Original Research Article

Adoption Behaviour of Farmer Towards Improved Potato Production Practice In Prayagraj District of Uttar Pradesh

Abstract: The study was conducted in Prayagraj District of Uttar Pradesh to measure the adoption behaviour of farmer towards improved potato production practice. A total number of 120 respondents were selected randomly from ten villages under Phoolpur block based on maximum area comes under potato cultivation. The data were collected by pre-structured interview schedule and appropriate statistical analysis was done to find out the meaningful results. The study revealed that 53.33 per cent of the respondents belonged to the middle-aged group and majority of the respondents (58.34%) belongs to medium level of annual income. Majority of respondents (51.67%) belonged to small and medium land holdings and 44.17 per cent farmers belonged to the medium level of mass media exposure. The findings also revealed that 55.00 per cent of the respondents had medium level of adoption towards improved potato production practice followed 26.66% and 18.34% of the respondents with low and high levels of adoption respectively. Age ,education level ,annual income ,land holding ,extension contacts, mass media exposure, economic motivation ,scientific orientation ,source of information were positive and significant found with adoption of the respondents.

Keywords: Adoption; improved potato production practices

Introduction

Potato known as “hidden treasure’’ ranks fourth after Rice, Wheat, and Maize is a staple crop in many countries of the world. It is cheap and plentiful crop that grow in a wide varieties of climates and locales. Native of Peru and Bolvia and known by mankind before 8000 BC spread all over the world by European traders and colonisers. At present World is producing nearly 400 million tonnes of potato every year and75% (Krishi jagran ,2021) of it is consumed by human. Remaining 25% is being used in food for domestic animals, commercial use in textile industries, paper making, potato starch, adhesive Biodegradable packing, food industries, beverage, polylactic acid and in plant research. India stand second largest grower of potato after china. Export share of India s potato is only 0.5% annually which comes only one tenth of global trading. India produce nearly 50 million tonnes of potatoes annually ant it is per capita higher (19.9 tonnes per hectare) than worlds average (17.4 tonnes per hectare**) (Krishi jagran, 2021)**

Potato is grown in India under diverse agro climatic conditions. The varieties should make the best use of the agro-climatic conditions and produce a high yield. Potato growing zones in India can be broadly classified as the northern hills, northern plains, eastern hills, plateau region, and southern hills. The major Rabi potato producing states are Uttar Pradesh, West Bengal, Bihar, Gujarat, and Madhya Pradesh. The major kharif potato producing states are Maharashtra, Uttarakhand, Karnataka, Himachal Pradesh, and Tamil Nadu.Potato enjoys a wide range of seasonal adaptability. In Maharashtra, potato is planted in May-July as a kharif crop and in October- November as a rabi crop. Rabi season is suitable for potato cultivation. In North Gujarat, potato is planted during 15th-30th November as night temperature is found in between 18-22 °C as rabi crops **(Potato research station Gujarat).**

Uttar Pradesh is the highest potato producing state of the country. The state produces almost 14 millions tons of potato ,thus contributing nearly 28.6 %of total potato production in the country **(Directorate of Economics & Statistics 2021**).The average productivity of potato in Uttar Pradesh is217t/ha ,which is at par national average. According to the National Horticulture Board, potato production in Uttar Pradesh for the 2019-2020 fiscal year was 14 million tons, down from 15 million tons in the previous fiscal year. **(National Horticulture Board)**

Total area under production of potato in Prayagraj district is 11777ha. The production of potato in Prayagraj is 230111 mt and productivity is 195.39 q/ha **(State Horticulture Directorates ,2021**.)

Potato cultivation in Prayagraj has been one of the most prominent vegetable cultivation practices in the District. While this has been the case, the introduction and knowledge of new and improved methodologies and technologies has been one of the sectors which has not been properly defined in the district. This research is implemented in order to ascertain the rate and proper understanding of the knowledge level of the farmers. In this respective research the comparison with the recommended adoption practices disseminated by the State Agricultural Department for the improved production and productivity in order for the Potato farmers to increase their profit from their produce.

Adoption is a farmer-led activity that occurs over time, from initial awareness of an innovation to regular use. Adoption of improved practices helps in increasing agricultural production, which further improves farmers' living standards. It is therefore essential for farmers to adopt improved farming practices, thereby increasing the yield of various crops and thus contributing to the improvement of the national economy. This would lead the country to self-sufficiency in food requirements.Based on the importance and potential of potato grown in the area, as well as the low adoption level of improved cultivation technology, an attempt has been made to assess the extent of adoption of improved cultivation practices by potato growers

Research Methodology

Descriptive research design was used for the present study. Descriptive research design describes the characteristics of the population or phenomenon that is being studied. It focuses more on the “what” of the research subject rather than the “why” of the research subject. The present study was conducted in Prayagraj district of Uttar Pradesh. Out of 20 blocks in Prayagraj district, Phoolpur block was selected purposively based on maximum area covered under potato cultivation. Ten villages from Phoolpur block were selected purposively based on maximum area under potato cultivation. A total number of 120 respondents were selected randomly from the ten villages of the selected block. The information was elicited from the respondents with the help of structured interview schedule, pen, pencil; camera was also use during the data collection. The Primary data was collected with the help of face to face interview technique with the help of interview schedule with especially objectives, focused

study. Secondary data was collected from library, journals, books, papers, and other materials related to study. The entire data were transformed into score for tabulation. To interpret the results and to show the relationship between independent variable and dependent variables, Mean, Frequency, Percentage, Co –efficient correlation was followed.

Rogers (2003) defined adoption as use or non-use of a new technology by a farmer at a given period of time. This definition can be extended to all economic units in the social system. To measure the adoption behavior, an index was developed regarding improved production technology of potato crop. Responses were recorded on 3 points of continuum as fully adopted, partially adopted and not adopted and scores assigned to each question were 3, 2 and 1 respectively. On the basis of range of scores, the respondents were categorized as low, medium and high groups.

Objectives of the Study:

1- To assess the socio-economic characters of respondents.

2- To find out the level of adoption of recommended improved potato production practices by respondents.

Results and Discussion-

Table no. 1: Socio-economic profile of the respondents

S.No.	Independent variables	Category	Frequency	Percentage
1.	Age	Young age (Up to 35years)	36	30.00
		Middle age (36-55 years)	64	53.33
		Old age (above 55 years)	20	16.67
2	Educational level	Illiterate	25	20.84
		Primary school	15	12.50
		Junior Higher Secondary	45	37.50
		Higher Secondary	20	16.66
		Intermediate	12	10.00
		Graduate above	3	2.50
3	Occupational status	Farming	68	56.67
		Farming +labour	29	24.16
		Farming +Buisness	15	12.50
		Farming +Services	8	6.67
4	Annual Income	Low (below 50,000)	28	23.33
		Medium (50,000-1 lakh)	70	58.34
		High (Above 1 lakh)	22	18.33
5	Land holding	Marginal (up to 1 ha)	32	26.67
		Small + medium (1.01 to 2 ha)	62	51.67
		Large (Above to 4 ha)	26	21.66

6	Extension contacts	Low(5-7)	53	44.16
		Medium(8-9)	49	40.84
		High(10-11)	18	15.00
7	Mass media exposure	Low (4-6)	41	34.16
		Medium (7-8)	53	44.17
		High (9-10)	26	21.67
8	Economic motivation	Low (7-9)	37	30.83
		Medium (10-11)	53	45.00
		High (12-13)	29	24.17
9	Scientific orientation	Low (9-11)	43	35.84
		Medium (12-13)	55	45.83
		High (14-15)	22	18.33
10	Source of information	Low (16-19)	47	39.16
		Medium (20-22)	54	45.00
		High (23-25)	19	15.84

From the table 1, it is shown that 53.33 per cent of the respondents belonged to the middle age-group. Majority of the respondents (56.67 per cent) belong to farming occupational status and 37.50 per cent of the respondents had junior higher secondary level of education .In terms of annual income 58.34 per cent of the respondents had medium level of income in which 51.67 per cent had land holding of 1 ha to 2 ha. It is also evident that 44.17 per cent of the respondents possessed a medium level of mass media exposure.It is seen that in terms of scientific orientation, 45.83 per cent of the respondents possessed medium level of scientific orientation and45.00 per cent of the respondents had medium level of economic motivation. Lastly 45.00 per cent of the respondents had medium level of source of information. Similar findings were also reported by **Mane *et al.* (2017)**

Table no 2 :Distribution of respondents according to their adoption level

S. No.	Cultivation practices	Response					
		Fully adopted		Partially adopted		Not adopted	
		F	*%*	*f*	*%*	*f*	*%*
1.	Soils: Sandy loam soils, Black soil	76	63.34	19	15.83	25	20.83
2.	Varieties sowing	86	71.66	16	13.34	18	15
3.	Planting time	27	22.50	79	65.84	14	11.66
4.	Seed treatment	47	39.16	61	50.84	12	10
5.	Seed rate	47	39.17	62	51.66	11	9.17
6.	Fertilizers (N:P:K)	38	31.66	43	35.84	39	32.5
7.	Source of seed material : a)Private shop b) Government center c)From Agriculture research station	21	17.5	67	55.83	32	26.67
8.	Method of sowing fallowed	24	20	53	44.10	43	35.84
9.	Spacing adopted	14	11.66	83	69.17	23	19.17
10.	Chemical Fertilizer and manure management(per hectare) a) FYM b) Nitrogen	39	32.50	31	25.83	50	41.67

	c) Phosphorus d) Potassium						
11.	Inter cropping :	12	10	23	19.16	85	70.84
12	Weed management: Hand Weeding Pre planting- Post Planting	67	55.83	40	33.34	13	10.83
13.	Plant protection measure:	29	24.16	66	55.00	25	20.84
14.	Yeild	33	27.50	59	49.16	28	23.34
15.	Storage	15	12.5	88	73.34	17	14.16

From the Table No. 2 it is shown that 63.34%, 71.66% and 55.83% of the respondents have fully adopted the soil type, varieties and weed management required for improved potato production practices respectively. A significant percentage of the respondents 50.84%, 49.16% and 73.34% have partially adopted the seed rate, yield and storage required for improved potato production practices respectively. Similar finding were also reported by **Mane *et al.* (2017)**

Table no. 3: Distribution of respondents according to their adoption level towards improved potato production practice.

Sl. No.	Adoption level	Frequency	Percentage
1	Low (25-30)	32	26.66
2	Medium (31-35)	66	55.00
3	High(36-40)	22	18.34
Total		120	100.00

The above **Table 3** reveals that majority of respondent had medium level of adoption *i.e* 55.00% towards improved potato production practice. Considerable percentages of respondents were found having low level of adoption 26.66% and high level of adoption 18.34%, respectively.Similar finding were also reported by **Kharumnuid *et al.* (2018)**

Figure 1: Distribution of respondents according to their adoption level towards improved potato production practice.

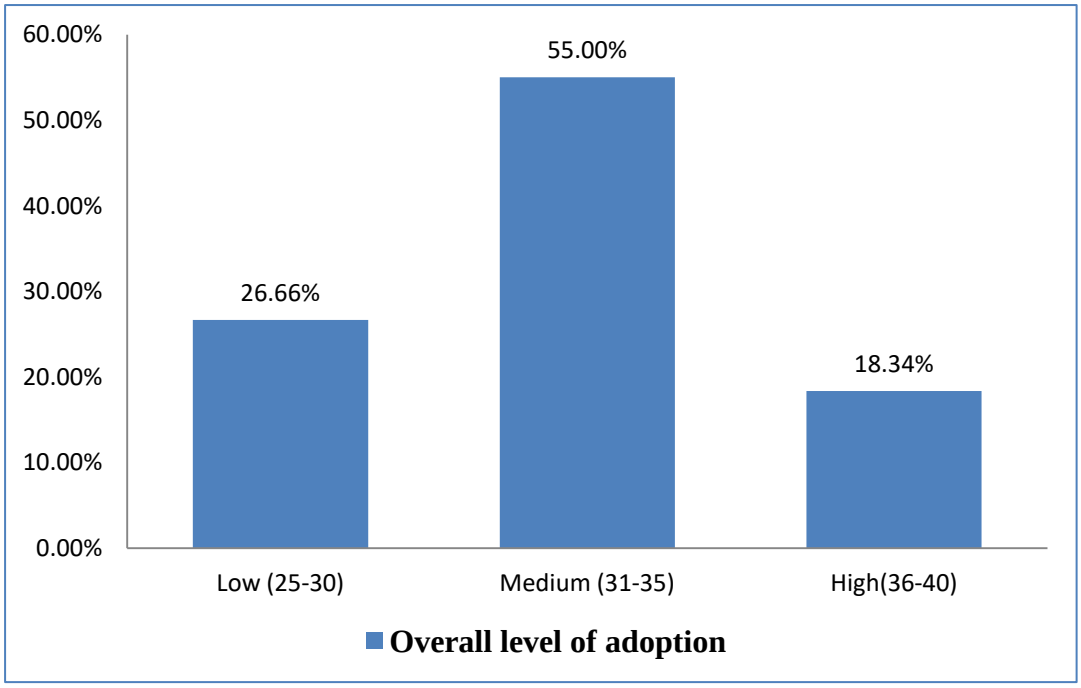

Table 4: Association between independent variables and adoption level of the farmers on improved potato production practice.

Sl. No.	Variables	Correlation coefficient (r)
1	Age	0.988*
2	Education level	0.997*
3	Occupational status	-0.180*
4	Annual income	0.653*
5	Land holding	0.997*
6	Extension contacts	0.595*
7	Mass media exposure	0.932*
8	Economic motivation	0.995*
9	Scientific orientation	0.911*
10	Source of information	0.803*

***=significant**

Age, education level, annual income, land holding, extension contact, mass media exposure, economic motivation scientific orientation, and source of information were positively and significantly correlated with adoption level of the farmers on improved potato production practice measures at 0.01 per cent of probability, according to Table-4., however the variable. occupational status was negative and significantly connected with adoption level of the farmers on improved potato production practice .

CONCLUSION:

It is concluded that majority of the respondents belonged to middle-aged group, having medium level annual income. Further, majority of the respondents belonged to farming occupational status with land holding of more than 1 to 2 hectares and. Majority of the respondents had medium levels of mass media exposure, extension contact and scientific orientation .It was found that most of the respondents had medium level of adoption towards towards improved potato production practice. The independent variables like age, caste, economic motivation were positively and significantly correlated with adoption towards

improved potato production practice. It is suggested that improved varieties seeds and other inputs should be made available at the village/block level. More training programs should be carried out by the concerned extension workers.

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