

Analysis of Constraints in Adoption of Improved Production Technology of Mandarin Cultivation

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ABSTRACT

The present investigation was conducted with a sample size of 100 randomly selected respondents (orange growers) from 10 villages of purposively selected two blocks of Nagpur District of Maharashtra. The data were collected with the help of pre-tested structured interview schedule by conducting personal interview. The study revealed that majority of the farmers had medium level of adoption of improved production technology of mandarin cultivation. The study indicated that farmers had high adoption level of practices *viz*, irrigation management, time and spacing for planting, and low adoption practices *viz*, different varieties of orange, and rejuvenation of old orchards. So there is a need to adopt full improved recommended package of practices for increasing the productivity with quality of mandarin orange. The orange growers perceived the constraints like irregular fruit bearing, non availability of disease free improved planting materials *etc*. The present study clearly indicated the need to derive suitable matrimonies to minimise the constraints perceived by orange growers to increase the production and quality of mandarin orange.

Key words : Orange growers, adoption, improved production technology, mandarin cultivation orange orchards

INTRODUCTION

Horticulture has emerged as one of the most important sectors for commercial agriculture leading to the revolutionary changes in the socio-economic status of farmers in various parts of the country. Citrus is the third largest fruit in India after banana and mango in terms of area under cultivation. But comparative analysis of yield of citrus fruits shows that orange fruit production per hectare is very low (9-10 t/ha) in India as compared to developed countries. The unit area of production of mandarins depends mainly on the technical know-how possessed and extent of its use in the production by the orange growers. There is a great scope of increasing the fruit production by increasing the fruit productivity, besides bringing more area under the fruit crops to cater the demands of growing population.

During last several years, citrus orchards of Maharashtra, particularly those of Nagpur region has suffered due to several biotic and abiotic stresses leading to degeneration of citrus plantation. The low production of mandarin fruits may be due to the non-adoption or poor adoption of improved production technology of mandarin cultivation by the farmers. Hence, this is a challenging task for the scientists and the farmers. Under such condition, it is quite imperative that reasons for the technological gap in mandarin should be identified and studied critically in order to address the existing challenge of low productivity and decline of mandarin orchards. In this context, the present study was undertaken to study the adoption of improved production technology of mandarin

cultivation and to identify the constraints as perceived by orange growers.

METHODOLOGY

The present investigation was carried out in Nagpur district of Maharashtra. A sample of 100 orange growers was selected randomly from 10 villages of two purposefully chosen blocks having highest area under orange cultivation and from each village 10 growers were selected. The data were collected with the help of well structured pre-tested interview schedule by personally interviewing the randomly selected respondents. The data were tabulated and analyzed with the help of frequencies, percentage, mean and standard deviation. A list of 14 major orange cultivation practices was prepared. The extent of adoption of each orange cultivation practices was measured on three point continuum. The score '0' was given for never adopting cultivation practice, '1' for occasional and '2' for regular adopting cultivation practice. The respondents were grouped into 3 adoption categories *viz*. as high, medium and low adoption level on the basis of mean score and standard deviation. The practice-wise adoption of improved production technology of mandarin cultivation was ranked based on mean per cent score (MPS) values. The constraints perceived by orange growers in adoption of improved orange production technology were tabulated based on frequencies and percentage.

RESULTS AND DISCUSSION

Adoption of improved production technology of

mandarin cultivation: It is apparent from the Table 1 that majority of farmers (62%) were found to be medium adopters, while 18 per cent farmers were low adopters and 20 per cent of farmers were high adopters of improved production technology of mandarin cultivation.

Table 1: Distribution of farmers under different adoption categories towards improved production technology of mandarin cultivation.

n=100		
Categories of adoption level	Frequency	Per cent
Low adoption (Below 6.47)	18	18.00
Medium adoption (6.47 to 17.71)	62	62.00
High adoption (above 17.71)	20	20.00

Mean=12.09 S.D. =5.62

The results are in conformity with the findings of Thakre *et al.* (1996) and Meena V (2004).

Practice-wise adoption of improved production technology of mandarin cultivation

The relevant data according to practice-wise extent of adoption was depicted in Table 2. In case of high extent of adoption of improved production technology of mandarin cultivation, the farmers had mostly adopted the irrigation management, time and spacing for planting, intercropping and bahar treatment. The medium adoption was found in practices like fertilizer management, suitable land for orange plantation, weed control, pruning and training, plant protection measures and selection of planting material.

Table 2: Extent of adoption of improved production technology of mandarin cultivation by farmers

n=100		
Package of practices	Mean Per cent	Rank
Suitable land for orange plantation	46.50	VI
Different varieties of orange	17.50	XIII
Selection of planting materials	33.50	X
Time and spacing for planting	70.00	II
Fertilizer management	51.00	V
Irrigation management	84.00	I
Pruning and training	43.50	VIII
Weed control	46.00	VII
Intercropping	65.00	III
Bahar treatment	53.50	IV
Fruit drop control	25.50	XI
Plant protection measures	35.50	IX
Harvesting and storage	19.00	XII
Rejuvenation of old orchards	10.00	XIV

*Multiple response

The low adoption was found in cultivation practices like fruit drop control, proper harvesting and storage, different varieties of orange and rejuvenation of old orchards.

Constraints in mandarin cultivation as perceived by the orange growers: The constraints perceived by orange growers were categorised into four parts and data regarding these constraints are presented in Table 3.

Table 3: Constraints perceived by farmers in adoption of improved production technology of mandarin cultivation in the study area.

n=100		
Constraints perceived by farmers	Frequency	Percentage
Technical constraint		
Lack of technical know-how	19	19.00
High incidence of disease (Phytophthora) and pest	44	44.00
Irregular fruit bearing	68	68.00
Degeneration of mandarin plantation	56	56.00
Decline in productivity and life period of mandarin plantation	46	46.00
Production constraints		
Non availability of disease free, improved planting materials	46	46.00
Inadequate and improper doses of F.Y.M. and chemical fertilizers	57	57.00
Problem of growing commercial and food crop simultaneously	42	42.00
Inadequate water supply during summer	39	39.00
Improper management of orchards	29	29.00
Storage and marketing constraints		
Lack of storage facility	17	17.00
Lack of processing unit	19	19.00
High fluctuation of market price	21	21.00
Lack of market knowledge	14	14.00
Exploitation by middleman	20	20.00
General constraints		
Plantation in unsuitable land	28	28.00
Irregular rainfall and change in climate	27	27.00
Irregular supply of electricity for irrigation	16	16.00
Timely non-availability of extension service in area for technical guidance	23	23.00

The major constraints perceived by orange growers were irregular fruit bearing (68.00%), non-availability of disease free improved planting materials, degeneration of mandarin plantation, inadequate and improper doses of F.Y.M. and chemical fertilizers. The other problems as expressed by majority of farmers were decline in productivity and life period of mandarin plantation, high incidence of disease (phytophthora) and pest, problem of growing commercial and food crop simultaneously, inadequate water supply during summer *etc.*

CONCLUSION

It may be concluded that the majority of farmers (62%) had medium adoption of improved production technology of mandarin cultivation. The extent of adoption was higher in case of practices like irrigation management, time and spacing for planting, intercropping, bahar treatment *etc.* than the other adopted practices of mandarin cultivation. On the other hand, less adoption was found in practices such as plant protection measures, selection of planting materials, fruit drop *etc.* It is necessary to use the complete package of the improved practices of mandarin cultivation for realizing maximum potential of orange production.

The major constraints perceived by orange growers were irregular fruit bearing, non availability of disease free improved planting materials, degeneration of mandarin plantation, inadequate and improper doses of F.Y.M. and chemical fertilizers., *etc.* Therefore, it is of utmost importance to make earnest efforts to address and resolve. There is a need to develop networks of marketing on co-operative basis, to address the constraints of orange growers through an effective strategy to promote the adoption of modern scientific technology among the farmers.

REFERENCES

- Bhopale R., S.P.S.Shinde, and V.R. Nimje 1996. Determinates of knowledge and adoption behaviour of orange growers. *Journal of Maharashtra Agricultural University* 21(1): 94-97.
- Meena V 2004 Knowledge and adoption of improved technology of guava plantation in sawi madhopur district of Rajasthan. M.sc.(Ag) Thesis RAU Bikaner
- Thakre P.V.Chikale N.S. and Deshmukh P.V. 1996 Factors affecting adoption of orange technology by growers *Maharashtra Journal of Extension Education* 14 (243): 20-23
- Waman G.K.,Girse K.A. 2003. Constraints analysis in marketing of pomegranate. *Rural India*. 66: 43-45