	16.2	28	44.2	4.5	3.8	8.3	23.5	37.3	61.6



Source: Ministry of Food, Consumer Affairs and Public Distribution, Government of India. Note: * as on 9.1.2015.

Food Subsidy

Provision of minimum nutritional support to the poor through subsidized food grains and ensuring price stability in different states are the twin objectives of the food security system. In fulfilling its obligation towards distributive justice, the government incurs food subsidy. The programme covers over 65 million BPL households serviced through 4, 50,000 fair price shops. While the

economic cost of wheat and rice has continuously gone up, the issue price has been kept unchanged since 1 July 2002. On account of implementation of the NFSA, the CIP has further gone down for the APL and BPL categories. The government, therefore, continues to provide large and growing amounts of subsidy on food grains for distribution under the TPDS/NFSA and other nutrition-based welfare schemes and open market operations. The food subsidy bill has increased substantially in the past few years putting severe strain on the public exchequer (Table 5).

Table-5: Quantum of Food Subsidies Released

Year	Food subsidy (in crore)	Annual growth (%age)
2005-06	23071	-10.39
2006-07	23827.59	3.28
2007-08	31259.68	31.19
2008-09	43668.08	39.69
2009-10	58242.45	33.37
2010-11	62929.56	8.05
2011-12	72370.9	15
2012-13	84554	16.83
2013-14	89740.02	6.13
2014-15	107823.75*	20.15

Source: Department of Food and Public Distribution.

Note: * Figures up to 9 January 2015.

V. CROP-SPECIFIC GROWTH

During 2010-11, food grains production was 244.78 million tonnes, comprising of 121.14 million tonnes during Kharif season and 123.64 million tonnes during the Rabi season. Of the total foodgrains production, production of cereals was 226.54 million tonnes and pulses 18.24 million tonnes. As per 2nd advance estimates for 2011-12, total food grains production is estimated at a record level of 250.42 million tonnes which is 5.64 million tonnes higher than that of the last year production. Production of rice is estimated at 102.75 million tonnes, Wheat 88.31 million tonnes, coarse cereals 42.08 million tonnes and pulses 17.28 million tonnes. Oilseeds production during 2011-12 is estimated at 30.53 million tonnes, sugarcane production is estimated at 347.87 million tonnes and cotton production is estimated at 34.09million bales (of 170 kg. each). Jute production has

been estimated at 10.95 million bales (of 180 kg each). Despite inconsistent climatic factors in some parts of the country, there has been a record production, surpassing the targeted production of 245 million tonnes of food grains by more than 5 million tonnes during 2011-12.

Growth in the production of agricultural crops depends upon acreage and yield. Given the limitations in the expansion of acreage, the main source of long-term output growth is improvement in yields. A comparative picture in average annual growth rates of area, production, and yield of different crops for two periods 1990-91 to 1999-2000 and 2000-01 to 2010-11 is given in Table 6. In the case of wheat, the growth in area and yield has been marginal during 2000-01 to 2010-11 suggesting that the yield levels have plateaued for this crop. This suggests the need for renewed research to boost production and productivity.



Table-6: All Indian Average Annual Growth Rates of Area, Production and Yield of Principal Groups (%)

Crops/Crop Groups	1990-91 to 1999-2000			2000-01 to 2010-11		
	A	P	Y	A	P	Y
Rice	0.7	2.09	1.36	-0.39	1.32	1.47
Wheat	1.62	4.52	2.87	0.57	1.39	0.73
Maize	0.85	2.24	1.37	2.68	7.12	4.13
Coarse Cereals	-2.42	-0.08	2.03	-0.13	5	4.64
Total Cereals	-0.12	2.29	2.38	-0.09	1.82	1.69
Gram	0.88	3.86	2.97	4.31	6.39	1.19
Tur	-0.45	1.89	2.03	2.58	1.89	-0.65
Total Pulses	-0.91	1.06	1.82	2.3	4.02	1.21
Total food grains	-0.27	2.19	2.43	0.34	1.95	1.37
groundnut	-2.25	-2.4	-0.3	-1.08	13.13	12.76
R & M	2.28	4.82	2.96	2.76	6.26	2.72
Soyabean	11.01	16.37	4.67	4.15	8.31	4.17
Oilseeds	0.75	2.53	1.76	1.27	7	5.18
Sugarcane	2.25	3.16	0.91	1.95	2.12	0.03
Cotton	1.42	0.93	-0.54	2.66	12.12	9.15

Note: A: Area, P: Production, Y: Yield

Source: Directorate of Economics & Statistics, Ministry of Agriculture

All the major coarse cereals display a negative growth in area during both the periods except for maize, which recorded an annual growth rate of 2.68 per cent in the 2000-01 to 2010-11 period. The production of maize has also increased by 7.12 percent in the latter period. In pulses, gram recorded a growth of 6.39 percent in production during the same period driven by expansion in the area under cultivation. Soyabean has recorded a high rate of growth in production in both the periods, driven primarily by expansion in area under cultivation. In fact oilseeds as a group have shown some significant changes in the two decades: the production growth rate has more than doubled in the decade of 2000s over the previous decade, driven both by productivity gains (eg. groundnut and soyabean) as well as by area gains. The average annual growth rates of production and productivity of groundnut during 2000-01 to 2010-11 are abnormally high due to high fluctuations in the production and productivity during the years 2002-03, 2006-07 & 2007-08. The trend growth rates in the production and productivity of groundnut during 2000-01 to 2010-11 work out to 1.66 per cent and 2.63 per cent respectively. Fruits & vegetables have shown a higher growth in production and area in 2000-01 to 2010-11 as compared to 1990-91 to 1999-2000.

The biggest increase in the growth rates of yields in the two periods, however, is in groundnut and cotton. Cotton has experienced significant changes with the introduction of Bt cotton in 2002. By 2011-12, almost 90 percent of cotton area is covered under Bt. cotton, production has more than doubled (compared to 2002-03), yields have gone up by almost 70 percent, and export potential for more than Rs 10,000 crore worth of raw cotton per year has been created. More such revolutions to accelerate agri-growth are needed.

VI. CONCLUSION

In this context, the present paper extensively evaluates performance and progress of Indian agriculture since Independence. Besides comparing facts and figures, we also examined sources of agricultural growth and instability of Indian agriculture for evaluating performance and progress of Indian agriculture. The paper also finds out determinates of agricultural production by using production function approach and verifies the results of decomposition of agricultural growth. And also this paper consist of performance of agriculture including trends, food management, crop specify economic growth situation particularly area, production, growth and yield in recent times in Indian agricultural economy including rural economy.



Further we have to study about future trends of Indian agriculture with relating to the public distribution system and encouraged to the agriculture including giving the subsidies and clearing the old debt of the Indian farmers those who are really small peasant or tenants. Achieving an 8-9 percent rate of growth in overall GDP may not deliver much in terms of poverty reduction unless agricultural growth accelerates. At the same time 'growth with inclusiveness' can be achieved only when agriculture growth accelerates and is also widely shared amongst people and regions of the country. All these factors point to just one thing: that agriculture has to be kept at the centre of any reform agenda or planning process, in order to make a significant dent on poverty and malnutrition, and to ensure long-term food security for the people.

VII. REFERENCES

- [1]. Balakrishnan, Pulapre (2000). Agriculture and Economic Reforms: Growth and Welfare. *Economic and Political Weekly*, 35 (12): 999-1004.
- [2]. Bhalla, G S and Gurmail Singh (2001). *Indian Agriculture: Four Decades of Development*. New Delhi: Sage Publications.
- [3]. Bhalla, G S and Gurmail Singh (2009). Economic Liberalisation and Indian Agriculture: A State-wise Analysis. *Economic and Political Weekly*, 44 (52): 34-44.
- [4]. Chand, Ramesh and Sonia Chauhan (1999). Are Disparities in Indian Agriculture Growing? Policy Brief No. 8. New Delhi: National Centre for Agricultural Economics and Policy Research.
- [5]. Chand, Ramesh, S S Raju and L M Pandey (2007). Growth Crisis in Agriculture: Severity and Options at National and State Levels. *Economic and Political Weekly*, 42 (26): 2528-33.
- [6]. Chand, Ramesh and S S Raju (2009). Instability in Indian Agriculture during Different Phases of Technology and Policy. *Indian Journal of Agricultural Economics*, 64 (2): 283-88.
- [7]. Cummings, Ralph W and S K Ray (1969). The New Agricultural Technology: It's Contribution to 1967-68 Production. *Economic and Political Weekly*, 4 (13): A7-A16.
- [8]. Deshpande, R S (1988). Growth and Instability in Maharashtra Agriculture. *Arthavijnana*, 30 (4): 317-39.
- [9]. Evenson, R., C. Pray and M. Rosegrant (1999). *Agricultural Research and Productivity Growth in India*, Research Report No 109, International Food Policy Research Institute, Washington D.C., USA.
- [10]. Gollin, Douglas, Stephen Parente and Richard Rogerson (2002). Role of Agriculture in Development. *The American Economic Review*, 92 (2): 160-64.
- [11]. Hazell, Peter (1982). *Instability in Indian Foodgrain Production*. Research Report 30. Washington D.C.: International Food Policy Research Institute.
- [12]. Hirashima, S (2000). Issues in Agricultural Reforms: Public Investment and Land Market Development. *Economic and Political Weekly*, 35 (43 & 44): 3879-84.
- [13]. Joshi, P K, Pratap Singh Birthal and Nicholas Minot (2006). *Sources of Agricultural Growth in India: Role of Diversification towards High Value Crops*. MTID Discussion Paper No. 98. Washington, D.C.: International Food Policy Research Institute.
- [14]. Kumar, P. (1998). *Food Demand and Supply Projections for India*, Agricultural Economics Policy Paper 98-01, New Delhi: Indian Agricultural Research Institute.
- [15]. Mahendradev, S (1987). Growth and Instability in Foodgrains Production: An Inter-State Analysis. *Economic and Political Weekly*, 22 (39): A82-A92.
- [16]. Mahendradev, S (2000). Economic Reforms, Poverty, Income Distribution and Employment. *Economic and Political Weekly*, 35 (10): 823-35.
- [17]. Majumdar, Kakali and ParthaBasu (2005). Growth Decomposition of Foodgrains Output in West Bengal: A District Level Study. *Indian Journal of Agricultural Economics*, 60 (2).
- [18]. Minhas, B S and A Vaidyanathan (1965). Growth in Crop Output in India, 1951-54 to 1958-61: An Analysis by Component Elements. *Journal of Indian Society of Agricultural Statistics*, 17 (2):230-52.
- [19]. Planning Commission (2006). *Report of the Working Group on Crop Husbandry, Agricultural Inputs, Demand and Supply Projections and Agricultural Statistics for the Eleventh Five Year Plan (2007-12)*, New Delhi, GoI.
- [20]. Rao, C H Hanumantha (2003). Reform Agenda for Agriculture. *Economic and Political Weekly*, 33 (29): 615-20.
- [21]. Rao, C H Hanumantha (1998). Agricultural Growth, Sustainability and Poverty Alleviation- Recent Trends and Major Issues of Reforms. *Economic and Political Weekly*, 33 (29 & 30): 1943-48.
- [22]. Radhakrishna, R (2002). Agricultural Growth, Employment and Poverty: A Policy Perspective. *Economic and Political Weekly*, 37 (3).
- [23]. Sagar, Vidya (1977). A Component Analysis of the Growth of Agricultural Productivity in Rajasthan: 1956-61 to 1969-74. *Indian Journal of Agricultural Economics*, 32 (1).
- [24]. Sagar, Vidya (1980). Decomposition of Growth Trends and Certain Related Issues. *Indian Journal of Agricultural Economics*, 35 (2): 42-59.
- [25]. Sarma, P V and Subrahmanyam S (1984). A Note on the Decomposition of the Growth Rate of Aggregate Crop Output. *Agricultural Situation in India*, 39 (9).



- [26]. Sawant, S D and C V Achuthan (1995). Agricultural Growth across Crops and Regions: Emerging Trends and Patterns. *Economic and Political Weekly*, 30 (12): A2-A13.
- [27]. Sen, Abhijit (1992). Economic Liberalisation and Agriculture in India. *Social Scientist*, 20 (11): 4-19.
- [28]. Shenngan Fan, Peter Hazell and T. Haque (1999). 'Impact of Public Investments in Agricultural Research and Infrastructure on Growth and Poverty Reduction in Rural India', Discussion Paper IFPRI, Washington D.C.
- [29]. Thamarajakshi, R (1999). Agriculture and Economic Reforms. *Economic and Political Weekly*, 34 (14): 2393-95.
- [30]. Vaidyanathan A (2010). *Agricultural Growth in India, Role of Technology, Incentives, and Institutions*. New Delhi: Oxford University Press.
- [31]. Vaidyanathan A (1992). Instability in Agriculture: Extent, Causes and Consequences: A Review Article. *Indian Economic Review*, 27 (2).
- [32]. Vyas, V S (2001). Agriculture: Second Round of Economic Reforms. *Economic and Political Weekly*, 36(14): 829-36.

IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY

ABOUT IJEAST

International Journal of Engineering Applied Science and Technology (IJEAST) is a peer-reviewed, open access journal that publishes high-quality research papers in the field of Engineering, Applied Science and Technology.

IJEAST aims to provide a platform for researchers, academicians, and professionals to share their innovative ideas, research findings, and practical experiences with the global scientific community.

FOCUS AREAS

- Engineering
- Applied Science
- Technology
- Innovation & Development
- Interdisciplinary Studies



PEER REVIEWED

All submissions are rigorously peer reviewed to ensure quality.



OPEN ACCESS

Free and unrestricted access to research for all.



GLOBAL REACH

Connecting researchers and professionals worldwide.



TIMELY PUBLICATION

We ensure a swift and efficient publication process.



For more information, visit our website
www.ijeast.com



INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY

✉ editor@ijeast.com

🌐 www.ijeast.com

📍 India



2455-2143