

KNOWLEDGE LEVEL OF FARMERS ABOUT IMPROVED TOMATO PRODUCTION TECHNOLOGY

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ABSTRACT

The present study was conducted in Jaipur district of Rajasthan. The Jaipur district consists of 13 tehsils. Out of which two tehsils namely Bassi and Amber were selected. Among these, 3-gram panchayats from Bassi tehsil and 4 gram panchayats from Amber tehsil were selected. Fourteen villages were selected from the selected gram panchayats by using simple random sampling technique and a sample of 130 tomato growers was selected from these villages by using simple random sampling with proportion to the size of sample in the selected villages. An interview schedule was developed consisting of measuring devices of knowledge level. The study indicated 57.69 per cent of tomato growers were having medium knowledge level about tomato cultivation practices and 25.39 per cent respondents were having high knowledge level, whereas 16.92 per cent of respondents were having low knowledge level about recommended cultivation practices of tomato.

INTRODUCTION

Tomato is one of the major vegetable crops. It plays a very important role in daily diet. Tomato in India has become almost an essential article of diet of both rich and poor people. Tomato is rich sources of vitamins A, B and C. It helps in increasing the appetite and removes constipation. Tomato is one of the most important vegetable crops cultivated for its fleshy fruit. Tomato is considered as important commercial and dietary vegetable crop. Vegetables play an important role in human health and nutrition. The total geographical area of Rajasthan is 342 lakh hectares and the population is 5.64 crore. Out of which 171 lakh hectare area is cultivable -as per the year 2008-2009 (Source:- Indian Economic Survey 2009-2010). Area under vegetable crops is 125.57 thousand hectares and production is about 736.70 thousand metric tonnes. The area under tomato crop was 12.62 thousand hectares and production was 45.51 thousand metric tonnes in Rajasthan. Jaipur district stands first in area and production of tomato cultivation in Rajasthan. The total production of tomato in Jaipur district in the year 2008-09 was about 17.50 thousand metric tonnes and area was 5.76 thousand hectares and productivity of this crop

was 3.04 thousand metric tonnes per hectares which is quiet low than the Rajasthan productivity 3.61 thousand metric tonnes per hectares as well as country 18.61 thousand metric tonnes per hectares and severed vast sub between technology adopted and recommended for the improve cultivation. The present study was carried out with the specific objective "To assess the knowledge level of tomato growers about improved tomato production technology". (Source: -Directorate of Economics and Statistical Department, Pant Krishi Bhawan, Jaipur, 2008-2009).

RESEARCH METHODOLOGY

The present study was carried in Jaipur district of Rajasthan. The Jaipur district consists of 13 tehsils. Out of which two tehsils namely Bassi and Amber were selected. Among these, 3-gram panchayats from Bassi tehsil and 4-gram panchayats from Amber tehsil were selected. Fourteen villages were selected from the selected gram panchayats by using simple random sampling technique and a sample of 130 tomato growers was selected from these villages by using simple random sampling with proportion to the size of sample in the selected

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villages. An interview schedule was developed consisting of measuring devices of knowledge level. The aspects viz., preparation of soil and soil testing, seed rate and seed treatment, sowing of high yielding varieties, transplanting, application of manures and fertilizers, irrigation management, plant protection measures, harvesting /storage and processing. The respondents were interviewed personally and data were collected. In all 44 questions including all sub questions were included in the interview schedule to test the knowledge of the respondents. To fix weightage of questions or sub questions based on the intrinsic difficulty of knowledge about recommended cultivation practices. Full marks were given to every right answer and zero for wrong answers. Where a particular question had sub-questions, then these sub questions were also given score equal to weight of the particular question. The range of score which a respondent could receive varies from 0 to 53. The resulting value was multiplied by 100 to indicate the percentage of the extent of knowledge about that particular recommended cultivation practice of tomato.

$$\text{Knowledge index} = \frac{\text{Total knowledge score}}{\text{Total weight score}} \times 100$$

The mean and standard deviation of all the respondents knowledge scores were computed for classifying the knowledge in different categories. Based on the mean knowledge score and standard deviation, the farmers were categorized under three knowledge level categories, namely low, medium and high.

RESULTS AND DISCUSSION

The data in Table 1 states that more than half of his respondents were having medium knowledge level about tomato cultivation practices and 25.39 per cent respondents were having high

Knowledge level, whereas 16.92 per cent of respondents were having low knowledge level about recommended cultivation practices of tomato.

Supported finding of the study are in conformity with the finding of Waman et. al. (1996), Meena (2002) and Yadav (2004).

Table 2 revealed that 90.77 per cent

respondents had knowledge about "method of harvesting" and "grading and standardization", and hence these two practices were jointly ranked first. The second highest per cent of respondents 88.46 per cent were having knowledge about "time of harvesting" which were given second rank followed by 84.62 per cent respondents had knowledge about "depth of sowing", "transplanting time" and "irrigation interval" given rank third.

Table 1. Distribution of respondents under different knowledge levels about recommended cultivation practices of tomato

n = 130			
S. No.	Knowledge level categories	f	%
1.	Low knowledge (<27.44)	22	16.92
2.	Medium knowledge (27.44 to 40.66)	75	57.69
3.	High knowledge (>40.66)	33	25.39
Total		130	100

\bar{X} = 34.05 score, σ = 6.61 score

The 82.31 per cent respondents had knowledge about "seed treatment" and "method of taking water sample", these practices were ranked fourth, while 80 per cent respondents had knowledge about "climate is suitable", "time of sowing", "time for application of potash fertilizer" and "time for application of phosphorus fertilizer" and such type of practices were jointly ranked fifth.

The knowledge of aspects like "recommended seed rate" were known by 78.46 per cent respondents and placed at sixth position, whereas, 76.15 per cent respondents were having knowledge about "dose of phosphorus fertilizer" and dose of potash fertilizer" and these practices were collectively ranked seventh, 74.62 per cent respondents were also having knowledge about the "application time of FYM" and "name of diseases" and these were ranked eighth. 73.08 per cent respondents having knowledge about the "soil treatment", "name of chemicals for seed treatment" and "area of nursery for one hectare of tomato" and such type of practices were ranked ninth.

The 70.77 per cent respondents were having knowledge about the "suitability of soil" and "name of the insect-pests" and these practices placed at rank tenth whereas 69.23 per cent respondents were having knowledge about the "name of the recommended high yielding varieties", "quantity of FYM", "application method of phosphorus fertilizer" and "application method of potash fertilizer" and these four practices were jointly ranked eleventh. 66.92 per cent respondents were having knowledge about the "name of chemical for soil treatment" and it was ranked twelfth. 65.38 per cent respondents were having knowledge about the "row to row space" and this practice was placed at rank thirteenth and 63.08 per cent respondents were having knowledge about the "plant to plant space", "name of insecticides/pesticides" and "name of the fungicide" and these practices were placed at rank fourteenth. The 61.54 per cent respondents were having knowledge about the "dose of nitrogenous fertilizer" and "time for application of nitrogenous fertilizer" and these practices were placed at rank fifteenth and 56.92 per cent respondents were having knowledge about the "storage practices" and "packaging" and these practices were placed at rank sixteenth and 55.38 per cent respondents were having knowledge about the "the treatment of seedling before transplanting" and this practice was placed at rank seventeenth and 46.92 per cent respondents had knowledge about the "application method of nitrogenous fertilizer" and this practice was placed at rank eighteenth and 46.15 per cent respondents had knowledge about the "dose of insecticides /pesticides" and "dose of fungicide" and these practices were placed at rank nineteenth and 44.62 per cent respondents had knowledge about the "dose of chemicals for seed treatment" and this practice was placed at rank twenty and 30.78 per cent respondents had knowledge about the "name of weedicides" and this practice was placed at rank twenty one and followed by "dose of weedicides" with 21.54 per cent which was ranked twenty two respectively. Only 20.77 per cent respondents had knowledge about "application method of bio-fertilizer" and "time for application of bio-fertilizer" which were ranked last because most of the respondents had minimum knowledge about this practice.

They were also participating more in social organizations due to which they might gain more knowledge by discussing with other respondents, group members about recommended cultivation practices of tomato.

A few of the respondents were having low knowledge which might be attributed due to the fear among them about the new innovations. Respondents and lack of specialized trainings about recommended practices of tomato in the area.

From the findings, it is also evident that majority of the respondents were having high knowledge about the "method of harvesting", "grading and standardization", "time of harvesting", "depth of sowing", "transplanting time", "irrigation interval", "seed treatment", "method of taking water sample", "climate is suitable" and "time of sowing". This might be due to the reason that majority of the respondents were regularly growing tomato for market purpose and these practices were most critical from the point of view of the tomato production. Also for producing good quality tomato, they mostly remain in contact with the extension agencies, sales agents etc., resulting in gain in knowledge about these recommended cultivation practices. They also remain in contact with the neighbours, friends, progressive farmers and with subject matter specialists etc. Respondents due to their experience usually able to indicate the maturity time of tomato by seeing the size, colour and flavour of the tomato.

The respondents had low knowledge about "dose of insecticides /pesticides", "dose of fungicide", "dose of chemicals for seed treatment", "name of weedicides", "dose of weedicides", "application method of bio-fertilizer" and "time for application of bio-fertilizer". This might be due to the reason that the respondents might not understand the instructions written on the pack of chemicals because of its complex language, as the instructions are mostly written in typical Hindi or English language or in the language of the state where the insecticides, fungicides, weedicides etc. are manufactured. The low knowledge of the tomato growers about the "application of bio-fertilizer practices of tomato" might be due to the reason that the respondents were not aware about "bio-fertilizer practices".

Table 2. Per cent of respondents having knowledge about different aspects of recommended cultivation practices of tomato

n = 130

S. No	Knowledge aspects of recommended cultivation practices of tomato	No. of respondents	Per cent of respondents	Rank
1.	Suitable of climate	104	80.00	V
2.	Suitable of soil	92	70.77	X
3.	Soil treatment is necessary	95	73.08	IX
4.	Name of chemical for soil treatment	87	66.92	XII
5.	Recommended seed rate	102	78.46	VI
6.	Seed treatment is necessary	107	82.31	IV
7.	Name of chemical for seed treatment	95	73.08	IX
8.	Dose of chemical for seed treatment	58	44.62	XX
9.	Time of sowing	104	80.00	V
10.	Depth of sowing	110	84.62	III
11.	Row to row space	85	65.38	XIII
12.	Plant to plant space	82	63.08	XIV
13.	Name of the recommended high yielding varieties	90	69.23	XI
14.	Transplanting time	110	84.62	III
15.	Treatment of seedlings before transplanting	72	55.38	XVII
16.	Area of nursery is needed for one hectare of tomato	95	73.08	IX
17.	Dose of FYM	90	69.23	XI
18.	Time for application of FYM	97	74.62	VIII
19.	Dose of nitrogenous fertilizer	80	61.54	XV
20.	Dose of the phosphorus fertilizer	99	76.15	VII
21.	Dose of potash fertilizer	99	76.15	VII
22.	Method for application of nitrogenous fertilizer	61	46.92	XVIII
23.	Method for application of phosphorus fertilizer	90	69.23	XI
24.	Method for application of potash fertilizer	90	69.23	XI
25.	Time for application of nitrogenous fertilizer	80	61.54	XV
26.	Time for application of phosphorus fertilizer	104	80.00	V
27.	Time for application of potash fertilizer	104	80.00	V
28.	Method for application of bio-fertilizer	27	20.77	XXIII
29.	Time for application of bio-fertilizer	27	20.77	XXIII
30.	Appropriate irrigation interval	110	84.62	III
31.	Method of taking water sample	107	82.31	IV
32.	Name of the insect pests	92	70.77	X
33.	Name of the insecticides/pesticides	82	63.08	XIV
34.	Dose of the insecticides/pesticides	60	46.15	XIX
35.	Name of the plant diseases	97	74.62	VIII
36.	Name of the fungicide	82	63.08	XIV
37.	Dose of fungicide	60	46.15	XIX
38.	Name of weedicide	40	30.78	XXI
39.	Dose of weedicide	28	21.54	XXII
40.	Appropriate time of harvesting	115	88.46	II
41.	Method of harvesting	118	90.77	I
42.	Method of storing	74	56.92	XVI
43.	Grading and standardization	118	90.77	I
44.	Packaging	74	56.92	XVI

CONCLUSION

Majority of the tomato growers had medium knowledge level about the recommended cultivation practices of tomato. Among the various aspects of

different recommended cultivation practices, majority of the farmers had knowledge about "method of harvesting", "grading and standardization", "time of harvesting", "depth of

sowing", "transplanting time", "irrigation interval", "seed treatment", "method of taking water sample", "climate is suitable", "time of sowing", "time for application of nitrogenous fertilizer" and "time for application of phosphorus fertilizer". Only a few farmers had knowledge regarding "storage practices", "dose of weedicide", "application method of bio-fertilizer" and "time for application of bio-fertilizer".

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