

Research Paper



A comprehensive analysis of agricultural and animal production in India for trends and growth (2020-21 to 2025-26)

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ABSTRACT

Agriculture and allied sectors continue to play a vital role in the Indian economy by ensuring food security, generating employment, supporting rural livelihoods, and contributing significantly to national economic development. This study examines the production trends of major agricultural crops and allied sectors in India during 2020-21 to 2025-26. The research adopts a descriptive quantitative approach based on secondary data collected from reliable government and international sources, including the Directorate of Economics and Statistics (DES), Ministry of Agriculture and Farmers Welfare, Department of Animal Husbandry and Dairying (DAHD), Department of Fisheries, Economic Survey of India, Food and Agriculture Organization (FAO), World Bank, and OECD-FAO Agricultural Outlook. The analysis covers major food crops, commercial crops, horticultural crops, and allied sectors such as livestock and fisheries. Statistical techniques including percentage, growth, trend, and comparative analyses were employed to evaluate production performance. The findings reveal a steady increase in agricultural output throughout the study period. Food grain production increased from 310.74 million tonnes in 2020-21 to an estimated 376.00 million tonnes in 2025-26. Similar growth was observed in rice, wheat, oilseeds, sugarcane, fruits, vegetables, milk, eggs, and fish production. Inland fisheries and poultry recorded particularly strong growth, highlighting the expanding role of allied sectors in agricultural diversification and rural income generation. The positive performance is attributed to improved irrigation, adoption of high-yielding varieties, technological advancements, supportive government policies, and increased investment in agricultural infrastructure. However, challenges such as climate change, water scarcity, rising input costs, post-harvest losses, and market uncertainties continue to affect sustainable agricultural development. The study concludes that strengthening climate-resilient farming practices, digital agriculture, research and innovation, value-chain infrastructure, and farmer-centric policy interventions will be essential for

sustaining productivity, enhancing food security, promoting inclusive and sustainable growth, improving farmers' income, and supporting balanced agricultural development in India.

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1. INTRODUCTION

In India, agriculture has always played an important role in the economy and continues to be a key contributor to food security, employment, and overall economic development and stability. Despite the fast growth of industry and services, agriculture and other agricultural sectors still play a significant role in the lives of many people. The sector is a major contributor to the country's Gross Value Added (GVA); it is a source of raw materials for agro-based industries, as well as production and exports; and it is a major source of jobs. In addition to the traditional crop sector, allied sectors like horticulture, dairy, livestock and fisheries have also come up in the way they contribute to farmer's income, nutrition and inclusive rural growth. In recent years, the Indian government has introduced several measures to boost agricultural output and sustainability. The Indian government has implemented several policies and measures in recent years to promote agricultural productivity and sustainability. Irrigation has been expanded, use of modern technologies in agriculture has been encouraged, diversification of crops, up gradation of infrastructure, advancement of livestock and fisheries development etc. has been achieved through various schemes including Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Pradhan Mantri Fasal Bima Yojana (PMFBY), PM-KISAN, the National Food Security Mission (NFSM), the National Horticulture Mission (NHM), Rashtriya Krishi Vikas Yojana (RKVY), Pradhan Mantri Matsya Sampada Yojana (PMMSY). These activities have encouraged the adoption of technology, mechanization, improved quality seeds and better market linkages, resulting in increased production and on the farmers' side better production conditions. India's agriculture and allied sectors have demonstrated good resilience during these challenging years from 2020–21 to 2025–26 despite the multiple shocks they faced, such as the pandemic, climate change, irregular weather patterns, high input costs, and global issues in supply chains. Over this period, food grain production increased from 310.74 million tonnes to an estimated 376.00 million tonnes, while other areas such as rice, oilseeds production, sugarcane, and horticulture also improved during this period. The agricultural sector saw consistent increases in milk, meat, egg and wool production, and fisheries saw growth due to the increased inland aquaculture and marine fisheries production. The trends indicate the sector's adaptive capacity to meet changing environmental and economic challenges while at the same time preserving food security and livelihoods of rural communities. However, Indian agriculture continues to face structural and ecological issues. Productivity and profitability are still limited by small and scattered land holdings, declining soil health, groundwater depletion, climate variability, post-harvest losses, price fluctuations and poor storage and transportation capabilities. Solving these challenges requires further investment in climate-resilient agriculture, digital solutions, research and innovation, water use efficiency, sustainable agricultural practices, and supply chain integration, to secure future sustainability and competitiveness. In this context, the detailed statistical review of production in the agricultural and allied sector provides valuable information on the short-term performance and growth dynamics. This study comprehensively analyzes production trends and patterns of key food crops, commercial crops, horticulture, livestock and

fisheries in the year 2020-21 till 2025-26. It will be done by analysing the data of annual period and comparing the development of various subsectors to evaluate the overall achievement of Indian agriculture in achieving food security, creating rural jobs and sustainable development. The findings will provide guidance to researchers, policymakers and stakeholders for creating effective, evidence-based roadmap for the future of the agricultural sector in India.

2. RELATED WORK

2.1 Review of Literature

Have discussed the structure and performance of livestock and meat sectors in India, which has become one of the fastest-growing sectors in Indian agriculture. They highlighted that the increasing demand for meat, milk and processed animal products has been a major driver of agricultural GDP, employment and rural incomes. However, the study also highlighted chronic issues like low productivity, disease control, infrastructure, and others requiring specific policies [1].

The animal-source food system in India has been evaluated by Suresh et al. (2025) based on the production, consumption, and nutritional status of the food system. Their work highlighted the critical importance of the sector to improve the quality of diets and food security, and to increase the incomes of the farm households. The authors recommended enhancing value chains and improving efficiency in livestock production to address the growing demand for livestock products locally [2].

Examined the long-term trends in meat production in India and made predictions about future trends. Over the last 25 years, they saw an increase in production due to technological progress, expansion of commercial agriculture and changing consumer demands. They were expecting growth to continue in the future, but noted the importance of sustainable growth and policy support to keep that momentum going [3].

Investigated the climate adaptation options in South Asian livestock systems. The study revealed that animal productivity is harmfully affected by climate change in several ways: by causing heat stress, by reducing water availability and by increasing disease rates. The scientists suggested the use of climate smart management practices, the breeding of climate resilient breeds and the formulation of adaptive policies to ensure sustain livestock production in the face of climatic changes [4].

Studied the growth trend and instability of livestock and poultry industries in the state of Maharashtra. The study observed positive growth although there were some fluctuations in the output due to the variation in weather and market conditions. Policy interventions were recommended to ensure stability of production and increase farmers' resilience to climate change, which involves access to technology and financial support [5].

Did an animal products and livestock feed demand study for future in India. They estimate that demand would increase dramatically, driven by rising incomes and population and urbanization. The study highlighted the need to promote innovation, optimise feed utilisation and strengthen trade policies, as drivers of sustainable livestock development and food security [6].

A scoping review was carried out to understand the environmental impact of agriculture and livestock production in South Asia. They discovered that intensive agriculture and animal husbandry have a substantial impact on greenhouse gas emissions, water consumption and land degradation. The authors presented the case for increased sustainability in farming practices and more resource-efficient systems, minimizing ecological damage [7].

The livestock population in India has been analyzed by Ahlawat et al. (2025) based on census data. They noted steady numbers of cattle, buffalo, goat and poultry in the past decade, demonstrating the increasing importance of animal husbandry in rural economies. The study highlighted the need for well-balanced policies to enhance both productivity and sustainability [8].

Investigated the effects of climate change on Indian agriculture and found that there is an increased risk of climate change due to changes in rainfall patterns, increasing temperatures, and increasing frequency of extreme weather events. They urged the use of climate-smart agricultural production

practices, diversification of agricultural products and sustainable management of natural resources to ensure future agricultural production [9].

Presented an overview of the global situation and prospects on livestock production, which has been driven by population growth, urbanization and higher incomes. The study highlighted the importance to increase the productivity without harming the environment by adopting sustainable practices [10].

Pointed out that strategic investments in sustainable food systems are important. They found that technological advancements, efficient resource utilization, and better farm management practices can make significant contributions to productivity, promote environmental well-being, and contribute to food security [11].

Suggested strategies for sustainable agriculture to be adopted globally, which include smarter land use, better crop management, less food waste, and increased food and water conservation. They decided to concentrate on growing crop production without aggravating environmental damage [12].

The global food demand and scope for sustainable intensification of agriculture was investigated by Tilman. They found that new technologies, better crop varieties and more efficient use of nutrients are essential to addressing food needs in the future without increasing the environmental footprint of growing food [13].

Tackled the issue of feeding a fast-growing world's population. The authors believed that sustainable food security is to increase agricultural production to meet demand while implementing measures to reduce food losses, enhance diet quality and ensure fair access to food through policies [14].

Pretty, Toulmin and Williams (2011) investigated sustainable intensification in agriculture and discovered that environmentally friendly methods can increase agricultural output without using up natural resources. The study highlighted the need for embedding ecological principles that will ensure sustainable farming systems [15].

Assessed land-based solutions to mitigate greenhouse gas emissions and concluded emissions could be reduced substantially with a suite of land use and livestock management options that are not harmful to food production. The authors highlighted the importance of linking climate mitigation objectives with food security objectives [16].

Reviewed emissions, feed efficiency and biomass utilization in global livestock production systems. They found that improving feed conversion and using sustainable management systems could help to boost production, reduce environmental impacts and resources use [17].

Took the debate on competition between livestock feed and human food one step further, revealing that animals eat immense quantities of biomass that is not edible to humans or agricultural by-products as well. The study revealed that food security can be promoted instead of constrained by well managed livestock systems [18].

A study investigated the health and climate effects of dietary changes, and concluded that moderate intake of animal-based foods in sustainable food systems is not harmful for public health and can have a positive impact on climate change. The authors recommended for the more comprehensive incorporation of nutrition and environmental concerns into agricultural planning [19].

Highlighted the connections between food systems and sustainability, indicating that future agricultural change needs to meet simultaneously the four dimensions of sustainability – food security, environmental protection, social equity, and economic progress. They championed comprehensive policy frameworks linking farming, livestock, nutrition and climate resilience for sustainable development over the long term [20].

2.2 Research Gap

Although the trend analysis of the agricultural production, livestock development, food security, climate change, sustainability and policy interventions are widely studied at national and global level, there is a lack of complete trend analysis of the agricultural production and livestock development for India between the years 2020-21 and 2025-26. In addition, there has been a lack of research evaluating the performance of the major crops and livestock products on a combined basis with the most recent official data. Given this deficiency, the present study provides a thorough analysis of the emerging trends and

growth in the Indian Agriculture and Animal Industry, which will give the policy makers, researchers and stakeholders in the field of Agriculture timely and relevant information.

2.3 Objectives of the Study

1. To understand and analyse the production trends of major crops in Agriculture including food grains, rice, wheat, pulses, oilseeds, sugarcane and cotton during the period 2020-21 to 2025-26.
2. To analyse the growth path of the horticulture sector and examine the production level of fruits, vegetables and horticultural crops in the same timeframe.
3. To assess the performance of the Livestock Sector in terms of trend of production of milk, meat, eggs and wool in India.
4. To study the development of fisheries sector in terms of fish production from inland, marine and total fish production during the study period.
5. To compare production results achieved in each of the sectors under agriculture with their allied sectors over the period 2020-21 and 2025-26 and identify any distinct patterns and trends.
6. To provide statistical analysis of overall growth and contribution of agriculture and allied sectors to food security, rural employment and overall economic growth and development in India.

3. METHODOLOGY

The current study uses quantitative research and descriptive research methods to explore the state of the agricultural and allied sectors in India from 2020–21 to 2025–26. It uses only secondary data obtained from reputable sources, such as the FAO, OECD-FAO, World Bank and the Government's publications. The study examines key indicators like food grains, rice, wheat, pulses, oilseeds, sugarcane, cotton, horticulture, livestock and fisheries products, including milk, meat, eggs, fisheries and wool. Percentage, trend, comparative analysis, tables and charts are used to analyse data in Microsoft Excel. The study evaluates production trends, and the role of agriculture and allied activities in terms of food security, rural livelihoods and economic development.

Table 1. Major Food Crop Production in India (2020–21 to 2025–26)

Indicator	Unit	2020–21	2021–22	2022–23	2023–24	2024–25 (Final)	2025–26 (3rd Adv. Est.)
Food grains	Million Tonnes	310.74	315.61	329.69	332.30	357.00	376.00
Rice	Million Tonnes	122.27	129.47	135.76	137.82	149.07	151.02
Wheat	Million Tonnes	109.59	107.74	110.55	113.29	117.50	117.44
Pulses	Million Tonnes	25.46	27.30	26.05	24.24	25.24	25.74

Table 2. Commercial Crop Production in India (2020–21 to 2025–26)

Indicator	Unit	2020–21	2021–22	2022–23	2023–24	2024–25 (Final)	2025–26 (3rd Adv. Est.)
Oilseeds	Million Tonnes	36.10	37.96	41.36	39.67	42.61	44.72
Sugarcane	Million Tonnes	405.40	439.43	490.53	453.15	494.05	499.77
Cotton	Million Bales	35.25	31.45	33.66	32.52	30.73	36.12

Table 3. Horticultural Production in India (2020–21 to 2025–26)

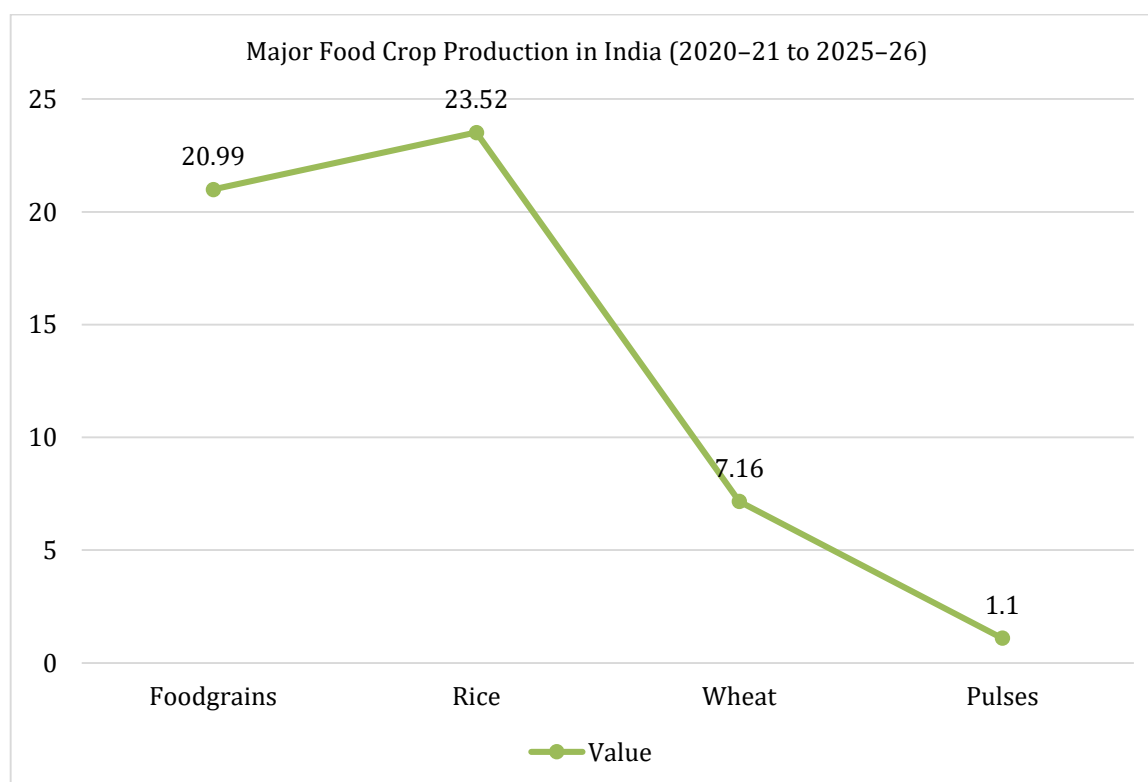
Indicator	Unit	2020–21	2021–22	2022–23	2023–24	2024–25 (Final)	2025–26*
Fruits	Million Tonnes	102.48	107.10	108.34	112.73	114.98	116.25*
Vegetables	Million Tonnes	200.45	204.61	209.39	211.25	214.12	216.40*
Total Horticulture Production	Million Tonnes	331.05	341.63	352.23	354.99	360.45	364.80*

Table 4. Livestock Production in India (2020–21 to 2024–25)

Indicator	Unit	2020–21	2021–22	2022–23	2023–24	2024–25
Milk	Million Tonnes	210.00	221.10	230.60	239.30	247.90
Meat	Million Tonnes	9.29	9.77	10.25	10.61	10.95
Eggs	Million Numbers	122,050	129,600	138,376	142,772	149,111
Wool	Million kg	33.61	34.05	35.01	35.82	36.25

Table 5. Fish Production in India (2020–21 to 2024–25)

Indicator	Unit	2020–21	2021–22	2022–23	2023–24	2024–25
Total Fish Production	Thousand Tonnes	14,725	16,248	17,545	18,393	19,775
Inland Fish Production	Thousand Tonnes	10,437	11,457	12,410	13,045	14,050
Marine Fish Production	Thousand Tonnes	4,288	4,791	5,135	5,348	5,725

**Figure 1.** Growth (%) for Major Food Crop Production in India (2020–21 to 2025–26)

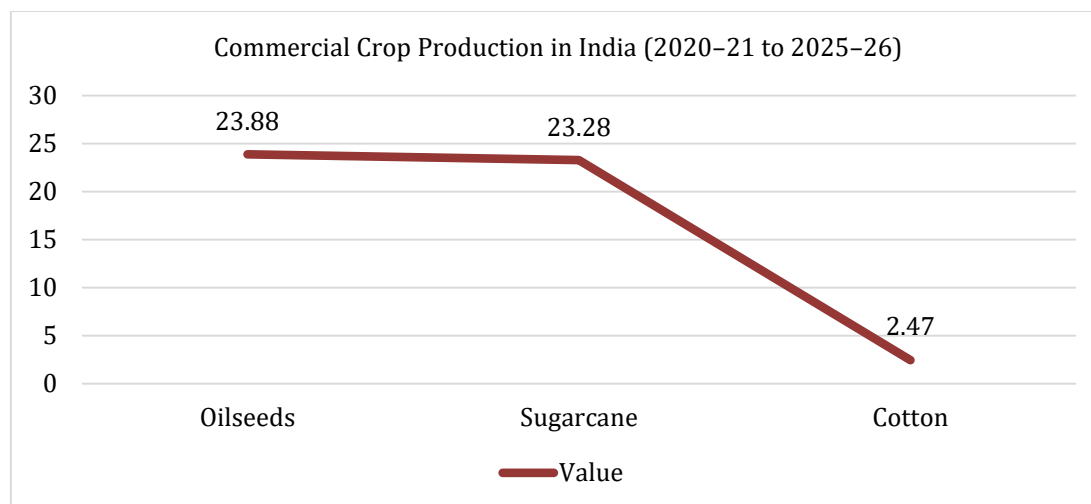


Figure 2. Growth (%) for Commercial Crop Production in India (2020–21 to 2025–26)

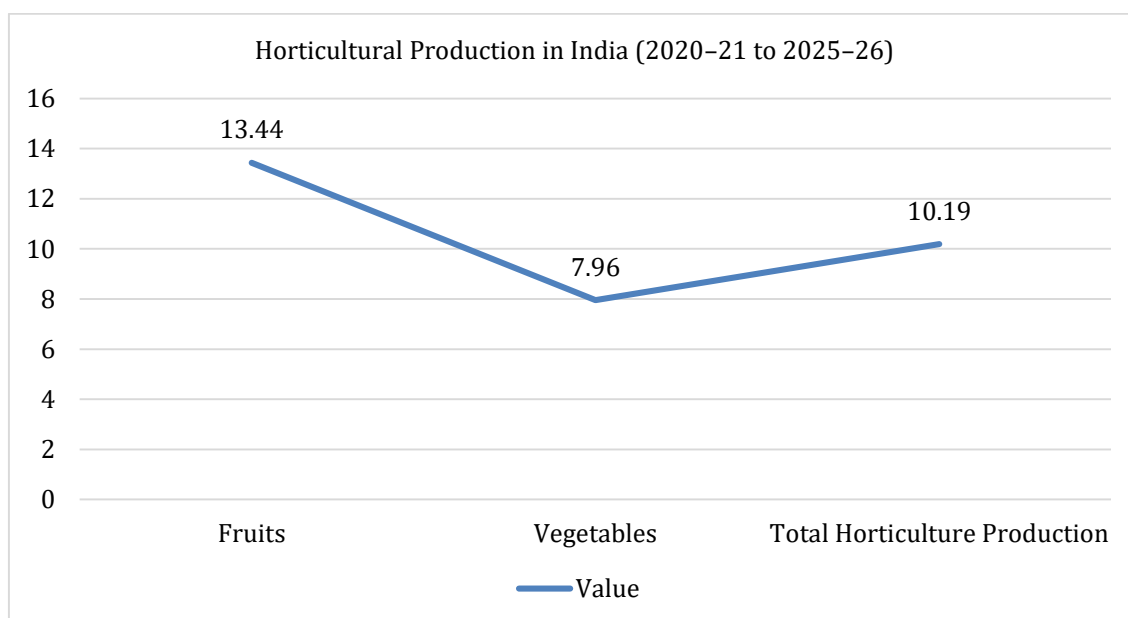


Figure 3. Growth (%) for Horticultural Production in India (2020–21 to 2025–26)

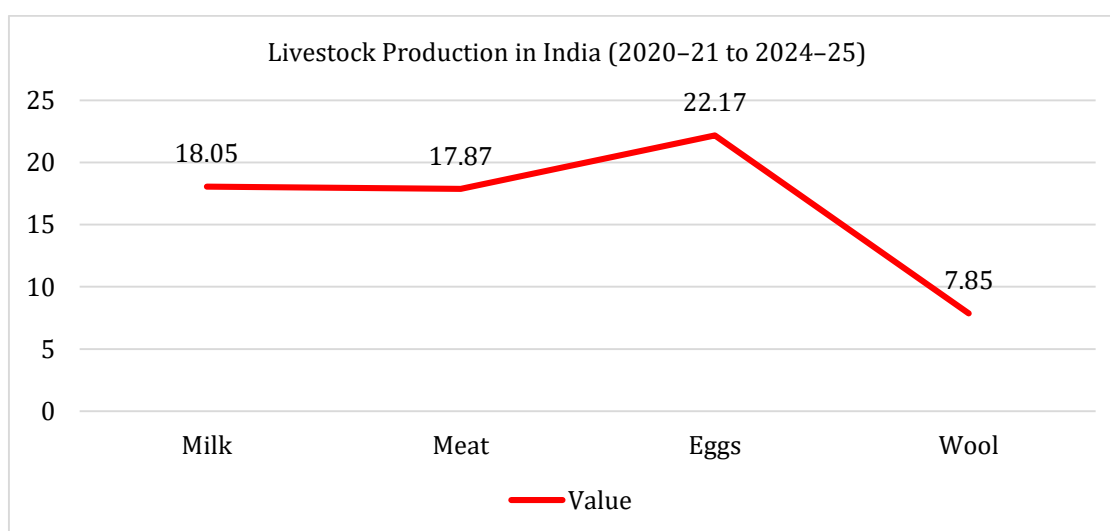


Figure 4. Growth (%) for Livestock Production in India (2020–21 to 2024–25)

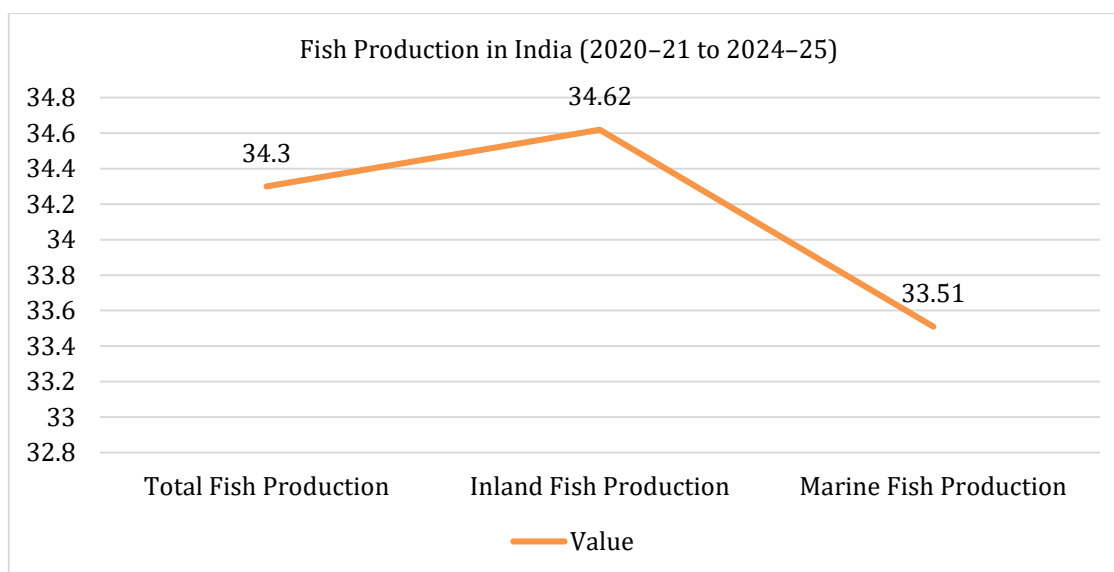


Figure 5. Growth (%) for Fish Production in India (2020-21 to 2024-25)

4. RESULTS AND DISCUSSION

4.1 Trends and Growth for Major Food Crop Production, Commercial Crop Production, Horticultural Production, Livestock Production and Fish Production in India (2020-21 to 2024-25)

From 2020-21 to 2024-25, India recorded steady growth in major food crop production, led by higher output of rice, wheat, and pulses due to improved productivity and supportive government policies. Commercial crops like sugarcane, cotton, and oilseeds displayed varied performance but generally positive growth trends, while horticultural output—covering fruits, vegetables, and spices—continued to rise, playing a growing role in farm incomes and export earnings. Livestock production, encompassing milk, eggs, and meat, showed steady expansion, driven by rising demand and advances in animal rearing. Fish output also grew consistently, supported by the development of inland aquaculture and marine fisheries, reinforcing India's status as a top global fish producer.

From Table 1, there is a consistent rise in the production of the major food crops during the study period. The total food grain production is estimated to increase by 21.0% from 310.74 million tonnes in 2020-21 to 376.00 million tonnes in 2025-26. With improved irrigation, better rice seed varieties and government support, rice production increased from 122.27 million tonnes to 151.02 million tonnes. Despite climate fluctuation, wheat production rose slightly from 109.59 million tonnes to 117.44 million tonnes. Pulse production was fairly higher compared to the previous year, indicating continued attempts to improve domestic production and decrease imports. The outcomes illustrate that India's food crop sector is resilient and continues to make strides, a key pillar in the country's food security and agricultural development.

Table 2 shows that there is a generally good trend in commercial crop production. The production of oilseeds increased from 36.10 million tonnes to 44.72 million tonnes, due to increased cultivation and policy measures to boost the self-reliance of edible oil production. The expansion of the sugar industry is evident from the production of sugarcane, which increased from 405.40 million tonnes to 499.77 million tonnes. Weather variations, pests and market conditions caused cotton output to fluctuate, falling to 30.73 million bales in 2024-25 but rising back to 36.12 million bales in 2025-26. The patterns indicate that the commercial crop sector continues to be an economically significant and responsive sector in response to technological and policy innovation.

The horticulture industry continued to grow steadily, according to Table 3. The production of fruit rose from 102.48 million tonnes to an estimated 116.25 million tonnes, and for vegetables the production went up from 200.45 million tonnes to 216.40 million tonnes. The overall production of horticulture

increased from 331.05 million tonnes to approximately 364.80 million tonnes, making horticulture increasingly important in agricultural production. Improved irrigation, protected cultivation, technological advances and increased domestic and international demand are among the factors associated with this development. The data show that farmers are moving towards high value crops for better incomes and nutritional outcomes.

Table 4 shows robust and continuous growth in India's livestock sector. The production of milk rose from 210.00 Million tonnes to 247.90 Million tonnes and India remained the top milk producer in the world. The production of meat was increased by 1.66 million tonnes to 10.95 million tonnes and egg production has increased by 27.06 billion eggs to 149.11 billion, showing that poultry farming is booming. The gradual growth in wool production also showed improvement, from 33.61 million kilograms to 36.25 million kilograms. Overall, livestock sector has emerged as an important contributor to agricultural income, employment and nutrition to allied agricultural activities.

Table 5 shows the fish production was steadily increasing. Total output rose from 14.73 million tonnes in 2020–21 to 19.78 million tonnes in 2024–25, a gain of about 34.3%. This growth was largely attributable to inland fisheries, which rose from 10.44 million tonnes in 2000 to 14.05 million tonnes in 2004. Marine fish production also increased, from 4.29 MT to 5.73 MT, as a result of improved management and improved fishing infrastructure. The numbers validate the fact that fisheries have emerged as one of the fastest expanding areas in Indian agriculture, thus contributing to food security, export earnings, and employment.

The growth in major food crop production from 2020-21 to 2025-26 was positive, but had different magnitudes for the crops, as shown in Figure 1. At 23.52%, rice experienced the largest growth, probably due to favorable weather conditions, better seeds, increased irrigation and government initiatives. The food grain production has increased by 20.99%, which is an indication of the food security contribution of the sector. Wheat was cultivated at a moderate rate of 7.16 % with some stagnation and less improvement than rice. Limited gains may have been due to unstable cultivation areas, low yields, and climatic risks as indicated by the 1.10% increase recorded by pulses. Balanced agricultural development requires a focus on policies, innovation and productivity gains—particularly for pulses—as overall food grain production has increased, but not at a consistent pace.

Trends in commercial crop production for the same time period are shown in Figure 2. The rise in the oilseeds was the highest at 23.88% among the three main crops, this could be attributed to improved farming practices, better seeds and government measures taken to reduce imports of edible oils. Sugarcane was next with 23.28% growth, which was attributed to favourable conditions, increased cultivation and demand from sugar industry and ethanol industry. However, there was a slight increase of only 2.47% in cotton. This slow growth could be related to climate change, insect damage, changes in cultivation lands and the fluctuations in prices. Oilseeds and sugarcane have contributed to the sectoral improvements, and cotton needs a more robust policy support, technology improvements and productivity interventions to achieve sustainable improvements.

The growth pattern of horticultural production is given in Figure 3. Fruits showed the greatest growth of 13.44%, due to better farming methods, the use of hybrid varieties, planting more orchards and government assistance. The overall horticultural production increased by 10.19%, indicating the continuous development and increasing contribution of horticulture to diversifying agriculture, enhancing incomes and nutritional value. The vegetables recorded the least growth of 7.96%, which may be due to modifications in seasonality, climatic effects, post-harvest losses and marketing related factors. There has been a relatively steady growth in horticulture overall, with fruit production seeing the most growth. The effort to ensure long-term productivity will have to be sustained through investments in modern farming, irrigation, storage, cold chains, and value addition.

Figure 4 shows the livestock production trends between 2020–21 and 2024–25. Egg production increased at the highest rate of 22.17%, which corresponds to the good expansion of poultry production, stimulated by increased demand, introduction of modern technologies, improved breeding and disease control. The dairy industry had further growth, with milk production rising by 18.05%, as a result of increased productivity and better breeds. The production of meat increased by 17.87%, reflecting the

continued progress of the commercial livestock industry and improved animal welfare. The smallest increase (7.85%) occurred with wool production, probably because sheep populations have been reduced, market preferences have changed and the profitability of these operations has decreased. Increased policy attention, breeding improvement and market development is required to boost wool production and achieve balanced sector development, particularly the use of policy focus and the consistent progress of the livestock sector, led by poultry and dairy production.

Figure 5 shows fish production trends from 2020–21 to 2024–25. The production of inland fish increased by 34.62%, which is attributed to the very rapid development of freshwater production system, which is supported by good government policy, scientific techniques and better practices in fish farming. The total fish production increased by 34.30%, highlighting the increasing role of the sector in food security, nutrition, rural employment and overall agriculture. However, marine fish production increased by 33.51% compared to the inland production, which is hindering with various issues including climate change, overfishing, ban period and environmental issues. Overall fisheries sector has experienced good and continuing development; inland aquaculture is a key driver. Sustainable practices, modern infrastructure, cold chains, value added, and well-managed marine resources will continue to play a key role in the sustainability of these achievements and in securing long-term development. Continued investment in sustainable practices, modern infrastructure, cold chains, value added and good marine management will ensure these achievements are sustained and long-term development secured.

4.2 Suggestions of the Study

Based on the results of the study, the following recommendations are made to improve the long-term growth, productivity and resilience of the agricultural and allied sectors in India:

1. **Adopt Modern Technology:** Promote the application of modern technologies such as artificial intelligence, Internet of Things (IOT), drones, geographic information systems (GIS), precision agriculture and digital advisory services to improve the efficiency and reduce production costs.
2. **Improve Irrigation and Climate Adaptation:** Expand irrigation facilities; encourage techniques to capture rainwater and micro irrigation; encourage climate-resistant farming.
3. **Improve Research and Farm Inputs:** Fund innovations of crop varieties and make available to farmers quality seeds, fertilizers, equipment and extension services.
4. **Promote Diversified Farming:** Promote growing high value crops and diversifying into other enterprises such as dairy, poultry, fisheries, beekeeping and silk production.
5. **Increase Financial and Market Access:** Enhance crop insurance coverage, improve institutional credit, strengthen minimum support prices and expand electronic trading market or platform e-NAM, etc.
6. **Improve Post-Harvest Infrastructure:** Ensure more investment is made in Storage Facilities, Cold Chains, Food Processing, Packaging, and Transport to reduce farm loss and enhance farm income.
7. **Promote Sustainable Resource Management:** Support sustainable resource management through advancing soil health, organic farming, integrated pest control, water conservation and integration of renewable energy in farming.
8. **Advance Livestock and Fisheries Development:** Improve animal health, animal breeding, feed supply, aquaculture methods and fish cold storage facilities.
9. **Strengthen Farmer Organisations and Skills:** Enhance the capacity of farmer producer organizations (FPOs), cooperatives and custom hiring centers, and provide skill training to enhance the capacity of farmers to negotiate with better prices.
10. **Use Data for Decision Making:** Refine agricultural data collection via improved surveys, satellite monitoring, digital record keeping, and planning on solid evidence.
11. **Improve Agricultural Exports:** Improve quality standards and certification, traceability, value added processing, branding and infrastructure for international trade.
12. **Ensure Inclusive Development:** Promote sustainable rural economies, innovation, digital access, youth and women in farming and climate-resilient farming.

5. CONCLUSION

The study reveals that Agriculture and allied sectors of India have been consistently growing and resilient during 2020-21 to 2025-26. Production of food grains increased considerably from 310.74 MT to an estimated 376.00 MT, and there were substantial increases in rice, oilseeds, sugarcane, and horticultural crops. The livestock industry continued to grow steadily, including enhanced milk, meat, egg and wool production, further strengthening its contribution to rural employment, food and livelihoods. Similarly, with improvement in inland aquaculture and marine fishing, the fisheries sector has developed steadily. The improvements are claimed to be because of government initiatives, technological advances, better irrigation systems, institutional support and policies towards farmers. The sector continues to face challenges that threaten long-term sustainability such as irregular weather, water scarcity, increased input costs, small and fragmented land holdings and losses post-harvest. Ongoing investment in innovation, infrastructure, climate-proof farming, value added activities and allied industries is essential to ensure the further development and advancement. Overall, agriculture and its associated sectors continue to play a pivotal role in the food security, livelihoods, employment generation and overall economic development of India contributing inclusive and sustainable growth of the nation.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Dr. M. Dinesh Kumar	✓	✓	✓	✓		✓		✓	✓	✓	✓			

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

Conflict of Interest Statement

The author states that there is no conflict of interest in the publication of this research.

Informed Consent

In this study, only secondary data has been used, from publicly available government reports and international data bases, and no human subjects have been involved.

Ethical Approval

This research required no ethical clearance because no personal information, animals or human participants were involved and the sources used were publicly available secondary sources.

Data Availability

The data used in the study results are available in the public domain such as Directorate of Economics and Statistics (DES), Ministry of Agriculture & Farmers Welfare, Department of Animal Husbandry and Dairying (DAHD), Department of Fisheries, Food and Agriculture Organization (FAO), World Bank, OECD-FAO Agricultural Outlook and other official publications of Government of India used in the paper are available in public domain. Further details could be obtained from the corresponding author upon reasonable request.

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