

Farmer's Economic Situation Post Covid-19 Lockdown: A Case Study of Hathras District

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Abstract:

The Indian agricultural sector, which was recently suffering due to uneven monsoon, is facing further problems due to corona virus. Due to COVID-19, farmers faced many problems in Rabi, Jayad and Kharif crop season production. Due to the lockdown at the time of sowing, the cost of pre and post harvest increased and at the same time, the crop did not get the proper price, which caused double damage to the farmers. Through this research paper, the economic loss to the farmer due to COVID-19 can be ascertained. Most of the available labourers became migrants due to the Corona virus lockdown. This proved a major problem of unavailability of agricultural labourers. In the initial lockdown, the farmers faced many problems in Rabi, jayad and kharif season specially in Wheat, Bajra, Maize and Paddy crop from sowing to harvesting as no shops were selling seeds, fertilizers, pesticides due to the lockdown every shop was closed. Similarly, the availability of many agricultural machines such as harvesters and cutters caused problems and reduced productivity while at the same time the production cost increased.

The basic aim of the research paper is to assess the cost efficiency in Maize, Wheat, Bajra and Paddy crop production post COVID-19 lockdown. This research paper will focus upon the input and output analysis in Maize, Wheat, Bajra and Paddy crop. The input cost starting from the preparation of land for a particular crop leading to sowing and threshing and along with this the cost of transportation to the market. This process includes the cost of levelling, tilling, irrigation, weeding, composting, applying fertilizers, insecticides and pesticides, threshing, storage, transportation and marketing as well. This may be divided into two groups i.e. Pre harvest operations and Post harvest operations. The Efficiency of input and output in terms of cost involved is input cost and the output cost from the finished product from agricultural pursuits. This research paper is confined to the Hathras district of Uttar Pradesh province.

Keywords: Cost efficiency, COVID-19, lockdown, Pre harvest operation, Post harvest operation, Efficiency of input and output.

INTRODUCTION:

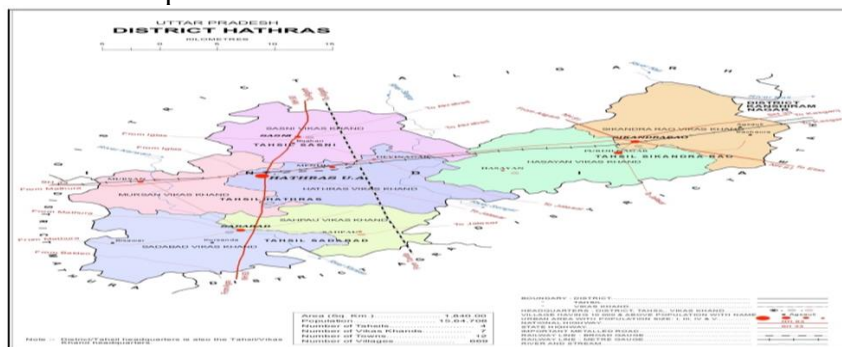
In a developing country like India, having agricultural base, the use of high cost inputs such as machinery, scientific equipment and implements, chemical fertilizers, insecticides and pesticides was very low but after the introduction of new technology during green revolution, the use of these inputs have increased in manifolds. after the green revolution, there has been a significant increase in the production of wheat and paddy in every decade which seems satisfactory for food security and self-sufficiency. The knowledge and infrastructure deficit are the main critical issues that plaguing Indian agriculture, especially in the rural areas. Irrigation, market & transport infrastructure problem adds significant cost to farming operations. This study has been focus upon the input and output analysis in agricultural pursuits. The input cost starting from the preparation of land for a particular crop to sowing and threshing. This process includes levelling, tilling, irrigation, weeding, composting, applying fertilizers, insecticides and pesticides, threshing, storage, transportation and marketing as well. This may be divided into two groups i.e. Pre harvest operation and Post harvest operation. The Efficiency of input and output in terms of cost involved is input cost and the output cost from the finished product from agricultural pursuits.

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STUDY AREA PROFILE:

The study area is Hathras District. Earlier Hathras District was the tehsil of Aligarh district but On 3rd of May 1997 Government has announced the creation of a new district named Mahamaya Nagar by merging some tehsil of district Aligarh and Mathura in the Hathras tehsil of Aligarh. The notification of creating District Mahamaya Nagar from Hathras was released on 06 May 1997. A newly created district of Hathras lies between 27° 51' to 27° 64' North latitudes and from 78°11' to 78° 32' east longitudes which is in the South western part of Uttar Pradesh. It occupies an area of 1840 sq. km. There are 4 tehsils namely Sikandra Rao, Sadabad, Hathras and Sasni and seven development blocks namely Sasni, Hathras, Mursan, Sadabad, Sahpau, Sikandra Rao and Hasayan. The District has now 669 villages constituting 14 uninhabitable villages. The district is bounded from East by district of Etah and Kasganj, the Northern boundary coincides with the boundary of Aligarh District. In the West and South, the Districts are Mathura and Agra respectively. The study area is a part of upper Ganga-Yamuna doab. The basic slope of the district is from North to South and South to East.



OBJECTIVES OF THE WORK:

The main objectives of the research paper are to assess the farmer's income on the basis of the input and output costs induced in the Wheat, Bajra, Maize and Paddy farming operations post COVID - 19. To find out pre and post-harvest inputs and their costs along with the output costs so that the comparative input and output analysis will be carried out.

RESEARCH METHODOLOGY:

This study is basically primary data based however data from secondary sources has also been collected to support the study wherever required. The information collected from the secondary data has been analysed by using suitable statistical tools.

The primary data has been collected through well framed schedule. At places observation and pictorial depiction is an added advantage to the study. In this study systematic stratified sampling technique has been used for selecting samples from the study area. The samples has been chosen at three stages firstly from all the four tehsils namely Hathras, Sadabad, Sasni and Sikandrarao has been selected. Simultaneously detailed sampling will be collected from all the seven blocks namely Hathras, Mursan, Sadabad, Sahpau, Sasni, Sikandrarao and Hasayan. From each block 10 Nyaya Panchayats has been selected at second stage and than from the selected Nyaya Panchayats one Village from each Nyaya Panchayat has been taken into consideration for detailed analysis purpose.

COST CONCEPTS:

The data on the cost of production of Wheat, Bajra, Maize, Paddy for different farm sizes across areas are collected from the 300 sample respondents from seven blocks. The number of sample respondents, area cultivated (in hectare) and the average size of operational holdings are presented in the following table.

Table No. 1: Sample Respondents' Average size of Operational Land Holdings

Farmers' Size	Number	Area	Average Operational Holdings (hec.)
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Marginal & Small Farmers	202	131.30	0.65
Medium Farmers	63	149.94	2.38
Large Farmers	35	133.70	3.82
Total	300	414.94	1.38

Source: Computed from Primary Data

1. COST OF PRODUCTION

The Cost of production of Wheat, Bajra, Maize, Paddy is the total expenses incurred in obtaining the produce Wheat, Bajra, Maize, Paddy. These costs include wages to labourers, cost of seeds, expenditures on fertilizers and pesticides, rental value of lands and farm harvesting expenses. Generally, cost of production includes both variable costs and fixed costs. classified total cost into a) Variable or Operational Cost, and b) Fixed Cost. Variable cost varies with the changes in the quantity of output produced and it is the driving factor which determines how much and what is to be produced. Fixed cost remains constant over time and does not vary with the changes in the levels of output. Fixed cost helps to decide on the technological practice to be adopted and the quantity to be produced. It exists even in the absence of cultivation.

1.1 Cost A includes the following items:

- i) Value of hired human labour (permanent and casual).
- ii) Value of owned or hired bullock labour.
- iii) Value of owned or hired machinery charges.
- iv) Value of fertilisers.
- v) Value of manures (produced on the farm and purchased).
- vi) Value of seed (both farm produced and purchased).
- vii) Value of pesticide, insecticides and fungicides.
- viii) Irrigation charges.
- ix) Land revenue, cesses and other taxes.
- x) Interest on working capital.

1.2 Fixed Cost - Fixed cost otherwise known as period cost includes rental values of lands and interest on fixed assets.

1.3 Cost B: Cost A + (i) Imputed rental value of owned or leased in land + (ii) Value of maize yield given to landlord + (iii) Imputed interest on owned fixed capital

1.4 Cost C: Cost B + imputed value of family labour. The total cost (Cost C) has been grouped into Operating Cost and Fixed Cost as under.

Table 2: Production Cost incurred in Different Types of Crops, 2020

(Rs. /Per hectare)

Crop	Maize		Bajra		Wheat		Paddy	
Expenses	Farmers	%	Farmers	%	Farmers	%	Farmers	%
Operating Cost (Cost A)								
Seeds	9477	10.83	2275	3.47	3250	3.36	2210	2.50
Fertilizer	4534	5.18	1820	2.78	7832	8.10	5970	6.77
Pesticides & Chemicals	2266	2.59	650	0.99	1300	1.34	8300	9.41
Custom operations	4376	5.00	2860	4.37	5590	5.78	6240	7.08
Cutting & Threshing	12683	14.50	10920	16.67	15088	15.60	10200	11.58
Hired labour	11495	13.14	5760	8.79	5400	5.58	12850	14.58
Purchased irrigation water	7688	8.79	7800	11.90	7800	8.07	8320	9.44
Transportation cost	2159	2.47	1350	2.06	2200	2.27	1365	1.55
Packing cost	571	0.65	600	0.91	300	0.31	200	0.23
Interest on operating capital	1371	1.57	1500	2.90	1829	1.89	2087	2.36
Total of Cost A	56622	64.77	35535	54.25	50588	52.31	57742	65.53
Fixed Cost								
Opportunity cost of land (rental rate)	25778	29.47	26000	39.69	39000	40.33	26000	29.51
Interest on Fixed Assets	1284	1.47	1170	1.79	3510	3.63	1170	1.33
Total Fixed Cost	27062	30.94	27170	41.48	42510	43.96	27170	30.83
Cost B (Cost A + Fixed Cost)	83685	95.67	62705	95.73	93098	96.27	84912	96.37
Imputed Value of Family Labour	3790	4.33	2800	4.27	3600	3.73	3200	3.63

Total Cost (C) (Cost B+ Imputed Value of Family labour)	87475	100	65505	100	96698	100	88112	100
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Source: Primary Data July & Oct. 2020

Table No. 2 reveals the cost structure for different types of crops. In maize production the Operating cost was ₹56,622. for the Bajra production it was ₹35,535 and for the Wheat production ₹50,588 and in the paddy production operating cost was ₹57,742. The percentage of cutting and threshing was highest in total operating cost each crops. this was 14.50% for maize, 16.67% for Bajra, 15.60% for Wheat and 11.58% for Paddy crop. the total cost of maize crop was ₹87,475, Bajra crop cost was ₹65,505, wheat crop cost was ₹96,698 and Paddy crop cost was ₹88,112.

2. REVENUE

The cultivator has to play the dual role of producer and seller. He performs all activities to get the maximum yield. Once the produce is ready he selects a consumer to sell it out. The amount that a producer gets from the sale of his produce is revenue and it is calculated by multiplying the total quantity sold to the rates at which the produce is sold. Various types of returns as given by the ICAR are given below.

i) Gross Income / Return /Total Value of the produce

It is a measured of the size as well as volume of business. It is derived by adding the gross sales value, the value of maize retained for home consumption and for seed and sale of by product (straw).

ii) **Cash Income**- This relates to cash receipts from farm sales and from custom hiring out of the farm resources.

iii) Net Operating Income

Gross Income – operating expenses (Cost A).

iv) Net Farm Income

Net Operating Income – (Fixed expenses + Depreciation on Fixed assets).

v) Net Family Income

Net Farm Income + off farm income.

3. RETURN OR GROSS INCOME

Total income earned by a cultivator is calculated by adding the sales value of the by product (straw) with the sales value of main product. If crop is stored for home consumption and for seed its value is calculated at the prevailing price and included in the total income. These prices were the average selling prices during the period of harvest in the respective seasons as reported by market intermediaries.

Net Return

Net Profit or Net Return is the gross farm income minus the total farm expenditures. Net Return is the economic incentive to the farmers and is an important motivating factor to the farmers to increase the maize yield.

The types of incomes for respondent cultivators are given in Table No.3.0

Incomes of Respondent Cultivators, 2020

(figures Rs./hec.)

Particulars	Maize	Bajra	Wheat	Paddy
Income				
1.a) Income from sale of crop	76000	51187	77280	66300
1.b) Value of crop Retained	500	600	7360	850
1.c) Income from Sale of straw	1300	1100	18850	--
1. Gross Income	78451	52887	103490	67150
2. Cash Income	77974	52287	96130	66300
3. Net Operating Income	21829	17352	52902	9408
4. Net Farm Income	- 5233	- 9818	10392	- 17762
5. Net Profit *	- 9023	-12618	6792	-20962

Source: Primary Data. July & Oct. 2020

* Net Profit = Output Cost – input cost (including imputed value of family labour)

4. COST-BENEFIT ANALYSIS FOR SAMPLE CULTIVATORS

The relationship between benefits and costs or income and expenditure can be explained with the help of Efficiency. The benefits to cost in maize cultivation for sample farmers are examined by the application of the following Efficiency.

i) **Operational Cost Efficiency**

$$\text{Operational Cost Efficiency} = \frac{\text{Cost A}}{\text{Gross Income}} \times 100$$

ii) **Fixed Cost Efficiency**

$$\text{Fixed Cost Efficiency} = \frac{\text{Fixed Cost}}{\text{Gross Income}} \times 100$$

iii) **Gross Cost Efficiency**

$$\text{Gross Cost Efficiency} = \frac{\text{Gross Cost}}{\text{Gross Income}} \times 100$$

iv) **Input – Output Efficiency**

$$\text{Input – Output Efficiency} = \frac{\text{Gross Income}}{\text{Gross Cost}} \times 100$$

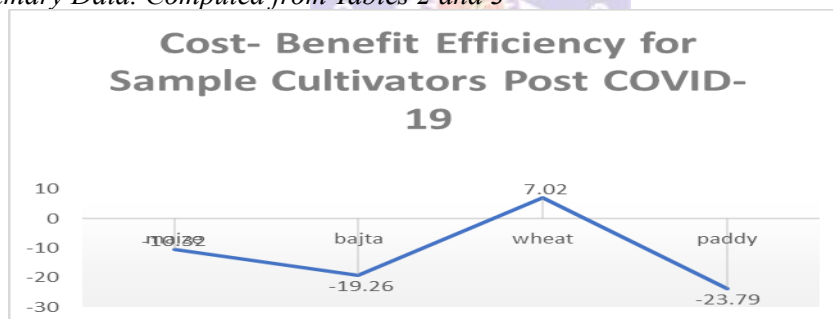
v) **Benefit-Cost Efficiency**

$$\text{Cost – Benefit Efficiency} = \frac{\text{Net Profit}}{\text{Gross Cost}} \times 100$$

Cost- Benefit Efficiency for Sample Cultivators Post COVID- 19

Efficiency	Maize	Bajra	Wheat	Paddy
Operational Cost Efficiency	72.17	67.19	48.88	85.99
Fixed Cost Efficiency	34.49	51.37	41.08	40.46
Gross Cost Efficiency	111.50	123.86	93.44	131.22
Input - output Efficiency	89.68	80.73	107.02	76.21
Cost- Benefit Efficiency	- 10.32	- 19.26	7.02	- 23.79

Source: Primary Data. Computed from Tables 2 and 3



The operational cost Efficiency for Maize crop was 72.17, for Bajra crop was 67.19 for Wheat crop was 48.88 and for Paddy crop it was 85.99. The table shows that the operational cost in wheat has been lower than other crops. That is why the farmer has benefited only in the production of wheat. Due to high percentage of fixed cost in millet crop and due to lockdown, the farmer suffered more losses due to lack of proper price for the crop. Due to high cost of production and not getting proper price for the crop, the farmer suffered a lot in the production of paddy. benefit cost Efficiency - 23.79 shows that the farmer suffered economic loss in paddy cultivation due to COVID- 19 lockdown. Maize, paddy and Bajra (millet) crops are not purchased on MSP (Minimum Support Price) in Hathras district. The lockdown due to COVID-19 could not provide a fair price for the crop in the market. Only wheat was purchased on MSP, yet many farmers were forced to sell wheat at a lower price in the market.

CONCLUSION:

The findings of this research study show that enhancing the knowledge and skills of farmers through integrated plant and resource management as a result, agricultural research is capable of enhancing its productivity and profitability. due to the lack of availability of per person land, there has be increase in crop cost and decrease in per capita income. This condition is expected to deteriorate more in future. It is necessary for the farmer to get a fair price for Maize, Wheat, Bajra and Paddy crop production and the cost of using mechanization in agriculture should be reduced so that farmers can get more profit. Effective measures should be taken to provide education to the farmer to do advanced agriculture and to ensure a fixed

income of the farmer. Farmers were already facing many challenges including uncertainty of monsoon, irregularity, lack of mechanization, obtaining minimum support price for the crop, but the research paper presented proves that COVID- 19 has caused great economic loss to the farmer because apart from wheat, no other crop has been purchased on MSP. The committee of Shanta Kumar constituted by FCI also admitted that only 6 percent people are able to take advantage of MSP. The Farmer's Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020 also will not give fair price to farmers. Such apprehension can be expressed. The government should make such a plan for farmers in future so that they can benefit in crop production.

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