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Knowledge of Potato Growers About Improved Potato Production Technology in East Khasi Hills District of Meghalaya

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Abstract: ***The study was conducted in East Khasi Hills District of Meghalaya to measure the knowledge level of potato growers about improved production technology. A total number of 120 respondents were selected randomly from ten villages under Mylliem block because productivity, production and area under potato cultivation were found to be maximum. The data were collected by personnel interview method by using pre-tested interview schedule and later appropriate statistical analysis was done to find out the meaningful results. The findings of the study revealed that majority (61.67%) of the respondents belonged to the middle- aged group, 67.50 per cent of the respondents mainly depended on agriculture as their main occupation and 47.50 per cent of the respondents had an educational attainment up to primary level. The findings also revealed that majority (50.83%) of the respondents had medium level of knowledge towards improved potato production technology followed by 30% and 19.17% of the respondents with low and high levels of knowledge respectively.***

KEYWORDS: Knowledge, Improved Potato Production Technology

Introduction

Potato (*Solanum tuberosum*) is the most important food crop of the world. Potato is a temperate crop grown under subtropical conditions in India. Potato is popularly known as 'The king of vegetables', has emerged as fourth most important food crop in India after rice, wheat and maize. Potatoes are mainly grown in fields. Whether cultivated intensively or extensively, potatoes adapt to all climates, from the high Peruvian plateau to the Indus-Ganga plain. After the ground has been prepared and fertilised, seed potatoes (whole or cut tubers) are buried beneath the soil. To reduce problems of contamination, potatoes are planted at a distance from other crops prone to similar diseases. During the formation of the flowers and tubers, the potato plant is very sensitive to prolonged periods of drought or rain. To ensure even maturation of the tubers

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and eliminate the risks of parasites and disease (such as blight), a few weeks before harvest, the plants undergo mechanical or thermal **s**tripping to destroy the foliage and stems, called 'haulms'.

Potato is considered as a commercial crop of India. Total vegetable crops production of the India is 169.06 million tons from total area 10.10million ha with productivity 16.73 t/ ha. In India, potato is generally cultivated on about 2116.93 thousand ha area with a production of 43417.05 thousand MT. The total production of Indian vegetable basket is incomplete without Potato. Because, the dry matter, edible energy and edible protein content of potato makes it nutritionally superior vegetable as well as staple food not only in our country but also throughout the world. Now, it becomes as an essential part of breakfast, lunch and dinner worldwide. Being a short duration crop, it produces more quantity of dry matter, edible energy and edible protein in lesser duration of time than cereals like rice and wheat. Hence, potato may prove to be a useful tool to achieve the nutritional security of the nation. It has been observed that during present trend of diversification from cereals to horticultural crops, shifting from wheat / barley cultivation to potato cultivation, returns more to the farmers.

Potato is grown throughout the year in one part or another of the NEH region, contributing about 10% of the total area for potato production in the country (**Gupta *et al.*, 2004**). Potato is an important part of prevailing cropping systems among farmers (**Kumar *et al.*, 2006**), as well as of local diets of the people in the region. In terms of both volume and value, potato is the major commercial crop and the most important root crop in the state. Meghalaya is the second largest producer of potato in the region, after Assam, in terms of cultivated area at about 18,000 to 20,000 ha. It is cultivated under rainfed conditions, mainly in the hilly tracts of East Khasi Hills which accounts for two-thirds of the area of tuber crops. Meghalaya also has an advantage of being able to produce potato in the off-season in most areas, which allows producers to sell at premium prices, unlike other parts of India. However, the proportion of areas being cultivated under various seasons and the linkage of various seasons in terms of seed supply and the varieties used is still unknown**. (Handerson *et al.,2017).***

Research Methodology

Descriptive research design was adopted for the study as it describes the characteristics or phenomena that are being studied. The present study was conducted in East Khasi Hills district of Meghalaya. Out of 11 blocks in East Khasi Hills district, Mylliem block is selected purposively for the present study. From the selected block, ten villages namely, Rngi, Mawan,

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Pombot, Demthring, Mylliem Nongbet, Umrakan, Kyndon, Pomkaniw, Mawsawa and Mawiong were selected purposively where maximum number of farmers grows potato.

The primary data were collected with the help of interview schedule, which was prepared on the basis of the objectives of the study. The statistical tools like frequency, percentage, mean, standard deviation were used to interpret the data and for drawing the logical conclusion.

Objectives of the Study:

1. To find out the socio-economic characteristics of the respondents.
2. To measure the knowledge of the respondents about improved production technology of potato.

Results and Discussion

Table 1: Socio-economic profile characteristics of the potato growers

S. No	Independent variables	Category	Frequency	Percentage
1.	Age	Young (20-35)	33	27.50
		Middle (36-55)	74	61.67
		Above 55	13	10.83
2.	Occupation	Farming	81	67.50
		Farming+ labour	39	32.50
3.	Educational Attainment	Illiterate	36	30.00
		Primary	57	47.50
		Secondary	18	15.00
		High School	6	5.00
		Graduate & Above	3	2.50
4.	Annual Income	Low (20,000-40,000)	28	23.33
		Medium (40,001-60,000)	70	58.34
		High (Above 60,001)	22	18.33
5.	Family Type	Nuclear	34	28.33
		Joint	86	71.67

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6.	Land Holding	Less than 0.5 ha	38	31.67
		More than 0.5 ha	82	68.33
7.	Farming Experience	5-10 years	8	6.66
		10-20 years	95	79.17
		More than 20 years	17	14.17
8.	Mass media exposure	Low	70	58.33
		Medium	36	30
		High	14	11.67
9.	Extension contact	Low	71	59.17
		Medium	34	28.33
		High	15	12.50
10.	Risk orientation	Low	6	3.30
		Medium	82	68.30
		High	32	26.70

From the table 1, it is shown that 61.67 per cent of the respondents belonged to the middle age-group. Majority of the respondents i.e., 67.50 per cent depend on farming as an occupation and 47.50 had primary level of education. In terms of annual income, 58.34 per cent of the respondents had medium level of income in which 68.33 per cent had land holding of more than 0.5 hectare. It is evident that majority i.e., 71.67 per cent of the respondents lived in joint family. It is also evident that 79.17 per cent of the respondents had a farming experience of 10-20 years. It is seen that in terms of mass media exposure, 58.33 per cent of the respondents possessed low media exposure and 59.17 per cent of the respondents had low level of extension contact. Lastly, 68.30 per cent of the respondents had medium risk orientation. (Similar findings were also reported by **Srivastava *et al.* (2012**)

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Knowledge of the respondents about improved potato production technology

Table 2: Distribution of respondents based on knowledge about improved potato production technology

S. No.	Statements	Response					
		Fully correct		Partially correct		Not correct	
		f	%	*F*	%	*f*	%
1.	Soil types suitable for potato crop: Sandy loam	8	6.67	95	79.17	17	14.17
2.	Climate: 15-23^{o}C	4	3.33	98	81.67	18	15.00
3.	Soil testing	15	12.50	33	27.50	72	60
4.	Time of sowing a) Summer season (Feb- March) b) Autumn season (August)	108	90	12	10	0	0
5.	Planting material: Tubers	120	100	0	0	0	0
6.	Tuber size selection: 2.5 cm diameter (25-50) gm	18	15.00	101	84.17	1	0.83
7.	Irrigation: 2-3 times	34	28.33	57	47.50	29	24.17
8.	Tuber rate: 25-30q/ha	29	24.17	72	60.00	19	15.83
9.	Spacing a) Medium sized: 60 cm X 20 cm b) Large sized: 60 cm X 25 cm	28	23.33	54	45.00	38	31.66
10.	Varieties: Kufrijyoti, Kufrimegha	11	9.17	73	60.83	36	30.00
11.	FYM: 15-20 t/ha	29	24.17	72	60.00	19	15.83
12.	N:P:K- 120:120:60	3	2.50	85	70.83	32	26.67
13.	Dehaulming: 15 days before harvest	16	13.33	68	56.67	36	30

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14.	Weeding and Interculture: One or two interculture operarations	73	60.83	47	39.17	0	0
15.	Crop rotation: a) Potato- Mustard- Greengram b) Potato - Rice- Potato	54	45	38	31.67	28	23.33
16.	Yield: 19 – 27 t/ha	29	24.17	77	64.16	14	11.67

The above table, Table 2 shows that a majority (79.17%) of the respondents were partially correct about the soil type, about 60 per cent of the respondents were not correct about the soil testing viz., pH, about 84.17 of the respondents were partially correct about the seed size selection of the soil. About 90 per cent of the respondents were fully correct about sowing time of potato crop and 100 per cent of the respondents were fully correct about the planting material of potato. About 47.50 per cent of the respondent were partially correct about irrigation, About 60 of the respondents were partially correct about the recommended tuber rate of potato cultivation About 45 per cent of the respondents were fully correct about the spacing recommended in potato cultivation About 60.83 per cent of the respondents were partially correct about the potato varieties recommended for cultivation in that area About 60 per cent of the respondents were partially correct about the amount of FYM needed, 70.83 per cent of the respondents were partially correct about the recommended amount of N:P: K About 56.67 per cent of the respondents were partially correct about dehaulming in potato cultivation About 60.83 per cent of the respondents were fully correct about the weeding and interculture operations About 45 per cent of the respondents were fully correct about the crop rotation practices in that area, 64.16 per cent of the respondent were partially correct about the recommended yield of potato. (Similar findings were also reported by **Das *et al*.2018**)

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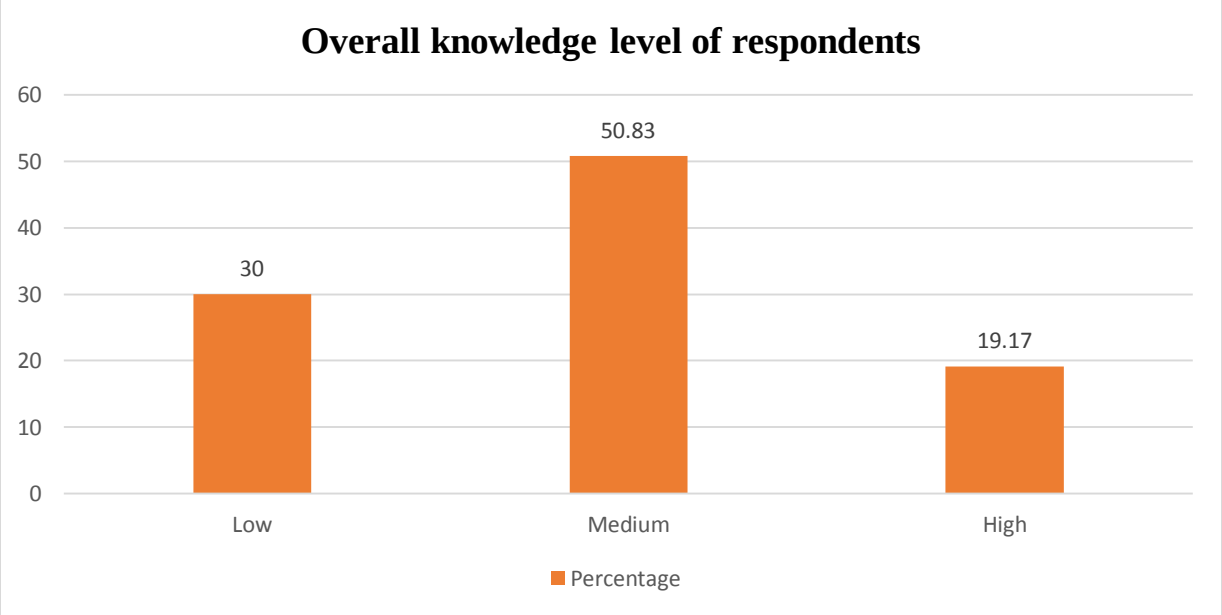
Table 3 Distribution of the respondents based on knowledge about improved potato production technology:

S. No.	Knowledge level	Response	
		Frequency	Percentage
1	Low	36	30.00
2	Medium	61	50.83
3	High	23	19.17
Total		120	100.00

Figure 1: Distribution of the respondents based on the level of knowledge towards improved potato cultivation practices:



From the above table 3 and figure 1, it is found that the level of knowledge towards potato production technology is medium 50.83 per cent followed. by low knowledge level i.e., 30 per cent and high knowledge level 19.17 per cent respectively. (Similar findings were also reported by **Vinod Prakash (2007).**

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Association between selected independent variables with knowledge

Table 4. Association between selected independent variables with knowledge of respondents about improved potato production technology:

Sl. No.	Variables	Correlation coefficient value
1.	Age	0.199**
2.	Education	0.299*
3.	Income	0.397*
4.	Land holding	0.499*
5.	Farming Experience	0.390*
6.	Mass media exposure	0.223**
7.	Extension contact	0.16NS
8.	Risk Orientation	0.277**

*- *Highly significant*

**- *Mild significant*

NS- Non-significant

From the above data it was concluded that education, income, land holding and farming experience had highly significant relationship with knowledge about improved potato production technology, Age, mass media exposure and risk orientation had mild significant with knowledge whereas extension contact had no relationship with knowledge about improved potato production technology. Similar findings were reported by **Mishra et al (2018)**

CONCLUSION

It is concluded that majority of the respondents belonged to middle-aged group, having education up to primary level, having medium level annual income with farming as the main occupation. Further, majority of the respondents belonged to nuclear type family with land holding of more than 0.5 hectares and a farming experience of 10-20 years. Majority of the respondents had low levels of mass media exposure and extension contact. It was found that most of the respondents had medium level of knowledge about the improved potato production technology.

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