

Information Needs of Tribal Tomato Growers in India

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ABSTRACT: Tomato is one of the most important protective foods because of its special nutritive value. It is one of the most versatile vegetable with wide usage in Indian culinary tradition. Tomatoes are used for soup, pickles, ketchup, puree, sauces and in many other ways. It is also used as a salad vegetable. Tomato has very few competitors in the value addition chain of processing. Tomato cultivation requires enough care right from nursery raising to post harvesting operations. Necessary package of practices must be followed for the better yield. It demands complete knowledge of methods and same must be followed by the tomato growers in right manner and at right time. The methodological procedure consisted of dependent and independent variables, setting and selection of the respondents, analysis of data and various statistical measures used to test the hypothesis. The information needs of tomato growers was availed on a three point continuum ranging from "Most Needed", "Needed" and "Not Needed". The information needs were worked out for each of the major areas considering the total score for information needs acquired by the respondents. The present investigation was carried out with 120 randomly selected samples of Junagadh district of Gujarat state in n India. The data were collected with the help of structured schedule by personal interview method. Overall information needs more than two-third of the tomato growers (70.00 per cent) were fall under medium group, while 19.16 and 10.84 per cent of the tomato growers were categorized under high and low groups of information needs, respectively. Five variables viz., social participation, extension contact, economic motivation, scientific orientation and risk orientation were observed negatively significant with the information needs of the tomato growers. One variable like size of family was observed positively significant and one variable like age was observed positively non-significant, while five variables like education, land holding, annual income, market orientation, cosmopolitaness negatively non-significant relationship with the information needs of the tomato growers. The tomato growers faced major constraints in getting information regarding various aspects of tomato production technology; agricultural information is not available as and when required.

Key words: Information need, Relationship, Constraints and Tomato growers

INTRODUCTION

Agriculture has been and will continue to be the lifeline of the Indian economy. As the largest private enterprise in India, agriculture contributes nearly one-fifth of the national G.D.P. and sustains livelihood of about two third of the population and is the backbone of agro-based industries. Though the update of modern agricultural technology, India has moved from an era of chronic food shortage and begging bowl status up to 1960 to food self-sufficient and even food exports. Since 1950, the productivity gain is nearly 3.3 times in food grain, 1.6 times in fruits, 2.1 times in vegetables, 5.6 times in fish, 1.8 times in milk and 4.8 times in eggs. (Anonymous, 2004). Horticulture is prominent sector among agriculture and allied activities as a means of diversification for making agriculture more profitable through efficient

land use, optimum utilization of natural resources and creating skilled employment for rural masses.

India has favorable climate and soils for growing large number of horticultural crops, which includes vegetables, fruits, ornamental plants, medicinal plants, aromatic plants and species etc. It is the largest producer, consumer and exporter of species and spice-based products in the world. Thus, India is on a brink of golden revolution in horticulture. In the horticultural development map of the world the nature has placed this country in a place of pride. Our daily lives resolve around horticulture products but we hardly tend to realized its importance. The country's urgent requirement is to enhance the production of nutritious feed in a sustainable manner and improve the farm family income in order to ensure house hold food security. At the sample time

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conserving the natural resources is of utmost importance for sustaining the production of vegetables are a vital source of minerals, vitamins and dietary fibers of thus play an important role in human nutrition in supplying adequate quantity of free radicals, anti-oxidants micronutrients and essential amino acids, which are essential for normal functioning of human metabolic process.

Tomato is one of the most important protective foods because of its special nutritive value. It is one of the most versatile vegetables with wide usage in Indian culinary tradition. Tomatoes are used for soup, pickles, ketchup, puree, sauces and in many other ways. It is also used as a salad vegetable. Tomato has very few competitors in the value addition chain of processing. Tomato is the world's largest producing vegetable crop after potato and sweet potato, but it tops of the list of canned vegetables. The total global area under tomato is 4582 lakh ha. and the global production is to the tune of 1505 lakh tones. Tomato is rich source of vitamin A, vitamin C, potassium, minerals and fibers.

Table 1
World major tomato producers and its share in world tomato production

Major Tomato Producing Countries in the World (2010-11)				
Country	Area ('000ha)	Production ('000 Tons)	Productivity (tons/Ha)	% Share of World Production
China	871235	41879684	48.1	28
India	865000	16826000	19.5	11
USA	159200	12902000	81.0	9
Turkey	304000	10052000	33.1	7
Egypt	216385	8544990	39.5	6
Italy	118822	6024800	50.7	4
Iran	146985	5256110	35.8	3
Spain	58300	4312700	74.0	3
Brazil	60772	3691320	60.7	2
Mexico	98189	2997640	30.5	2
Others	1683550	38026569	22.6	25
World (Total)	4582438	150513813	32.8	100

The productivity is 36.43 t/ ha. Looking to the vegetable scenario in the world china is dominated as it produced 28 per cent of the world vegetable production followed by India as it contributes 11 per cent (Table 1). In Gujarat, the area, production and productivity of tomato are being gone-up year by year. This can be seen from the data presented in Table 2. In India total area under tomato cultivation is 865000 ha., total production is 16826000 tonnes and the productivity is 19.5 t/ ha., area under tomato

cultivation is 3567 ha. and production is 129940 tonnes. in Gujarat shown in Table 2.

Table 2
Area, production and productivity of tomato in Gujarat state

Year	Area (00ha)	Production (00MT)	Productivity (MT/ha)
2007-2008	2960	88800	30.00
2008-2009	3040	98800	32.5
2009-2010	3192	111720	35
2010-2011	3511	126396	36.00
2011-2012	3567	129940	36.43

Source: Directorate of Agriculture, Gandhinagar, 2012

METHODOLOGY

The present investigation was undertaken in Junagadh district of Gujarat State in India. Gujarat state has 27 district out of which Junagadh district was selected for this study. In Junagadh district Talala taluka was selected purposively because large area and more number of tribal tomato growers are available. From selected taluka 12 villages under tomato cultivation were selected purposively. Thus, total twelve villages were selected for the study and from each selected villages 10 farmers were randomly selected. Thus, purposively random sampling procedure was used to constitute the sample. The sample size was decided on the basis of coefficient of variability existing in the population by carrying out the pilot study. Research study was carried out with *ex-post facto* research design (Kerlinger, F. N., 1976) A well-structured, pre-tested interview schedule was prepared in view of the objectives of the study and data were collected by personal interview of selected tomato growers. The information needs of the tomato growers were assessed for the areas right from the requirements for the climate, soil and soil preparation, variety, nursery management, planting time, planting distance, fertilizer management, irrigation management, inter culturing, weed management, plant protection, harvesting, grading and marketing of the produce. Various related items were selected for these areas by reviewing the literature and final shape was given after getting the opinion of the experts. Thus, the information needs of tomato growers about various aspects of tomato cultivation were ascertained. The extent of information needs of tomato growers was availed on a three point continuum ranging from "Most Needed", "Needed" and "Not Needed". The three categories were assigned with 3 score, 2 score and 1 score, respectively. The information needs were worked out for each of the major areas considering the total score for

information need acquired by the respondents. On the basis of Mean score, the ranks to the major areas of information needs were assigned. Based on mean and standard deviation of each aspect, the respondents were categorized into three groups *viz.* - Low (Below Mean - S.D.), medium (in between Mean \pm S.D.) and high (above Mean + S.D.). Then, three point rating scale was employed to measure the information needs hierarchy. For high, medium and low level of information needs, again 3, 2 and 1 score

was assigned and on the bases that, ranks were assigned from higher to lower mean score. Relationship between determined with help of Karl Pearson's coefficient correlation. The statistical tools used were percentage, mean score and standard deviation and arbitrary method for categorization.

RESULTS AND DISCUSSION

Aspect Wise Information Needs of Tomato Growers

Table 3
Distribution of the tomato growers according to their aspect wise information needs (n = 120)

Sr. No.	Areas of information needs	Mean	S.D.	High	Category Medium	Low	Total Score	Mean Score	Rank
A. Nursery management									
1	Type of land and it's preparation	8.88	1.99	24 (20.00)	86 (71.67)	10 (08.33)	254	2.12	XII
2	Variety and seeds	8.51	2.38	26 (21.67)	60 (50.00)	34 (28.33)	232	1.93	XIII
3	Fertilizer application	4.68	0.92	103 (85.83)	16 (13.34)	01 (0.83)	342	2.85	I
4	Pests and diseases management	4.73	0.93	60 (50.00)	60 (50.00)	00 (0.00)	300	2.50	II
B. Post/After transplanting									
5	Transplanting	5.50	0.77	44 (36.67)	76 (63.33)	00 (0.00)	284	2.37	IX
6	Fertilizer management	7.58	0.77	51 (42.50)	68 (56.66)	01 (0.83)	293	2.44	V
7	Irrigation management	4.47	0.66	47 (39.16)	73 (60.84)	00 (0.00)	287	2.39	VIII
8	Inter culturing	4.56	0.71	56 (46.67)	64 (53.33)	00 (0.00)	296	2.47	IV
9	Weed management	0.80	2.55	52 (43.34)	68 (56.66)	00 (0.00)	292	2.43	VI
10	Pest and disease management	27.90	1.10	27 (22.50)	93 (77.50)	00 (0.00)	267	2.23	X
11	Harvesting and post harvesting technology	5.68	0.91	60 (50.00)	59 (49.16)	01 (0.83)	299	2.49	III
12	Market management	8.77	1.23	22 (18.34)	98 (81.66)	00 (0.00)	262	2.18	XI
13	Supportive matters	7.69	1.05	50 (41.67)	70 (58.33)	00 (0.00)	290	2.42	VII

From the Table 3 and Fig. 1 observed that data regarding information needs of the tomato growers in variety and seeds revealed that 50.00 per cent tomato growers were in medium group, while 28.33 and 21.67 per cent were in low and high level group of information needs, respectively. The same Table also reflects that majority (85.83 per cent) of the tomato growers had high level of information needs, followed by medium and low level with 13.34 and 0.83 per cent, respectively with respect to fertilizer application. regard to information needs for pests and diseases management, exactly Half (50.00 per cent) of the tomato growers were in medium and high level of

information needs. In case of data pertaining to information needs of the tomato growers for transplanting, majority (63.33 per cent) of the tomato growers had medium level of information needs, while rest 36.67 per cent of the tomato growers fall under high level of information needs. As far as fertilizer management is concern, data revealed that more than half (56.66 per cent) of the tomato growers were in group of medium level of information needs, followed by 42.50 and 0.83 per cent of the tomato growers were categorized under high and low level of information needs, respectively. The same Table also reflects that slightly more than three-fifth (60.84

per cent) of the tomato growers had medium level of information needs, followed by 39.16 per cent with respect to irrigation management. Data regarding information needs of the tomato growers in inter culturing revealed that 53.33 per cent tomato growers were in group of medium category, while 46.67 per cent were group in high level of information needs. In case of data pertaining to information needs of the tomato growers for weed management, more than half (56.66 per cent) of the tomato growers had medium level of information needs, while 43.34 per cent of the tomato growers fall under high level of information needs. As far as pests and diseases management is concern, data revealed that less than three-fourth (77.50 per cent) of the tomato growers were in group of medium level of information needs, followed by 22.50 per cent of the tomato growers were categorized under high level of information needs. The same Table also reflects that exactly half (50.00 per cent) of the tomato growers had high level of information needs, followed by medium and low with 49.16 and 0.83 per cent with respect to harvesting and post harvesting technology, respectively. Data regarding information needs of the tomato growers in market management revealed that 81.66 per cent tomato growers were found in group of medium level of information needs, while 18.34 per cent were group in high level of information needs. In case of data

pertaining to information needs of the tomato growers for supportive matters, less than three-fifth (58.33 per cent) of the tomato growers had medium level of information needs, while rest 41.67 per cent of the tomato growers fall in under high level of information needs.

To epitomized the result it can be said that majority of the tomato growers were fall under medium to high level of information needs category with regards to all the aspects covered under study. According of information needs hierarchy, fertilizer application which rank first with mean score 2.85 followed by pests and diseases management (2.50), harvesting and post harvesting technology (2.49), inter culturing (2.47), fertilizer management (2.44), weed management (2.43), supportive matters (2.42), irrigation management (2.39), transplanting (2.37), pests and diseases management (2.23), market management (2.18), type of land and its preparation (2.12) and variety and seeds (1.93) with rank II, III, IV, V, VI, VII, VIII, IX, X, XI, XII and XIII, respectively. Technical know-how of fertilizer application is complex in nature and it is beyond the reach of farmers to understand the different complex technical compound of nutrients which are used for producing healthy and vagarious plant of tomato might lead to have poor knowledge resulted in to this type of results.

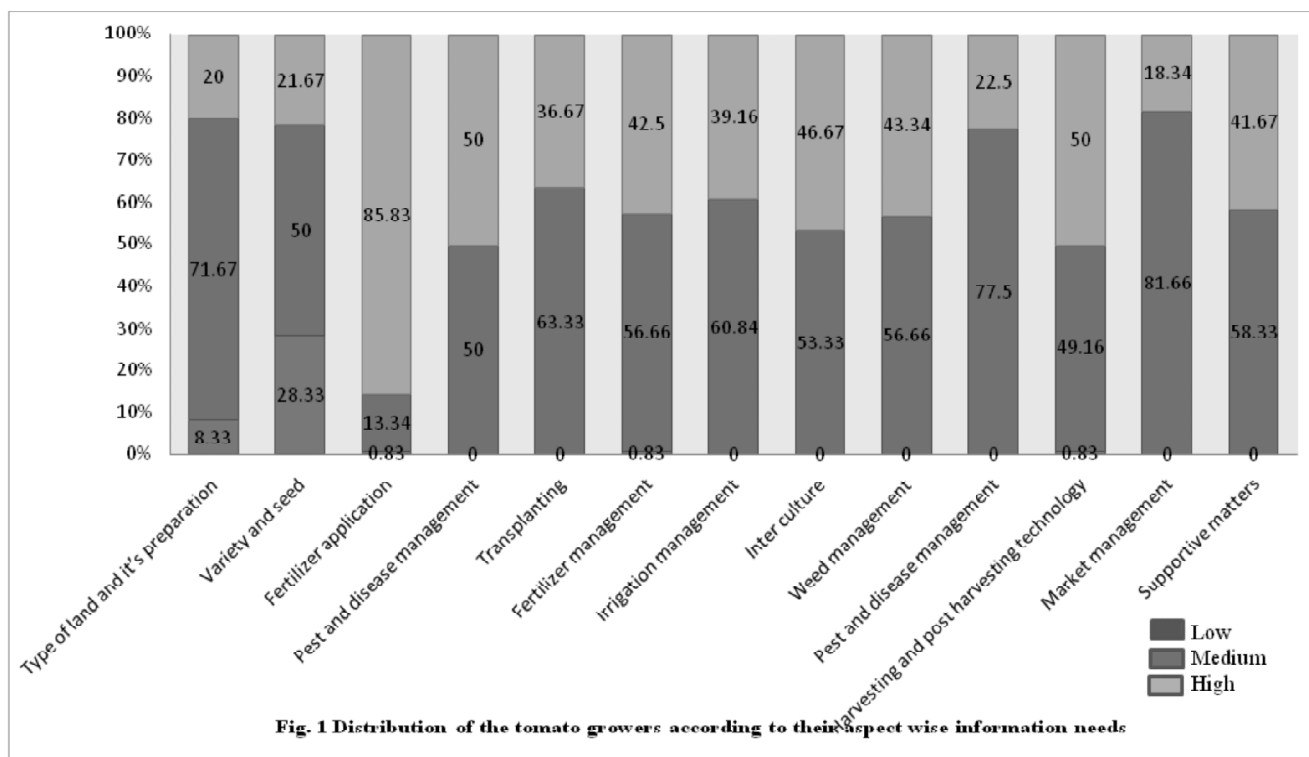


Figure 1: Distribution of the tomato growers according to their aspect wise information needs

Overall Information Needs

Table 4
Distribution of the tomato growers according to their overall information needs (n=120)

Sr. No.	Information Needs	Respondents	
		Frequency	Per cent
1	High	23	19.16
2	Medium	84	70.00
3	Low	13	10.84
	Total	120	100.00
Mean=101.40		S.D. = 9.51	

It is clear from Table 4 that more than two-third of the tomato growers (70.00 per cent) were fall under medium group, while 19.16 and 10.84 per cent of the tomato growers were categorized under high and low groups of information needs, respectively. Similar findings were carried by (Parmar, N. B. 2008, Pawar, et al. 2001, Sankar Rao, A. B. and Reddy, M. S. 1997)

Relationship Between Profile of the Tomato Growers and Information Needs of Tomato Growers

Table 5
Correlation between profile of the tomato growers and their information needs (n=120)

Sr. No.	Profile of the tomato growers	Correlation coefficient ('r' value)
1.	Age	0.1059 NS
2.	Education	-0.1528 NS
3.	Size of family	0.2088*
4.	Social participation	-0.4788**
5.	Land Holding	-0.1628 NS
6.	Annual income	-0.0022 NS
7.	Extension contact	-0.3629**
8.	Economic motivation	-0.2740**
9.	Market orientation	-0.1769 NS
10.	Scientific orientation	-0.2705**
11.	Risk orientation	-0.2857**
12.	Cosmopolitaness	-0.1682 NS

NS non-significant at 0.05 level, *significant at 0.05 level, **significant at 0.01 level

Five variables viz., social participation, extension contact, economic motivation, scientific orientation and risk orientation (Patel M.C., 2007) were observed negative and significantly related with the information needs of the tomato growers. Size of family was observed positively significant and one variable like age was observed positively non-significant, while five variables like education, land holding, annual income, market orientation, cosmopolitaness negative and non-significantly related with the information needs of the tomato growers (Table 5) and (Fig. 2).

Constraints Faced By Tomato Growers in Getting Information Regarding Various Aspects of Tomato Production Technology

In the present study, some constrains faced by the tomato growers were also studied. The information regarding this is given in Table 6.

Table 6
Distribution of the respondents according to the constraints faced in getting information regarding various aspects of tomato production technology

Sr. No.	Constraints	No. / Per cent	Rank
1	Agricultural information is not available as and when required	95 (79.16)	I
2	Agricultural information broadcasted through radio/TV is not timely	93 (77.50)	II
3	Irregular visit of VLWs	91 (75.83)	III
4	Agricultural information broadcasting through radio/TV is not sufficient	87 (72.50)	IV
5	Time of broadcast of radio programme is not suitable	82 (68.33)	V
6	Insufficient organization of field demonstrations	79 (65.83)	VI
7	Lack of government policies related to agriculture marketing	77 (64.16)	VII
8	Lack of information on side of VLWs	74 (61.66)	VIII
9	Agricultural information received through VLWs is insufficient	69 (57.50)	IX
10	Location of research station is far away	63 (52.50)	X
11	Unavailability of transport facilities for sale of tomato	60 (50.00)	XI
12	Lack of open auction	58 (48.33)	XII

The data presented in Table 6 reveal that out of twelve items of constraints experienced by the tomato growers in getting information regarding various aspects of tomato production technology in descending order of rank were agricultural information is not available as and when required (79.16 per cent), followed by agricultural information broadcasted through radio/TV is not timely (77.50 per cent), irregular visit of VLWs (75.83 per cent), agricultural information broadcasting through radio/TV is not sufficient (72.50 per cent), time of broadcast of radio programme is not suitable (68.33 per cent), insufficient organization of field demonstrations (65.83 per cent), lack of government policies related to agriculture marketing (64.16 per cent), lack of information on side of VLWs (61.66 per cent), agricultural information received through VLWs is insufficient (57.50 per cent), location of research station is far away (52.50 per cent), unavailability of

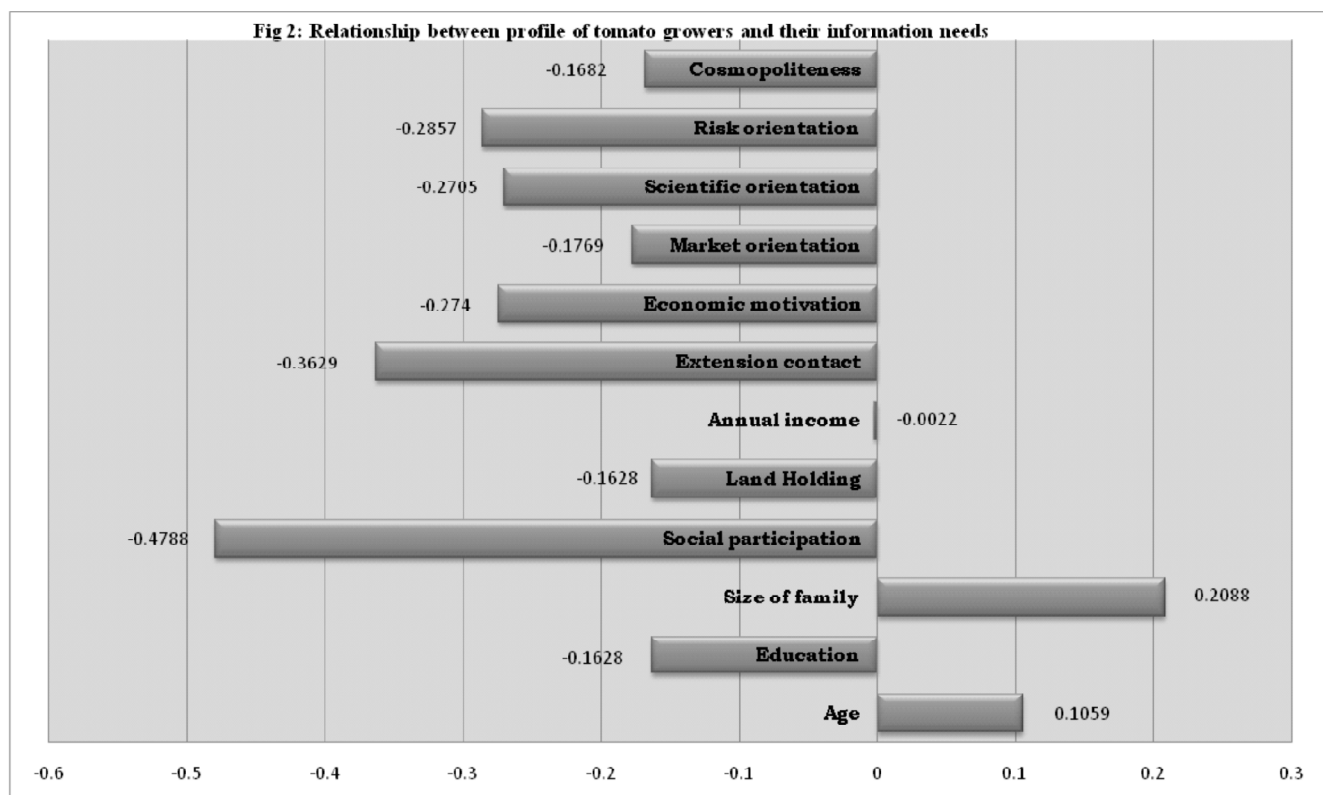


Figure 2: Relationship between profile of tomato growers and their information needs

transport facilities for sale of tomato (50.00 per cent), lack of open auction (48.33 per cent). Similar findings were carried by (Makwan, A. R., 2005).

CONCLUSION

The most important information needs about nursery management to satisfy by tomato growers were type of soil rank first with mean score 2.28, improved seeds or high yielding varieties were suitable high yielding variety rank first with mean score 2.35, fertilizer applications in nursery were selection of proper fertilizer rank first with mean score 2.22, pests and diseases management in nursery were control of white fly rank first with mean score 2.12, key practice of transplanting were age of seedling rank first with mean score 2.35, fertilizer management were time of application of chemical fertilizers rank first with mean score 2.40, irrigation management were time of irrigation rank first with mean score 1.93, inter-culturing were suitable time of inter-culturing rank first with mean score 2.11, control measures by hand weeding rank first with mean score 2.40, pests and diseases management were preparing solution as per recommendation rank first with mean score 2.34, management of harvesting and post harvesting technology were time of harvesting rank first with

mean score 2.22, marketing management of tomato were source of cash payment provider markets rank first with mean score 2.30, supportive facts about tomato were information on subsidies for tomato cultivation rank first with mean score 2.33, fertilizer application ranked first with mean score 2.85, More than two-third of the tomato growers (70.00 per cent) were fall under medium group of overall information need and major constraints faced by the tomato growers in getting information regarding various aspects of tomato production technology in descending order of rank were agricultural information is not available as and when required.

The findings of the study focus on some of the inherent short coming in tomato cultivation, which will go a long way in providing much needed feedback to the scientist and the solutions of the problems, should reach to the tomato growers. Effort should be made to concentrate information needs of the tomato growers in area of tomato nursery management, plant protection and time and quantity of fertilizer, irrigation and weed management. The findings of this study would serve as a guideline for extension agencies, training institutions and concerned organization in formation of effective realistic and need based training programme to assist

the tomato growers for cultivation of tomato crop successfully.

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