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# A Comparative Study on Cost and Returns of Maize Cultivation in Jammu Region of J&K

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**ABSTRACT: A study was conducted in Jammu region of J&K. Three districts namely Rajouri, Udhampur and Poonch were purposely selected for studying the Maize crop. The proposed study adopted Purposive Sampling technique for the selection of districts based on higher production of the crop under study. However the blocks, villages, producers and intermediaries were selected randomly. The study examined that the overall average total cost of Maize cultivation was calculated to be highest in Poonch district (Rs. 16484.00/acre) followed by Udhampur district (Rs. 15222.76/acre) and Rajouri district (Rs. 12590.00/acre) of Jammu region of J&K. The overall gross returns of the crop were found highest in Poonch district (Rs. 23328.00/acre) followed by Udhampur district (Rs. 21258.33/acre) & Rajouri district (Rs. 20181.00/acre) whereas the average net returns of the crop were found highest in Poonch district (Rs. 6833.00/acre) followed by Rajouri district (Rs. 6592.00/acre) & Udhampur district (Rs. 6036.33/acre). The study of cost and returns will provide an empirical estimate to the growers for resource allocation with the help of B.C ratio whereas the comparative status of cost and return of Maize cultivation will help the researchers to formulate new studies based on economics of Maize crop.**

**Keywords:** Cost of Cultivation, Total variable Cost, Gross Returns, Net Return, BC ratio.

## INTRODUCTION

Maize can be grown in any soil type (excluding sandy soil) and under any agro-climatic conditions. Maize has been grown in many seasons and regions, with crop durations ranging from 90 to 130 days, due to its photo insensitivity. India stands fourth in terms of area and seventh in terms of production among maize-growing countries, accounting for around 4% of global maize area and 2% of total production (IIMR, 2020). During the 2018-19 crop year, India's maize area increased to 9.2 million hectares (NSSO, 2019). In 1950-51, India produced roughly 1.73 million metric tonnes of maize, which has climbed to 27.8 million metric tonnes in 2018-19, an almost 16-fold increase in production. During this time, average productivity increased by 5.42 times, from 547.00 kg/ha to 2965.00 kg/ha, while area increased by nearly three times (Economic Survey, 2020). Despite the fact that India's production is about half that of the rest of the world, the average daily productivity of Indian maize is comparable to that of many of the world's leading maize producers.

## MATERIAL AND METHOD

The current study was carried out in the Jammu province of Jammu and Kashmir. Three districts, Rajouri, Udhampur and Poonch were purposely selected based on their high concentration of Maize production in Jammu region of J&K. A total number of 240 respondents were studied from six blocks of Rajouri, Poonch and Udhampur respectively.

**For working out cost and return of Maize following formulas were used:**

- **Total cost:** Total cost refers to the overall cost of production, which includes both fixed and variable components of the cost. In economics, the total cost is described as the cost that is required to produce a product. The total cost was computed by summing-up fixed & variable costs.

TC = FC + VC

Where,

TC = Total cost (in Rs.)

FC = Fixed cost (in Rs.)

VC = Variable cost (in Rs.)

• **Computation of gross returns:** Gross return is the sum of all receipts from main product and by-product produced per acre. The gross return is expressed mathematically as follows:

$GR = Y_T.P_T$

Where,

GR = Gross returns (in Rs.)

$Y_T$ = Yield of maize in quintal (q)

$P_T$ = Price of maize per quintal (q)

• **Net Returns:** The net return is calculated by deducting total cost from the gross returns.

Net Returns = GR-TC

Where,

GR = Gross returns (in Rs.)

TC = Total cost (in Rs.)

• **Benefit Cost Ratio:** The Benefit Cost Ratio (BCR), also referred to as Benefit-to-Cost Ratio is an indicator that is typically used within a cost benefit analysis. The Benefit Cost Ratio is expressed mathematically as follows:

BCR = GR/TC

Where,

GR = Gross returns (in Rs.)

TC = Total cost (in Rs.)

## RESULTS AND DISCUSSION

The Table 1 revealed that the overall average total cost of Maize cultivation was calculated to be highest in Poonch district (Rs. 16484.00/acre) followed by Udhampur district (Rs. 15222.76/acre) and Rajouri district (Rs. 12590.00/acre) of Jammu region of J&K. The average gross returns of the crop were found highest in Poonch district (Rs. 23328.00/acre) followed by Udhampur district (Rs. 21258.33/acre) & Rajouri district (Rs. 20181.00/acre) whereas the average net returns of the crop were found highest in Poonch district (Rs. 6833.00/acre) followed by Rajouri district (Rs. 6592.00/acre) & Udhampur district (Rs. 6036.33/acre). Reddy (2013) revealed similar results by conducting a field experiment in Orissa to know crop diversification of pulses, oilseeds and other high value crops.

**Table 1: Cost and returns of Maize crop in Rajouri district (Rs. /Acre).**

| Sr. No. | Particulars | Rajouri District | Udhampur District | Poonch District |
|---|---|---|---|---|
| | **Cost** | | | |
| a) | Total variable cost | 12181.00 | 11150.00 | 13850.00 |
| b) | Total fixed cost | 1409.00 | 4072.76 | 2634.00 |
| c) | Total cost ($C_2$) | 13590.00 | 15222.76 | 16484.00 |
| | **Returns** | | | |
| a) | Main Product (qtls.) | 14.83 | 15.67 | 16.00 |
| b) | Marketable Surplus | 12.33 | 14.00 | 13.33 |
| c) | Marketed Surplus | 10.67 | 12.67 | 12.97 |
| d) | Main Product Value (Rs.) | 17350.00 | 20041.67 | 20746.67 |
| e) | By Product (Rs.) | 2831.00 | 1216.00 | 2533.00 |
| f) | Gross returns | 20181.00 | 21258.33 | 23328.00 |
| g) | Net returns | 6592.00 | 6036.33 | 6833.00 |
| h) | Cost-Benefit Ratio | 1:1.39 | 1:1.40 | 1:1.34 |

Table 1 revealed that quantity of total main product, marketable surplus, marketed surplus, main product value and by product value, from Maize in Rajouri district was 14.83 quintals per acre, 12.33 quintals per acre, 10.67 quintals per acre, Rs. 17350.00 and Rs. 2831, respectively. The similar study has been carried out by Elahi *et al.* (2006) to examine the Economic analysis of maize cultivation under agro climatic condition of district Dera Ismail Khan. The overall main quantity of maize in Udhampur district was 15.67 quintals per acre and overall marketable surplus was 14.00 quintals per acre whereas the marketed surplus was 12.67 quintals per acre. The average value of main product was estimated to Rs. 20041.67 whereas with addition of by-product worth Rs. 1216.00. Anupama *et al.* (2005) discovered similar results in their study of the Economics of Maize and it's Competing Crops in Madhya Pradesh. The average quantity of maize in Poonch district was estimated to 16.00 quintals per acre and overall marketable surplus was 13.33 quintals per acre whereas the marketed surplus was only 12.97 quintals per acre. The overall value of Maize was worked out to Rs. 20746.67 whereas by-product was of Rs. 2533.00. Navadkar *et al.* (2012) calculated per hectare cost involved in production of maize (i.e. Cost C) as Rs 40624.50. Their findings also revealed that the gross income from maize was Rs. 42350.00, Rs. 43580.00, and Rs. 43320.00 per hectare on small, medium, and large size groups farms, respectively, with an overall gross income of Rs. 43083.00. The Benefit cost ratio was found to be highest in Udhampur district (1:1.40) followed by Rajouri district (1:1.39) and Poonch district (1:1.34). The similar study has been carried out by Shinde *et al.* (2017).

## FUTURE SCOPE

On the basis of net returns, the net income of two crops or more crops can be compared. The study will help the policy makers to make some new policies on cost concepts and will help the researchers to born the new research on Miracle crop i.e. Maize crop. A huge thrust and research is required to study the economics of Maize as it bears a huge potential in terms of production and productivity amongst all other cereals.

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**Conflict of Interest**. None.

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