

**ECONOMICS OF POTATO CULTIVATION IN PRAYAGRAJ DISTRICT UTTAR PRADESH****Dr. Prem Chandra<sup>1</sup> Mr. Vikas Kumar Yadav<sup>2</sup> Dr. Punit Kumar Agarwal<sup>3</sup> Dr. Devendra Prasad<sup>4</sup> and Dr. Sewak Ram<sup>5</sup>**

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**ABSTRACT:** The study was confined to the Prayagraj district of eastern Utter Pradesh. The district was selected purposively. 100 Farmers were selected by randomly sampling method. There are 52 marginal, 33 small, 12 medium and 3 large farmers from five selected village of the one block of the district. The farm level data and require information of Potato growing farmers pertaining to crop year 2021-2022. The overall cost of potato cultivation was worked out to be Rs. 113301.01 per hectare which was highest for large (Rs. 119126.09) size of holding followed by medium (Rs. 117513.62), marginal (Rs. 109936.09) and small (Rs. 106628.45) size of holdings. The overall, cost A1 accounted (Rs.78463.55). Cost A1 and A2 were found to be same as there was no land was taken on lease. Cost B1, cost B2, cost C1 and C2 was found to be Rs. 86473.58 Rs. 93473.58, Rs. 95965.29 and Rs. 102965.29 respectively. The overall value of gross income, net income, farm business income and family labour income per hectare come Rs. 238875, Rs. 125613.18, Rs. 160411.44 and Rs. 145401.41 respectively. The B:C which indicates the profitability of investment was observed to be 1:2.10 at the overall level. Non availability of quality seed was considered as major problems faced by potato growers. Lack of awareness regarding marketing price of potato was considered as the most important problems faced by the potato growers.

**Keywords:** cost of production, potato, cost concepts, farm income measures, Benefit-cost ratio.

Potato is an economically important staple crop in both developed and developing countries. Potato is grown about 150 countries throughout the world. China ranks 1st followed by India and Russia. India's ranks 3rd in area and it are the 2nd largest country in the world in potato production. Globally, 380 million tonnes of potato is produced in more than 100 countries and 50% of this is consumed fresh. The tuber is important for food security for millions of people across South America, Africa, Europe and Asia. India produced about 53 million tonnes of potatoes during 2018-19. The country exports around 3.5 lakh tonnes of potatoes a year, earning Rs 350-400 crore. Potato is a temperate crop grown under subtropical conditions in India. Potato popularly known as 'The king of vegetables', has emerged as fourth most important food crop in India after rice, wheat and maize. Indian vegetable basket is incomplete without Potato. Agriculture is the most important occupation for more than 58% population either directly or in directly. It is the backbone of our economic system. In India agriculture contributes 16% of total GDP and 10% of total exports. (Economic survey 2018- 2019). In India potato is cultivated in almost all states under diverse agro climate conditions. About 85 percent of potato is cultivated in Indo-gangetic plains of north India. In states of Uttar Pradesh, West Bengal, Bihar, Gujarat accounted more than 70% share in total production. In Uttar Pradesh there has been steady and continuous increase in the area and production of potato during recent years. The

acreage has gone up from 1992200 ha. during 2013 to 2179000 ha during 2016 -2017. The major Potato producing states are Uttar Pradesh, West Bengal, Bihar, Gujarat, Madhya Pradesh, Punjab, Assam, Haryana, Jharkhand and Chhattisgarh. In Prayagraj district area, production and productivity of potato cultivation is recorded 12476 hectare, 291929 metric tonnes and 217 quintal per hectare, respectively during 2018-19 (According to Sankhikiya Patrika (2020). The total value of the potato cultivation Prayagraj district is Rs. 5254722 thousand.

**RESEARCH METHODOLOGY**

The present study was conducted in Prayagraj district of Uttar Pradesh. In Prayagraj district consist of 20 block out of that one block i.e. Handia (potato growing) blocks potato cultivation were purposively selected. For the study area under potato cultivation was higher in comparison to other blocks. From the selected block, a list of all villages was prepared and five major potato growing villages (Khanapur, Lalapur, Siyadeeh, Chaknandu, Siki Khurd) were selected on the basis of maximum coverage of area under potato crop. In the final stage, 20 farmers were randomly selected from each village. The total sample size was 100. Which comprised of marginal, small, medium and large farmer? There are 52 marginal, 33 small, 12 medium and 3 large farmers from five selected villages of the one block of the district. After the preparation of the schedules, data were collected from potato growers by personal interview. The

information regarding the potato growers was collected from level of inputs used and output of main products of potato. The input and output prices used were that at which the potato growers had actually sold their output or procured the input. The opinion about the potato farming and the problems faced by the potato growers were elicited. The farm level data and required information of potato growing farmers pertaining to crop year 2021-22, was during March-April by personal survey method. The data thus collected were subjected to tabular analysis, other statistical analysis.

## RESULTS AND DISCUSSION

The per hectare cost on various input factor in potato cultivation was worked out and its details are presented in table 1. This table indicates that overall cost of potato cultivation was worked out to be Rs. 11301.01 per hectare. Which was highest for large (Rs. 119126.15) size of holding followed by medium (Rs. 117513.33), marginal (Rs. 109936.11) and small (Rs. 106628.45) size of holdings. The per hectare operational cost at overall level Rs.97954.77 and per hectare sub total cost came out to be Rs. 100586.61.

**Table-1:** Per hectare cost input of factors in potato cultivation RS./ ha

S.No	Particular	Marginal	Small	Medium	Large	Overall
1.	Human labour	24342.56	23213.41	22918.32	22451.21	23231.37
a.	Family labour	13929.32	11212.14	8511.24	4314.12	9491.70
b.	Hired labour	10413.24	12001.27	14407.08	18137.09	13739.67
2.	Machine labour	8714.38	9119.34	11913.41	12415.12	10540.55
3.	Seed	21416.13	22723.14	23916.32	24817.91	23218.37
4.	Fertilizer and manure	12218.16	13416.32	16619.31	18417.11	15167.25
5.	Plant protection	3615.20	3714.38	3821.64	4419.26	3892.62
6.	Irrigation charge	8716.31	9514.56	11413.44	12915.46	10639.94
7.	Total working capital	79022.74	81701.15	90602.17	95436.07	84311.89
8.	Interest on working capital	1185.34	1225.51	1359.03	1431.54	1264.67
9.	Operational Cost	80208.07	82926.66	91961.44	96867.69	97954.77
10.	Rental value of owned land	7000	7000	7000	7000	7000
11.	Interest on fixed capital	12733.84	7008.30	7869.10	4428.89	8010.03
12.	Sub total	99941.92	96934.96	106830.03	108296.05	100586.61
13.	Managerial Cost@10% of sub total	9994.19	9693.49	10683.03	10829.65	10058.65
14.	<b>Grand total</b>	109936.11	106628.45	117513.33	119126.15	113301.01

Input wise analysis showed that human labour cost was highest expenditure among various components of operational cost with Rs. 23231.37 of total cost. The overall major cost component of cultivation of potato crop was total cost was tubers [seeds] Rs. 23218.37 followed by rental value of owned land Rs. 7000, human labour Rs. 23231.37, fertilizers Rs. 15167.25, irrigation charges Rs. 10639.94, machine charges Rs. 10540.55 and plant protection Rs. 3892.62.

### Costs as per the CACP classification

The various cost concepts (Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3) used by

CACP have been worked out and presented in table 3. As perusal of table Indicates that overall, cost A1 accounted Rs. 78463.55 of total costs (cost C3-113301.01). Cost A1 and cost A2 were found to be same as there was no land was taken on lease. Cost B1, cost B2, cost C1 and C2 was found to be Rs. 86473.58, 93473.58, 95965.29 and 102965.29 of cost C3 (Rs.-113301.01), respectively. The cost C3 (Rs.-113301.01) which take into account the managerial function performed by farmers was Rs.10058.65. Farm size-wise analysis of the cost concept of the sample potato growers that indicated increasing trend of cost C3 with increasing farm sizes. It was Rs. 109936.09,

Rs. 106628.45, Rs. 117513.62 and Rs. 119126.09 for marginal, small, medium and large size potato growers, respectively.

**Table- 2 :** Cost concepts on sample farms

S.No	Particulars	Size of sample farms				Overall average
		Marginal	Small	Medium	Large	
1.	Cost $A_1/A_2$	66278.78	71714.51	83450.23	92553.44	78463.55
2.	Cost $B_1$	79012.58	78722.82	91319.33	96982.33	86473.58
3.	Cost $B_2$	86012.58	85722.82	98319.33	103982.33	93473.58
4.	Cost $C_1$	92941.09	89722.82	99830.57	101296.45	95965.29
5.	Cost $C_2$	99941.09	96934.14	106830.57	108296.45	102965.29
6.	Cost $C_3$	109936.09	106628.45	117513.62	119126.09	113301.01

### Returns from potato production

The production and value of output per hectare of selected farmers have been shown in table 3. Overall production per hectare of potato growers came to 227.5 quintals. It was observed higher production was accrued to be large farmers (250 quintals) followed by medium (240 quintals), small (220 quintals) and marginal (200 quintals) farmers. The table show that production of potato increased with the size of holdings. The overall value of gross income, net income, farm business income and family labour income per hectare came to Rs.238875, Rs. 125613.18, Rs. 160411.44, and Rs. 145401.41 respectively. The gross income was highest for the

large farmers (Rs. 262500) followed by medium (Rs.252000) small (Rs. 231000) and marginal (Rs.210000) farmers. The net income on potato production was highest for the large farmers (Rs. 143373.91) followed by medium (Rs. 134486.38) small (Rs. 124371.55) and marginal (Rs. 100063.91) farmers. On an average, per hectare production of potato came to be 227.50 quintals. The B:C which indicates the profitability of investment was observed to be 2.10 at the overall level. Among the size of holding, the B:C ratio was highest in large size group (2.20) compared to medium (2.14), small (2.16) and marginal (1.91) farmers.

**Table-3** Income measures on sample farms

S.No	Particulars	Size of sample farms				Overall average
		Marginal	Small	Medium	Large	
1	Cost of Cultivation	80208.07	82926.66	91961.44	96867.69	97954.77
2	Gross income	210000	231000	252000	262500	238875
3	Net income	100063.91	124371.55	134486.38	143373.91	125613.18
4	Family labour income	123987.42	145277.18	153680.67	158517.67	145401.41
5	Farm investment income	119797.75	148073.35	149355.48	154802.08	140623.06
6	Farm business income	143721.26	159285.49	168549.77	169946.54	160411.44
7	Cost of production (Rs./q)	549	484.67	489.64	476.50	499.77
8	B:C ratio(BCR)	1:1.91	1:2.16	1:2.14	1:2.20	1:2.10
9	Yield (t/ha)	20	22.	24	25	22.75

### CONCLUSIONS

The cost of cultivation shown increasing trend from marginal to large farmer. It due to fact that large size of holding farmer could incur more expenditure on modern farm input like quality of seed, hired labour, manure, fertilizers, plant protection and machine labour charges etc Farm size-wise analysis of

the cost concept of the sample potato growers that indicated increasing trend of cost  $C_3$  with increasing farm sizes. The B:C ratio indicates that the cultivation of potato was more profitable in large size of group holdings, than of that medium, small, and marginal size of group holdings. Non availability of quality seed was considered as major problems faced by potato

growers. Lack of awareness regarding market price of potato was considered as the most important problems faced by the potato growers.

#### **SUGGESTIONS**

- Good quality seed should be available at grass root.
- It is be ensured that Kisan Credit Card and other banking facilities should be available at affordable and easy process.
- Proper amount of fertilizer and original well effected chemicalshold be available at village level shop.
- Ensure the adequate farmers training on potato production technology for increasing the knowledge level of farmers.
- Crop loan at proper time with easy process should be provided and financial support should be given at lowest interest by the financial agencies.
- To ensure readily available to quality seed from block seed store or Government agency before sowing preparation.
- Transpiration network may be regulated by the Government and control rates may be introduction either by Government or private transportation.

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