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Economics of Maize production in Etah District of Uttar Pradesh

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ABSTRACT
India produces about 2% of the world's maize, become a staple food in many parts of the world with more production as against wheat or rice. In India maize crop stand up as the third cash crop after wheat and rice and it placed as Kharif crop mainly but can also harvested both in Kharif and Rabi season. The costs & return of maize crop that the higher gross income was observed on large farms being Rs. 55205.65 followed by small and marginal farms being Rs 54115.60 and Rs. 51812.00 respectively. Net income was also highest on small farms as Rs.13802.18 followed by marginal and large farms being Rs.13361.03 and 12379.60 respectively. The average cost of production per quintal came to Rs. 1175.39. Input output ratio were calculated as 1:1.34, 1:1.34, and 1:1.28 for marginal, small and large size group of farms respectively. The average input output ratio came to 1:1.32.
Key words: Maize, crop, economy, nutrition and food etc.

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INTRODUCTION

India having multiple cropping systems due to diverse geographical distribution and temperate climatic conditions and agricultural sector play very important role in the Indian economy. Maize commonly known as Corn (*Zeamays*) is important crops belong to family grasses (*poaceae*) which is a cereal grain, grown by people in Central America first time. It is called 'Queen of Cereals' and ranked third important cereals globally which is a leafy stalk whose kernels have seeds inside. The importance of corn is due to its wide diversed advantages both as food resources in modern eatables for human and as important feed for the animals either directly or indirectly. Corn is processed in to a variety of foods materials such as snack foods and also fractionated into food and industrial ingredients. The starch, the major constituent of the corn kernel, is used in foods and industrial products[1-4]. The starch is also converted into glucose/fructose, widely used for the sweetness. Furthermore Glucose can be fermented in to ethanol as beverage products and bio-fuel. Maize has more nutritional values for both animals and humans. [6].

The major states producing maize during the Kharif season are Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh, Uttar Pradesh, etc. [4]. The upper Gangage plain of Uttar Pradesh is an important producer of maize in the state. In U.P., maize is grown in as many as 25 districts Bulandshahar, Jaunpur, Etah, Ghaziabad, Bahraich, Farrukhabad and Gonda are the main maize producing districts.

In Uttar Pradesh the total area of maize was 62374(ha) in 2016-17, total production of maize 110903 (metric tonnes) and productivity 17.78 q/ha in 2016-17 (Source: Directorate of Economics & Statistics, (DAC & FW) 2016-17.In the Etah district the total area of Kharif Maize is 25198 ha and productivity 25.16 quintal/ha in 2016-17, and total area of summer maize is 1280 ha and productivity is 24.75 quintal/ha. [5].

In this paper, an attempt has been made to review maize literature keeping in view the problem on economic Study of production of Maize in District Etah (U.P.). A brief account of the work reported by the past researchers has been discussed which are given.

MATERIAL AND METHODS

Etah district was selected purposively due to highest area and production of maize crop in the district for study purpose. The present investigation is based on an incentive study of sample farmers of maize in

District Etah with a view to bring sharp focus on economic of production of maize. For the study, two Block namely Marehra and Sakit of Etah district was selected purposively taking into consideration the concentration of area under maize in Both Blocks. As the soil and agro climatic conditions prevailing in Marehra and Sakit Blocks are more favorable for growing maize. The list of maize growing villages of the selected Blocks was prepared on the basis of information obtained from the District agricultural office and KVKs. For selection of the sample cultivators, a list of maize growers was prepared from the revenue records of each of the villages. All maize growers from the universe of 6 selected villages (3 villages from each block) was prepared then a total of 120 farmers (20 each maize growers) from each villages selected randomly. The maize growers were categorized in three size groups of farmers viz; 0-1 ha (Marginal) 1-2 ha (Small) and 2 ha and above (large) farmers on the basis of the farmers falling under each villages and different size group of category as per proportion. The primary data on aspects like details of farm family, infrastructure, land utilization, cropping pattern, resource use structure, farm production, cost and returns as well as grading and problems in production of maize were obtained by survey method from the sample cultivators for the year 2016-17 with the help of well designed scheduled prepared for the purpose. The two concepts are often used in economic analysis of crops. Cost of production refers to the economic valuation of variable inputs and fixed inputs per unit area say per hectare, while the cost of production for the crop is computed in terms of output per unit of weight say per quintal.

The expenses incurred towards land revenue, transport charges, changes to control work, etc, were included under the head of other paid out expenses.

However, Cost A can be divided in to the two parts viz, Cost A1 and Coat A2, if tenant farmers are there in the study. But in the present study Cost A1 and Cost A2 was considered equal as there was no tenant farmer in the list of selected respondents. The area of land actually cultivated by the farmers and his family including the area under trees, wells farm building etc., area under self cultivation whether it is owned or leased in and current also.

RESULT AND DISCUSSION

The present investigations deal with the economics of production of maize crops grown in the study area. Cost of cultivation is a pre-requisite to estimate the unit cost of production and to judge whether the price of crop is remunerative or not. Economics of production of crops covers input cost item- wise, input cost on the basis of cost concept and level of income obtained from the crops, on the sample farms of different size group.

Break-up of input cost for Maize:

The total cost incurred on cultivation of maize crop and its breakup in to factors of inputs per hectare has been given in table-1 Portrays that the average cost of cultivation of maize crop came to Rs. 40530.15 per hectare. The cost of cultivation shows increasing trend with the increases in size of farm. It came to Rs.38450.97 on marginal farms, Rs.40313.42 on small farms and Rs.42826.05 on large farms. The higher cost on big farms was mainly due to use of higher inputs like manures fertilizers and irrigation charges. On an average highest human labour of Rs 8779.11 was employed for man cultivation large farms being Rs.9168.26 followed by small and marginal farms being Rs. 8788.44 and Rs. 8380.60 respectively.

Table-1: Total cost and its breakup of Maize crop (Rs/ha)

S. No	Particular	Size group (in ha)			Average
		0-1	1-2	2 & above	
A	Variable cost				
1	Human labour				
a.	Family labour	5866.42 (15.25)	5273.04 (13.08)	2750.48 (6.42)	4629.98 (10.07)
b.	Hired lobour	2514.18 (6.53)	3515.4 (8.72)	6417.78 (14.98)	4149.12 (10.07)
	Total human labour	8380.6 (21.79)	8788.44 (21.89)	9168.26 (21.4)	8779.1 (21.69)
2	Tractor power	4080.34 (10.61)	4308.26 (10.68)	4564.38 (10.65)	4317.66 (10.64)
3	Fertilizer & manure	4128.18 (10.73)	4224.25 (10.47)	4556.26 (10.63)	4302.89 (10.61)
4	Seeds	2150.6 (5.59)	2216.45 (5.49)	2478.44 (5.78)	2281.83 (5.62)
5	Irrigation	5265.36 (13.69)	5480.24 (13.59)	5668.22 (13.23)	5471.27 (13.5)

6	Plant protection	1480.38 (3.85)	1668.31 (4.13)	1923.48 (2.39)	1690.72 (3.45)
7	Interest on working capital	784.76 (2.04)	856.51 (2.12)	1024.34 (2.39)	888.53 (2.1)
	Total variable cost	26270.22 (68.32)	27542.46 (68.32)	29383.38 (68.61)	27732.02 (68.41)
	Total fixed cost				
A	Rental value of land	9000	9000	9000	9000
B	Depreciation	1060.26 (2.75)	1256.99 (3.11)	1480.89 (3.45)	1266.04 (3.1)
C	Repair to dead stock	706.8 (1.83)	837.99 (2.16)	987.26 (2.3)	844.01 (2.09)
D	Interest on fixed capital	1413.69 (3.67)	1675.98 (4.15)	1974.52 (4.61)	1688.06 (4.14)
	Total fixed cost	12180.75 (31.67)	12770.96 (31.67)	13442.67 (31.38)	12798.13 (31.57)
	Total cost	38450.97 (100)	40313.42 (100)	42826.05 (100)	40530.15 (100)

Note: Figures in parentheses show the percentage to their respective total.

This was to proportionately more use of family labour on marginal farms whether more use of hired labour on large farms. The marginal and small farms had more family labour than that of hired labour. The average total human labour for all size group of the farm came to Rs. 8779.11 total operational costs was observed to be Rs. 26270.22 Rs. 27542.46 and Rs 29383.38 on marginal, small and large farms respectively, with overall average operational total cost being Rs. 27732.02.

Yield and Returns:

The return received from maize crop on per hectare basis has been presented in Table-2.

Table -2: Total Returns received from maize. (In Rs. /ha)

S. No	Particulars	Size group of the farms (ha)			Average
		0-1	1-2	2 & above	
1	Input cost	38450.97	40313.42	42826.05	40530.15
2	Total yield in qtl /ha	33.58	34.64	35.18	34.46
3	Rate (in Rs./qtl)	1400	1415	1420	1412
4	Main product	47012	49015.6	49955.65	48661.08
5	By product	4800	5100	5250	5050
6	Gross income	51812	54115.6	55205.65	53711.08
7	Net income	13361.03	13802.18	12379.6	13180.94
8	Cost of production per quintal	1145.05	1163.78	1217.34	1175.39
	Input-output ratio	01:01.3	01:01.3	01:01.3	1:1.32

It is quite evident from table-2 that the higher gross income was observed on large farms being Rs. 55205.65 followed by small and marginal farms being Rs 54115.60 and Rs. 51812.00 respectively. Net income was also highest on small farms as Rs.13802.18 followed by marginal and large farms being Rs.13361.03 and 12379.60 respectively. The higher net income on small farms was mainly due to better management & case utilized as small probability, agricultural technology, improved and suitable quantity of seeds, timely and appropriate applications of irrigation and plant protection practices, efficient supervision and management. The average cost of production per quintal came to Rs. 1175.39.Input output ratio were calculated as 1:1.34, 1:1.34, and 1:1.28 for marginal, small and large size group of farms respectively. The average input output ratio came to 1:1.32.

Cost concept

The cost and return on the basis of cost concept in the production of maize have been presented in Table-3.

Table-3 Total costs according to different cost concept.(Rs. /ha)

S.No.	Particulars	Size group of farms (ha)			Average
		0-1	1-2	2 & above	
1	Cost A1	21464.06	23256.41	28113.79	24278.09
2	Cost A2	21464.06	23256.41	28113.79	24278.09
3	Cost B1	22877.75	24932.39	30088.31	25966.15
4	Cost B2	31877.75	33932.39	39088.31	34966.15
5	Cost C1	37744.17	39205.43	41838.79	39596.13
6	Cost C2	43610.59	44478.47	44589.27	44226.11
7	Cost C3	47971.64	48926.31	49048.19	48648.71

Table-3 portrays that average cost A1, A2, B1, B2, C1, C2 and C3 were observed to Rs. 24278.09, Rs.24278.09, Rs.25966.15, Rs.34966.15, Rs.39596.13, Rs. 44226.11 and 48648.71 respectively. From the table it is also clear that each cost was positively correlated showing increasing trend with the size of holdings.

Income measures approach:

Income measures approach is a crucial tool of estimating the degree of farm business achievements. It guides producers'/ farmers about success and failure of farm enterprises, efficiency and productivity of resources. It is also helpful in decision making, organization and separation of the farms as a whole gross income, farm business income. Family lobour income, net income and farm investment income are the key components of income measures approach. The entire scenario unveiled in table-4.

Table -4 Size group wise per hectare different incomes from Maize crop (Rs. /ha)

S. No	Particular	Size group of the farms (ha)			Average
		0-1	1-2	2 & above	
1	Gross income	51812	54115.6	55205.7	53711.1
2	Net income	13361	13802.2	12379.6	13180.9
3	Family labour income	19934.3	20183.2	16117.3	18744.9
4	Farm business income	30347.9	30859.2	27091.9	29433
5	Farm investment income	24481.5	25586.2	24341.4	24803.02

Table -4 reveals that average family labour income was observed as Rs.18744.93 per hectare where as farms business income and farm investment income were Rs. 29433.00 and Rs. 24803.02 per hectare respectively. Farm investment income was significantly higher on small farms being Rs. 25586.1 5as compared to marginal and large farms being Rs.24481.52 and Rs.24341.38 per hectare respectively.

CONCLUSION

In Uttar Pradesh the total area of maize was 62374(ha) in 2016-17, total production of maize 110903 (metric tones) and productivity 17.78 q/ha in 2016-17. In the Etah district the total area of Kharif Maize is 25198 ha and productivity 25.16 quintal/ha in 2016-17, The costs & return of maize crop that the higher gross income was observed on large farms being Rs. 55205.65 followed by small and marginal farms being Rs 54115.60 and Rs. 51812.00 respectively. Net income was also highest on small farms as Rs.13802.18 followed by marginal and large farms being Rs.13361.03 and 12379.60 respectively. The average cost of production per quintal came to Rs. 1175.39. Input output ratio were calculated as 1:1.34, 1:1.34, and 1:1.28 for marginal, small and large size group of farms respectively. The average input output ratio came to 1:1.32.

REFERENCES

1. Uday, J. P. S., Chandrakar, M. R. and Harinkhare R. (2015).An economic analysis of maize production in Koriya district of Chhattisgarh.*Trends in Biosciences*. 8(2): 376-379.
2. Kumar, A. and Singh, K.M. (2017). A Study on Maize Production in Samastipur (Bihar): An Empirical Analysis, *Munich Personal RePEc Archive*. 80262, 13-44.
3. Kumar, V., Chand, K., Suman, M. and Pandey, C. (2017).Economic analysis of Maize Seed Production on Farmers' Fields. .*Agro Economist - An International Journal,* 4(2): 65-68.
4. Directorate of Economics & Statistics, (DAC & FW).2016-17.
5. Ministry of Agriculture, GOINCoMM Special report: September 2017.
6. District statistical bulletin. District Etah (U.P.):2016-17

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