Original Research Article

An Analysis of the Knowledge of Improved Cultivation Practices of Tomato of Khasi tribes in East Khasi Hills of Meghalaya

ABSTRACT

The main purpose of the study was to determine the extent of knowledge of Khasi tribe on improved cultivation practices of tomato. The study was conducted in Mawryngkneng Block in East Khasi Hills District, Meghalaya in the year 2022.A descriptive research design was applied for the study. The primary data was collected from 120 respondents by personal interview method using pre- structure interview schedule. Knowledge of the farmers was measured by asking 13 questions in respect to tomato cultivation practices. Pearson's Product Moment Coefficient of Correlation (r) was calculated to determine the relationship between independent variables and knowledge of the respondents. Finding showed that (78.33%) of the respondents had medium level of knowledge, (10%) of the respondents had high level of knowledge and only (3.33%) of the respondents had low level of knowledge about improved cultivation practices of tomato. Co-efficient of correlation (r) analysis indicated that land holding, farming experience, extension contact and sources of information are significantly associated with knowledge of farmers whereas variables like age, education, annual income, family type, size of family, and occupation was found to be non-significant with the knowledge of farmers towards improved cultivation practices of tomato.

Key Words: *Tomato cultivation, Knowledge, correlation co – efficient, Mawryngkneng.*

INTRODUCTION

Tomato (*Lycopersicon esculentum*) is botanically a fruit which is commonly used as a vegetable because of its nutritional content. It is an edible, red berry belonging to the family Solanaceae. Tomato plants are dicotyledon with a number of branching stem and a terminal bud at the tip. Tomato is composed of compound leaves particularly known as regular leaves but

some consist of simple leaves known as potato leaves. It originated from western South America and Central America and spread to other countries as it can tolerate different climatic conditions. Tomatoes are widely grown in temperate climate across the world throughout the year. It is usually perennial but is cultivated as annuals. Tomato can be consumed in different ways i.e, raw or cooked, in many dishes and in making sauces, salads and drinks (Wikipedia).

The total cultivated area of tomato in the world was 4.84 and 4.76 million hectares with production 180.94 and 182.25 million tonnes and productivity 37.33 and 38.26 ton/ ha during 2017-18. Major producing countries of tomato in the world include China, India, USA, Turkey, Egypt, Iran, Italy, Spain, Brazil, Uzbekistan in which China was the largest producer of tomato in the world (FAO Statistical Database 2020).

India is the second largest producer of tomato in the world with a total cultivated area of 760,000 ha with production 18,399,000 tonnes and productivity 24,209.2 kg/ha (Anonymous Atlasbig.com 2018-2020). There has been an increasing rate in production of tomato from 18,732,000 during 2016 to 20,708,000 in 2017 but decrease to 19,377,000 during 2018 (FAO Statistical Database 2020). Andhra Pradesh is the leading producer of tomato in India with production 13.90% of tomatoes in the country. Tomato ranks third in priority in India after potato and onion. The major leading states of tomato production in India includes Andhra Pradesh, followed by Madhya Pradesh, Karnataka, Gujarat, Odisha, West Bengal, Telangana, Chattisgarh, Maharashtra, and Bihar (Agri Exchange.APEDA.gov.in). There has been a decreasing rate in the area and production of tomato during 2016-17 to 2017-18 from 797 ha to 789 ha in terms of area and from 20708 MT to 19759 MT in terms of production but there is an increase in 2018 to 814 ha in areas and 20515 MT in production (agricoop.nic.in 2020).

Meghalaya is an agrarian state and is known for a large scale cultivation of vegetables both tropical and temperate. There has been an increasing rate in the area, production and productivity of vegetable crops. In addition the growth rate of vegetable crops has shown an increasing rate in area and production with respect to tomato. The department of agriculture has taken steps in order to increase production of vegetables in the state by motivating the farmers to cultivate vegetables in polyhouse by providing subsidy on the cost of construction of polyhouse which plays a significant role in agricultural sector as vegetable production from polyhouse increases its productivity by twice. Important tomato varieties grown in Meghalya include Marglobe,

Shillong Selection -1, Vaishali, Rocky,Mangala, Karnataka F1. (Anonymous, 2019. Department of Agriculture Government *of* Meghalaya, Shillong).

Meghalaya is also one of the states in India in which tomato can be grown. According to the Horticultural Statistic 2017 the cultivated area and production under tomato during 2014-15 was 2.20ha and 52 million tonnes, 2015-16 was 2.15ha and 34.02 million tonnes and 2016-17 was2.12 ha and 33.95 million tonnes (Horticultural Statistics at a Glance, 2017).Horticultural sector in Meghalaya is now moving forward as the horticultural crops have more advantages than the indigenous crops in terms of generating employment, increasing the income and also have the potential to compete at national and international level (Lyngdoh, S. 2014).

RESEARCH METHODOLOGY

Descriptive research design was followed for this study as it describes the characteristics or phenomenon that is being studied. The study was conducted among the Khasi tribes of East Khasi Hills District in Meghalaya. Mawryngkneng Block was selected purposively and 6 villages were selected randomly from this block and a total number of 120 farmers were selected proportionately for this study.

RESULT AND DICUSSION

Knowledge level of the respondents toward improved cultivation practices of tomato was studied and presented in Table 1 and Table 2 and figure 1.

Table.1.Distribution of respondents based on the knowledge level of the respondents.

Sl. No.	Statements	Response					
		Fully correct		Partially correct		Not correct	
		f	%	*f*	%	*f*	%
1.	Soil types suitable for tomato crop: Well drained loamy soils	7	5.83	95	79.17	18	15
2.	Climate: 21 - 24^{o}C	41	34.17	71	59.16	8	6.67
3.	Soil testing	0	0	7	5.83	113	94.17
4.	Time of sowing:	99	82.5	21	17.5	0	0

	a) Summer (April – May) b).Autumn (August – September)						
5.	Planting material: seeds	**120**	**100**	**0**	**0**	**0**	**0**
6.	Seed rate: Varieties – 300-350 g/ha Hybrid – 100- 150g/ha	**30**	**25**	**80**	**66.67**	**10**	**8.33**
7.	Irrigation	**0**	**0**	**0**	**0**	**120**	**100**
8.	Spacing: a). 60 cm X 45 cm b). 45 cm X 30 cm	**10**	**8.33**	**81**	**67.5**	**29**	**24.17**
9.	Varieties: Vaishali, Avinash, Rohit, Arka, Rocky, Cherranjeevi, Marglove, Shillong Selection-1	**5**	**4.17**	**90**	**75**	**25**	**20.83**
10.	FYM : 25 t/ ha	**8**	**6.67**	**97**	**80.83**	**15**	**12.5**
11.	Fertigation	**0**	**0**	**0**	**0**	**120**	**100**
12.	**Growth regulators: Spray** 1.25 ppm (625 ml in 500 litres of water) Triacontanol at 15 days after transplanting and at full bloom stage	**4**	**3.33**	**116**	**96.67**	**3**	**2.5**
13.	Seed Treatment : Trichoderma viride 4 g or Pseudomonas fluorescens 10 g or Carbendazim 2 g per kg of seeds 24 hours before sowing.	**0**	**0**	**43**	**35.83**	**77**	**64.17**

Table.2. indicate 79.17 percent of the respondents have partial knowledge about the soil type suitable for tomato cultivation i.e. well drain loamy soil. About 59.16 per cent of the respondents have partial knowledge about the climate suitable for tomato cultivation. Majority of the

respondents i.e. 94.17 per cent has no knowledge about soil testing .Majority of the respondents i.e. 82.5 per cent has full knowledge about the sowing time .100 per cent of the respondents were fully correct about the planting material of tomato. About 66.67 per cent of the respondents has partial knowledge about the seed rate .100 percent of the respondents do not have knowledge about irrigation practices since the study area was a rainfed area as they depend on rainfall for the crop. About 67.5 per cent of the respondents have partial knowledge while 24.17 per cent about the spacing required in tomato cultivation. 4.17 per cent of the respondents are correct about the varieties whereas 75 per cent are partially correct and 25 per cent of the respondents are not correct about the varieties for tomato cultivation. 80.83 per cent are partially correct about FYM requirement. 100 percent of the respondents do not have any knowledge about fertigation since the study areas depend on rain for irrigation. Majority (96.67 per cent) of the respondent has partial knowledge about application of Growth Regulator application.64.17 per cent of the respondents has no knowledge about seed treatment. Similar findings were reported by **Hadole *et al.* (2017), Pole (2018), Ansari *et.al* (2021) and Sangavi (2021).**

Table.2. Distribution of the respondents based on the overall level of knowledge (n=120)

S. No.	**Knowledge level**	**Response**	
		Frequency	**Percentage**
1	Low	4	3.33
2	Medium	94	78.33
3	High	12	10

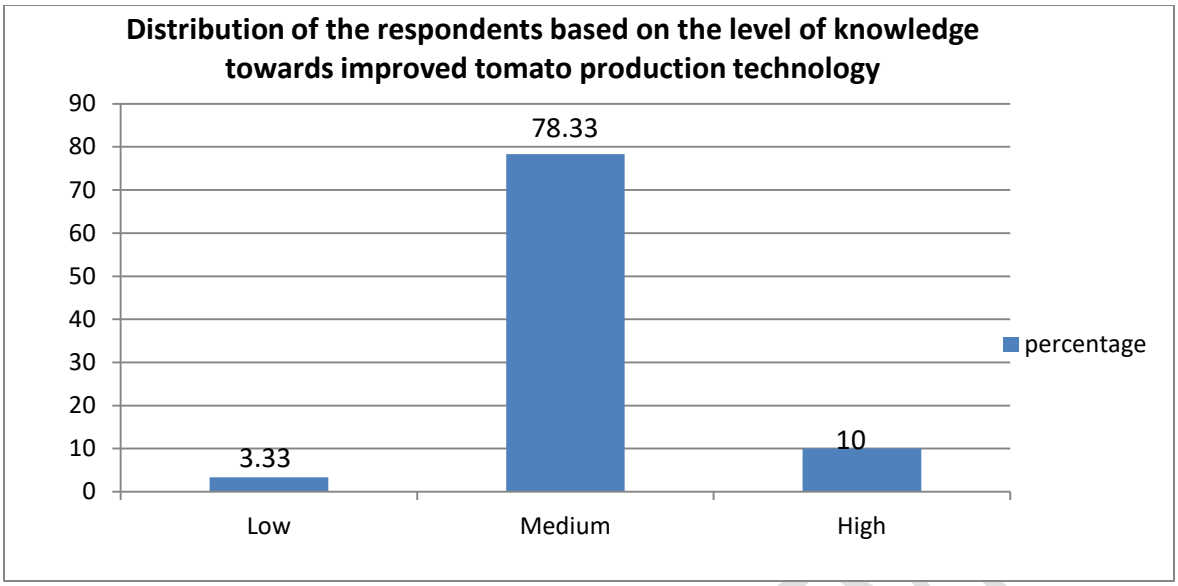

Fig. 1.Distribution of the respondents based on the overall level of knowledge

From the above table 2 and figure .1, it is found that the level of knowledge towards tomato production technology is medium with 78.33 per cent followed by and high knowledge level 10 percent respectively and low knowledge level at 3.33 per cent.

Table 3: Association between selected independent variables with knowledge of the respondents.

Sl. No	Variables	Correlation Coefficient
1	Age	0.054NS
2	Education	0.063 NS
3	Annual Income	0.102 NS
4	Marital status	0.125NS
5	Family type	0.014 NS
6	Size of family	0.079 NS
7	Occupation	0.199 NS
8	Land holding	0.292 **
9	Farming experience	0.289**

10	Mass media exposure	0.020 NS
11	Extension contact	0.410**
12	Sources of information	0.511**

* = Significant at p = 0.01% * = Significant at p = 0.05 % NS = Non Significant

The result of correlation analysis in above table revealed the significance and non-significance of the socio- economic profile of the people and their level of knowledge of improved cultivation practices of tomato.

To ascertain the relationship between profile of the respondents and their knowledge of improved cultivation practices of tomato in the area, the co-efficient correlation was worked out. Table.3. revealed that independent variables like land holding, farming experience, extension contact and sources of information are significantly associated with knowledge of farmers. Further, the variables age, education, annual income, family type, size of family, and occupation was found to be non-significant with the knowledge of farmers towards improved cultivation practices of tomato.

CONCLUSION

It is conclude that majority of the respondents has medium level of knowledge (78.33 per cent)followed by and high knowledge level at 10 per cent and low knowledge level at 3.33 per cent. Co-efficient of correlation (r) analysis indicated that land holding, farming experience, extension contact and sources of information are significantly associated with knowledge of farmers whereas variables like age, education, annual income, family type, size of family, and occupation was found to be non-significant with the knowledge of farmers towards improved cultivation practices of tomato.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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