



# Major Crops and Agricultural Growth in India: An Analysis of Recent Trends

Surender Singh Yadav<sup>1</sup> and Laxmi Narayan<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Economics, Govt. College Kanina.

E-mail: [surender14371@gmail.com](mailto:surender14371@gmail.com)

<sup>2</sup>Professor, Department of Economics, Govt. College Mahendergarh.

E-mail: [proftnyadav@gmail.com](mailto:proftnyadav@gmail.com)

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**Abstract:** Indian agriculture has transitioned from chronic food shortages to a position of surplus and global recognition. Despite this progress, the sector still faces challenges such as climate change, regional disparities, and resource constraints. This study evaluates recent trends in the production and productivity of major crops—rice, wheat, pulses, oilseeds, and others—comparing two critical periods: the 12th Five-Year Plan (2012–17) and the first five years (2017–22) of India's 15-year vision document, which aims to modernize agriculture during the Amrit Kaal leading to 2047. Using secondary data from official sources, growth trends have been analyzed through Compound Annual Growth Rates (CAGR) in area, production, and yield. The study finds that while area under cultivation showed modest or declining trends in some crops, production and yields improved significantly in the post-plan period. For instance, rice production grew from 0.62% to 3.60% and yield from 0.20% to 2.05%. Wheat and coarse grains also showed substantial productivity gains, with yields rising by 0.78% and 3.98%, respectively. Cotton, which previously registered negative growth, rebounded in production and yield during the vision document period. The study also highlights inter-state variations, with states like Punjab, Gujarat, and Maharashtra showing higher productivity, while others like Bihar and Assam lag behind. Government interventions such as the Soil Health Card Scheme, PM-Krishi Sinchai Yojana, RKVY, and improved MSPs contributed to these improvements. Overall, the research underscores the effectiveness of recent policy measures and the need for continued focus on

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sustainability, regional equity, and technological innovation. The findings indicate requirement for targeted interventions to address state-level disparities and support India's vision of a modern, resilient, and inclusive agricultural sector. Keywords: Agricultural Growth, Crop Productivity, Major Crops in India, Regional Disparities, Agricultural Policy Measures, Sustainable Agriculture.

## 1. INTRODUCTION

Indian agriculture has progressed from food insecurity to surplus since independence. Despite challenges like climate change and resource depletion, new technologies—such as precision farming and digital agriculture—offer vast opportunities. Currently, 733 million people suffer from hunger worldwide, while 3.1 billion people are unable to afford healthy food globally (FAO, IFAD, UNICEF, WFP and WHO, 2024). The agriculture remains vital for food security and must adapt to structural changes and global challenges for sustainable development. For India, the coming decades, especially the Amrit Kaal till 2047, present a crucial window to transform the agriculture sector through innovation, policy reform, and sustainable practices. India's food grain production rose from 50.82 Mt in 1950-51 to a record 332.22 Mt in 2023-24. Similar growth is seen in rice, wheat, milk, fish, and horticulture (Pathak et al., 2025). Once food-deficient, India is now a global agricultural success and a major exporter, with agri-exports reaching ₹4088 billion and a trade surplus of ₹1360 billion in 2023-24. India's agricultural progress, though notable, falls short of its potential due to complacency. Achievements are often measured against the 1960s food crisis, not against advancements in other sectors like IT, space, or healthcare (Chand, 2019). As a result, agricultural growth appears modest in comparison. India's economy sees 18.2% of its GDP and nearly half its workforce—45.6%—dependent on agriculture (GoI, 2024). Despite past genetic advances and Green Revolution successes, yields of staple crops like rice and wheat remain below global levels (Ray et al., 2013). Climate change, resource depletion, and rising food demand call for renewed efforts in crop improvement using advanced genetic tools.

The agricultural sector forms the backbone of Indian economy. It ensures food security and supports industrialization by supplying essential raw materials to various industries. In India, a significant portion of the population depends on agriculture for livelihood, highlighting its dual role in employment and

input supply. Moreover, agriculture requires relatively low capital investment, reducing production costs for agro-based industries and contributing to overall economic development. Recognizing its importance, India's First Five-Year Plan prioritized agriculture. The 15 year vision document emphasizes the launch of second-generation reforms in agriculture and the labour market, which are expected to propel India toward a higher growth path<sup>1</sup> (Singh et al. 2022). This study examines the growth trends of major crops during the 12<sup>th</sup> Five-Year Plan and the initial years of the country's 15-year vision document.

## **2. OBJECTIVES OF THE STUDY**

Agriculture sector is the backbone to the agro industries as well as to the whole economy of the country. Many research have been done in this area but this study become more important because we are going to study and compare the two periods i.e. 12<sup>th</sup> five year plan and first five year of 15 year new vision document of the country. Following are the objectives of the study:

1. To study recent trends in the production and productivity of major crops such as rice, wheat, pulses and other major crops in India.
2. To compare the performance in production and productivity in 12th five year plan period and post planning period and to analyze the effectiveness of measures undertaken during post planning period.
3. To evaluate regional disparities and changes in crop performance across Indian states.
4. To understand the impact of recent policy interventions on the growth of agriculture.

## **3. METHODOLOGY OF THE STUDY**

The secondary data have been used for the study which are collected from various sources i.e. books, publications, Government reports and websites. For the purpose of the study nine major crops have been taken. The period of the study has been taken from 2012-13 to 2021-22 which comprises 12<sup>th</sup> five year plan and first 5 years of 15 years new vision document. The comparison has been done between the period of 12th five year plan from 2012-13 to 2016-17 and the first five years 2017-18 to 2021-22 of 15 years new vision document. Compound Annual Growth Rate (CAGR) has been used to measure the

growth over a period and annualized rate of growth in areas, production and yield of major crops. The annual percentage change in area, production and yield has been measured to find out the annual trends. The formula to measure the CAGR change is  $Y=ab^t$ . The trend rates have been calculated using the semi-log function of the form  $\text{Ln}Y = a + rt$  (where  $r=\text{Ln}(b)$ ). The annual trend rate of growth is calculated as % growth = (antilog of  $r - 1$ )  $\times 100$ . Thus, the trend rates reported here and elsewhere denote the exponential growth rate per annum.

#### **4. REVIEW OF LITERATURE**

The present trends in agricultural growth are declining in the agricultural sector despite the fact that economy is showing impressive growth. Thus is a matter of concern for both the academician as well as policy makers. There have been many arguments to analyze the potential impact of liberalization on agricultural sector. The relevant research has highlighted that poor growth of this sector is due to the slow pace of agricultural liberalization. There are many other arguments that also highlight the multidimensional nature of the crisis.

Chand et al. (2007) and Chand (2005, 2004) revealed that the decline in agricultural growth after 1996–97 can be attributed to multiple factors, including reduction in cultivated area, deteriorating terms of trade, slow progress in irrigation and fertilizer use, declining electricity supply, and poor diversification within the sector. On the productivity front, Fan et al. (2008) found that public investment in agriculture yields far higher returns compared to subsidies. From a policy perspective, Chand (2005) explored the feasibility of achieving a 4% agricultural growth target, stressing technology dissemination, irrigation expansion, and credit availability. Similarly, Mishra (2007) identified key impediments such as inadequate irrigation infrastructure, heightened market uncertainties due to trade liberalization, and the unavailability of formal credit as major reasons for poor performance in the agricultural sector. Narayanamoorthy (2007) emphasized that the decline in wheat and rice production was not due to technological stagnation but rather resulted from the overuse of mono-cropping practices and fertilizers, flawed agricultural pricing, and stagnant irrigated area due to insufficient funding. Rising cultivation costs and lack of credit for input investment further intensified the crisis among farmers. Pillai (2007) underscored that trade liberalization

has adversely impacted farm gate prices and agricultural output by creating volatility in price and market conditions. Suri (2006) argued that agrarian distress was largely the consequence of a paradigm shift in government policies, which failed to protect farmers' interests in a liberalized economy. Galab and Reddy (2006) Galab and Reddy (2006) looked beyond the conventional debt-trap narrative, underscoring institutional and market failures as deeper causes of rural distress. The study identified a confluence of technological, ecological, socio-cultural, and policy-related factors that contributed to the agrarian crisis, with particular emphasis on how intensive fertilizer use and over-exploitation of land led to declining soil fertility and productivity, thereby reducing farmers' profit margins. Patnaik (2005) analyzed the allocation of funds for rural development and examined the impact of the liberalization policies of the 1990s, concluding that shifts in cropping patterns from food grains to non-food grains had serious implications for national food security and the rural economy. Further, Joshi et al. (2005) linked rural infrastructure to output growth, advocating for integrated rural development as a strategy for agricultural rejuvenation. Vakulabharanam (2005) studied the impact of economic liberalization on a South Indian peasant economy and found that while there was some agricultural growth, it was accompanied by rising distress among farmers due to increasing inequalities, debt, and lack of institutional support.

Recent studies have shifted focus to diversification, sustainability, and climate resilience. Dev (2012) called for a reorientation of subsidies towards infrastructure and research. In terms of crop-wise trends, Sharma (2014) studied the differential growth rates of cereals, pulses, and oilseeds, linking them to market demand and policy incentives. Samantaray (2015) assessed the current productivity trends, concluding that while some crops have seen improvement, systemic issues like fragmentation and marketing bottlenecks continue to hinder progress. Pingali (2015) highlighted the challenges posed by climate change and the urgent need for climate-smart agricultural practices while others, like Singh et al. (2016), examined inter-crop yield gaps using advanced statistical tools.

## **5. PRESENT SCENARIO OF AGRICULTURE SECTOR**

The actual changes in the agriculture sector came after the green revolution in India. These changes took place in the field of technology, seeds, pesticides

and in fertilizers. A rapid change in the growth took place after this period. Government also took many steps to increase the shown area of crops, production and yields.

### 5.1. Area under crops

According to the Land Use Statistics 2018-19, Table -1 explains the areas under different crops in the country. The total cropped area is 197320 thousand hectares out of which total area under food crops is 148078 thousand hectares and under non food crops is 49242 thousand hectares. The food crops area is 2.5 time higher than the non food crops area.

**Table 1: Area under crops**

| (Thousand Hectares) |                             |             |   |
|---------------------|-----------------------------|-------------|---|
| <i>Sl. No.</i>      | <i>Description</i>          | <i>Area</i> | <i>Percentage of Total Cropped Area</i> |
| 1.                  | Total Food Grains           | 126952      | 64.34                                   |
| 2.                  | Total Cereals and Millets   | 99323       | 50.34                                   |
| 3.                  | Rice                        | 45416       | 23.02                                   |
| 4.                  | Wheat                       | 31588       | 16.01                                   |
| 5.                  | Total Condiments and Spices | 3973        | 2.01                                    |
| 6.                  | Total Pulses                | 27629       | 14.00                                   |
| 7.                  | Total Fruits and Vegetables | 11303       | 5.73                                    |
| 8.                  | Total Oilseeds              | 27453       | 13.91                                   |
| 9.                  | Sugarcane                   | 5540        | 2.81                                    |
| 10.                 | Cotton                      | 9287        | 4.71                                    |
| 11.                 | Total Food Crops            | 148078      | 75.04                                   |
| 12.                 | Total Non Food Crops        | 49242       | 24.96                                   |
| 13.                 | Total Cropped Area          | 197320      | 100.00                                  |

*Source:* Annual Report 2022-23. Ministry of Agriculture & Farmers Welfare

### 5.2. Gross Value Added (GVA) of Agriculture & Allied Sector:

Table 2 presents the sector-wise contribution of crops, livestock, forestry & logging, and fishing & aquaculture to the total Gross Value Added (GVA) in agriculture and allied sectors from 2011-12 to 2022-23, along with the share of these sectors in total GVA of the Indian economy. The total GVA from agriculture, forestry, and fishing increased from ₹15.02 lakh crore in 2011-12 to ₹22.72 lakh crore in 2022-23. However, its percentage share in the overall GVA of the economy declined from 18.5% in 2011-12 to 15.3% in 2022-

23, reflecting the broader trend of structural transformation where the relative importance of agriculture is diminishing due to faster growth in industry and services sectors. In 2011-12, the total GVA from agriculture, forestry, and fishing stood at ₹15.02 lakh crore. Among its components, crops were the dominant contributor, accounting for 65.4%, followed by livestock at 21.8%, forestry & logging at 8.3%, and fishing & aquaculture at 4.5%. However, over the years, the share of crops in the total agricultural GVA has shown a declining trend, dropping to 54.1% by 2022-23, although the absolute value increased from ₹9.82 lakh crore to ₹12.30 lakh crore. In summary, while the absolute contribution of the agriculture and allied sectors has grown over the years, there has been a notable internal shift within the sector—from crop production to livestock and fishing activities. This diversification suggests changing production and consumption patterns, increased mechanization and productivity in crop farming, and rising demand for dairy, meat, and fish products. At the same time, the declining share of agriculture in total GVA is indicative of the Indian economy's gradual movement towards industrialization and service-led growth.

**Table 2: Gross Value Added by various Economic Activity of Agriculture, Forestry & Fishing (Constant Price 2011-12)**

(Value in Crore)

| <i>Item</i> | <i>Crops</i>      | <i>Livestock</i> | <i>Forestry &amp; Logging</i> | <i>Fishing &amp; Aquaculture</i> | <i>Total Agriculture, Forestry &amp; Fishing</i> | <i>Agriculture, Forestry &amp; Fishing as Percentage of Total GVA</i> |
|-------------|-------------------|------------------|-------------------------------|----------------------------------|--|---|
| 2011-12     | 982151<br>(65.4)  | 327334<br>(21.8) | 124436<br>(8.3)               | 68027<br>(4.5)                   | 1501947  | 18.5  |
| 2012-13     | 983809<br>(64.5)  | 344375<br>(22.6) | 124743<br>(8.2)               | 71362<br>(4.7)                   | 1524288  | 17.8  |
| 2013-14     | 1037060<br>(64.4) | 363558<br>(22.6) | 132093<br>(8.2)               | 76487<br>(4.8)                   | 1609198  | 17.8  |
| 2014-15     | 998425<br>(62.2)  | 390449<br>(24.3) | 134609<br>(8.4)               | 82232<br>(5.1)                   | 1605715  | 16.5  |
| 2015-16     | 969344<br>(60.0)  | 419637<br>(26.0) | 136960<br>(8.5)               | 90205<br>(5.6)                   | 1616146  | 15.4  |
| 2016-17     | 1020258<br>(59.1) | 461572<br>(26.7) | 144547<br>(8.4)               | 99627<br>(5.8)                   | 1726004  | 15.2  |

| Item    | Crops             | Livestock        | Forestry & Logging | Fishing & Aquaculture | Total Agriculture, Forestry & Fishing | Agriculture, Forestry & Fishing as Percentage of Total GVA |
|---------|-------------------|------------------|--------------------|-----------------------|---------------------------------------|--|
| 2017-18 | 1075111<br>(58.4) | 497830<br>(27.1) | 152351<br>(8.3)    | 114730<br>(6.2)       | 1840023                               | 15.3   |
| 2018-19 | 1049211<br>(55.9) | 540970<br>(28.8) | 163949<br>(8.7)    | 124468<br>(6.6)       | 1878598                               | 14.8   |
| 2019-20 | 1108603<br>(55.6) | 581714<br>(29.2) | 173972<br>(8.7)    | 130037<br>(6.5)       | 1994326                               | 15.1   |
| 2020-21 | 1137474<br>(54.8) | 617799<br>(29.8) | 183993<br>(8.9)    | 134947<br>(6.5)       | 2074212                               | 16.3   |
| 2021-22 | 1174359<br>(54.1) | 657269<br>(30.3) | 185031<br>(8.5)    | 153447<br>(7.1)       | 2170106                               | 15.6   |
| 2022-23 | 1230083<br>(54.1) | 690268<br>(30.4) | 186825<br>(8.2)    | 165075<br>(7.3)       | 2272250                               | 15.3   |

Source: National Accounts Statistics 2024, Ministry of Statistics and Programme Implementation (MoSPI), Government of India.

Note: Figures in parenthesis is percentage share of activity in total of Agriculture, Forestry & Fishing.

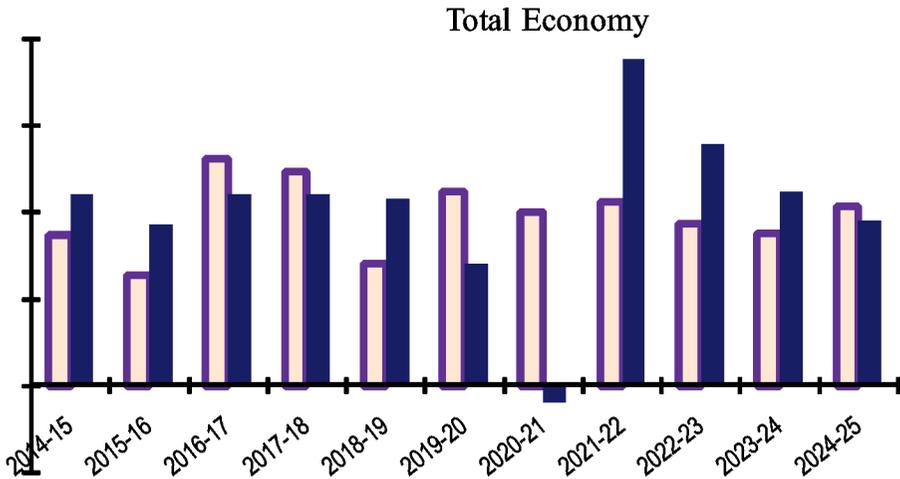


Chart 1

The data presented in chart 2 provides a comparative view of how the agriculture sector has performed in terms of Gross Value Added (GVA) growth

relative to the overall Indian economy from 2014–15 to 2024–25. It reveals both the stability and limitations of agricultural growth in India over the last decade. The chart clearly depicts that while agriculture does not match the pace of overall economic growth, it plays a crucial stabilizing role, especially during economic downturns. It also underscores the need for agricultural modernization, diversification, and productivity enhancement to ensure that the sector contributes more significantly to national income and provides sustainable livelihoods to India’s large rural population.

### 5.3. Inter-State Variations in Crop Area and Production

The figure-1 presents a comparative analysis of India’s leading states based on their share in area and production for major agricultural crops during the year 2023–24. It highlights regional specializations and productivity trends, offering valuable insights into the spatial distribution of agricultural performance across the country.

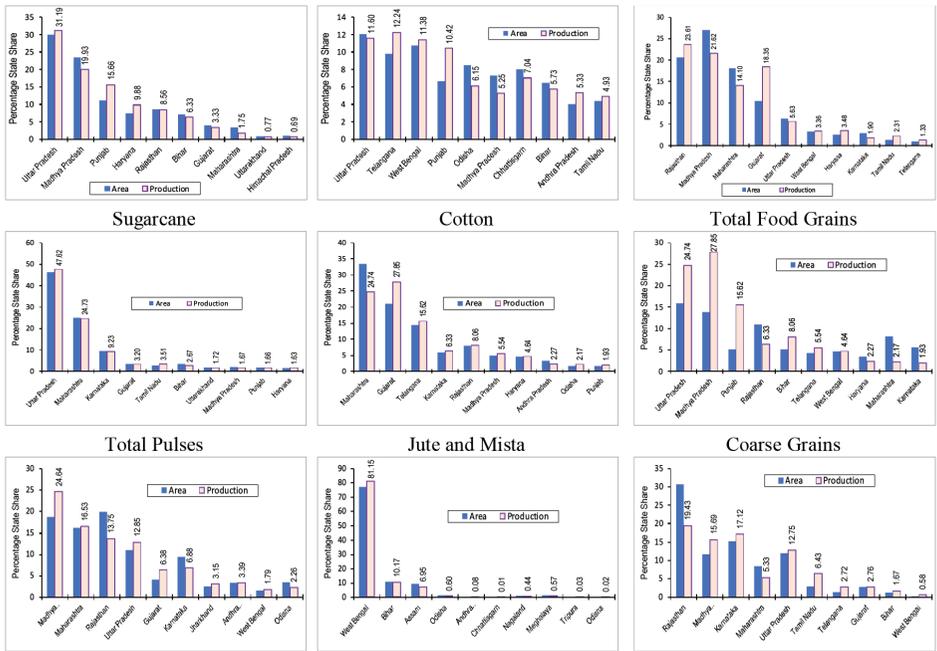


Chart 2 : Top 10 states in terms of Area and Production for the year 2023-24 for selected crops

Source: Plotted using data from Unified Portal for Agricultural Statistics, Department of Agriculture & Farmers Welfare

In the case of wheat, Uttar Pradesh clearly emerges as the dominant state, contributing nearly 34% of the total area and production. It is followed by Madhya Pradesh and Punjab, with shares of around 17% and 14% respectively. Rajasthan and Haryana also make significant contributions. This concentration of wheat cultivation and production in the north-central states reflects historical cropping patterns, favorable agro-climatic conditions, and irrigation support in these regions.

For rice, West Bengal has the highest area under cultivation (about 13.4%), but Punjab surpasses it in production (around 13.4%) despite having slightly less area. This reflects Punjab's superior productivity, likely due to mechanization and better irrigation. Other major rice-producing states include Uttar Pradesh, Andhra Pradesh, Chhattisgarh, and Odisha. States like Bihar and Assam contribute more in terms of area than production, suggesting relatively lower productivity levels. When it comes to oilseeds, Madhya Pradesh leads the country both in area (over 25%) and production (over 31%), underscoring its position as the hub of oilseed cultivation, especially for soybean and mustard. Rajasthan and Gujarat follow, with significant shares in both parameters. Maharashtra, Karnataka, and Chhattisgarh show moderate area shares but lower production, implying comparatively lower yields. The sugarcane sector is heavily dominated by Uttar Pradesh, which accounts for more than 50% of the area and around 41% of national production. Interestingly, Maharashtra, with just about 9% of the area, contributes nearly 18% of the production, pointing to much higher productivity. Karnataka, Tamil Nadu, and Gujarat also register meaningful shares, particularly in production, highlighting regional efficiencies.

In cotton cultivation, Maharashtra leads in area (around 35%), while Gujarat leads in production (around 28%), indicating higher productivity. Telangana, Rajasthan, and Andhra Pradesh also play significant roles in both area and production. This trend suggests that western and southern states dominate cotton output, with Gujarat showing notable efficiency gains in recent years. Looking at total food grains, Uttar Pradesh and Madhya Pradesh together account for over half the area and production, with Punjab contributing disproportionately more to production (around 13%) than area (around 8%), reflecting its intensive agricultural practices and superior yields. Rajasthan, Bihar, and Haryana also play important roles in the food grain economy. In the

case of pulses, Madhya Pradesh stands out with a significant lead, contributing nearly 29% of both area and production. Rajasthan and Maharashtra follow, while Uttar Pradesh and Karnataka also contribute meaningfully. This confirms Madhya Pradesh's long-established dominance in pulse production, especially gram and urad. For jute and mesta, the picture is highly concentrated, with West Bengal alone accounting for over 80% of both area and production. Assam and Bihar contribute marginally, reinforcing Bengal's traditional and continued dominance in jute cultivation and processing. Lastly, coarse grains are led by Rajasthan in both area and production, contributing close to 20% of each. Maharashtra, Madhya Pradesh, Karnataka, and Uttar Pradesh follow. Some states like Gujarat and Tamil Nadu show relatively higher production than area share, implying more efficient farming systems.

This state-wise breakdown not only maps agricultural strengths across India but also reflects regional disparities in productivity. States like Punjab, Gujarat, and Maharashtra show clear productivity advantages in several crops, while others with large cultivated areas—such as Bihar and Assam—need targeted technological and policy interventions to improve yields. Overall, the data illustrates the crucial role of state-level strategies and infrastructure in shaping India's agricultural output.

#### **5.4. Government Initiatives to Increase Production**

The output of agriculture and allied activities realized to 163105 Cr at current prices during 11<sup>th</sup> five year plan (2007-12) and projected for Rs. 363273 Cr at current prices for the 12<sup>th</sup> five year plan (2012-17). The schemes of 11<sup>th</sup> plan have been modified further and some new schemes were also introduced in 2014-15 during 12<sup>th</sup> five year plan.

- (a) **Soil Health Card Scheme:** This scheme was implemented in the mid of twelfth five year plan to issue soil health card to the farmers and allocated budget of Rs. 568.54 Crores.
- (b) **Pradhan Mantri Krishi Sinchai Yojana:** This scheme was launched to increase the irrigation area in the country by supplying irrigation water.
- (c) **Price Stabilization Fund for Cereals and Vegetables:** This fund was created to increase price stability for perishable agricultural products. A budget of Rs. 500 Crore was allocated for this purpose.

- (d) **National Agri-tech Infrastructure:** This was an initiative of the government to create a national market for agricultural products and approved agri- tech infrastructure fund for this purpose. All the existing schemes are being modified by the government into five missions to keep up the momentum already gained.
- (e) **Agricultural Credit:** On the assessment of the annual report of 2014-15, government increased the agriculture credit to 8 lakhs crores which is almost doubled.
- (f) **Rashtriya Krishi Vikas Yojana (RKVY):** This scheme was launched in 11<sup>th</sup> five year plan to increase the growth of agriculture and its allied sectors. Rs. 27447 crores were sanctioned under 11<sup>th</sup> plan and an outlay of Rs. 63,246 crore has been sanctioned under 12<sup>th</sup> paln. The entire budget was divided in the ratio of 40:40:20 for the three streams viz. production, Infrastructure & Assets.
- (g) **Minimum Support Prices (MSPs):** The purpose of MSP is to provide protection for minimum price to the farmers. It provides MSP for 23 crops which includes seven cereal crops and five pulse crops, seven oil seeds, dried copra, cotton, jute and also provide Fair and Remunerative Price for sugarcane.
- (h) **National Crop Insurance Programme (NCIP):** This scheme was implemented in 1999 as National Agricultural Insurance Scheme and later on re-structured as National Crop Insurance Programme and was started from Rabi 2013-14 season in the country.

Many other schemes which were specific to area and crops also started to boost the productivity in the agriculture sector. These were introduced to boost the existing scheme to increase the productivity.

## **6. RECENT TRENDS IN INDIA'S AGRICULTURAL GROWTH**

The trends in agricultural production of major crops have been studied in three major aspects viz. area, production and yield. Data of the period under study from 2012-13 to 2021-22 has been analyzed in terms of three different aspects as mentioned above. This has been divided into two parts. One is the period of 12<sup>th</sup> five year plan 2012-13 to 2016-17 and another is the period of first five years of 15 years new vision document from 2017-18 to 2021-22. Their CAGR have been calculated to show the trends in respect of area, production

and yield. A comparative analysis of the two periods is also done with the help of charts which has been drawn with the CAGR value of area, production and yield.

### 6.1. Trends in Areas of Major Crops

The trends in areas of major crops have been shown in the Table 3 & 4 as given below. Table 3 of 12<sup>th</sup> Five Year Plans shows that the trend in growth of areas of Rice and Wheat is 0.43% and 0.50% which is negligible and it is negative -0.13% in terms of Coarse Grains. This is positive 1.53% and 1.15% and negative -0.53% for Coarse Grains in the year 2017-18 to 2021-22 of first five year period of New Vision Document as shown in the Table 4. This shows that there is increase in area of production during the period of vision document. The annual growth rate of Pulses and Food grains has also reduced. Another major change is in respect of oilseeds and sugarcane in which the value of CAGR was negative -0.95% and -2.49% respectively during 12<sup>th</sup> five year plan and it has become positive 5.12% and 1.24% respectively during the period of vision document 2017-18 to 2021-22. The CAGR value in respect of other crops reflects either no change or minor changes in the area of crops.

**Table 3: Areas of Major Crops During 12<sup>th</sup> Five Year Plan (2012-2017)**

| Crops/ Year   | Areas of Major Crops (Lakh Hectare) |         |         |         |         | CAGR % |
|---------------|-------------------------------------|---------|---------|---------|---------|--------|
|               | 2012-13                             | 2013-14 | 2014-15 | 2015-16 | 2016-17 |        |
| Rice          | 427.54                              | 441.36  | 441.1   | 434.99  | 439.93  | 0.43   |
| Wheat         | 300.03                              | 304.73  | 314.65  | 304.18  | 307.85  | 0.50   |
| Coarse Grains | 247.57                              | 252.2   | 251.7   | 243.89  | 250.08  | -0.13  |
| Pulses        | 232.56                              | 252.13  | 235.54  | 249.12  | 294.45  | 4.71   |
| Food grains   | 1207.79                             | 1250.42 | 1243    | 1232.18 | 1292.3  | 1.21   |
| Oilseeds      | 264.84                              | 280.51  | 255.96  | 260.87  | 261.77  | -0.95  |
| Sugarcane     | 49.99                               | 49.93   | 50.66   | 49.27   | 44.36   | -2.49  |
| Cotton@       | 119.77                              | 119.6   | 128.19  | 122.92  | 108.26  | -1.73  |
| Jute & Mista# | 8.63                                | 8.38    | 8.09    | 7.82    | 7.63    | -3.11  |

Note: @ Production in million bales of 170 kg each

# Production in million bales of 180 Kg. each.

Source: Annual Reports (various years), Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.

**Table 4: Areas of Major Crops During 5 Yrs (2017-18 to 2021-22) of 15 Yrs Vision Document**

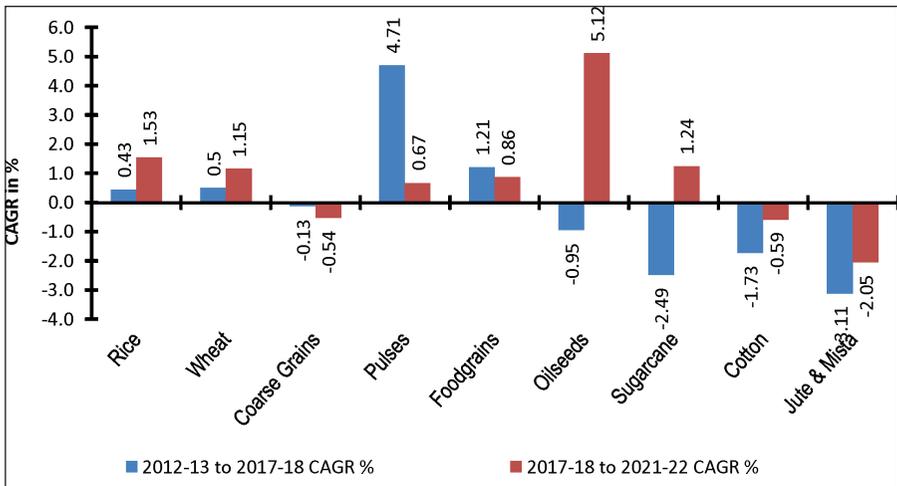
| Crops/ Year   | Areas of Major Crops (Lakh Hectare) |         |         |         |          | CAGR % |
|---------------|-------------------------------------|---------|---------|---------|----------|--------|
|               | 2017-18                             | 2018-19 | 2019-20 | 2020-21 | 2021-22* |        |
| Rice          | 437.7                               | 441.6   | 436.62  | 457.69  | 463.79   | 1.53   |
| Wheat         | 296.5                               | 293.2   | 313.57  | 311.25  | 304.69   | 1.15   |
| Coarse grains | 242.9                               | 221.5   | 239.88  | 241.18  | 226.52   | -0.54  |
| Pulses        | 298.1                               | 291.6   | 279.87  | 287.83  | 310.30   | 0.67   |
| Food grains   | 1275.2                              | 1247.8  | 1269.95 | 1297.95 | 1305.3   | 0.86   |
| Oilseeds      | 245.1                               | 247.9   | 271.39  | 288.33  | 291.67   | 5.12   |
| Sugarcane     | 47.4                                | 50.6    | 46.03   | 48.51   | 51.48    | 1.24   |
| Cotton        | 125.9                               | 126.1   | 134.77  | 132.86  | 119.10   | -0.59  |
| Jute & Mista  | 7.4                                 | 7.0     | 6.73    | 6.62    | 6.86     | -2.05  |

Note: \*4<sup>th</sup> advance estimates.

@ Production in million bales of 170 kg each.

#Production in million bales of 180 Kg. each.

Source: Annual Reports, Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.



**Chart 3: Comparative Analysis of Trends of Area of Major Crops of 12<sup>th</sup> Five Year Plan (2012- 2017) and Period of New Vision Document (2017-2022)**

Source: Chart plotted by taking Value of CAGR from Table 3 & 4.

## 6.2. Trends in the Production of Major Crops

As we have seen in the Table 3 and Table 4 that the trends in area of Rice and Wheat is negligible in the period of 12<sup>th</sup> five-year plan and is positive in the period of vision document. The same negligible trend has been found in the production of Rice and Wheat which is 0.62% and 0.67% in the 12<sup>th</sup> five-year plan and 3.60% and 1.92% as positive in the period of vision document. This shows that with the increase in area the production has also increased the production in the same proportion. The CAGR value of oilseed, sugarcane, cotton and jute & Mista which are negative in 12<sup>th</sup> five year plan has become positive in the period of vision document.

**Table 5: Production of Major Crops during 12<sup>th</sup> Five Year Plan (2012-17)**

(Million Tones)

| <i>Crops/ Year</i> | <i>2012-13</i> | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> | <i>CAGR %</i> |
|--------------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Rice               | 105.24         | 106.65         | 105.48         | 104.41         | 109.70         | 0.62          |
| Wheat              | 93.51          | 95.85          | 86.52          | 92.29          | 98.51          | 0.67          |
| Coarse Grains      | 40.04          | 43.29          | 42.86          | 38.52          | 43.77          | 0.62          |
| Pulses             | 18.34          | 19.25          | 17.15          | 16.32          | 23.13          | 3.03          |
| Food grains        | 257.13         | 265.04         | 252.02         | 251.54         | 275.11         | 0.83          |
| Oilseeds           | 30.94          | 32.74          | 27.51          | 25.25          | 31.28          | -2.35         |
| Sugarcane          | 341.20         | 352.14         | 362.33         | 348.45         | 306.07         | -2.25         |
| Cotton@            | 34.22          | 35.90          | 34.80          | 30.01          | 32.58          | -2.74         |
| Jute & Mista#      | 10.93          | 11.69          | 11.12          | 10.52          | 10.96          | -0.99         |

Note: @ Production in million bales of 170 kg each

# Production in million bales of 180 Kg. each.

Source: Annual Reports, Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.

**Table 6: Production of Major Crops During 5 Years (2017-18 to 2021-22) of 15 Years Vision Document**

| <i>Crops/ Year</i> | <i>Production of Major Crops (Million Tones)</i> |                |                |                |                 | <i>CAGR %</i> |
|--------------------|--|----------------|----------------|----------------|-----------------|---------------|
|                    | <i>2017-18</i>                                   | <i>2018-19</i> | <i>2019-20</i> | <i>2020-21</i> | <i>2021-22*</i> |               |
| Rice               | 112.8  | 116.5          | 118.87         | 124.37         | 130.29          | 3.60          |
| Wheat              | 99.9   | 103.6          | 107.86         | 109.59         | 106.84          | 1.92          |
| Coarse Grains      | 47.0   | 43.1           | 47.75          | 51.32          | 50.90           | 3.40          |
| Pulses             | 25.4   | 22.1           | 23.03          | 25.46          | 27.69           | 3.19          |
| Foodgrains         | 285.0  | 285.2          | 297.50         | 310.74         | 315.72          | 2.95          |

| Crops/ Year   | Production of Major Crops (Million Tones) |         |         |         |          | CAGR % |
|---------------|---|---------|---------|---------|----------|--------|
|               | 2017-18                                   | 2018-19 | 2019-20 | 2020-21 | 2021-22* |        |
| Oilseeds      | 31.5                                      | 31.5    | 33.22   | 35.95   | 37.70    | 5.04   |
| Sugarcane     | 379.9                                     | 405.4   | 370.50  | 405.40  | 431.81   | 2.59   |
| Cotton@       | 32.8                                      | 28.0    | 36.07   | 35.25   | 31.20    | 1.31   |
| Jute & Mista# | 10.0                                      | 9.8     | 9.88    | 9.35    | 10.32    | 0.16   |

Note: \* 4<sup>th</sup> advance estimates.

@ Production in million bales of 170 kg each.

# Production in million bales of 180 Kg. each.

Source: Annual Reports, Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.

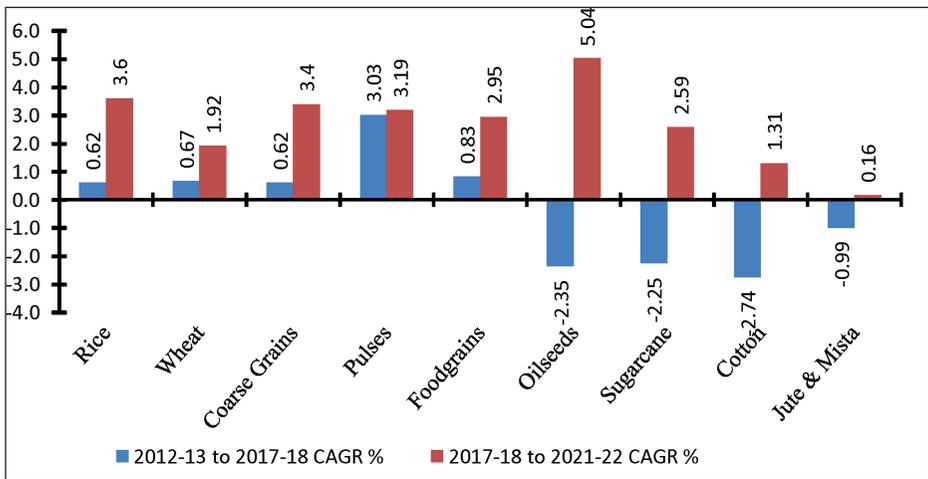


Chart 4: Comparative Analysis of Trends of Production of Major Crops of 12<sup>th</sup> Five Year Plan (2012-17) and Period of New Vision Document (2017-2022)

Source: Chart plotted by taking Value of CAGR from Table 5 & 6.

### 6.3. Trends in Yield of Major Crops

Table 7 & 8 shows the trend in yields of major crops of both 12<sup>th</sup> five year plan and first five year period of 15 years vision document. Chart 3 shows the Comparative Analysis of Trends of Yield of Major Crops of 12<sup>th</sup> Five Year Plan (2012-17) and Period of New Vision Document (2017-22). Both the tables reveal that the trend in annual percentage growth of rice, wheat, coarse grain, sugarcane and jute & mista was minimal. Growth trend in pulses, oilseeds, foodgrains and cotton is negative in the 12<sup>th</sup> five year plan but it is important to note here that the trend in growth in annual percentage has become positive

in all the crops except oilseeds in the first five year of new vision document. Definitely this is the effect of changes which have taken place in the new vision document.

**Table 7: Yields of Major Crops During 12<sup>th</sup> Five Year Plan (2012-2017)**

| Crops/ Year   | Yields of Major Crops (Kgs/ Hectare) |         |         |         |         | CAGR % |
|---------------|--------------------------------------|---------|---------|---------|---------|--------|
|               | 2012-13                              | 2013-14 | 2014-15 | 2015-16 | 2016-17 |        |
| Rice          | 2461                                 | 2416    | 2391    | 2400    | 2494    | 0.20   |
| Wheat         | 3117                                 | 3145    | 2750    | 3034    | 3200    | 0.17   |
| Coarse Grains | 1617                                 | 1717    | 1703    | 1579    | 1750    | 0.75   |
| Pulses        | 789                                  | 764     | 728     | 655     | 786     | -1.60  |
| Food grains   | 2129                                 | 2120    | 2028    | 2041    | 2129    | -0.38  |
| Oilseeds      | 1168                                 | 1168    | 1075    | 968     | 1195    | -1.41  |
| Sugarcane     | 68254                                | 70522   | 71512   | 70720   | 69001   | 0.25   |
| Cotton@       | 486                                  | 510     | 462     | 415     | 512     | -1.01  |
| Jute & Mista# | 2281                                 | 2512    | 2473    | 2421    | 2585    | 2.16   |

Note: @ Production in million bales of 170 kg each

# Production in million bales of 180 Kg. each.

Source: Annual Reports, Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.

**Table 8: Yields of Major Crops during 5 Years (2017-18 to 2021-22) of 15 Years Vision Document**

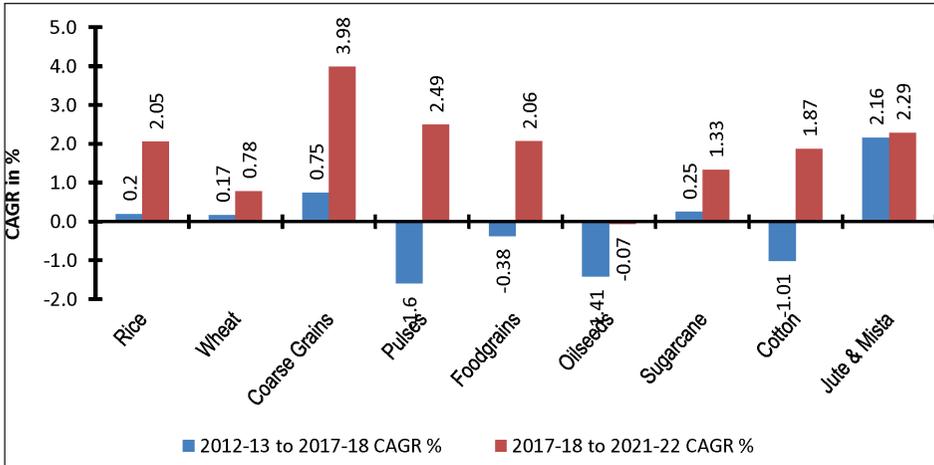
| Crops/ Year   | Yields of Major Crops (Kgs/ Hectare) |         |         |         |          | CAGR % |
|---------------|--------------------------------------|---------|---------|---------|----------|--------|
|               | 2017-18                              | 2018-19 | 2019-20 | 2020-21 | 2021-22* |        |
| Rice          | 2576                                 | 2638    | 2722    | 2717    | 2809     | 2.05   |
| Wheat         | 3368                                 | 3533    | 3440    | 3521    | 3507     | 0.78   |
| Coarse Grains | 1934                                 | 1944    | 1991    | 2128    | 2247     | 3.98   |
| Pulses        | 853                                  | 757     | 823     | 885     | 892      | 2.49   |
| Food grains   | 2235                                 | 2286    | 2343    | 2394    | 2419     | 2.06   |
| Oilseeds      | 1284                                 | 1271    | 1224    | 1247    | 1292     | -0.07  |
| Sugarcane     | 80198                                | 80105   | 80497   | 83566   | 83887    | 1.33   |
| Cotton@       | 443                                  | 378     | 455     | 451     | 445      | 1.87   |
| Jute & Mista# | 2435                                 | 2508    | 2641    | 2542    | 2709     | 2.29   |

Note: \* 4<sup>th</sup> advance estimates.

@ Production in million bales of 170 kg each.

# Production in million bales of 180 Kg. each.

Source: Annual Reports, Department of Agriculture & Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India. CAGR has been calculated by the author based on values presented in the table.



**Chart 3: Comparative Analysis of Trends of Yield of Major Crops of 12<sup>th</sup> Five Year Plan (2012-17) and Period of New Vision Document (2017-22).**

Source: Chart plotted by taking Value of CAGR from Table 7 & 8.

## 7. CONCLUSIONS

The results have showed that there is a positive trend in respect of area, production and yield of all major crops. The annual percentage change as shown in the charts also confirms the same trend for all the crops. The performance of major crops during the transition from the 12th Five Year Plan to the period of the new vision document reveals significant improvements across various indicators. For Rice and Wheat, the area under cultivation has nearly tripled, leading to substantial increases in production—rising from 0.62% to 3.60% for rice and from 0.67% to 1.92% for wheat. Yields also improved markedly, with rice increasing from 0.20% to 2.05% and wheat from 0.17% to 0.78%, suggesting enhanced productivity and better farming practices. In the case of Coarse Grains, even though the cultivated area declined from -0.13% to -0.54%, production surged from 0.62% to 3.40%, and yield rose significantly from 0.75% to 3.98%, highlighting improved efficiency in cultivation. Similarly, Pulses experienced a reduction in cultivated area, yet maintained stable production levels while yield increased sharply from -1.60% to 2.49%, indicating that technological advancements helped compensate for the reduced area. The broader category of Food Grains showed a slight decline in area from 1.21% to 0.86%, but production jumped from 0.83% to 2.95%, and yield turned positive, increasing from -0.36% to 2.06%, confirming gains in overall agricultural efficiency.

The trends in Oilseeds were also positive, with increases in area, production, and yield, reflecting comprehensive improvements in this segment. Sugarcane recorded a healthy growth trend, with both area and production increasing and yield rising from 0.25% to 1.33%, indicating enhanced performance in sugarcane farming. Cotton, which had suffered negative growth in the 12<sup>th</sup> Plan period—area (-1.73%), production (-2.74%), and yield (-1.01%)—witnessed a turnaround in the new period. Although the area remained slightly negative at -0.59%, production and yield improved to 1.31% and 1.87%, respectively, pointing to recovery through better practices. Lastly, Jute and Mesta displayed positive growth across all three indicators—area, production, and yield—demonstrating consistent gains in cultivation and output, in line with the trends observed for other major crops.

The overall agricultural scenario, as per this analysis, reflects a positive and encouraging trend. Productivity or yield has generally improved across most major crops, indicating enhanced efficiency in agricultural practices. In several cases, even with a reduction in the area under cultivation, production has increased, suggesting the successful adoption of improved technology and farming methods. The shift from the 12<sup>th</sup> Five Year Plan to the period covered by the new vision document marks a notable acceleration in growth, particularly for crops like Rice, Wheat, Coarse Grains, and Food Grains. A striking example is Cotton, where the earlier negative trends in area, production, and yield were reversed during the later period, underscoring the positive impact of better agricultural policies and practices. This state-wise breakdown reflects regional disparities in productivity. States like Punjab, Gujarat, and Maharashtra show clear productivity advantages in several crops, while others with large cultivated areas—such as Bihar and Assam—need targeted technological and policy interventions to improve yields.

### *Note*

1. The vision document indicated that the annual growth of the agriculture sector would be at 3.2 per cent, 3.7 per cent and 2.7 per cent under Baseline, Aspirational and Pessimistic scenarios respectively at constant market prices (Singh, 2022).

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