

## Training Needs Assessment of the Farmers in Agra District of Western Uttar Pradesh with reference to Potato Cultivation

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### Abstract

Potato is an economical food, as it provides a source of low cost energy to human diet. For vegetable purposes, potato has now become one of the most popular crops in India and cultivated in almost all states and under very diverse agro climate conditions. India ranks second position in potato production after China at the world level. Training needs is essential to bring motivation, create confidence and inculcate efficiency in an individual and also expected for imparting new knowledge and updating the skills of the farmers. Training of farmers had assumed further importance and urgency in the context of the high yielding varieties and improved practices in agriculture and allied fields. The present study was conducted in purposively selected Agra district which has fifteen blocks, out of which four blocks were selected for the study purposely area under potato cultivation. From each selected block two villages were selected by applying random sampling procedure. From each village 20 respondents were selected randomly. Thus, data was collected from 160 respondents through well structured schedule. Results revealed that 61.25 per cent of respondents had small size of land holding, whereas 24.38 per cent and 14.37 per cent of respondents had medium and large size of land holding, respectively regarding recommended wheat production technology. Among the selected 11 recommended aspects of potato, respondents had high training need index score for seed treatment (7.89%) followed by Manure & Fertilizers management (7.88%), whereas low training need index was observed in storage and marketing were 5.23 and 5.47. There is a considerable scope for enhancing the production of potato subject to the need based training imparted to the growers so that they could reap the benefits by adopting the improved package of practices. Family type, social participation, was found to be positive and significantly related with training needs of potato growers. There is a considerable scope for enhancing the production of potato subject to the need based training imparted to the growers so that they could reap the benefits by adopting the improved package of practices.

**Keywords:** Potato production technology, mean per cent score, training needs, Assessment

### Introduction

Potato (*Solanum tuberosum* ssp. *tuberosum*) possesses all the virtues to be a potential food crop. It produces substantially more edible energy, protein and dry matter per unit area and time than many other crops. Potato tubers constitute a highly nutritious, wholesome food. It provides carbohydrates, proteins, minerals, vitamin C, a number of B group vitamins, and high quality dietary fiber. People of several European and Latin American countries consume potato as a staple food. On the contrary, it is still being used as a dietary supplement in our country. The per capita consumption of fresh potato in India

is a paltry 15 Kg/year compared to 193 and 126 Kg/year in Denmark and The Netherlands respectively. Therefore, there is a wide scope to increase potato consumption and production in the country.

Potato, the king of vegetables, has emerged as one of the most important food crops of India. Potato ranks fourth after rice, wheat and maize. The power of potato is known for sustaining millions of lives by providing nutritious food in the time of war and hunger. The high production potential per unit area, high nutritional value and great taste make

potato one of the most important food crops in our country. Four major potato growing state viz., U.P., West Bengal, Bihar and Punjab alone account for 74 per cent area and 84 per cent potato production in the country

India is predominantly an agriculture based country in which agriculture and allied activities contributes about 17 percent to the country's Gross Value Added and provides employment to about 54.6 percent of the population. Potato plays a very important role in Indian agriculture as potato alone contributes about 21 percent of the total vegetable area and 26 percent of total vegetable production of India. Potato is a nutrient-rich crop which provides more calories, vitamins and nutrients per unit area than any other staple crops. FAO declared potato as the crop to address future global food security and poverty alleviation during 2008. The productivity in India is higher than in China and Russia, the third largest potato producer. However, the productivity is lower than most of the developed European countries. One of the major reasons is that, in Europe, potato crop is grown in summer having long photoperiod of up to 14 hours and the crop duration of 140-180 days. The potato in Indian plains is, however, grown in completely contrasting situations. Nearly 85 per cent of the crop is grown during winters having short photoperiod (with about 10-11 hours sunshine) and the crop duration is also limited to 90-100 days because of short and mild winter

Modernization of Indian agriculture significantly depends on creation of farm technology and its dissemination<sup>[3,7]</sup>. India is well equipped in agricultural technology, but full use of available technology is not being made in many area of the country. By and large,

the results remain unused in laboratories and research to the farmers. Besides this, agricultural technology is changing at an increasing rate. The Farm Science Centre known as Krishi Vigyan Kendra (KVKs) and agriculture department are serviceable in various districts of our country<sup>[5,6,8]</sup>. To solve the problem of un-employment in the rural areas of their respective district by providing training and advisory services, To support the allied enterprises other then crop production in the area as a source of subsidiary business or main source of income for diversification of agriculture and increase of farmers income per unit area, to increase the production and productivity in the area of main crops and other enterprises, to educate the farming community and making them economically and socially sound, to spread new, proven and economically viable technologies in the area and to get the feedback to know the problems of the farming community in the area and to resolve these by use of technology and increase the production level. The KVK and agriculture department being an educational institution of the farmers offers a very real opportunity by organizing trainings to work closely with trainees in developing a more skilled and educated work force. The training programmes of KVK are multipurpose one to cover not only the various needs of farmers but also the entire needs of village and community<sup>[1, 2]</sup>.

Adoption of improved potato varieties in India<sup>[4]</sup>. The adoption of improved potato varieties is critical for achieving sustainable and higher productivity and production. So far, Central Potato Research Institute, Shimla has developed 58 potato varieties for different agro-climatic regions of the country and majority of them are for north

Indian plains. Potato varieties developed by CPRI are very popular among farmers and cover nearly 95% of total area under potato. Four varieties, viz. Kufri Jyoti, Kufri Bahar, Kufri Pukhraj, and Kufri Chipsona1 together contributed around 75% of total area under potato.

**Uttar Pradesh:** The study conducted during 2016-17 crop season showed that overall, varieties like Kufri Bahar (38 % of potato area), Kufri Pukhraj (21 %), Kufri Khyati (12 %) and Kufri Chipsona-1 (9 %) were the leading potato varieties in Bulanshahr and Meerut district of Uttar Pradesh.

**Madhya Pradesh:**In Madhya Pradesh, Kufri Chipsona-3 (26.5 % area) and Kufri Chipsona-I (22.3 % area) were

#### **Material and Method**

The present study was conducted in purposively selected Agra district of Uttar Pradesh. The Agra district has fifteen community development blocks, out of which four development blocks were selected for the study purposely area under potato cultivation. From each selected block two villages were selected by applying random sampling procedure. From each village 20 respondents were selected randomly. Respondents were those who were cultivating potato. Thus, data was collected from 160 respondents through interview method with the help of well structured and pre tested interview schedule consisting of 11 recommended practices of potato. To measure the extent of adoption of potato growers, eleven main as well as sub recommended practices and

#### **Results and discussion**

To get an overview of training needs, the respondents were classified in small, medium and large farm size groups,

the leading potato variety closely followed by Kufri Jyoti (22.07% area) during 2014-15 crop season.

**Punjab:** Study in Jalandhar, Ludhiana and Hoshiarpur districts of Punjab revealed that during 2016-17, Kufri Pukhraj was the most popular variety in both Jalandhar (50%) and Hoshiarpur (76%). Other popular varieties of Jalandhar were Kufri Jyoti, Lady Rosetta and Badshah. But, in case of Ludhiana processing varieties from private companies, like Lady Rosetta (28%), FC-3 (25%) and FC-5 (15%) were popular among farmers. CPRI varieties like Kufri Chipsona-1 (16%) and Kufri Chipsona-3 (13%) were also having significant area under potato.

according to their size of holdings, viz. small (up to 1 ha.), medium (1 to 2 ha.) and large (above 2 ha). Further, to determine the training needs, mean score for each item was worked out and ranked accordingly

The statistical methods used in the analysis of data regarding potato production technology were frequency distribution, percentage, arithmetic mean, standard deviation and two sample Z-test were used for setting meaningful conclusion based on the study. The significance of relationship among variables was tested through linear correlation and multiple linear regression analysis, to determine the contribution of independent variables to the dependent variables.

based on area of operational holdings and are presented in Table 1.

**Table 1 Distribution of farmers according to their profile characteristics N= 160**

S.No.	Variables	Frequency	Respondents	Percentage
1	Age	20- 21	43	26.88
		22- 23	76	47.50
		24- 25	41	25.62
		Total	160	100.00
2	Gender	Male	96	60.00
		Female	64	40.00
		Total	160	100.00
3	Family Occupation	Farming	66	41.25
		Business	34	21.25
		Service	33	20.62
		Others	27	16.88
		Total	160	100.00
4	Family Background	Rural	92	57.50
		Urban	68	42.50
		Total	160	100.00
		Total	160	100.00
5	Family	Single	97	60.62
		Joint	63	39.38
		Total	160	100.00
6	Mass media Exposure	Low	28	17.50
		Medium	80	50.00
		High	52	32.50
		Total	160	100.00
		Total	160	100.00
7	Contact with extension agencies	Low	32	20.00
		Medium	56	35.00
		High	72	45.00
		Total	160	100.00
		Total	160	100.00

Data presented in Table 1 majority of the respondents belongs to medium age group, gender male and their main occupation were farming, and majority

belongs to single family and medium mass media exposure.

Table 2: Distribution of respondents according to their land holding about wheat cultivation

**Table 2 Distribution of respondents according to their land holding about potato cultivation N=160**

Land Holding	Frquency	Percentage
Small (Up to 01 ha.)	98	61.25
Medium ( 01 – 02 ha. )	39	24.38
Large (above 02 ha.)	23	14.37
Total	160	100.00

Data presented in Table 2 depicted that majority 61.25 per cent of the total respondents had small size of land holding in recommended potato production technology followed by 24.38 per cent had medium size of land holding and remaining 14.37 per cent respondents had large size of land holding.. From the above results it could be concluded that small farmers had more land holding for recommended potato production technology over medium and large farmers. It might be due to the fact that

small farmers are less knowledge of potato production technology, have less extension contacts and mass media exposure and participate less in extension programmes.

Further, different aspect of potato cultivation technology was also analyzed separately. The relative importance of all the eleven aspects of potato cultivation technology were highlighted by ranking them in descending order on the basis of their mean per cent score and data have been presented in table 3.

**Table 3 Training needs of farmers in various aspects of potato production technology**

S. No.	Area of training needs	M.P.S.	Rank
1	High yielding varieties	6.14	VIII
2	Land preparation	6.66	VI
3	Seed treatment	7.89	I
4	Sowing method and time	6.19	VII
5	Manure &Fertilizers management	7.88	II
6	Irrigation and drainage	7.45	IV
7	Weed control and bund management	7.66	III
8	Insect, pest and frost Management	5.87	IX
9	Harvesting	6.87	V
10	Storage	5.23	XI
11	Marketing	5.47	X

**Table 4 Training need of potato growers in the sub-areas of plant protection measure**

S.No.	Sub-areas of training	Mean Score	Rank
1	Identification of major insect pest and disease	2.56	IV
2	Cause of spread	2.47	V
3	Time and method of control	2.58	III
4	Awareness about use of various insecticide and pesticide	2.78	II
5	Preparation of pesticide solution	2.56	IV
6	Handling of plant protection implementation	2.89	I
7	Residual effect of insecticides and pesticides	2.41	VI

The data presented in Table 3 revealed that seed treatment (7.89) was perceived as the most priority area of training needs by the potato growers and assigned I rank by them in the ranking hierarchy. This might be due to the reason

that although majority of the respondents were aware about the seed treatment but they do not know how to practice it. This was followed by manure and fertilizers (7.88), Weed control and bund management (7.66) and land preparation

(6.66) and recorded II, III and IV ranks by the respondents. Further analysis of table indicates that respondents also reported training needs on storage (5.23). Further training were perceived as less priority areas of training needs by the respondents and were assigned X and XI marketing and

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storage ranks<sup>[7]</sup>. The data presented in Table 4 revealed that training needs in sub-areas of plant protection implements and awareness regarding insecticides measures rank I and II to respondents in the area of insecticide and regarding residual effect.