

# Cost and Return Structure of Mustard Crop in Bharatpur Region of Rajasthan



**Poonam Tomar**  
Research Scholar,  
Deptt. of Economics,  
University of Rajasthan,  
Jaipur, Rajasthan, India.



**Anuj Kumar**  
Lecturer,  
Deptt. of Economics,  
Govt. P.G.College,  
Dholpur, Rajasthan, India.

## Abstract

The study was undertaken to work out the costs and returns of Mustard Crop in Bharatpur Region of Rajasthan for different categories of farms according to their irrigation facilities. Study was mainly based on Primary data, which were collected through interview method from selected sample respondents having (80 Low irrigated, 80 Medium irrigated, 80 Highly irrigated farms) for the agricultural year 2016-17. The results indicated that production of Mustard was profitable as reflected through its net returns. The per hectare return over total cost were Rs. 14868.50, 20627.50 and 26121.00 on low irrigated, Medium irrigated and highly irrigated farms respectively. It was found that output input ratio of Mustard was marginally higher (1.74) on highly irrigated farms compare to medium irrigated (1.63) and low irrigated farms (1.48) and all farms (1.66) due to proper irrigated facilities and improve the quality of harvest on account of highly irrigated farms.

**Keywords:** Mustard Costs, Gross Return, Net Return, Irrigated Farms, Output Input Ratio.

## Introduction

Oilseeds play a pivotal role in Indian economy, accounting for 5% of the gross national product and 10% of the value of agricultural products. Mustard is the second most important oilseed crop in India after soyabean. It accounts for nearly 20-22% of the total oilseeds produced in the country. In India, Mustard is the mainly grown in North-West parts of India. Rajasthan and U.P are the major producing states in the . The production from Rajasthan is highly monsoon dept. The important oilseeds crop of the Rajasthan state are Rage and Mustard, Groundnut, soyabean, Castor and linseed.

The oilseed sector is the backbone of an agriculture economy which provides the basic ingredients to mankind and raw material for industrialization. Due to the gap between domestic availability and actual consumption of edible oils, India has to resort to import of edible oils. Rapeseed- Mustard is the major source of income to the small, marginal and large farmers.

Rapeseed-mustard crop finds important place in the cropping scheme of farmers in Bharatpur Region, which include Bharatpur, Dholpur, Swaimadhapur and Karouli district of Rajasthan. Keeping in view the increasing importance of rapeseed-mustard in cropping scheme of farmers of Bharatpur region. This study may be helpful to the mustard grower in doubling farmer income under changing scenario.

## Review of Literature

Dayal, D. et.al. (2016) focused on various aspects linked with the utilization and management of resources used in dryland agriculture, such as natural resources management, biodiversity conservation, crop production and management, livestock management, energy, technology transfer and socioeconomic issues. Information on climate resilient agriculture, soil and water conservation measures, soil fertility appraisal, recycling of organic wastes, management strategies for livestock production, intercropping in an agri-horti system, agromorphological evaluation of crops, developing genotypes for vegetable cultivation, crop diversification, farming systems, improved forage production, variation and heritability of grasses, weed management practices, economics of arable crop production and energy conservation strategies through greenhouses are also discussed.

Subhita Kumawat et.al. (2016) presented an overview of the current status of research in Jaipur district of Rajasthan and focused on profitability of pulse crop rotations among major field crops like jowar, bajra, guar and til. A sample of 60 farmers for gram was selected. Variable cost of

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cultivation (Cost A1) of different pulse crop rotations was worked out Cost "A1" was worked out on the basis of opportunity cost principle for owned inputs and actual prices paid by the farmers for purchased inputs. On an average, the variable cost per hectare of gram was Rs 19,639.45 in the district. The net returns per hectare were Rs 10,876.80. It is possible to raise the yield level of the gram by better management and use of recommended doses of inputs as per package of practices. Cost and returns analysis for different crop rotations revealed that the variable cost per hectare in jowar-gram rotation was (Rs 35,998.41) followed by guar-gram rotation (Rs 35,744.41), bajra-gram rotation (Rs 34,838.77) and tilgram rotation (Rs 34,733.73). There exists a scope for raising the production and income from these rotations by increasing efficiency of input use.

Kannan E and Sundram S. (2015) Present study based on last thirty years data of area, production, FC, Rainfall. They analysis of data reveals that the cropping pattern in India has undergoing significant changes over time. The study shows that the area under coarse cereals by 13.3 per cent between 1970 - 2008. They found that crop output growth indicate that the enhanced capital formation, better irrigation facilities, normal rainfall and improved FC helped to better crop output in the India.

Meenakshi, H.K. et.al. (2015) focussed on identification extent of adoption of drought coping mechanisms (ex-ante and ex-post) including varietal adoption by the rice growing farmers to cope with drought and estimate the economic costs of adoption of such coping mechanisms. Drought coping mechanisms like Crop diversification, varietal diversification, spatial diversification, liquidating assets, use of savings, change in consumption pattern and migration were the main drought coping mechanisms adopted by the farmers in the sample district

Directorate of Economics and Statistics, New Delhi (2013) attempted to analyse the performance and potential of the oilseeds sector in Rajasthan and identify major problems or constraints facing the sector in the state. Apart from a detailed crop-wise analysis of growth patterns and sources of growth of edible oilseeds production, the study has attempted to investigate the supply relations for major oilseeds in the state. In order to identify major constraints in edible oilseed production in the state, primary data from households growing oilseeds in selected districts were collected and analysed. The household-level data presented covers, among others, the comparative economics/profitability of oilseeds versus competing crops; the yield and technology gap; and the marketing pattern. Policy implications are discussed at the end of the paper.

Das, K. K. and Amod Sharma (2012) attempted to examine the trends and variability in the growth of rapeseed and mustard crop in Nagaon district as well as in the state Assam as a whole. For the analysis purpose, the relevant secondary data from 1980-81 to 2009-2010 have been examined. The compound growth rates have been estimated with the help of exponential function and variability has been

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calculated by using technique of co-efficient of variation. For the convenient of comparison the whole period is subdivided into three periods. The study concludes that a moderate to high significant growth has been observed in case of area, production and yield of rapeseed and mustard for Nagaon district and the state of Assam as a whole covering the study period. Concerning the variability, the study concludes that there persist wide fluctuations in the growth of area, production and yield of rapeseed and mustard over the study period.

## Objectives of the Study

1. To study the impact of irrigation facilities on cost efficiency of mustard production in Bharatpur region of Rajasthan.
2. To study the output input ratio in adoption of mustard production in Bharatpur region of Rajasthan.

## Material and Methods

### Sampling Structure

A four stage sampling design was adopted for the selection of sample farms. The area of the study was Bharatpur Region of Rajasthan state due to first rank in area and production of rapeseed-mustard in the state. Bharatpur region consisted four district namely: Bharatpur, Dholpur, Karauli, Swaimadhopur. From the four district Eight tehsils were selected based on the highest operation holidays. From these selected tehsils twenty four villages (three from each tehsils) and ten farmers from each village were selected randomly (total 240 farmers) Farms were classified on the basis of irrigation facilities, in order to determine the low irrigated, medium irrigated and large irrigated farms.

### Collection of Data

The present study was mainly based on the primary data which were collected through interview method from selected sample respondents for the agriculture year 2016-17. Various cost concepts were used to work out the costs and return on per hectare basis of rapeseed-mustard crop for different categories of farmers.

### Cost Concepts

#### Cost A1

Includes hired labour, farm power, value of seed, value of manures and fertilizers, depreciation, irrigation charges, land revenue and interest paid on crop loan.

#### Cost A2

Includes cost A1 and rent paid for leased in land

#### Cost B

Includes cost A2+rental value of owned land and interest on owned fixed capital and working capital.

#### Cost C

Includes cost B + imputed value of family labour.

#### Note

If there is no case of leased in land then cost A, will be the same as cost A2.

### Gross and Net Returns

Gross return were computed on the basis of actual prices at which individual farmers sold their

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main products and by products. For calculating the net returns on per hectare basis total cost was deducted from gross returns.

### Results and Discussion

#### Level of Input Used for Mustard Crop

The most predominant Rabi crop, Mustard is grown on all the selected farms in each irrigation system system available in the Bharatpur Region. An

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average of 31.66 percent of gross cropped area was covered by Mustard crop in the Region. Level of inputs used, prices and their shares in the total operational cost have been shown in Table-1. The relevance of each input was seen by computing shares of input in total operational cost of cultivation of the Mustard Crop.

**Table No. 1**  
**Input used and their shares in total cost for mustard crop under different categories of Farms in Bharatpur Region 2016-17**

(per hectare)					
S.No	Input/Costs	Low Irrigated Farms	Medium Irrigated Farms	Highly Irrigated farms	All Farms
1	Human labour				
	Mandays	38	40	44	41
	Price (Rs./Manday)	276	276	276	276
	Share in Total cost (%)	34.04	33.48	34.45	34.11
2	Farm Power				
	Level of use [hrs.]	11.5	12.5	12.5	12.2
	Price (Rs./hrs.)	880	880	880	880
	Share in Total cost (%)	32.85	33.36	31.21	32.36
3	Seed				
	Level of use [kg]	5.5	5.5	5	5.3
	Price (Rs./Kg)	475	475	500	487.5
	Share in Total cost (%)	8.48	7.92	7.09	7.79
4	Agro Chemicals				
	[FYM+Fertilizers (NPK) +PPM]				
	Value in Rs	4000	4320	4870	4400
	Share in Total cost (%)	12.98	13.1	13.82	13.26
5	Irrigation				
	Value in Rs	3590	4000	4735	4172
	Share in Total cost (%)	11.65	12.13	13.43	12.58
6	Total input cost (Rs.)	30810.5	32972.5	35249	33172.6
7	Yield (Qtl/Ha)	12.95	15.25	17.5	15.7
	By product (Qtl/ha)	1390	1445	1520	1505

It is evident from the Table that the total input cost per hectare is the highest (Rs. 35249) on highly irrigated farms. It was immediately followed by Medium irrigated farms (Rs. 32972.50) and low irrigated farms have yielded Rs. 30810.50 as the total input cost per hectare. The higher cost of cultivation per hectare was because of higher use of human labour, (an average of 34.11 percent) among all the other inputs taken so far share of human labour in Total Operational cost was maximum (34.45 percent) on highly irrigated farms and minimum (33.48 percent) on medium irrigated farms. Human labour include both hired as well as owned labour. Farms power

contributed an average share of (32.47 percent) in the total operational cost. Further it was also seen that value of irrigation and agrochemicals were highest in highly irrigated farms and lowest in low irrigated farms. The highest average yield per hectare was maintained by Mustard (17.50 qtls) on highly irrigated farms. This variations in the yield was mainly caused by the levels of irrigation facilities on farms.

#### Cost and Return Structure of Mustard Crop

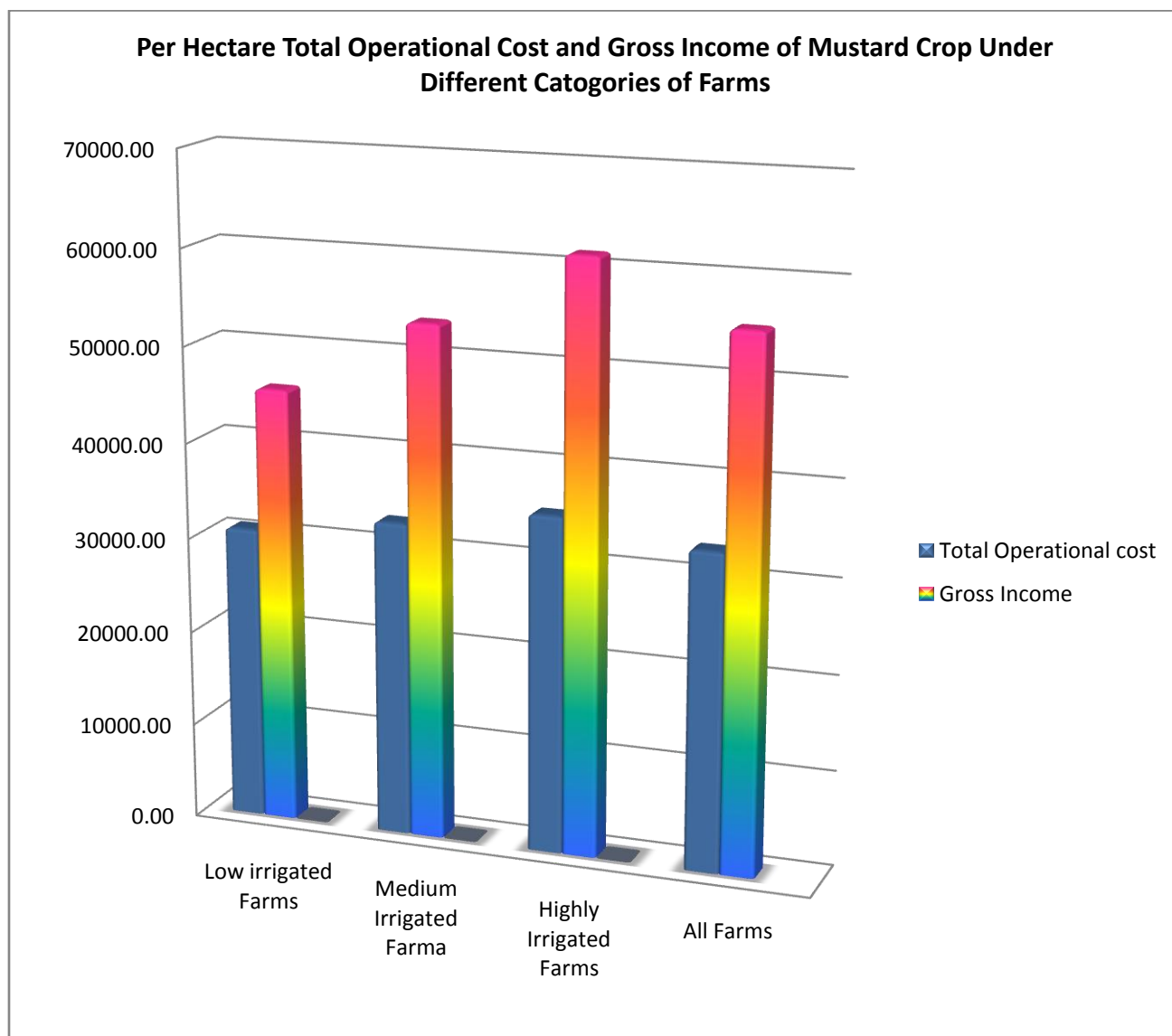
The table 2 shows the per hectare cost and income measures for Mustard crop on different categories of farm.

**Table No. 2**  
**Per Hectare Cost and Return for Mustard Crop under Different Categories of Farms in Bharatpur region 2016-17**

(In Rupees)						
S.No	Catogories of Farms	Total Operational Cost	Gross Income	Return Over Operational Cost	Operational Cost (per. Qtl.)	Output/Input Ratio
1	Low Irrigated Farms	30810.50	45679.00	14868.50	2379.19	1.48
2	Medium Irrigated Farms	32972.50	53600.00	20627.50	2162.13	1.63
3	Highly Irrigated Farms	35249.00	61370.00	26121.00	2014.23	1.74
4	All Farms	33172.00	55199.00	22026.40	2112.90	1.66

It may be seen from the table 1 that the total operational cost was highest (Rs. 35249) on highly irrigated farms, and this categories of farms also provided maximum gross income (Rs. 61370). It was also observed that per quintal operational cost was maximum (Rs. 2379.19) on low irrigated farms. The

return over operational cost and output-input ratio showed a direct and positive relationship with the assured supply of irrigation facilities. Therefore, the cost efficiency of mustard product is found to be in direct relationship with the level of proper and planned irrigation facilities.



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**Conclusion**

The Present study has discussed the cost and return structure of mustard crop in Bharatpur region of Rajasthan. It is concluded that the production of mustard was profitable in highly irrigated farms as reflected through its return over operational cost and output-input ratio. Hence level of irrigation plays important role in production of mustard crop in Bharatpur region.

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