Technological gap in adoption of recommended practises of mango cultivation

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ABSTRACT

The study on technological gap in adoption of recommended practices of mango cultivation was conducted in Dharwad district of Karnataka during 2008-09. The study revealed that almost an equal per cent of the mango growers belonged to high (34.67%) and low (34.00%) overall technological gap categories with mean technological gap scores of 44.43 and 22.29, respectively. While, 31.33 per cent of them possessed medium overall technological gap with mean technological score of 32.92. Higher technological gap was observed regarding use of recommended chemical fertilizers with respect to time and doses, which was observed to be more than 90.00 per cent in all aspects.

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INTRODUCTION

Mango (*Mangifera indica* L.) is considered as national fruit of India and it is termed as the "King of Fruits".

Mango fruit is very popular with the masses due to its wide range of adoptability, high nutritive value, and richness in variety, delicious taste and excellent flavour. It is a rich source of vitamin A and C. The fruit is consumed raw or ripe. Good mango varieties contain 20% of TSS (total soluble sugar). The acid content of ripe desert fruit varies from 0.2 to 0.5% and protein content is about 1% and. One raw mango fruit contains energy (135 calories), carbohydrates (35 g), cholesterol (0 ml), fat (2 g) and saturated fat (0.1 g).

Mango also has medicinal value. The ripe fruit has flattering diuretic and laxative properties. It helps to increase digestive capacity and prevent night blindness in human beings. Raw fruits of local varieties are used for preparing various traditional products like raw slice in brine (amchur), pickle, murabba, chutney, panke (sharabat), etc. Alphanso variety is used for preparation of squash in coastal western zone. The wood is used as timber, kernel contains about 8-10 % good quality fat which can be used for saponification. Its starch is used in confectionery industry.

Mango is well adapted to tropical and sub-tropical climates. It thrives well in almost all the regions of the country but cannot be grown commercially in areas above 600 m above sea level. It can not withstand severe frost, especially when the tree is young, high temperature by itself is not so injurious to mango, but combination of low humidity and high winds, affects the tree adversely. Mango varieties usually thrive well in places with rainfall in the range of 75-375 cm/annum and dry season. The distribution of rainfall is more important than its amount. Dry weather before blossoming is conducive to profuse flowering. Rain during flowering is detrimental to the crop as it interferes with pollination. However, rain during fruit development is good but heavy rain cause damage to ripening fruits. Strong winds and cyclones during fruiting season can play havoc as they cause excessive fruit drop.

METHODOLOGY

The study on technological gap in adoption of recommended practices of mango cultivation was conducted in Dharwad district of Karnataka during 2008-09. Dharwad district was purposely selected since it is having largest area under mango cultivation in northern Karnataka. Among five taluks of Dharwad

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district, Dharwad taluk was having maximum area (2618ha) under mango cultivation, followed by Kalaghatagi (715ha), Hubli (668ha) and Kundgol (114ha). Hence, Dharwad and Kalghatgi Taluks were selected.

Proportionate random sampling technique was followed to select the appropriate sample size of 150. Further, data were collected by adopting interview method by using well structured interview schedule. The data were analyzed using the statistical tools such as percentage, mean and standard deviation

Technological gap:

Technological gap has been conceived as the difference between the package of practices of mango cultivation recommended by University of Agricultural Sciences, Dharwad, and the extent of adoption of these recommended practice at farmer's level. This package included the recommendations on the following seven major cultivation practices such as;

- Use of improved varieties
- Land preparation
- Propagation/planting
- Irrigation
- Use of manures and fertilizers
- Use of growth regulators
- Plant protection measures.

Under each of the above mentioned major practices, sub-practices were identified. The gap for each major practice was calculated by deducting the number of sub-practices adopted by the respondents from the total number of sub-practices adopted by the respondents.

The per cent technological gap for each major practice and for the whole package, were worked with help of following formula:

$$\text{Technological gap} = \frac{\text{No. of recommended practices} - \text{No. of adopted practices}}{\text{No. of recommended practices}} \times 100$$

On the basis of overall technological gap, the respondents were grouped into three categories *viz*., low, medium and high considering the mean and standard deviation as measure of check.

RESULTS AND ANALYSIS

The findings of the present study as well as relevant discussions have been summarized under the following heads.

Overall technological gap in adoption of recommended mango cultivation practices:

The results presented in Table 1 revealed that almost an equal per cent of the mango growers belonged to high (34.67%) and low (34.00%) overall technological gap categories with mean technological gap scores of 44.43 and 22.29, respectively. While, 31.33 per cent of them possessed medium overall technological gap with mean technological score of 32.92.

Technological gap regarding recommended mango cultivation practices:

The information with respect to the technological gap for different practices of mango cultivation is presented in Table 2.

Regarding use of recommended varieties, there was no technological gap observed. It means, cent per cent of the growers had adopted recommended varieties such as, Alphanso, Neelam, Bangalora (Totapari).

It was revealed that the highest technological gap was found in use of chemical at the time of pit filling (30.00 %), followed by suitable soil for mango plantation (6.67%). An equal per cent (4.00%) of technological gap was observed regarding the use of filling material and size of pit.

It was observed that the least technological gap was found in time of planting (3.33%) and recommended spacing (11.3%). Relatively higher technological gap (35.33%) was found in depth of keeping grafts in pit.

Higher technological gap (67.33%) was found regarding frequency of irrigation at early stages of growth of plants and use of recommended chemical fertilizers with respect to time and doses, which was observed to be more than 90.00 per cent in all aspects.

Regarding use of growth regulators to induce

Table 1 : Overall technological gap in adoption of recommended mango cultivation practices (n=150)

Sr. No.	Category	Respondents		Mean technological gap score
		Frequency	Percentage	
1.	Low (<29.02)	51	34.00	22.29
2.	Medium (29.03-37.56)	47	31.33	32.92
3.	High (>37.57)	52	34.67	44.43

Mean=33.29, SD=10.06

Table 2 : Technological gap regarding recommended mango cultivation practices (n=150)

Sr. No.	Statements	Technological gap	
		No.	%
1.	Varieties	00	00.00
2.	Land preparation		
	Suitable soil	10	06.67
	Pit size	06	04.00
	Filling materials used in the pits	06	04.00
	Chemical used in the pit at the time of planting	45	30.00
3.	Propagation practices		
	Time for planting mango grafts	05	03.33
	Depth at which the graft is to be kept in the pit	53	35.33
	Grafts (per acre)	52	34.67
	Spacing	17	11.33
4.	Irrigation		
	Frequency of irrigation (early stages)	101	67.33
5.	Manures and fertilizer application		
	Time for application of fertilizers	135	90.00
	Fertilizers applied per tree		
	a. 1-9years old	143	95.33
	b. >10years old	135	90.00
6.	Use of growth regulators		
	Chemical used to induce flowering	125	83.33
	Growth regulators used to prevent flower and fruits dropping	109	72.67
7.	Plant protection measures		
	Major pests and their control measures (Mango hopper: Stem borer and Termites)	05	03.33
	Major diseases and their control measures	19	12.67
	a. Powdery mildew:		

flowering and prevent flower and fruit dropping, relatively higher technological gap was noticed to the extent of 83.33 and 72.67 per cent, respectively.

Less percentage of technological gaps was found in use of plant protection measures to control pests (3.33%) and diseases (12.67%), respectively. This is mainly attributed to incidence of pest and disease attack.

Similar results were reported by Thorat (2003) and Moulasab (2003).

Relationship between the characteristics of respondents and technological gap:

It could be seen from Table 3 that out of 10 variables studied, 4 variables namely, education, extension participation, innovative proneness and mass media participation were found to have negative and significant relationship with the technological gap. While, the variables age, orchard size, cosmopoliteness, risk orientation, economic motivation and market orientation showed positive but non-significant relationship with technological gap in adoption of recommended mango cultivation practices.

Table 3 : Relationship between the characteristics of mango growers and technological gap (n=150)

Sr. No.	Variables	'r' value
1.	Age	0.093^{NS}
2.	Education	-0.176*
3.	Orchard size	0.139^{NS}
4.	Innovative proneness	-0.198*
5.	Risk orientation	0.116^{NS}
6.	Market orientation	0.108^{NS}
7.	Economic motivation	0.153^{NS}
8.	Extension participation	-0.171*
9.	Mass media participation	-0.161*
10.	Cosmopoliteness	0.098^{NS}

NS: Non significant
* indicates significance of value at P=0.05

Social psychologists, management experts and economists have confirmed that factors such as biography of experiences, education, income, motives and aspirations of an individual can modify his adoption behaviour ultimately resulting in low technological gap. In other words, ones extent of technological gap cannot be understood and accounted for without reference to his social environment and to the character of his interpersonal relations.

The data revealed that education, extension participation, innovative proneness and mass media participation were negatively and significantly related with technological gap of mango growers, while others variables such as age, orchard size, cosmopoliteness, risk orientation, economic motivation, and market orientation had no significant relationship.

Education develops mental and psychological ability to understand, decide and adopt new ideas and practices. It also helps in using printed mass media literatures and uses them to seek and understand scientific use of new ideas and technology. Profile study indicated a good number of respondents who were highly educated upto graduate and post graduate level.

Extension participation helps farmers to interact with scientists, subject matter specialists and enable them to use the practice in natural settings and helps to learn new

skills through demonstrations, trainings and exhibitions. Interaction with extension functionaries helps them in better relation to their needs. The data indicated a regular to occasional extension participation of the respondents in various extension activities.

A better education, higher mass media and extension participation always helps an individual to seek and understand a new practice or idea in a better way to satisfy his needs. This further helps him/her to be prone in adopting new technologies; hence, innovative proneness exuviated a significant relationship with technological gap. Higher the proneness to understand the new idea, practice or skill higher will be the adoption of the practice which ultimately leads to lower technological gap.

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REFERENCES

Moulasab, I. (2004). A study on knowledge and adoption of improved cultivation practices by mango growers of north Karnataka, M.Sc. (Ag.) Thesis, University of Agriculture Science, Dharwad, Karnataka (India).

Thorat, K.S. (2003). A study on technological gap and constraints in adoption of recommended cultivation practices of mango growers. M.Sc. (Ag.) Thesis, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, M.S. (India).

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