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Adoption extent of potato respondents about potato production technology

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ABSTRACT
The two districts namely, Kannauj and Etawah were selected purposively for the present investigation. These are the main potato growing districts in U.P. From each district two sample blocks and from each sample block two sample vilages were selected. From each village, 25 potato growers were selected on random basis. A sample of 200 respondents were selected from potato growing formers through proportionate random sampling technique and the investigator himself collected data with the help of pre tested interview schedule. Maximum 60% respondents in the medium category followed by 23.00% and 17% in low and high categories of adoption level, respectively. The variables like education, size of land holding (ha), occupation, farm power, irrigation source, annual income and extension contact were found highly significant and positively correlated with extent of adoption. Area under potato crop (ha) and transportation were significant and positively correlated with extent of adoption.

Key words : Adoption, Production technology and Potato.

INTRODUCTION

Potato production area in Kannouj district was highest in Uttar Pradesh in 2001-2002, but in respect of average production it has eighth place. Farmers have the technical knowledge they restrict the adoption as they are unskilled in utilization of technology in the fields. It is not essential only to possess technical know- how rather their skillful use for optimum production is more important. Human capabilities play a vital role in achieving desired yields. The entrepreneurial skill reflects ability to get things done correctly by manipulating inputs like labour, material, money, machine, land use and times and thus maximum output can gain for a given amount of time. Major problems identified were lack of good quality seed, irrigation problem, insufficient finance, unremunerative market price for the produce insufficient storage space and malpractices by traders. (Pandit et al. 2003).

Although, a large number of research findings on scientific agriculture have been evolved but not all of them have been adopted by the farmers. This has resulted into a wide gap between available scientific knowledge in agriculture science and its practical application or adoption. Therefore, the main task of extension service is to narrow the technological gap by enabling the farmers to achieve the same production as it is achieved at the research stations or demonstration farms. This study was concluded in the following objectives -

1-To study the socio-economic profile of potato growers.
2-Adoption level of respondents regarding potato production technologies.
3-Correlation coefficient (r) between different variables and adoption of the respondents.

MATERIALS AND METHODS

The two districts namely, Kannauj and Etawah were selected purposively for the present investigation. These are the main potato growing districts in U.P. The two districts namely, Kannauj and Etawah were selected purposively for the present investigation. These are the main potato growing districts in U.P. From each district two sample blocks and from each sample block two sample vilages were selected. From each village, 25 potato growers were selected on random basis. Thus, 50 respondents from each block and 100 respondents from each district selected for investigation. A sample of 200 respondents were selected from potato growing formers through proportionate random sampling technique and the investigator himself collected data with the help of pre tested interview schedule. Analyses were done with the use of correlation coefficient to know the relationship between different variables with technological gap. The formula used in this study –

$$\text{Standard deviation: S.D.} = \sqrt{\left(\frac{\Sigma fd^2}{n} - \left(\frac{\Sigma fd}{n}\right)\right)^i}$$

Where, S.D. = Standard deviation
i = Size of class interval
S = Summation.
f = Frequency.
d = Deviation from coded value.
n = Number of sample.

$$\text{Correlation coefficient(r): } r = \frac{\Sigma(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\Sigma(x_i - \bar{x})^2 \Sigma(y_i - \bar{y})^2}}$$

Where, r = correlation coefficient.
y = observation of the variable (x)
x^i = Mean of all the observation (x)
y = Observation of the variable $(y)^i$
y^i = Mean of all the observation $(x)_i$

RESULTS AND DISCUSSION

It is revealed from table 1- majority 48.50 per cent of the respondents were found in the age group of 30-45 years with 85.50 literacy percentage. Maximum *i.e.* 22.50 per cent respondent were found in primary school categories.

Majority 40.50% belonged to backward class category while, the scheduled and general castes were 27.50 and 32.00 %, respectively. Maximum of the respondents 50% were observed in the 0.6 to 2.5 ha area of potato followed by 38.5% in upto 0.5 ha and 11.50% in above 2.5 ha, respectively. The majority 62.50% respondents were found having their house of pacca type. The majority 64.00% of the respondents families have adopted agriculture as main occupation followed by agricultural labour 18.50%, service 8.50%, business 7.50% and caste occupation 1.50%, respectively. Maximum 68% respondents engaged in potato cultivation belonged to joint family system. Maximum 44% respondents were observed such who had 5-17 members in their families. Maximum of the respondents 40.00 per cent were reported having pumping set / tube well followed by 29% M. B. plough, 20.50% bullocks (pair). The majority 89.00% respondents were found possessing cycle as the main conveyance followed by 28.5% having scooter /

Table 1 : Socio-economic profile of the respondents

S. No.	Socio-economic profile of categories	Potato growers (N=200)	
		Frequency	Percentage
1	Age composition		
	Young (up to 30 years)	37	18.50
	Middle (30 to 45 years)	97	48.50
	Old (above 45 years)	66	33.00
2	Educational status		
A	Illiterate	29	14.50
B	Literate	171	85.00
I	Can sign only	23	11.50
II	Primary School	45	22.50
III	Junior high school	31	15.50
IV	High school	36	18.00
V	Graduate	29	14.50
VI	Above graduate	07	03.50
3	Caste composition		
	General	64	32.00
	Backward	81	40.50
	Scheduled caste	55	27.50
4	Holding		
	Marginal (up to 1 ha)	80	40.00
	Small (1 to 2 ha)	72	36.00
	Medium (2 to 4 ha)	27	13.50
	Big (Above 4 ha)	21	10.50
5	Potato crop (ha.)		
	Up to 0.5 ha.	77	38.50
	0.6 to 2.5 ha.	100	50.00
	Above 2.5 ha.	23	11.50
6	Housing pattern		
	Hut	05	2.50
	Kachcha	15	7.50
	Mixed	55	27.50
	Pucca	125	62.50
7	Occupation		
	Agricultural labour	37	18.50
	Caste occupation	3	1.50
	Service	17	8.50
	Agriculture	128	64.00
	Business	15	7.50
8.	Family type		
	Single	64	32.00
	Joint	136	68.00
9.	Size of family		
	Up to 4 members	66	33.00
	5 – 17 members	88	44.00
	Above 17 members	46	23.00
10	Farm power		
	Bullocks (Pair)	41	20.50
	Tractor	42	16.00

Table 1: contd....

	Tractor trolley	28	14.00
	Pumping set / tube well	80	40.00
	Cultivator	32	16.00
	Disc plough	09	4.50
	Thresher	17	8.50
	Seed drill	06	3.00
	M.B. plough	58	29.00
	Sprayer	38	19.00
	Duster	12	6.00
	Ridge maker	08	4.00
	Potato plant	19	9.50
11.	Transportation material		
	Bullock cart	17	8.50
	Scooter/motorcycle	57	28.50
	Jeep	05	02.50
	Tractor	32	16.00
	Car	19	9.50
	Cycle	178	89.00
	Truck	06	03.00
12.	House hold material		
	Sewing machine	52	26.00
	Chair	125	62.50
	Fan/cooler	98	49.00
	Pressure cooker	73	36.50
	Electric press	76	38.00
	Sofa set	51	25.50
	Gas cylinder stove	38	19.00
	Steel almirah	33	16.50
	Table	91	45.50
	Smokeless chulha	123	61.50
13.	Communication media		
	Radio	53	26.50
	Television	39	19.50
	Newspaper	31	15.50
	Journals	00	00.00
	Agril. magazine	13	06.50
	Agril. books	14	07.00
14.	Social participation		
	No participation	120	60.00
	Member of one organization	43	21.50
	Member of more than one organizations	20	10.00
	Office holder	17	08.50
15.	Live stock		
	Low (up to 1 animal)	64	32.00
	Medium (2 to 4 animals)	118	59.00
	High (Above 4 animals)	18	9.00
	Mean=2.21,S.D.=1.39,Min=0,Max=6		
16.	Sources of irrigation		
	Private tube well / pump set	39	19.50
	State Govt. tube well	37	18.50
	Canal	18	9.00
	Canal + tube well / pump set	69	34.50
	Govt. tube well + private tube well	25	12.50
	Others	12	6.00
17	Annual income		
	Below Rs. 16,000	106	53.00
	Rs. 16,000 to Rs. 24,000	43	21.50
	Rs. 24,000 to Rs. 32,000	18	9.00
	Rs. 32,000 to Rs. 40,000	11	5.50
	Above Rs. 40,000	22	11.00

EXTENT OF ADOPTION

Table 2 : Adoption level of respondents regarding potato production technologies

N = 200

S. No.	Categories (Scores)	Respondents	
		No.	Percentage
1	Low (up to 52)	46	23.00
2	Medium (53 – 73)	120	60.00
3	High (above 73)	34	17.00
	Total	200	100.00

Mean = 62.22, S.D. = 10.30, Min. = 40.00, Max. = 85.33

motorcycle, 16% tractor, respectively. Member of 21.5% respondents in one organization, 10% in more then one organization. Maximum 59.00% respondent were observed in medium category of live stock. Majority 75.00% of the respondents were having communication media. Maximum 34.50% respondents had a source of irrigation as a canal + tube well followed by 19.50% private tube well / pump set, 18.50% govt. tube well, 12.50% govt. tube well + private tube well, 9.0% canal and 6.0% other source of irrigation, respectively. The maximum 53% respondents in below Rs 16,000 annual farm income group followed by 21.50% (Rs 16,000 to Rs 24,000), 11.00% (Rs 24,000 to Rs 32,000), 9% (Rs 32,00 to Rs 40,000) and 5.5% in the above Rs 40,000 group, respectively.

It is revealed from table 2- that maximum of the potato growers i.e. 60.00 per cent found under the medium adoption level where as, 23.00 per cent under low level of adoption and 17.00 per cent in high adoption categories of potato growers. It is clear from the results that the maximum respondents were found under the category of medium level of knowledge.

It is revealed from the table 3- that the correlation coefficient between age, caste, housing pattern, family type, family size, house hold material, communication media, social participation and live stock with adoption of practices of potato was found non-satisfactory but positive and significant relation with area under potato crop (0.2336) and transportation (0.2519).

With regards to education there was in positive and highly significant with adoption of practices of potato

Table 3 : Correlation coefficient (r) between different variables and adoption of the respondents.

S. No.	Variables	Correlation coefficient (r)
1	Age	0.0216
2	Education	0.7333**
3	Caste	0.1440
4	Size of land holding (ha)	0.4308**
5	Area under potato crop (ha)	0.2336*
6	Housing pattern	0.0916
7	Occupation	0.3703**
8	Family type	0.1251
9	Family size	0.1119
10	Farm power	0.2952**
11	Transportation	0.2519*
12	House hold materials	0.1784
13	Communication media	0.1906
14	Social participation	0.1492
15	Live stock	0.0959
16	Irrigation sources	0.3652**
17	Annual income	0.3446**
18	Extension contact	0.2695**

*Significant at 5 per cent level of significances (table value 0.1946)
**Significant at 1 per cent level of significance (table value 0.2540)

cultivation (0.7333). The similar observations were recorded in land holding (0.4308), occupation (0.3703), farm power (0.2952), irrigation sources (0.3652), annual income (0.3446) and extension contact (0.2695).

The above results indicates that age, caste, housing pattern, family type, family size, house hold materials, communication media, social participation and live-stock have no effect on adoption of potato cultivations. The partial effect was seen between area under potato crop and adoption of different practices of potato and transportation.

Positively and highly significant value of 'r' was seen between education, size of land holdings, occupation, farm power, irrigation sources, annual income and extension contact with adoption of potato practices. This further indicates that there was a greater effect of these variables on the adoption of potato cultivation. Similar pattern was also observed by Chaudhary (2001).

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