



TECHNOLOGICAL GAP IN RECOMMENDED CULTIVATION PRACTICES OF TOMATO IN WEST JAINTIA HILLS DISTRICT OF MEGHALAYA

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ABSTRACT: *The research was conducted in West Jaintia Hills District of Meghalaya. The personal interview method was used for collection of data with the help of pre-tested interview schedule. The major objective of the research was to study the technological gap in recommended cultivation practices of tomato. Relationship between socio-economic profile of the tomato growers and their overall technological gap was also observed. The study revealed that majority (70.83%) of the tomato growing farmers belonged to medium technological gap followed by low technological gap (15.83%) and high technological gap (13.34%). Further it revealed that the highest gap was observed in plant protection measures(46.11%) and ranked I followed by fertilizer application (42.78%), weed control (41.39%), seed rate (38.33%), improved varieties (37.78%), irrigation management (37.22%) with ranked II, III, IV, V, VI, respectively. It was observed that the technological gap was decreasing with increasing education, annual income, extension contact and mass media exposure. Hence, effort should be made by the extension personnel as well as Government to conduct training and demonstration and also to increase the education facility and information sources to minimize the technological gap. Regular visit of village extension workers need to be strengthened to raise their technical competency, especially in the field where farmers have great problems.*

KEYWORDS- *Technological gap, Socio-economic profile, Tomato growers*

INTRODUCTION

Agriculture with its allied sectors, is unquestionably the largest livelihood provider in India, more so in the vast rural areas. As per 2018, agriculture employed more than 50% of the Indian work force and contributed 17-18% to country's GDP (India Economic Survey, 2018). Hence, Agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India and therefore it is considered as the backbone of Indian economy.

Tomato (*Solanum lycopersicum*) belongs to Solanaceae family is one of the most popular and widely grown vegetable in the world ranking second in importance after potato. It is the 4th most popular fresh vegetables after carrot, lettuce and onion. The estimated total world production for tomatoes in 2017 was 182,301,395 metric tonnes, an increase of 1.6% from 179,508,401 metric tonnes in 2016. China was by far the largest producer, accounting for nearly 33% of global production (Food and Agriculture Organization Corporate Statistical Database, 2017). In India, Tomato is one of the most important protective food crops. It is grown in 789 thousand hectares area with 19759 thousand metric tonnes production and 25.04 MT/ha productivity (National Horticulture Board Database, 2019)

In Meghalaya, tomato is grown in an area of 2172 hectares with 34749 metric tonnes production and productivity of 15999kgs/ha. It is grown in almost all the districts (Directorate of Economics and Statistics Government of Meghalaya, 2019). There may be various reasons for low productivity of tomato in Meghalaya. Lack of adoption of recommended package and practices that prevent and limit the farmers from achieving the potential yield might be the various reasons. So, it is necessary to investigate the existing technological gap among the tomato growers about the recommended cultivation practices in the district.



RESEARCH METHODOLOGY

The study was conducted in West Jaintia Hills District of Meghalaya and Thadlaskein block was selected purposively. Six Villages were randomly selected on the basis of larger tomato grower's coverage area. A list of 20 number of tomato growers from each village was compiled and respondents were randomly selected to constitute the total sample size of 120 respondents. A pre-tested interview schedule was used through personal interview method as a primary data and secondary data were gathered from the reference books, annual reports, bulletins, journals and periodicals on the subject published by different authors, organizations, institutions and agencies.

The technological gap was measured with the help of technological gap index. The formula adopted for measuring technological gap is as under:

$$\text{Technological gap index} = \frac{R - A}{R} \times 100$$

Where,

R= Recommended practices

A= Actual adoption

RESULTS AND DISCUSSION

Distribution of socio-economic profile of the tomato growers

Table-1: Distribution of the tomato growers according to their Age.

S. No.	Age (years)	Frequency	Percentage
1	Young (21-35 years)	26	21.67
2	Middle age (36-50)	82	68.33
3	Old (above 51)	12	10.00
	Total	120	100.00

The data presented in Table 1 revealed that, majority (68.33%) of the Tomato growers belong to middle age group followed by young age group (21.67%) and old age group (10.00%).

Table-2: Distribution of the tomato growers according to their Educational attainment.

S. No.	Educational attainment	Frequency	Percentage
1	Illiterate	39	32.50
2	Primary school	52	43.33
3	Secondary school	14	11.67
4	Higher secondary school	10	08.33
5	Graduation/PG	5	04.17
	Total	120	100.00

The data presented in Table 2 shows that majority (43.33%) of the respondents were found to possessed Primary School level of education, proceeded by 32.50% of them were illiterate, 11.67% of them found in secondary school and the rest 08.33% and 04.17% have educated to higher secondary and graduate level of education, respectively.



Table-3: Distribution of the tomato growers according to their annual income.

S. No.	Category	Frequency	Percentage
1	Low (Up to Rs 55,000)	34	28.33
2	Medium (Rs 55,000 to 70,000)	66	55.00
3	High (Above Rs 70,000)	20	16.67
	Total	120	100.00

It can be inferred from the above finding that majority (55.00%) of the tomato growers had medium annual income, followed by 28.33% were of low income group and remaining 16.67% had high income group. Similar finding comply with the finding of Yadav *et al.* (2016)

Table-4: Distribution of the tomato growers according to their family type

S. No.	Category	Frequency	Percentage
1	Nuclear family	83	69.17
2	Joint family	37	30.83
	Total	120	100.00

The data presented in Table 4 indicated that, majority (69.17%) of the tomato growing farmers were from nuclear family and remaining 30.83% were from joint family system.

Table-5: Distribution of the tomato growers according to their family size

S. No.	Category	Frequency	Percentage
1	Upto 5 members	50	41.67
2	Above 5 members	70	58.33
	Total	120	100.00

The data presented in Table 5 shows that, majority (58.33%) of the tomato growers were having family size of above 5 members whereas 41.67% were found with family size of up to 5 members

Table-6: Distribution of the tomato growers according to their house type

S. No.	Particulates	Frequency	Percentage
1	Thatched	15	12.50
2	Semi-cemented	40	33.33
3	Cemented	65	54.17
	Total	120	100.00

The data presented in Table 6 shows that, majority (54.17%) of the tomato growers reside in cemented type of house while the rest 33.33% and 12.50% of them reside in semi-cemented and thatched type of house, respectively



Table-7: Distribution of the tomato growers according to their Land holdings.

S. No.	Category	Frequency	Percentage
1	Marginal (<1ha)	60	50.00
2	Small (Up to 1ha)	35	29.17
3	Medium (1 to 2 ha)	19	15.83
4	Large (>2ha)	6	05.00
	Total	120	100.00

The data presented in Table 7 revealed that, majority (50.00%) of the tomato growers were found in marginal category possessing land of (<1ha) followed by 29.17% of the respondents with small land holding, 15.83% of the respondents with medium land holding and the rest 5.00% of the respondents with large land holding category.

Table-8: Distribution of the tomato growers according to their Extension contact.

S. No.	Category	Frequency	Percentage
1	Low (Up to 8)	35	29.17
2	Medium (9 to 12)	66	55.00
3	High (Above 13)	19	15.83
	Total	120	100
	Mean = 10.05		S.D. = 1.99

The data presented in Table 8 revealed that, majority (55.00%) of the tomato growers had medium level of extension contact and subsequently 29.17% and 15.83% respondents with low and high level of extension contact, respectively. The finding are in line with the finding of Yadav *et al.* (2013)

Table-9: Distribution of the tomato growers according to their mass media exposure

S. No.	Category	Frequency	Percentage
1	Low (Up to 11)	26	21.67
2	Medium (12 to 17)	72	60.00
3	High (Above 18)	22	18.33
	Total	120	100
	Mean = 14.70		S.D. = 2.82

The data presented in Table 9 revealed that, majority (60.00%) of the tomato growing farmers had medium level of mass media exposure proceeded by 21.67% and 18.33% of the respondents had low and high level of mass media exposure, respectively.



Technological Gap in Recommended Cultivation Practices of Tomato

Table 10: Existing Technological gap regarding cultivation practices of tomato

S.No.	Practices	Obtainable score	Obtained score	Gap %	Rank
1	Field preparation	360	245	31.94	X
2	Nursery raising	360	235	34.72	IX
3	Improved varieties	360	224	37.78	V
4	Seed rate	360	222	38.33	IV
5	Time of seed sowing	360	257	28.61	XII
6	Time of transplanting	360	251	30.28	XI
7	Spacing	360	230	36.11	VIII
8	Manures and fertilizers used	360	229	36.39	VII
9	Fertilizer application	360	206	42.78	II
10	Irrigation management	360	226	37.22	VI
11	Weed control	360	211	41.39	III
12	Harvesting	360	259	28.06	XIII
13	Plant protection measures	360	194	46.11	I

The data presented in Table 10 depicted that the highest technological gap was observed in adoption of plant protection measures (46.11%) and ranked I followed by fertilizer application (42.78%), weed control (41.39%), seed rate (38.33%), improved varieties (37.78%) and irrigation management (37.22%) were ranked II, III, IV, V, VI, respectively. While manures and fertilizers used (36.39%) was rank VII followed by spacing (36.11%), nursery raising (34.72%), field preparation (31.94%), time of transplanting (30.28%), time of sowing (28.61%) and harvesting time (28.06%) were ranked VIII, IX, X, XII, XIII, respectively. The finding are in line with the finding of Markana (2015)

Table 11: Distribution of the tomato growers according to their overall technological gap regarding tomato cultivation practices.

S. No.	Technological gap	Frequency	Percentage
1	Low(Up to 23)	19	15.83
2	Medium(24 to 48)	85	70.83
3	High (Above 49)	16	13.34
	Total	120	100.00
	Mean = 36.11		S.D. = 12.52

The data presented in Table 11 shows that, majority (70.83%) of the tomato growers belonged to medium technological gap followed by low technological gap (15.83%) and high technological gap (13.34%). The findings are in conformity with the finding of RamuKumar (2015).



Table-12: Relationship between socio-economic profile and their overall technological gap in tomato cultivation practices

S.No.	Characteristics	“r” value
1.	Age	0.243*
2.	Education	-0.386*
3	Annual income	-0.219*
4	Family type	0.031 NS
5	Family size	0.055 NS
6	House type	-0.060 NS
7	Land holding	0.126 NS
8	Extension contact	-0.223*
9	Mass media exposure	-0.303*

*=Significant at 0.05 level of probability , NS = Non-significant

The data presented in Table 12 revealed that, characteristics like education, annual income, extension contact and mass media exposure were found to have negative and significant relationship with technological gap whereas, age of the tomato growers had positive relationship with the technological gap at 5 per cent level of probability. Family type, family size, house type and land holdings are non-significant with the technological gap at 5 per cent level of probability. Markana (2015) reported similar finding regarding the education level of groundnut growers. Vinodprakash (2007) reported similar finding regarding family type, family size and house type of potato growers

CONCLUSION

It can be concluded that majority of the respondents had medium technological gap about recommended cultivation practices of tomato. The study revealed that the highest gap was observed in plant protection measures which ranked I followed by fertilizer application, weed control, seed rate, improved varieties, irrigation management with rank II III, IV, V, VI, respectively. It was observed that the technological gap was decreasing with increasing education, annual income, extension contact and mass media exposure. Hence, effort should be made by the extension personnel as well as Government to conduct training and demonstration and also to increase the education facility and information sources to minimize the technological gap. Regular visit of village extension workers need to be strengthened to raise their technical competency, especially in the field where farmers have great problems.

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