Maize Production in Jharkhand: An Inter-District Analysis

Dr. Umendra Singh

Assistant Professor,
University Department of Economics,
Vinoba Bhave University, Hazaribag

***Abstract*: Maize has become a staple food in many parts of the world. Maize (Zea mays L) is one of the most versatile emerging crops having wider adaptability under varied agro-climatic conditions. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. Maize is widely cultivated throughout the world, and a greater weight of maize is produced each year than any other grain. In 2021, total world production was 1.2 billion tonnes. This paper has attempted to analysed an inter-district growth of maize production in Jharkhand.**

***Keywords*: Production, Growth, and AAGR**

Introduction

One of the most adaptable developing crops is maize (Zea mays L.), which can grow in a variety of agro-climatic settings. Being the crop with the highest genetic production potential, maize is referred to as the "queen of grains" internationally. A cereal grain initially cultivated by native peoples in southern Mexico around 10,000 years ago is known as maize, sometimes known as corn in North American and Australian English. The plant's leafy stem generates pollen inflorescences and distinct ovuliferous inflorescences called ears, which, when fertilised, create kernels or seeds, which are fruits. While corn refers to any major cereal crop grown in a nation, maize relates particularly to this one grain, making it favoured in official, scientific, and international usage as the common word. For instance, while corn is frequently used to refer to maize in North America and Australia, it may also be used to describe wheat, barley, or oats in England and Wales, Scotland, and Ireland.

The global output of maize has surpassed that of wheat and rice, and it has become a staple food in many regions of the world. Maize is used to make corn ethanol, animal feed, and other maize products like corn starch and corn syrup in addition to being eaten directly by people (typically in the form of masa). The six main varieties of maize are sweet corn, flint corn, popcorn, dent corn, and pod corn. Sugar-rich varieties called sweet corn are usually grown for human consumption as kernels, while field corn varieties are used for animal feed, various corn-based human food uses (including grinding into cornmeal or masa, pressing into corn oil, fermentation and distillation into alcoholic beverages like bourbon whiskey), and as feedstocks for the chemical industry. Maize is also used in making ethanol and other biofuels.

In comparison to other grains, maize is the most frequently farmed crop in the world and is produced in bigger quantities each year. Global output reached 1.2 billion tonnes in 2021. With 384 million metric tonnes of maize expected to be farmed in the United States alone in 2021, it is the most frequently cultivated grain crop in the Americas. 85% of the maize that was planted in the United States in 2009 was genetically modified. Because of subsidies, the United States is the world's greatest producer of maize and has a high degree of maize cultivation.

Maize (Zea mays) is the most widely distributed crop of the world. It is grown in temperate, tropical, and subtropical areas, with an annual production of 960 million metric tonnes (2013-14). It is the third-most significant cereal crop in India after rice and wheat and is farmed all year long (Kharif, Rabi, and summer). With 2.4% of the world's production, it comes in sixth place. Over the previous ten years, the output of maize has increased dramatically, rising from 14 million metric tonnes to 23 million metric tonnes. Some cereal crops saw a negative rise in productivity during the same time period. Traditional maize-growing states in India include U.P., M.P., Jharkhand, Chhattisgarh, and Bihar, which account for nearly half of the nation's total production (Joshi et. al. 2005). Maize's lower water need supports crop variety and provides cash for farmers. Farmers said that the two most significant abiotic stresses in India are drought and water logging (Joshi et. al. 2005). When grown in an irrigation system, maize requires at least 60% less water than rice (Tuong and Bouman, 2003). Droughts in the years 2000 and 2002 reduced overall rice output in the eastern Indian states of Bihar, Jharkhand, Chhattisgarh, and Orissa by 60–90%, greatly escalating poverty (Pandey et. al. 2007). In this context, maize is the crop that maintains both the stabilisation of income and the fall in global grain output.

Globally, the maize crop is used for industrial, 61.0 percent of which is used as feed, and 17% of which is used as a staple crop (22.0 per cent). Nevertheless, it is mostly used in India for cattle feed and poultry feed (51.0%), with food

(23.0%) being the next most common use (12.0 per cent each). In addition to reducing poverty, the cultivation of maize for chicken feed offers the chance to create jobs and revenue.

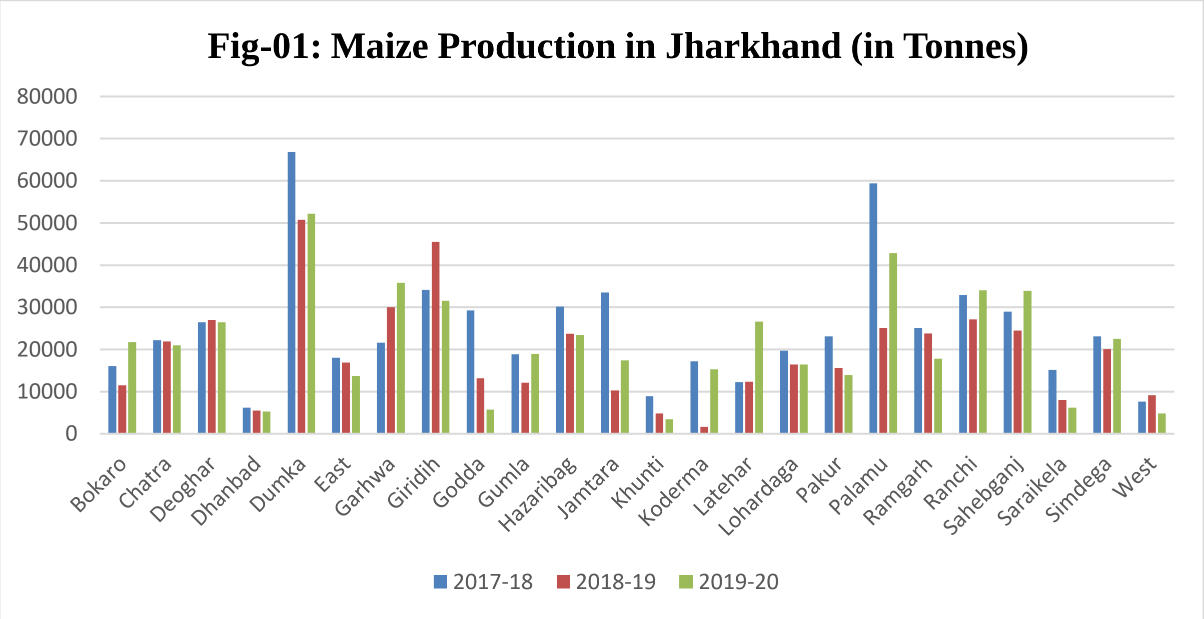
Soils Loamy sand to clay loam are only a few of the several types of soils where maize can be cultivated effectively. Nevertheless, soils with high water holding capacity, neutral pH, and good organic matter content are thought to be favourable for increased production. It is preferable to stay away from low-lying fields with poor drainage and fields with greater salinity since this crop is vulnerable to moisture stress, especially excess soil moisture and salinity strains. Thus, the lands with adequate drainage should be chosen for maize growing.

Time of sowing: The four seasons-Kharif (monsoon), post-monsoon, Rabi (winter), and spring—are suitable for growing maize. To increase the production at a farmer's field during the Rabi and spring seasons, irrigation facilities must be guaranteed. It is preferable to finish the sowing process 12–15 days before the start of monsoon during the Kharif season. The planting season should, however, coincide with the beginning of the monsoon in rain-fed regions.

Objective of the Study
The objective of the study is to analyse the Inter district growth of maize production in Jharkhand.

Data and Method
The data has been collected from secondary sources. The secondary data on maize production was used for analysis. Data from 2017-18 to 2019-20 has been used to understand the inter district maize production in Jharkhand. In addition to the usual statistical measures such as percentages, annual and average annual growth rates are applied.

Result and Discussion



Sources: Department of Agriculture and Farm Welfare, GOI

Figure 01 shows district wise maize production in Jharkhand. From the figure top five districts are Dumka (66805), Palamu (59437), Jamtara (33515), Giridih (34096) and Ranchi (32906) tonnes and least five districts are Dhanbad (6205), West Singhbhum (7649), Khunti (8930), Latehar (12249), and Saraikela (15155) tonnes for maize production of Jharkhand in the year of 2017-18.
In 2018-19, top five districts are Dumka (50739), Giridih (45545), Garhwa (30030), Ranchi (27144), and Deoghar (26975) tonnes and least five districts are Koderma (1650), Khuti (4848), Dhanbad (5528), Saraikela (8020), and West Singhbhum (9154) tonnes for maize production of Jharkhand in the year of 2018-19.
In 2018-19, top five districts are Dumka (52160), Palamu (42823), Gharwa (35824), Ranchi (34079), and Sahebganj (33867) tonnes and least five districts are Khuti (3463), Dhanbad (5239), West Singhbhum (4806), Godda (5696) and Saraikela (6195) tonnes for maize production of Jharkhand in the year of 2019-20.

Table-01: District-wise Growth Rate of Maize Production in Jharkhand

District	Growth 2017-18 to 2018-19	Growth 2018-19 to 2019-20	AAGR
Bokaro	-0.29	0.89	0.12
Chatra	-0.01	-0.04	-0.02
Deoghar	0.02	-0.02	0.00
Dhanbad	-0.11	-0.05	-0.05
Dumka	-0.24	0.03	-0.07
East	-0.06	-0.19	-0.08
Garhwa	0.39	0.19	0.22
Giridih	0.34	-0.31	-0.03
Godda	-0.55	-0.57	-0.27
Gumla	-0.36	0.56	0.00
Hazaribag	-0.21	-0.01	-0.07
Jamtara	-0.69	0.70	-0.16
Khunti	-0.46	-0.29	-0.20
Koderma	-0.90	8.29	-0.04
Latehar	0.00	1.17	0.39
Lohardaga	-0.17	0.00	-0.05
Pakur	-0.33	-0.11	-0.13
Palamu	-0.58	0.71	-0.09
Ramgarh	-0.05	-0.25	-0.10
Ranchi	-0.18	0.26	0.01
Sahebganj	-0.15	0.38	0.06
Saraikela	-0.47	-0.23	-0.20
Simdega	-0.13	0.12	-0.01
West	0.20	-0.47	-0.12

Sources: Author Calculation based on Department of Agriculture and Farm Welfare, GOI

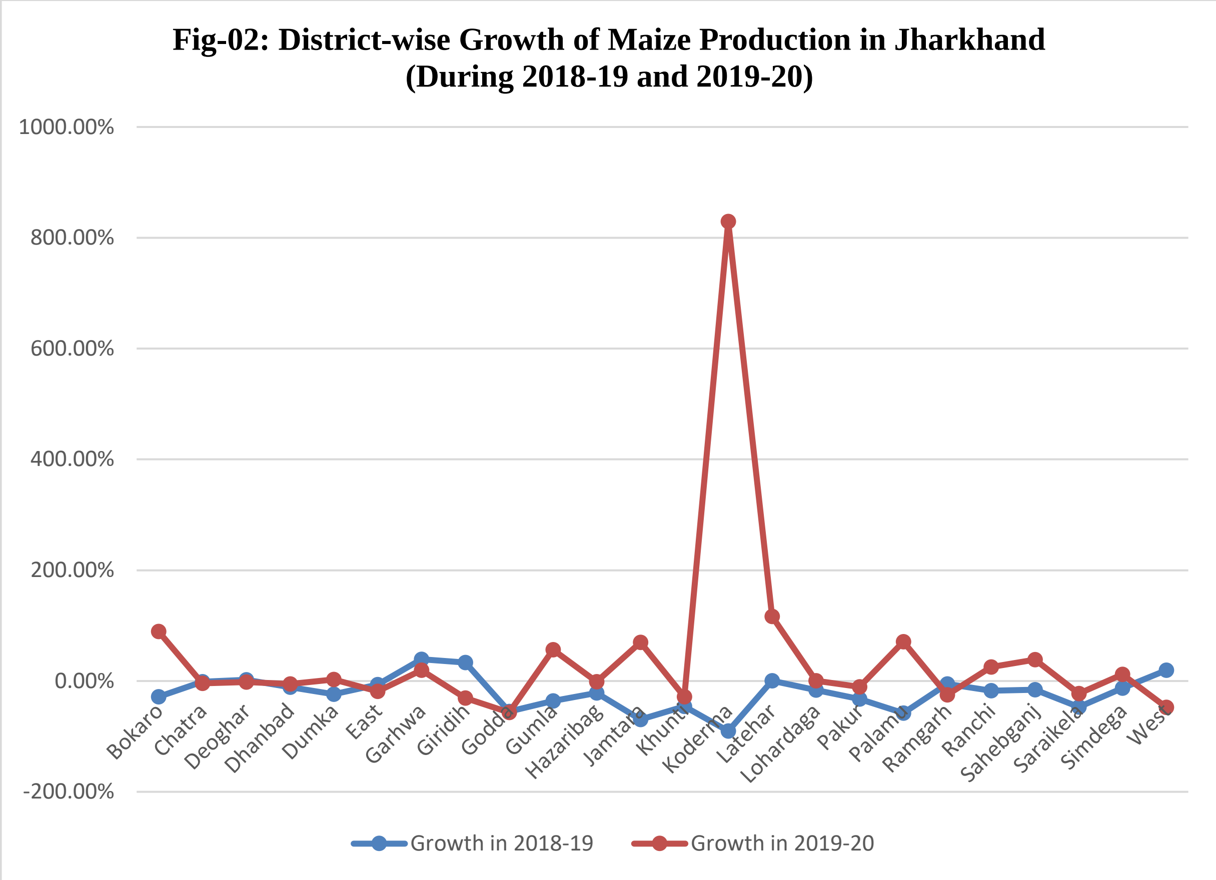


Table 01 and Figure 02 shows growth rates of maize production in Jharkhand during 2018-19 and 2019-20. Its shows five district are Deoghar (1.90%), Garhwa (39.25%), Giridih (33.58%), Latehar (0.42%) have positive growth and West Sighbhum (19.68%) and least growth five districts are Koderma (-90.39%), Jamtara (-69.33%), Palamu (-57.83%), Godda (-55.04%), and Saraikela (-47.08%) of maize production during 2017-18 to 2018-19.
In 2018-19 to 2019-20, top five growth districts are Koderma (829.21%), Latehar (116.62%), Bokaro (89.28%), Palamu (70.83%) and Jamtara (69.71%) and least growth five district are Godda (-56.73%), West Singhbhum (-47.50%), Giridih (-30.83%), Khuti (-28.57%) and Ramgarh (-25.23%) of Maize production.

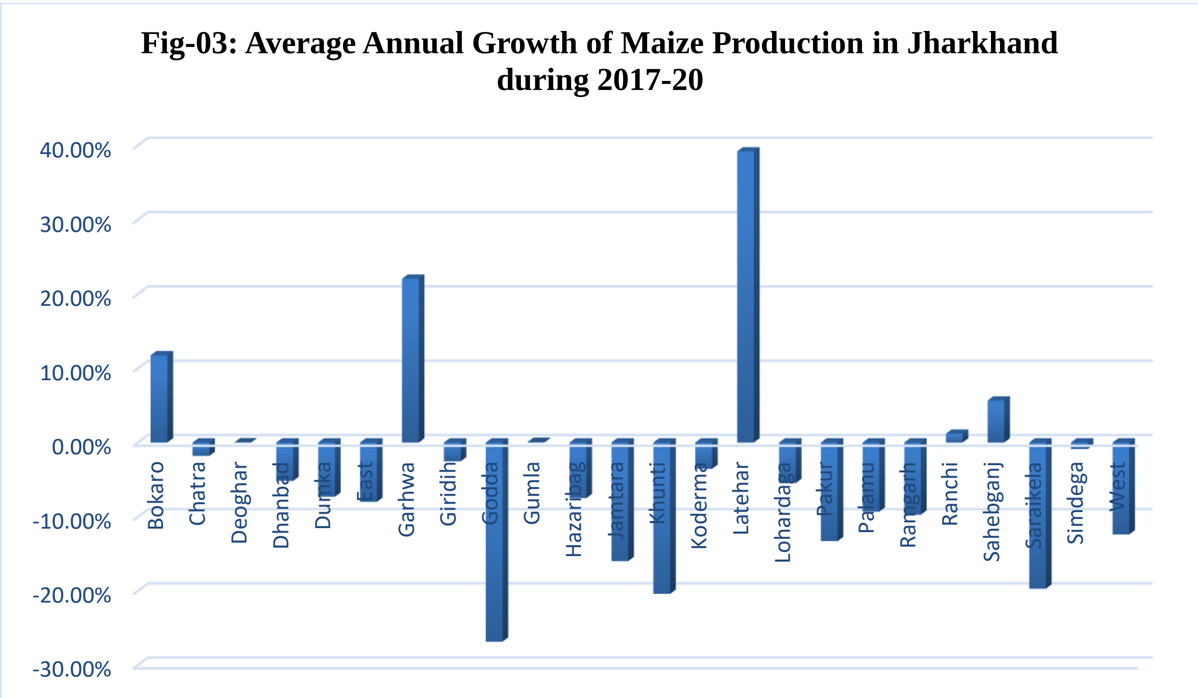


Table 01 and Figure 03 shows maximum Average Annual Growth Rate (AAGR) five district are Latehar (39.17%), Garhwa (22.04%), Bokaro (11.74%), Sahebganj (5.65%) and Ranchi (1.19%) and minimum AAGR five districts are Godda (-26.85%), Khuti (-20.41%), Saraikela (-19.71%), Pakur (-13.29%) and West Singhbhum (-12.39%) of maize production in Jharkhand.

Conclusion

Maize has become a staple food in many parts of the world, with the total production of maize surpassing that of wheat or rice. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. Maize is widely cultivated throughout the world, and a greater weight of maize is produced each year than any other grain. In 2021, total world production was 1.2 billion tonnes.

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