TECHNOLOGICAL GAP IN MAIZE CULTIVATION IN KRISHNA DISTRICT OF ANDHRA PRADESH

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Abstract: The study entitled "Technological gap in Maize Cultivation in Krishna district." was purposively conducted in Krishna district of Andhra Pradesh state. Data from the maize growers were collected by personally interviewing with the help of pretested and well-structured interview schedule and data was subjected to appropriate statistical analysis. Majority of maize growers observed in medium level of technological gap in maize cultivation. The partial technological gap was observed in case of practices seed rate and seed treatment (46.67%), inter cultivation (51.67%), water management (50.83%) and fertilizer application (47.50%) high technological gap found in the practices recommended varieties (55.83%), plant protection (69.17%). Low technological gap was noticed in land preparation, harvesting and threshing.

Keywords: Technological, Gap, Maize.

Introduction: In India, the majority of the population depends on vegetarian diet. The maize crop has a great importance in many states of India. Maize offers a good source of energy. Over 85 per cent of the maize produced in the country is consumed as human food that is in the form of roti, roasted ears, popco rn etc. It is important constituent of animal feed, particularly poultry feed. Maize is used as food crop by rural people in the form of bread and gruel. Maize grainscontain about 72 per cent starch, 10 per cent protein, 4.8 per cent oil, 5.8 per cent fiber, 3.0 per cent sugar, and 17 per cent ash. It is a source of raw material for industry, where it is beingextensively used for the preparation of corn starch, corn oil dextrose, corn syrup, corn flakes, cosmetics, wax, alcohol and tanning material for leather industry. Andhra Pradesh is one of the important cereal crops growing state in India. In Andhra Pradesh maize was grown on an average area of 0.79 million ha having the production of 1.82 million tones and yield 2498 kg/ha respectively.

Maize is one of the most versatile crops in nature, which can be grown over a wide range of climatic conditions and has acquired a dominant role in the farming sector. Maize is warm weather loving crop and it can be successfully grown in the area receiving an annual rainfall of 60 cm with well distributed throughout its growing period. In Maharashtra, the maize cultivation is getting importance as it is being considered a crop for replacing the cereal like *kharif* sorghum, pearl millet and ragi. Similarly, there is an increased demand from industries for processing maize, as a result, farmers are getting increased price than the previous years. In Andhra Pradesh out of 13 districts the one of the larger area under maize cultivation is observed in Krishna district, there is 4400 hectare area under maize crop. In the year 2013-14 (kharif) the State Government started a "Maize Development Programme" in 13 districts of the State, in which Krishna district is included out of 13 districts of Andhra Pradesh (Agro-one, 2013).

Objectives:

1. To study the personal, socio- economic, psychologicalcharacteristics of maize growers.
2. To study the extent of technological gap between recommended and actual adopted maize cultivationpractices by the maize growers.

Methodology: This study was conducted in purposively selected Krishna district in Andhra Pradesh State, being one of the maximum areas under maize crop cultivation (4400 hectares) among the thirteen districts of Andhra Pradesh. An exploratory research design of social research was used for the present investigation.

From the selected twelve villages, 10 maize growers from each village were selected with the helpof equal random sampling method. In total 120 respondents were selected for the present study.

Results and Discussion: The age wise distribution of the respondents presented in Table 1 shows that higher proportion of maize growers (41.67%) were appeared in the middle age group of 36 to 50 years. It is evident from Table 1 that, 40.83 per cent of the respondents were educated up to high school level. Land holding structure when critically seen in Table 1, It is observed that higher proportion of the respondents (41.67%) belonged to small category of land holding having land in between 1.01 to 2.00 ha. It is seen from Table 1, that majority of the respondents (52.50%) belonged to category agriculture (farming) as main occupation. The family size wise distribution of the respondents presented in table 1, Shows that the 76.67 per centof the respondents belonged to medium size of family having 4 to 6 members in their family.

Table 1: Personal, Socio-Economic, Situational and Psychological Characteristics of the Beneficiary and Non-Beneficiary Maize Growers

Sl.No	Characteristics	Category	Respondents (n=120)	
			Number	Percentage
1	**Age**	Young	39	32.50
		Middle	50	41.67
		Old	31	25.83
2	**Education**	Illiterate (can't read and write)	00	00.00
		Primary school (1 to 4th std.)	06	05.00
		Middle school (5 to 7th std.)	09	07.50
		High school (8 to 10th std.)	49	40.83
		Higher secondary school (11 to 12th std.)	26	21.67
		College	30	25.00
3	**Land holding**	Marginal (up to 1.00)	11	09.17
		Small (1.01 to 2.00)	50	41.67
		Semi-medium (2.01 to 4.00)	36	30.00
		Medium (4.01 to 10.00)	23	19.16
		Large (Above 10.00 ha.)	00	00.00
4	**Occupation**	Agriculture + Labor	18	15.00
		Agriculture(farming)	63	52.50
		Agriculture + allied occupation (goat farming/poultry/apiculture/sericulture)	17	14.17
		Agriculture + business	10	08.33
		Agriculture + service	12	10.00
5	**Family size**	Small	03	02.50
		Medium	92	76.67
		Large	25	20.83
6	Area under Maize cultivation	Small (up to 1.00)	41	34.17
		Medium (1.01 to 2.00)	68	56.66
		High (above 2.00)	11	09.17
7	Experience in Maize cultivation	Low	40	33.33
		Medium	76	63.34
		High	04	03.33
8	Sources of irrigation	No Source	00	00.00
		River	27	22.50
		Well / Tube well	89	74.17
		Canal	03	02.50
		Farm Ponds	01	00.83
9	Annual income	Up to Rs. 1,00,000/-	88	73.33
		Rs.1,00,001 to 2,00,000/-	03	02.50
		Above 2,00,000/-	29	24.17
10	Sources of information	Low (up to 13)	77	64.16
		Medium (13-26)	32	26.67
		High (above 26)	11	09.17
11	Economic motivation	Low (up to 10)	00	00.00
		Medium (11-20)	15	12.50
		High (above 20)	105	87.50
12	Innovativeness	Low (up to 6)	01	00.83
		Medium (7-12)	80	66.67
		High (above 12)	39	32.50
13	Knowledge	Low	10	08.33
		Medium	56	46.67
		High	54	45.00

It is revealed from Table 1, that majority of the respondents (56.66%) had put the area under maize crop ranged between 1.01 to 2.00 ha. From Table 1, it was apparent that most of the respondents (63.34%) had experience of11 to 20 years in maize cultivation. It could be noticed from the Table 1, that higher per

cent of the respondent farmers (74.17%) had well/tube well as a source of irrigation.

From the distribution of the respondents according to annual income in Table 1, it may be noted that great majority of the respondents (73.33 %) had annual income up to Rs.100000/-,. It is seen from the data presented in Table 1, that more than half (66.67%) of the maize growers included in the category of medium innovativeness.

The knowledge possessed by the maize growers indicated in Table 1, that, majority of the respondents 46.67 per cent were having medium level of knowledge of maize cultivation, Practice wise extent of technological gap in recommended maize cultivation practices. The technological gap of various practices connected maize growing by maize growers was further ascertained practice wise and the same have been reported in Table 2.

In case of recommended practices of maize, It was observed that considerable higher percentage of maize growers 75.83 per cent were observed in low technological gap category in land preparation practice and only 24.17 per cent maize growers were observed in medium technological gap about land preparation and none of the maize growers were observed in category of high technological gap. With regards to recommended varieties of maize, it was found that majority of the maize growers 55.83 per cent were observed in high technological gap whereas 47.17 per cent of the maize growers were observed in low technological gap and none of maize growers observed in category of medium technological gap.

Table 2: Distribution of Maize Growers According To Practice Wise Extent of Technological Gap in Recommended Maize Cultivation Practices

Sl. No.	Recommended Practices of Maize	Technological Gap (n=120))					
		Low		Medium		High	
		Freq.	%	Freq.	%	Freq.	%
1	Land preparation	91	75.83	29	24.17	00	00.00
2	Recommended varieties	53	44.17	00	00.00	67	55.83
3	Seed rate and seed treatment	13	10.83	56	46.67	51	42.50
4	Sowing	54	45.00	37	30.83	29	24.17
5	Intercultural practices	28	23.33	62	51.67	30	25.00
6	Water management	20	16.67	61	50.83	39	32.50
7	Intercropping	09	07.50	50	91.67	61	50.83
8	Fertilizer application	14	11.67	57	47.50	49	40.83
9	Plant protection	11	09.16	26	21.67	83	69.17
10	Harvesting and threshing	87	72.50	09	07.50	24	20.00

In case of seed rate and seed treatment it was found that 46.67 per cent of respondents were observed in medium technological gap category and 42.50 per cent of the respondents were found in high technological gap category and only 10.83 per cent of the respondent was observed in low technological gap category. In the practice of sowing, it was found that majority of the maize growers 45.00 were observed in low technological gap category, 30.83 per cent of the respondents observed in medium level technological gap category and 24.17 per cent were observed in high technological gap category.

In case of intercultural practices, 51.67 per cent of the respondents were observed in medium level technological gap in intercultural practices, it was followed by 25.00 per cent respondents who observed in high level technological gap category and 23.33per cent respondents were observed in low technological gap category. As regards technological gap about water management for maize 50.83 per cent of the respondents were observed in medium level technological gap category, 32.50 per cent respondents were observed in high level technological gap category and 16.67 per cent respondents were observed in low level technological gap category.

In case of intercropping, 50.83 per cent of the respondents were observed in high level technological gap category, it was followed by 41.67 per cent respondents were observed in medium level technological gap category and 07.50 per cent respondents were observed in low level technological gap category. The technological gap in fertilizer application, 47.50 per cent respondents were observed in medium level of technological gap, 40.83 per cent respondents were observed in high level of technological gap category and 11.67 per cent respondents were observed in low level technological gap category.

With regards to technological gap about plant protection, it was observed that about 69.17 per cent of respondents were observed in high technological gap, 21.67 per cent of the maize growers were observed in medium level technological gap category, and 09.16 per cent maize growers were observed in low

level technological gap category.

It is surprising to note that, in case of harvesting 72.50 per cent of the maize growers observed in low technological gap category, 20.00 per cent of the maize growers were found ins high category of technological gap and 07.50 per cent respondents were observed in medium level technological gap category. It has quite logical that due to cultivation of maize from generation to generation, farmers had well experience in identifying the maturity stage of maize leads to harvesting and threshing at proper time. The present findings, wide gap in plant protection measures, and low gap in harvesting and threshing did get support from the observations of Raut (2014).

Extent of Technological Gap Index: The effort has been made to find out distribution of the maize growers based on their level of existing technological gap between recommended and actual adoption of improved cultivation practices by the maize growers and presented as below:

Table 3: Distribution of Maize Growers According to Technological Gap Index

Sl.No.	Technological Gap Level	Respondents (n=120)	
		Number	Percentage
1.	Low	12	10.00
2.	Medium	85	70.83
3.	High	23	19.17
	Total	**120**	**100.00**

It is evident of data in Table 3 that, 70.83 per cent of maize growers were observed under medium level category of technological gap in adoption of recommended maize cultivation practices, followed by 19.17 per cent of maize growers were observed in high level of technological gap and 10.00 per cent of maize growers were found in low level category of technological gap. Similar result was reported by Badodia *et al.* (2002) and Nirwan (2014).

Conclusion: In overall low, technological gap was found in land preparation, sowing, harvesting and threshing of maize. Furthermore, high technological gap found in the practices recommended varieties (55.83%), plant protection (69.17%). While medium technological gap found in the practices seed rate and seed treatment (46.67%), intercultural practices (51.67%), water management (50.83%) and fertilizer application (47.50%).

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