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Full Length Research Paper

Adoption of improved potato production technology among the farmers of Chhindwara block in same District, MP, India

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This study was conducted in Chhindwara block of Chhindwara District of Madhya Pradesh. The study revealed that majority of the potato growers had (56.67%) low adoption behaviour of improved practices followed by (33.33%) medium adoption behaviour and only (10.00%) had high adoption behavior regarding overall improved potato production technology respectively. The study also revealed that the socio-economic factors had positive and significant influence on the adoption of improved potato production technology.

Key words: Potato growers, adoption behavior, improved production technology.

INTRODUCTION

Potato *(Solanum tuberosum* L.) family (Solanaceae) is one of the most important food crop of the world. It has become one of the most popular crop for vegetable purposes. Potatoes are economical food since they provide a source of low cost energy to the human diet. They are rich source of starch and vitamins especially C and B_1 and minerals. They contain 20.6% carbohydrates, 2.1% protein, 0.3% fat, 1.1% crude fiber and 0.9% ash on fresh weight basis. It also contain good amount of essential amino acids like leucine, tryptophane and isoleucine etc. Potatoes are used for several industrial purposes such as production of starch and alcohol. In India, potato is grown over an area of 1.87 million hectares, with a production of about 41.32 million tones and productivity 22074 kg/ha. The top eight potato growing states are UP., West Bengal, Bihar, Punjab, Karnataka, Assam, Gujarat and M.P.

Madhya Pradesh is the eight largest potato producer state in India. In M.P. potato is grown over an area in 78800 hectares with a production of about 944400 tones. The productivity of potato is about 119.90 q/ha. Chhindwara division is the largest potato producing division in M.P. and its cultivation is done mainly in Chhindwara district. It is recorded from the available data that out of the total area of 3935 hectares under potato crop in Chhindwara district with a total production of 76603 tons and productivity 19470 q. /ha. The Chhindwara block shares an area of 2015 hectares only with a production of about 50375 metric tons. Even though the area under potato cultivation is high in Chhindwara district but the productivity is low (25 tones/ha) as compared to other potato growing district. So there is a need to increase productivity through improved production technology.

In order to obtain optimum yield of potato crop, a set of recommendations are made to the farmers by the Agricultural University Scientists / Extension specialists. To know how much knowledge they have regarding the improved potato production technology, whether the potato growers are adopting these recommendations or not and up to what level, and also what is the association of their profile with the adoption behaviour these aspects

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S. No.	Technology component	Mean	Rank
1.	Field management	4.16	II
2.	Seed and sowing management	7.23	I
3.	Manure and fertilizer management	3.16	V
4.	Irrigation management	1.33	VII
5.	Weed management	2.50	VI
6.	Plant protection management	4.06	III
7.	Harvesting management	3.50	IV
8.	Storage management	1.23	VIII
9.	Overall mean ($\overline{X}$)	3.39	

Table 1. Mean score of adoption level of improved potato production technology among potato growers.

S.No.	Categories	No. of respondents	Percentage
1.	Low (up to 23 scores)	68	56.67
2.	Medium (24 to 46 scores)	40	33.33
3.	High (above 47 scores)	12	10.00
Total		120	100.00

Table 2. Distribution of potato growers on the basis of their adoption level of improved potato production technology.

were of prime concern in the mind of the researcher. Keeping in view the above points of reference, this research problem entitled, "A study on adoption level of improved potato production technology among the farmers of Chhindwara block in Chhindwara district (M.P.)" was conducted.

METHODOLOGY

The present study was conducted in Chhindwara block of Chhindwara district of Madhya Pradesh selected purposively because of largest area under potato crops as compared to other blocks of the district. Lists of progressive potato production villages was obtained from block office and out of them 10 villages were selected randomly. A list of potato growers was prepared from selected villages and 12 potato growers from each village were selected by using simple random sampling method. Thus, the total 120 potato growers were selected as respondents for the study. The primary data was collected with the help of interview schedule, which was prepared on the basis of objectives of the study. The data were related with the socio-personal, economical and psychological characteristics of potato growers and regarding level of adoption of improved potato production technology. The data were collected and recorded in the form of interview schedule. Keeping the view of the objectives of the study and to draw logical inferences, statistical tools like frequency, percentage, mean, rank order and chi-square test were used for analyzing and interpretation of data.

RESULT AND DISCUSSION

The mean scores obtained as per components wise of the technology regarding adoption of improved potato production technology were given in the table. It is clear from the table that the mean scores of various technical components of improved potato production technology were ranged from 1.23 to 7.23. The potato growers were having higher mean scores than the overall mean. They were seed sowing as it received first rank, followed by field management, plant protection management and harvesting management. The technological components which have lower mean scores than the overall mean were fertilizer management, which received fifth rank, followed by weed management, irrigation management and storage management.

Thus it can be concluded that important technological components to the potato grower were seed sowing management, field management, plant protection management, harvesting management. While the less important technological components to the potato growers were fertilizer management, weed management, irrigation

Characteristics	χ^2 value	Degree of freedom
Age	10.917*	2
Education	15.829*	2
Caste	5.050**NS	3
Type of family	3.73**NS	2
Farm power	8.273**	2
Farming experience of potato	18.498*	2
Social participation	8.470**	2
Economic motivation	8.928**	2
Risk preference	10.404**	2
Extension participation	5.855**	2
Mass media exposure	7.663**	2
Information seeking behaviour	5.616**NS	2
Innovativeness	14.273*	2
Knowledge level	15.279*	2

Table 3. Association between adoption level of potato growers of improved production technology and selected independent variable.

management and storage management.

The data shows out of total potato growers, 56.67 per cent potato growers had low adoption level of improved practices followed by 33.33 per cent had medium adoption level and only 10.00 per cent had high adoption level of improved practices respectively.

*= significant at 0.01% level probability, **= significant at 0.05% level of probability.

The results of chi-square test analysis in the above table revealed that characteristics namely age, education, farming experience of potato, innovativeness and knowledge level were positively and significantly (0.001% level) associated to adoption level of potato growers. On the other hand, characteristics namely farm power, social participation, economic motivation, risk preference, extension participation and mass media exposure positively and significantly (0.05%level) associated to adoption level of potato growers. The socio-economic and psychological characteristics namely caste, type of family and information seeking behaviour of potato growers was found to be non-significantly associated. These findings were supported by Sharma et al. (2007), Dhakad (2009), Yadav (2010).

CONCLUSION

On the basis of results of this study, it may be concluded that higher number (56.67%) of potato growers had low adoption level. The study further revealed that the characteristics namely age, education, farming experience of potato, innovativeness and knowledge level (0.01% level) and farm power, social participation, economic motivation, risk preference, extension participation and mass media exposure (0.05% level) were positively and significantly associated. On the other hand caste, type of family and information seeking behaviour of potato growers was found to be non-significantly associated. This study also concluded that important technological components to the potato grower were seed sowing management, field management, plant protection management and harvesting management. While the less important technological components to the potato growers were fertilizer management, weed management, irrigation management and storage management.

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