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Knowledge Mapping on Maize (*Zea mays* L) Production Technologies by The Farmers of Karimnagar District in Telangana State

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ABSTRACT

The present paper highlights the knowledge levels of farmers on maize production technologies in Karimnagar district of Telangana State. Ex-post *facto* research design was adopted for study. Total ninety (90) farmers were selected for study of maize crop knowledge mapping. High level of knowledge of maize production technologies was observed among the KVK Jammikunta adopted farmers compared to the non-adopted farmers.

Keywords: Knowledge Mapping, Maize Production Technologies, Adopted and Non-adopted Farmers.

INTRODUCTION

Knowledge is the key ingredient in application of any technology. It reflects an array of information possessed by an individual. It plays a pivotal role in understanding the intricacies involved in any given phenomena. The *Krishi Vigyan Kendra* (KVK)s are rendering a great help to the farmers in increasing the level of knowledge on various crops, these institutions conducting different programmes to enlighten the farmers on various crop production technologies. Maize being one of the main crops of Karimnagar district, the present paper focuses on knowledge mapping of the farmers on maize production technologies in Karimnagar district.

METHODOLOGY

Ex-post facto research design combined with exploratory type of research design was used as the selected phenomena have already occurred and the researcher had no control over the same. The KVK Jammikunta of Telangana State (Formerly Andhra Pradesh) along with its 15 adopted villages were selected for the study. A sample of 60 maize growing farmers who are adopting the KVK technologies and 30 maize farmers who are not covered under KVK production technologies were selected from the adopted villages.

A schedule was developed with 19 technologies to assess the knowledge levels of the maize growing farmers which is measured on 2–point continuum i.e. yes and no, with the scores of 2 and 1, respectively. Accordingly, the respondents were grouped on the basis of frequency and percentage.

RESULTS AND DISCUSSION

Level of knowledge of maize production technologies by the farmers

It is observed from the data in table 1 that majority (43.33%) of the KVK adopted maize farmers had high level of knowledge followed by medium (31.67%) and low (25.00%) whereas, majority (46.66%) of the KVK non-adopted farmers had medium level of knowledge followed by low (30.00%) and high (23.34%).

These findings were in line with the findings of Sharma (1983) and Sharma and Sharma (1999).

Comparison between KVK adopted and non-adopted maize farmers in terms of level of knowledge of maize production technologies

It is evident from the data in table 2 that, calculated 'Z' Value (3.75) was greater than table 'Z' value at 0.01

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Table 1. Distribution of respondents according to their level of knowledge of Maize production technologies

Category	KVK adopted maize farmers (n=60)			KVK non adopted maize farmers (n=30)		
	Low(19 -25)	Medium(26 – 32)	High (33- 38)	Low (19 – 25)	Medium (26 – 32)	High (33- 38)
Frequency	15	19	26	9	14	7
Percentage	25.00	31.67	43.33	30.00	46.66	23.34

level of probability. So, the null hypothesis was rejected and hence, it could be concluded that there exists a significant difference between mean scores of KVK adopted and non-adopted farmers.

Table 2. Comparison between KVK adopted and non adopted maize farmers in terms of level of knowledge of maize production technologies

S. No.	Respondents category	Size of the sample(n)	Mean	S.D.	'Z' value
1.	**KVK adopted farmers**	60	37.21	1.54	3.75*
2.	**Non- adopted farmers**	30	23.13	2.20	

*Significant at 0.01 level of probability

Item wise analysis of the level of knowledge of maize production technologies by the farmers of Karimnagar district

The table 3 states the item analysis of the level of knowledge of KVK adopted maize farmers. It is noted from the table that ranks were assigned to all the technologies based on the total score obtained on each technology. The technologies on which the respondents had high knowledge of zero tillage, hybrid seed production, weed management with herbicides, stem borer management and management of zinc deficiency are ranked 1st followed by selection of suitable cultivar, optimum seed rate for achieving higher yields , wilt management with the application of *Trichoderma viridi,* proper weeding in the early stages of crop growth helps to reduce pest population (2nd), timely sowing in reducing the pest infestation(3rd), providing irrigation at critical stages(4th), soil sample collection, soil test based fertilizer application (5th) respectively, whereas adopted farmers had lowest level of knowledge on cultivation of DHM 117 public hybrid. The non-adopted KVK farmers had high knowledge on the practices like wilt management with *Trichoderma*

Table 3. Item wise analysis of adopted farmers on level of knowledge of maize production technologies in Karimnagar district.

n=60

S.No.	Maize production technologies	Level of knowledge				Total score	Mean score	Rank
		Yes		No				
		f	%	f	%			
1.	Soil samples are collected up to 15-20cm depth in V shape for soil testing	52	86.7	8	13.3	112	1.86	V
2.	Soil test based fertilizer application is economical	52	86.7	8	13.3	112	1.86	V
3.	Selection of suitable cultivar is important for achieving higher yields	58	96.6	2	3.4	118	1.96	II
4.	Optimum seed rate is important for achieving higher yields	58	96.6	2	3.4	118	1.96	II
5.	Wilt management is effectively controlled with the application of Trichoderma viridi 2 kg /acre with 100 kg FYM at the time of sowing under optimum moisture conditions	58	96.6	2	3.4	118	1.96	II
6.	Hybrid seed production increases the net returns per acre compared to normal maize cultivation	60	100.0	0	0.0	120	2.00	I
7.	Timely sowing helps in reducing the pest infestation	57	95.0	3	5.0	117	1.95	III
8.	Proper weeding in the early stages of crop growth helps to reduce pest population	58	96.6	2	3.4	118	1.96	II
9.	Spraying of atrazine 1 kg/acre in 200 lt of water as pre emergence immediately after sowing will effectively controls the weeds	60	100.0	0	0.0	120	2.00	I
10.	Providing irrigation at critical stages is important for achieving higher yields	56	93.3	4	6.7	116	1.93	IV
11.	In zero tillage timely sowing will be done because there is no need of land preparation	60	100.0	0	0.0	120	2.00	I
12.	In zero tillage higher yields will be obtained with lesser cost of cultivation	60	100.0	0	0.0	120	2.00	I
13.	In zero tillage spraying of herbicide, atrazine @ 1 kg and paraquat@ 1 lt per acre after sowing will reduce the all weeds effectively	60	100.0	0	0.0	120	2.00	I
14.	In zero tillage less water is required as compared with normal maize cultivation	60	100.0	0	0.0	120	2.00	I
15.	In zero tillage paddy stubbles will be harvested closer to the ground	60	100.0	0	0.0	120	2.00	I
16.	DHM 117 maize hybrid developed by ANGRAU will give yields on par with the private hybrids	49	81.6	11	18.4	109	1.81	
17.	Application of 2 kg carbofuron granules at knee high stage reduces the incidence of stem borer	60	100.0	0	0.0	120	2.00	I
18.	Spraying of endosulfan @ 2 ml/lt of water at 12th and 19th day after sowing will effectively controls the stem borer incidence	50	83.3	10	16.7	110	1.83	VI
19.	Application of zinc sulphate 20 kg/acre/year will reduce the zinc defficiency	60	100.0	0	0.0	120	2.00	I

Table 4. Item wise analysis of non-adopted farmers on level of knowledge of maize production technologies in Karimnagar district.

n=30

S.No.	Maize production technologies	Level of knowledge				Total score	Mean score	Rank
		Yes		No				
		f	%	f	%			
1.	Soil samples collected up to 15-20cm depth in V shape for soil testing	20	66.7	10	33.3	50	1.66	V
2.	Soil test based fertilizer application is economical	20	66.7	10	33.3	50	1.66	V
3.	Selection of suitable cultivar is important for achieving higher yields	25	83.3	5	16.7	55	1.83	II
4.	Optimum seed rate is important for achieving higher yields	25	83.3	5	16.7	55	1.83	II
5.	Wilt management is effectively controlled with the application of Trichoderma viridi 2 kg /acre with 100 kg FYM at the time of sowing under optimum moisture conditions	28	93.4	2	6.6	58	1.93	I
6.	Hybrid seed production increases the net returns per acre compared to normal maize cultivation	25	83.3	5	16.7	55	1.83	II
7.	Timely sowing helps in reducing the pest infestation	25	83.3	5	16.7	55	1.83	II
8.	Proper weeding in the early stages of crop growth helps to reduce pest population	24	80.0	6	20.0	54	1.80	III
9.	Spraying of atrazine 1 kg/acre in 200 lt of water as pre emergence immediately after sowing will effectively controls the weeds	24	80.0	6	20.0	54	1.80	III
10.	Providing irrigation at critical stages is important for achieving higher yields	22	73.3	8	26.7	52	1.73	IV
11.	In zero tillage timely sowing will be done because there is no need of land preparation	24	80.0	6	20.0	54	1.80	III
12.	In zero tillage higher yields will be obtained with lesser cost of cultivation	24	80.0	6	20.0	54	1.80	III
13.	In zero tillage spraying of herbicide, atrazine @ 1 kg and paraquat@ 1 lt per acre after sowing will reduce the all weeds effectively	24	80.0	6	20.0	54	1.80	III
14.	In zero tillage less water is required as compared with normal maize cultivation	24	80.0	6	20.0	54	1.80	III
15.	In zero tillage paddy stubbles will be harvested closer to the ground	24	80.0	6	20.0	54	1.80	III
16.	DHM 117 maize hybrid developed by ANGRAU will give yields on par with the private hybrids	10	33.3	20	66.7	40	1.33	VI
17.	Application of 2 kg carbofuron granules at knee high stage reduces the incidence of stem borer	25	83.3	5	16.7	55	1.83	II
18.	Spraying of endosulfan @ 2 ml/lt of water at 12th and 19th day after sowing will effectively controls the stem borer incidence	25	83.3	5	16.7	55	1.83	II
19.	Application of zinc sulphate 20 kg/acre/year will reduce the zinc deficiency	28	93.4	2	6.6	58	1.93	I

viridi, management of zinc deficiency ranked 1st followed by selection of suitable cultivar, optimum seed rate for achieving higher yields, hybrid seed production and timely sowing (2nd), proper weeding in the early stages of crop, weed management with preemergence herbicides(3rd), providing irrigation at critical stages(4th), soil test based fertilizer application, practicing of zero tillage maize(5th), usage of DHM 117 hybrid (6th) etc.

It is visible from the table 1 that majority of the adopted maize farmers had high level of knowledge, whereas non-adopted farmers had medium level of knowledge. The item wise analysis on level of knowledge of adopted maize farmers indicates that a majority of them had high knowledge on zero tillage, hybrid seed production, weed management with herbicides, stem borer management, management of zinc deficiency, wilt management with *Trichoderma viridi*, timely sowing to reduce pest incidence, providing irrigation at critical stages and soil test based fertilizer application etc. The reasons for high level of knowledge on these technologies could be the KVK scientists were conducted series of trainings, on-farm trials and demonstrations on the above technologies in the adopted villages. The KVK also conducted several farmer field schools on zero tillage maize and is identified as a resource and knowledge centre for this technology in the district by the Department of Agriculture.

KVK had also conducted several demonstrations on soil test based fertilizer application with the help of KVK soil testing lab, which facilitated the adopted farmers to get higher knowledge on soil sample collection and soil test based fertilizer application. The adopted farmers had lowest level of knowledge on cultivation of public hybrid DHM 117 due to non availability of the seed in the local market.

It could be witnessed from the table 4 that non adopted farmers had high level of knowledge on wilt management with the application of *Trichoderma viridi* and management of zinc deficiency. The reason could be that the Department of Agriculture is providing *Trichoderma viridi* and zinc sulphate on subsidy. The non adopted farmers also had high level of knowledge on selection of suitable cultivar, use of optimum seed rate, hybrid seed production, weed management with herbicides, providing irrigation at critical stages, practicing of zero tillage etc. as the non-adopted maize farmers are inspired by the KVK adopted farmers by seeing the success of these technologies in the fields of adopted farmers.

CONCLUSION

High level of knowledge of maize production technologies was seen among the farmers adopted by the KVK Jammikunta compared to the non-adopted farmers. This could be due to the multiplicity of the transfer of technology mechanisms followed by the KVK scientists in the adopted villages especially for the benefit of farmers adopted by the KVK.

REFERENCES

Anonymous, 2002. Comparison of cost and returns per hectare moong, gram, maize, wheat, mustard and cotton. *Agricultural Situation in India*, 24(2), 73-78.

Sharma, M. L., Chauhan, M. S. and Sharma, P. N. 1997. Impact of Krishi Vigya Kendra on Maize Growers. *Maharashtra J. Extn. Edu.*, 16, 335-336.

Sharma, B.H., 1983. Extent of knowledge and adoption of improved practices of rice cultivation by the contact and non-contact farmers under T&V system in Nepal. *M.Sc. (Ag.) Thesis,* Sukhadia University, Udaipur.

Sharma, A. and Sharma, B.M. 1999. Association between knowledge of farmers about important extension programme of KVK and selected independent variable. *Rural India,* 279-281.