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## **TRENDS AND PATTERN OF AGRICULTURAL PRODUCTION IN HARYANA**

**Sonia**

**Ph.D. Scholar, Department of Geography, MDU, Rohtak.**

### **ABSTRACT:**

*This Paper has examined the Trends and patterns in Haryana's agricultural Production. Even though agricultural growth was around 3% year between 2010 and 21, certain states, including Kerala, nonetheless saw modest growth. Even while this expansion has helped small farmers, their income levels remain incredibly low. Nonetheless, this has led to ongoing environmental degradation in the state of Haryana, especially with regard to the soil, vegetation, and water resources. The amount of organic matter in the soil is decreasing while the usage of chemical inputs is increasing. Although recently introduced crop types have responded well to inputs, this has led to changes in the groundwater table as well as increasing use of irrigation and fertilizer, which has contaminated water with phosphate and nitrate. With 82% of the regional.*



*In India, the agriculturally advanced state of Haryana contributes significantly to the state's economic growth. The physiography of the state is varied, nevertheless, and Southwestern Haryana is easily distinguished from the rest of the state by this topographic variance. From an agricultural perspective, the southwest region of Haryana is less developed than the rest of the state. Irrigation is one of the most significant factors contributing to this region's disparity in agricultural development among other considerations. The construction of canals and tubewells in Southwest Haryana differs from that in the rest of the state (Kumar, 2023). Wheat and paddy account for the majority of Haryana's agricultural produce. Haryana is India's fourth-largest wheat producer, accounting for around 12% of national production. Haryana is also India's tenth largest rice producer, producing coarse grains such as jowar and bajra.*

**KEYWORDS:** *Agricultural Production, Trends and Patterns.*

### **INTRODUCTION:**

A key factor in determining Haryana's economy is agriculture. This essay compares and contrasts the trends of the five main crops grown in Haryana: sugarcane, wheat, jowar, bajra, and rice. The district-by-district output of various crops in Haryana in 2010–11 is also compared in this research. The secondary source of data used in this article was Statistical Abstract Haryana 2011–12. With the use of general statistical tools, data has been examined. Patten has been shown using ARC GIS version 9.3. According to the study, from 1966–1967 to 2010–2011, the area planted with rice and wheat expanded steadily, while the area planted with bajra, wheat, and sugarcane dropped. Additionally, it is discovered that Bajra, wheat, and rice are largely continually produced.

With 4.4 million hectares of land, Haryana is a tiny state that makes up 1.34 per cent of the nation's total land area. With an 185% cropping intensity, 84% of the state's entire land area is cultivated, or about 79% of its total area. Three agro-eco zones may be distinguished within the state

based on agricultural patterns and ecology. Panchkula, Ambala, Kurukshetra, Yamuna Nagar, Karnal, Kaithal, Panipat, and Sonapat are the eight districts that make up Zone I. Sirsa, Fatehabad, Hisar, Zind, Rohtak, Faridabad, and Palwal are the seven districts that make up Zone II. The six districts that comprise Zone-III are Bhiwani, Mahendragarh, Rewari, Jhajjar, Gurgaon, and Nuh. A total of 32%, 39%, and 29% of the state are covered by Zones I, II, and III, respectively. The regions that come within Zones I and II are perfect for agricultural diversity, including rice, wheat, sugarcane, cotton, and pulses. the agriculture sector serves as the backbone of the Indian economy and means of subsistence. The reason for the Agriculture and Allied Sector's steady decline over time is the daily fragmentation of land. because of the divided terrain, but also because we relied on the industrial and services sectors. Moreover, the agricultural industry accounts for 17–18% of the country's GDP (gross domestic product). 51 per cent of the workforce in the state of Haryana is employed in agriculture, which contributes around 14.5 per cent of the state's GDP. The agricultural industry contributes significantly more to the Indian economy than the global average of 6.4%, with Haryana making up 1.5% of the country's total area. The sixth position in the top ten states for food grain production goes to Haryana, which produced 16.38 million tons of grain from 4.47 million hectares of land. Additionally, of the state's total food grains produced in 2017–18, 11.3 and 4.15 million tons, respectively, came from wheat and rice. The new agricultural arrangements that have changed the traditional cropping patterns of Haryana and the nation are attested to by the history of Indian agriculture. Haryana's farming industry has adopted several agricultural changes, such as minimum support prices, green revolutions, land reforms, and new economic reforms. With nearly 12 per cent of the nation's wheat produced, Haryana scores fourth in terms of overall wheat output. The state also ranks tenth in terms of rice production, and produces coarse grains, jowar, or, & bajra. The principal crops grown in Haryana during the Kharif season are rice, sesame, groundnuts, cotton, rice, jowar, bajra, and maize. The principal crops grown in Rabi are mustard, linseed, rapeseed, wheat, tobacco, and gram. 96% of the area that is arable—roughly 86% of it—is under cultivation. Approximately 94.4% of the land is irrigated using a vast network of canals and tube wells. Haryana made a substantial contribution to the Green Revolution, which made the nation's food production self-sufficient. Haryana boasts an amazing irrigation system. In Haryana, irrigation makes use of surface or subsurface water via canals. The utilization of tube wells with pumps is now the most significant groundwater irrigation method in Haryana. Dairy farming is a crucial component of the rural economy in addition to farming. There are animals in Haryana. These are the factors that will determine whether crops and related activities in Haryana's agriculture can diversify. Tractor density increased from 1.04 in 1966–1967 to 43.40 in 2013–2014. From 1966–1967 to 2013–2014, the cropping intensity increased from 123.9 percent to 184.20 percent. In the year 2013–14, the intensity of irrigation increased from 37.08 per cent in 1966–67 to 88.43 per cent, while the net irrigated area increased from 1293 thousand hectares in 1966–67 to 3102 thousand hectares. Fertilizer use increased by 435 per cent in 50 years, from 42 kg per acre in 1966–1967 to 225 kg per hectare in 2013–14.

### DATA SOURCES AND METHODOLOGY

The secondary data obtained from the Economic and Statistics Department of Haryana The Ministry of Agriculture and Farmers' Welfare, the survey, agriculture reports, and other publications were published in journals as research papers. The exponential function will be fitted to calculate the growth behaviour of trends and the performance of agriculture production in Haryana in terms of farm area, yield, output, and revenue.

This paper's presentation of data will be done by using various basic and advanced statistical methods such as thematic and geographical maps, tables, line graphs, bar diagrams etc.

### Trends of Major Crops in Haryana

In the State of Haryana, it has been observed that as irrigation technology and infrastructure have advanced, cropping patterns have been shifting temporally toward the specialization of a small number of important crops. The kind of modifications to cropping patterns is one of the major variables

impacting the agricultural profitability of a region. Therefore, it is great to observe how the acreage of important crops in a certain location is expanding. The purpose of this section is to look at trends and variances in the land in Haryana that is used for key crops. It accomplishes this by utilizing five distinct periods to show the state's cropping pattern changes from 1966–1967 to 2020–21: 1980–1981; 1990–1991; 2000–01; 2010–11; and 2020–21.

**Table 3.1: Trends of Major Crops in Haryana, 1966-67 to 2020-21**

(Area 000' Hac.)

Years	Food Grains		Total Food Grains	Oil Seeds	Sugarcane	Cotton	Total Gross Cropped Area
	Cereals	Pulses					
1966-67	2370 (67.32)	1150 (32.67)	3520 (76.54)	212 (4.61)	150 (3.26)	183 (3.98)	4599
1970-71	2709 (70.03)	1159 (29.96)	3868 (78.03)	143 (2.88)	156 (3.15)	193 (3.91)	4957
1975-76	3017 (71.65)	1194 (28.35)	4211 (77.25)	154 (2.83)	158 (2.90)	255 (4.68)	5451
1980-81	3168 (79.94)	795 (20.06)	3963 (72.55)	311 (5.69)	113 (2.07)	316 (5.79)	5462
1990-91	3337 (81.81)	742 (18.19)	4079 (68.91)	489 (8.26)	148 (2.50)	491 (8.30)	5919
2000-01	4187 (96.39)	157 (3.61)	4344 (71.03)	414 (6.77)	143 (2.34)	555 (9.08)	6115
2010-11	4525 (96.28)	176 (3.74)	4700 (72.25)	521 (8.00)	85 (1.31)	493 (7.58)	6505
2020-21	4,526.5 (69.25)	76.1 (1.16)	4602.60 (70.42)	719.9 (11.01)	99.70 (1.53)	647 (9.90)	6536

Source: Computed from Statistical Abstract of Haryana (Various Issues) 1966-67 to 2020-21

Note: Figures in parentheses show the percentage of Area under Crops

Similarly, over the same period, the percentage of gross cultivated area and the portion of land under the rice to total cereals increased from 8.10 per cent and 4.17 per cent to 29.06 per cent and 19.55 per cent, respectively. The state of Haryana was not traditionally a rice-growing state before the Green Revolution. However, since the green revolution, more than 30% of all food grains are now composed of rice (Table 3.1). Together, rice and wheat represent 88.81 per cent of the state's cultivated land in 2020–21 and 59.76 per cent of its total gross cropped area, making them the two most important cereal crops. Other cereal crops, such as maize, accounted for just 11.19 per cent and 7.54 per cent, respectively, of the total Gross Cropped Area and Cereal. Similarly, over the same period, the percentage of gross cultivated area and the portion of land under the rice to total cereals increased from 8.10 per cent and 4.17 per cent to 29.06 per cent and 19.55 per cent, respectively. The state of Haryana was not traditionally a rice-growing state before the Green Revolution. However, since the green revolution, more than 30% of all food grains are now composed of rice (Table 3.1). Together, rice and wheat represent 88.81 per cent of the state's cultivated land in 2020–21 and 59.76 per cent of its total gross cropped area, making them the two most important cereal crops. Other cereal crops, such as

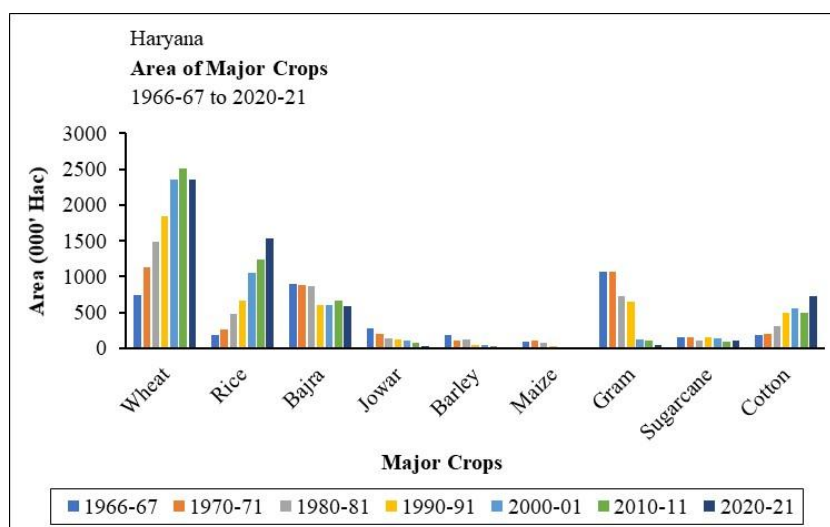
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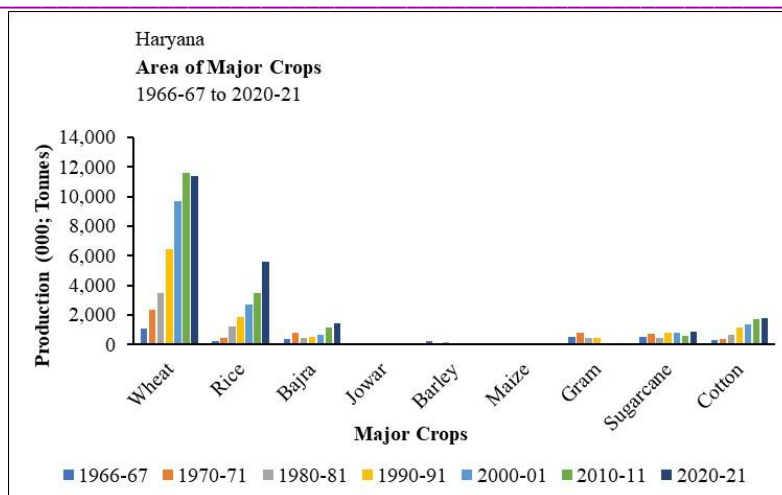
### Trends and Major Crop Production in Haryana Production of Wheat Crops

The production and cultivation of wheat have shown steady and significant growth over the years that are indicated, indicating continuous attempts to fulfil the increasing demand for this vital commodity. Wheat production started at 743 thousand hectares in 1966–1967 and increased to 1,129.30 thousand hectares in 1970–1971—a notable increase in just four years. The area under wheat cultivation increased to 1,479 thousand hectares by 1980–1981 as a result of ongoing investment in and advancements in wheat farming techniques. The upward trend continued throughout the 1990s, with crop area reaching 1,850.10 thousand hectares by 1990–1991—a decade of consistent expansion. There was a noticeable uptick in wheat farming in 2000–01.

### Trends & Patterns of Rice Production in Haryana

Between 1966–1967 and 2020–21, there was a steady and noteworthy increase in rice output and cultivation. Starting in 1966–1967 with 223 thousand tons of output and 192 thousand hectares of cultivated area, both measures saw consistent development in the years that followed. The agricultural area reached 269.2 thousand hectares by 1970–71, and output reached 460 thousand tons at the same time. This period persisted in 1980–81, at which time the production reached 1,259 thousand tons and the agricultural area increased to 483.9 thousand hectares. The agricultural area and production had significant growth in 1990–1991—they reached 1,834 thousand tonnes and 661.2 thousand hectares, respectively. The trend continued throughout the 2000s when production reached 2,695 thousand tons and the cultivated area shot up to 1,054.30 thousand hectares by tonnes.





## CONCLUSION

The declining temporals in cultivation area and production of these staple crops could be influenced by several factors. Changes in land use patterns, with agricultural land being converted for other purposes, urbanization, or industrialisation, might have led to a decrease in available land for cultivation. Additionally, shifts in dietary preferences and consumption patterns, with a greater focus on alternative grains or imported crops, could have contributed to reduced demand and cultivation of these crops. Climate change impacts, such as irregular rainfall patterns or extreme weather events, might have affected crop yields, leading to decreased production. The varying patterns of growth observed in these crops might be attributed to different factors. Technological advancements in farming practices, including the adoption of genetically modified seeds, mechanisation, and precision agriculture techniques, could have boosted yields and encouraged increased cultivation. Government policies such as subsidies, price supports, and incentives for crop cultivation might have incentivised farmers to expand their acreage or invest in higher-yielding crop varieties. Favourable market conditions, including stable prices, strong demand from domestic and international markets, and access to efficient supply chains, could have also played a role in driving production growth for these crops. The fluctuations in Gram cultivation and production could be influenced by various factors.

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