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Study on Marketing of Potato and post- harvest losses in Mau district of Uttar Pradesh

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Abstract
Potato among the vegetables is the principal cash crops in India and it is the most important food crop in the world. Its marketing plays an important role in the agriculture economics of farmers of all scales. The present study was carried out in Mau district of Uttar Pradesh in the year 2021-2022 to know the Socio-economic profile of sample farmers, marketing costs, post- harvest losses of potato at producer level and constraint in marketing of potato. A multistage random sampling design was adopted for the selection of potato growing farmers and market functionaries. Block 'Badraon' were selected purposively because this block has higher number of farmers which are indulged in the marketing of potato. Villages were selected based on highest number of potato farmers. Ten villages were selected randomly. The numbers of farmers and market functionaries interviewed were 70 and 30 respectively. The numbers of farmers from each village were selected randomly. 70 farmers were personally interviewed in ten villages and 30 market functionaries which included 10 village merchant, 10 wholesalers and 10 retailers were interviewed to know the marketing costs of potato and post- harvest losses. A structured schedule was used to collect the data through survey method.

Keywords: marketing costs, potato, post- harvest losses, constraints.

Introduction
Agriculture is the backbone of Indian economy. Potato is the most important food crop of the world. Potato is a temperate crop which grown under subtropical conditions in India. The potato which has always been the 'poor man's friend'. Potato has been cultivated in the country for the last more than 300 years. Potato is the fourth major food crop after rice, wheat, and maize in the world. India is the second largest producer of potato (50.19 million tonnes) in the world. The cultivation of potato is done almost in all states of India. However, the major potato growing states in India are Punjab, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, Gujarat, Maharashtra, West Bengal, Karnataka, Bihar and Assam. The current status of potato in agricultural GDP is 2.86%. At present in India, the production of Potato is 51.9 million tons from an area of 2.17 million ha during 2018- 19, thus making India is the second largest potato producer in the world after China. The three largest potato producing states, are Uttar Pradesh, West Bengal, and Bihar which contribute about 76.5% to the national production. Potato prices are hovering at Rs 10 to 15 per kg in vegetable market across India, compared to high to Rs 43 per kg last year. Farmers claims that the COVID 19 lockdowns last summer seriously disrupted the supply chain, causing potato prices to skyrocket. And now they have all crashing down.

Materials & Methods
The present study was carried out in Mau district of Uttar Pradesh. Mau district comprises of 9 blocks, out of which Badraon block was selected purposively because this block has high number of farmers which are indulged in the marketing of potato and post-harvest losses presently. This block is consisting of 150 villages. Out of which 10 villages were selected based on highest number of potato farmers. A total of 70 respondents were selected from each village and 30 market functionaries were selected purposely to know the marketing cost of potato. The sample was consisted of 70 respondents and 30 market functionaries which were finally selected to collect the data. The information was collected through personal visit and interview conducted according to a schedule.

Results and Discussion
Age of Sample Farmers and Market Functionaries
The distribution of sample farmers and market functionaries according to age group was shown in table 1. The sample shows majority of respondents are from the age category 31-40 i.e., 42% followed by the age category 41-50 i.e., 27%. The minimum number of respondent age category above 60 i.e. 6% and the rest two categories i.e. 20-30 and 51-60 have 12% and 13% respectively.

Table 1: Age of Sample Farmers and Market Functionaries

S. No	Age	Farmer/Producer (n=70)	Village merchant (n=10)	Wholesaler (n=10)	Retailer (n=10)	Total (% age)
1	20-30	8	2	1	1	12 (12)
2	31-40	27	4	5	6	42 (42)
3	41-50	22	2	2	1	27 (27)
4	51-60	10	1	1	1	13 (13)
5	>60 yrs.	3	1	1	1	6 (6)
	Total	70	10	10	10	100 (100)

Educational status of Farmers and Market Functionaries
The distribution of sample Farmers and Market Functionaries according to educational status was shown in table 2. The sample shows majority of respondents have studied to the secondary education i.e., 42% followed by primary and collage education i.e., 22%. The illiterate respondents are the least i.e., 14%.

Table 2: Educational status of Farmers and Market Functionaries

S. No	Particulars	Producer/Farmer (n = 70)	Village merchant (n = 10)	Wholesaler (n = 10)	Retailer (n = 10)	Total (% age)
1	Illiterate	8	3	2	1	14 (14)
2	Primary Education	13	2	3	4	22 (22)
3	Secondary Education	32	4	3	3	42 (42)
4	College Education	17	1	2	2	22 (22)
	Total	70	10	10	10	100 (100)

Farm size distribution of sample farmers
The distribution of sample farmers according to farm size was shown in table 3. The sample shows majority of farmers are from the marginal category i.e., 38% followed by the small category i.e., 22%. And the rest 3 category are semi-medium, medium, and large have7, 3 and 0 % respectively.

Table 3: Farm size distribution of sample farmers

Sl. No.	Category	Producer/Farmer (n = 70)
1	Marginal (Below 1.00 hectare)	38
2	Small (1.00-2.00 hectare)	22
3	Semi- Medium (2.00-4.00 hectare)	7
4	Medium (4.00-10.00 hectare)	3
5	Large (10.00 hectare and above)	0
	Total	70

Farming experience of sample farmers
The distribution of sample farmers according to Farming experience was shown in table 4. The sample shows majority of farmers are from the 21-30 years category i.e., 33% followed by the 11-20 years i.e., 17%. And the rest 2 categories Less than 10 years and 31-40 years have 8 and 12 % respectively.

Table 4: Farming experience of sample farmers

Sl. No.	Category	Producer/ Farmer (n = 70)
1	Less than 10 years	8
2	11-20 years	17
3	21-30 years	33
4	31-40 years	12
	Total	70

Annual income of Farmers

Table 5: Annual income of farmers

Sl. No.	Annual income	Producer/Farmer (n = 70)
1	Low (Up to Rs.1 lakh)	28
2	Medium (Rs.1 Lakh to 2 Lakh)	23
3	High (Above 2 lakh)	19
	Total	70

Marketing costs
Marketing cost includes summation of all costs along marketing channel until the produce reaches the consumer.

- **Producer - Village merchant - Wholesaler - Retailer - Consumer**

There were four intermediaries through which potato flows in this channel. Producer sold their produce to village merchant in market who in turn sold the produce to wholesaler and then wholesaler sold the potato to the retailer in the market and finally it reached to the consumer. The total marketing cost for village merchant includes loading and unloading, packing, transportation, filling and stretching, was 45.50 per quintal and the marketing margin of seller was 70. Total marketing cost for wholesaler which includes loading and unloading, transportation was 26.5 per quintal and the retailers marketing costs was 27 per quintal. The marketing margins for village merchant, wholesaler and retailers were 70, 123 and 230 per quintal respectively this difference in marketing cost at village retailers occurred due to packaging and transportation cost.

Table 6: Marketing cost and margin for channel

	Particulars	Costs (Rs/q)	Per cent consumer price
Farmer	Net price received by farmer	675.00	56.25
Village Merchant	Selling Price of producer/ purchasing price of Village merchant	675.00	56.25
	Gunny Bags	12.00	1.00
	Loading and unloading	6.00	0.5
	Transportation	8.00	0.62
	Mandi tax	4.00	0.33
	Commission	7.2	0.6
	Filling and stretching	6.00	0.50
	Miscellaneous	2.3	0.19
	Total marketing cost	45.50	3.8
	Marketing Margin	70.00	5.83
Wholesaler	Selling Price of village merchant/ purchasing price of wholesaler	790.5	65.87
	Loading and unloading	6.00	0.5
	Transportation	8.00	0.66
	Mandi tax	3.00	0.25
	Commission	4.00	0.33
	Storage	3.00	0.25
	Miscellaneous	2.5	0.20
	Total marketing cost	26.5	2.2
	Marketing Margin	123.00	10.25
Retailer	Selling Price of village merchant/purchasing price of retailer	940.00	78.33
	Loading and unloading	6.00	0.75
	Transportation	10.00	0.83
	Mandi tax	4.00	0.33
	Commission	4.00	0.33
	Storage	3.00	0.25
	Total marketing cost	27.00	2.25
	Marketing Margin	230	19.16
Consumer	Retailer price to consumer	1200.00	100.00

Post-harvest loss at Producer level

In the below table 7 total loss in the case of small farmers was 17.71 per cent and the maximum damage was observed during potato digging which was about 12 per cent followed by 2.28 per cent of wastage occurs during storage. Transportation contributes least damage which was 1.14 per cent whereas pest and disease infestation cause loss of 2.28 per cent.

Table 7: Post- harvest loss at small famer level (less than 2 ha)

	Total Post-harvest potato	Post-harvest losses in quintiles	Percent share of PHIL
Producer Level	Total Post-harvest potato	353.00	
	Potato Digging	42.00	12.00
	Storage	8.00	2.28
	Transpiration	4.00	1.14
	Pest and disease infestation	8.00	2.28
	Total loss	62.00	17.71

Constraints in marketing of potato

The marketing constraints of potato as perceived by the respondents are presented in indicates that the most serious constraint was lack of processing facility (90%), followed by involvement of large number of middlemen in marketing (81.4%), low of price at peak period (80%), lack of market information (71.4%), unauthorized charges in marketing (70%), lack of transportation (65.7%), lack of knowledge and regulated market (64.3%), inadequate storage facility (61.4%), lack of standardization and grading (60%), malpractices in market (52.85%), lack of farmers in organization (50%), delayed payment (45.7%), technological problem in farm production/ low productivity (40%), poor handling and packing (35.7%), lack of information about quality parameters (32.8%), and communication problem (30%).

Table 8: Marketing Constraints faced by the respondents

Sl. No.	Constraints	Respondents		Rank
		Number	Percentage	
1	Lake of knowledge and regulated market	45	64.3	VII
2	Unauthorized charges	49	70	V
3	Large no of middleman	57	81.4	II
4	Technological problem in production in farm production (Low productivity)	28	40	XIII
5	In proper handling and packing	25	35.7	XIV
6	Standardization and grading	42	60	IX
7	Inadequate storage facility	43	61.4	VIII
8	Malpractices in market	37	52.85	X
9	Delayed of payment	32	45.7	XII
10	Lack of market information	50	71.4	IV
11	Farmers organization	35	50	XI
12	Lack of transportation	46	65.7	VI
13	Communication problems	21	30	XVI
14	Lack of information about quality parameters	23	32.8	XV
15	Lack of processing facility	63	90	I
16	Low price at peak period	56	80	III

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