TECHNOLOGICAL GAP AND ITS RELATIONSHIP WITH SELECTED CHARACTERISTICS OF MUSKMELON GROWERS IN RECOMMENDED MUSKMELON PRODUCTION TECHNOLOGY

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ABSTRACT

Muskmelon is gaining lot of importance due to its more remuneration in short crop cycle, high production potential with high nutritive value, taste, delicacy and also its suitability for cultivation under rain fed and irrigated condition throughout the year. Total 150 muskmelon growers were selected from fifteen villages belongs to Deesa, Dantiwada and Palanpur talukas of Banaskantha district of Gujarat state. The independent variable viz., education, land holding, annual income, social participation, extension participation, innovativeness and market orientation had negative and significant correlation with overall technological gap in muskmelon production technology. While, sources of information and level of knowledge had negative and highly significant correlation with overall technological gap in muskmelon production technology. Whereas, age had positive and significant correlation with overall technological gap and cropping pattern had positive and non-significant correlation with overall technological gap in muskmelon production technology. It revealed that the high technological gap was observed in recommended variety was 92.67 per cent followed by seed rate 76.67 per cent, spacing 70.67 per cent, plant protection 69.33 per cent and chemical fertilizer 64.67 per cent, The overall technological gap indicates that nearly two third (65.33%) muskmelon growers had medium technological gap followed by 22.67 per cent and 12.00 per cent had high and low technological gap in muskmelon cultivation technology, respectively.

Keywords: *association, muskmelon growers, knowledge, muskmelon production technology, technological gap*

INTRODUCTION

Muskmelon (*Cucumis melo* L.) commonly called as Kharbuja or Sakkartetiis a popular summer season refreshing fruit and member of cucurbitaceous family.The ripe fruits are wholesome and healthful and are use for table as well as for juice purpose, highly relished by rich and poor irrespective of young and old generation. The fruits are extensively used as dessert fruits and are highly popular in hotter months. Muskmelon is a rich source of carbohydrates, protein and vitamin C, β-carotene (vitamin A), vitamin K, niacin, vitamin B2, vitamin B and also traces of vitamin B. Muskmelon is gaining lot of importance due to its more remuneration in short crop cycle, high production potential with high nutritive value, taste, delicacy and also its suitability for cultivation under rain fed and irrigated condition throughout the year.

In India, muskmelon is cultivated on 54 thousand ha area with a production of 1231 thousand MT and the productivity is 22.79 MT per ha (Anonymous *et al.*, 2018). The area under muskmelon in Gujarat is 9755 ha with a production about 145 thousand MT and productivity of 14.88MT per ha (Anonymous *et al.*, 2021ᵃ). Banaskantha

is one of the most important muskmelons growing district of Gujarat State. The area under muskmelon in this district was 3835 ha with a production about 46020 MT and productivity of 12 MT per ha (Anonymous *et al.*, 2021ᵇ). The several constraints *viz;* technological, socio-economic, organizational, infrastructural facilities and extension service influence the transfer of technology pertaining to muskmelon production, considering all these aspects, the present study entitled, "Technological gap in muskmelon production technology among the farmers of Banaskantha district".

OBJECTIVES

(1) To study the selected characteristics of muskmelon growers

(2) To ascertain the association between selected characteristicsof the muskmelon growers and their technological gap in recommended muskmelon production technology

(3) To determine the extent of technological gap in recommended muskmelon production technology.

METHODOLOGY

The present investigation was carried out in Banaskantha district of Gujarat State. Ex-post facto research design was used for this study as the independent variables were already operated in the study area. The multistage sampling technique was used to select a representative sample of respondents for present investigation. Among the fourteen talukas of Banaskantha district, three talukas *viz.,* Deesa, Dantiwada and Palanpur were purposively selected based on higher area and production as compare to other talukas of the district. Five villages from each taluka were selected randomly. From each village ten muskmelon growers were selected randomly. Thus, total 150 respondents were selected for the study. The data were collected by personal contact method with the help of structured interview schedule.

The independent and dependent variables were measured with the help of the scales and indices developed by the past researchers as well as structured schedules which were framed for purpose. The collected data were analyzed by using percentage, mean, standard deviation and correlation coefficient (r). To measure the technological gap of the respondents about muskmelon cultivation technology, a battery of the objective questions concerning recommended muskmelon cultivation technology was prepared and zero score for incorrect and one score for correct responses were assigned. The possible total score of a respondent could obtain from the range of 0 to 12 score. Practice wise technological gap was measured with help of technological index.

RESULTS AND DISCUSSION

Selected characteristics of muskmelon growers

Keeping in the view the objectives of study, the relevant variables were selected on the basis of an extensive review of literature related to the study, in consultation with experts and members of advisory committee. Only those variables which are found most relevant to the present investigation were finally selected. The results of the same are presented inTable.1

Table 1: Selected characteristics of muskmelon growers (n=150)

Sr. No.	Selected characteristics of muskmelon growers		Frequency	Per cent
(A)	**Personal characteristics**			
1	**Age**			
	Young age (up to 35 years)		29	19.33
	Middle age (36 to 50 years)		68	45.34
	Old age (above 50 years)		53	35.33
2	**Education**			
	Illiterate		10	06.67
	Functionally literate		15	10.00
	Primary school (Up to 8thstandard)		38	25.33
	Middle school (9th to 10th standard)		51	34.00
	High school (11th to 12th standard)		28	18.67
	Under Graduate and Post Graduate (UG/PG)		08	05.33
(B)	**Socio-economic characteristics**			
3	**(A) Landholding**	Marginal (up to 1.00 ha)	22	14.67
		Small (1.01 to 2.00 ha)	53	35.33
		Semi medium (2.01 to 4.00 ha)	62	41.34
		Medium (4.01 to 10.00 ha)	11	07.33
		Large (above.10.00 ha)	02	01.33
	(B) Muskmelon Area	Up to 1.00 ha	38	35.33
		1.01 to 2.00 ha	64	42.67
		2.01 to 4.00 ha	46	20.67
		4.01 to 10.00 ha	02	01.33
		Above 10.00 ha	00	00.00

Sr. No.	Selected characteristics of muskmelon growers		Frequency	Per cent
4	**Annual income**	Up to ₹ 50,000	05	03.33
		₹ 50,001 to ₹ 1,00,000	14	09.33
		₹ 1,00,001 to ₹ 1,50, 000	21	14.00
		₹ 1,50,001 to ₹ 2,00,000	28	18.67
		Above ₹ 2,00,000	82	54.67
5	**Social participation**	No participation	19	12.67
		Member in one organization	86	57.33
		Member in more than one organization	32	21.33
		Membership with office bearer	13	08.67
(C)	**Situational characteristics**			
6	**Cropping pattern**			
	(A)	Poor (≤ 1.49 score)	28	18.66
		Fair (1.50 to 2.98 score)	58	38.67
		Good (≥2.99 score)	64	42.67
		Mean=2.24 S.D.=0.75		
	(B)	Groundnut – Potato – Muskmelon	138	92.00
		Groundnut – Potato – Groundnut	96	64.00
		Groundnut – Wheat – Muskmelon	78	52.00
		Groundnut – Vegetables – Bajra	43	28.67
		Vegetables – Wheat – Muskmelon	35	23.33
(D)	**Communicational characteristics**			
7	**Sources of information**	Low (≤ 35.46 score)	23	15.33
		Medium (35.47 to 49.97 score)	101	67.33
		High (≥49.98 score)	26	17.34
		Mean = 42.72 S.D. =7.26		
8	**Extension participation**	Low (≤ 16.72 score)	21	14.00
		Medium (16.73 to 28.45 score)	105	70.00
		High (≥28.46 score)	24	16.00
		Mean = 22.59 S.D. =5.87		
(E)	**Psychological characteristics**			
9	**Innovativeness**	Low (≤ 01.48 score)	31	20.67
		Medium (01.49 to 04.21 score)	93	62.00
		High (≥04.22 score)	26	17.33
		Mean = 02.85 S.D. =1.37		
10	**Market orientation**	Low (≤ 12.87 score)	31	20.67
		Medium (12.88 to 27.10 score)	92	61.33
		High (≥27.11 score)	27	18.00
		Mean = 19.99 S.D. =7.12		
11	**Level of knowledge**	Low (≤ 19.33 score)	31	20.66
		Medium (19.34 to 24.26 score)	97	64.67
		High (≥24.27 score)	22	14.67
		Mean = 21.80 S.D. =2.47		

The data presented in Table.1 indicates that most of the (80.67%) muskmelon growers belonged to middle to old age group, had primary to middle school level education (59.33%), had marginal to semi-medium size of land holding (91.34%), were growing muskmelon in marginal to small size of land (78.00%), had annual income more than ₹ 1, 50,000/- (73.34 %), had membership in social organization (78.66 %), had good to fair cropping pattern (81.34%), had followed Groundnut – Potato – Muskmelon cropping pattern (92.00 %), had medium level of utilization of sources of information (67.33%), had medium level of extension participation (70.00%), had medium innovativeness (62.00%), had low to medium level of market orientation (82.00%), had medium level of knowledge (64.67%).

Association between selected characteristics of muskmelon growers and overall technological gap in recommended muskmelon production technology

Table 2: Association between the selected characteristics of muskmelon growers and their overall technological gap in recommended muskmelon production technology (n=150)

Sr. No.	Independent Variables	Correlation Coefficient
X_1	Age	0.179*
X_2	Education	-0.171*
X_3	Land holding	-0.165*
X_4	Annual income	-0.183*
X_5	Social participation	-0.193*
X_6	Cropping pattern	0.073^{NS}
X_7	Sources of information	-0.253**
X_8	Extension participation	-0.168*
X_9	Innovativeness	-0.188*
X_{10}	Market orientation	-0.177*
X_{11}	Level of knowledge	-0.874**

*Significant at 0.05 level of probability
** Significant at 0.01 level of probability
NS = Non-significant

The association between the personal profile of the muskmelon growers viz. age, education, land holding, annual income, social participation, cropping pattern, sources of information, extension participation, innovativeness, market orientation and level of knowledge with overall technological gap of muskmelon production technology were worked out by using coefficient of correlation. The findings are presented in Table 2.

The data presented in the Table 2 indicates that the independent variable *viz.,* education (r = -0.171*), land holding (r = -0.165*), annual income (r = -0.183*), social participation (r = -0.193*), extension participation (r = -0.168*), innovativeness (r = -0.188*) and market orientation (r = -0.177*) had negative and significant correlation with overall technological gap at 0.05 level of significance. On the other hand, source of information (r = -0.253**) and level of knowledge (r = -0.874**) had negative and highly significant correlation with overall technological gap at 0.01 level of significance in muskmelon production technology; whereas age (r = 0.179*) had positive and significant correlation with overall technological gap in muskmelon production technology and cropping pattern (r = 0.073^{NS}) had positive and non-significant correlation with overall technological gap of muskmelon growers.

These finding is in line with finding of Baldaniya (2019), Barasiya (2020) and Bhanderi (2021).

Extent of technological gap in recommended muskmelon production technology by the muskmelon growers

The extent of practice wise and over all technological gap in adoption of different recommended muskmelon production technology among the muskmelon growers are summarized in Table 3 and Table 4.

(A) Practice-wise technological gap in recommended muskmelon production technology by the muskmelon growers

The data presented in Table 3 indicate that the practice-wise technological gap varied from practice to practice. The practice-wise technological gap among the muskmelon growers was ranging from 06.00 to 92.67 percent.

The data presented in Table 3 revealed that the high technological gap was observed in recommended variety was 92.67 per cent followed by seed rate 76.67 per cent, spacing 70.67 per cent, plant protection 69.33 per cent, chemical fertilizer 64.67 per cent, FYM 59.33 per cent, irrigation 53.33 per cent, harvesting and maturity indices 51.67 per cent and inter-culturing 32.67 per cent, weed control 30.67 per cent, sowing time and method 28.67 per cent, mulching 06.00 per cent ,which were ranked as first to twelfth, respectively.

Table 3: Extent of practice-wise technological gap in recommended muskmelon production technology by the muskmelon growers   (n = 150)

Sr. No.	Practices	Adoption (%)	Technological gap (%)	Rank according to technological gap
1	Recommended variety	07.33	92.67	I
2	Seed rate	23.33	76.67	II
3	Spacing	29.33	70.67	III
4	Plant protection	30.67	69.33	IV
5	Chemical fertilizer	35.33	64.67	V
6	FYM	40.67	59.33	VI
7	Irrigation	46.67	53.33	VII
8	Harvesting & maturity indices	48.33	51.67	VIII
9	Inter-culturing	67.33	32.67	IX
10	Weed control	69.33	30.67	X
11	Sowing time & method	71.33	28.67	XI
12	Mulching	94.00	06.00	XII
	Overall Technological gap	**46.97**	**53.03**	

(B) Extent of overall technological gap in recommended muskmelon production technology by the muskmelon growers

The technological gap refers to the difference between technology recommended by the scientists and actual technology adopted by the farmers. It was felt that agricultural technology is not generally adopted by the farmers completely in all aspects. As a result, technological gap appears and poor yield is obtained. Keeping this in view technological gap has been studied.

Table 4: Distribution of the muskmelon growers according to their overall technological gap   (n=150)

Sr. No.	Technological gap	Frequency	Per cent
1	Low (≤ 04.68 score)	18	12.00
2	Medium (04.69 to 06.71 score)	98	65.33
3	High (≥ 06.72 score)	34	22.67

Mean = 05.70   S.D. = 1.02

The data presented in Table 4 is indicate that nearly two third (65.33%) muskmelon growers had medium technological gap followed by high 22.67 per cent and low 12.00 per cent technological gap in muskmelon cultivation technology. Thus it can be inferred that (65.33%) of the muskmelon growers had medium extent of adoption. The possible reason for this might be that the farmers could not get the message of improved package of practices in time in acceptable form. Further, farmer might have tried their best to use and adopt the muskmelon cultivation but some constraints might have hindered them to do so, and hence technological gap might have observed.

The similar findings have been reported by Patel (2019), Baldaniya (2019), Chaudhary (2019). Chaudhari *et al.* (2022) and Pawar *et al.* (2022).

CONCLUSION

The finding related to the selected characteristics of the muskmelon growers indicated that most of the muskmelon growers belonged to middle to old age group, had primary to middle school level education, had marginal to semi-medium size of land holding, were growing muskmelon in marginal to small size of land, had annual income more than ₹ 1, 50,000/-, had membership in social organization, had good to fair cropping pattern, had followed Groundnut – Potato – Muskmelon cropping pattern, had medium level of utilization of sources of information, had medium level of extension participation, had medium level of innovativeness, had low to medium level of market orientation, had medium level of knowledge.

It can be concluded that out of the eleven independent

variables, seven variables *viz.*, education, landholding, annual income, social participation, extension participation, innovativeness and market orientation had negative and significant correlation with overall technological gap in muskmelon production technology.

This study concluded that nearly two third (65.33%) muskmelon growers had medium technological gap followed by high 22.67 per cent and low 12.00 per cent technological gap in muskmelon cultivation technology. Whereas, practice-wise technological gap, the maximum technological gap was observed in recommended variety (92.67%) followed by seed rate (76.67%), spacing (70.67%), plant protection (69.33%) and chemical fertilizer (64.67%).

CONFLICT OF INTEREST

No conflict of interest among researchers.

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