

Bottlenecks in Adoption of Bael Production Technology in Sagar District of Madhya Pradesh

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Abstract

The study was undertaken in Sagar district of Madhya Pradesh to investigate the constraints faced by bael growers during production and marketing of bael and suggestion offered in adoption of bael production technology. The constraints which were most perceived by bael growers were unavailability of quality planting material, lack of proper post harvest management facilities and lack of knowledge about varieties suitable to their areas. From the farmers offered suggestions availability of area specific suitable, improved variety planting material was the felt need or pre requisite to get higher production and economic returns.

Key word: constraints, suggestions, bael, adoption, post harvest

Introduction

Bael (*Aeglemarmelos* Correa) is an important indigenous fruit of India and known since ancient times. It is grown in various parts of South East Asia including India, Sri Lanka, Pakistan, Burma, Bangladesh, Thailand etc. In India, bael is being grown throughout the country and is also known by other vernacular names like bela, bili, bilva, belo, maredu, vilwam, sriphal, golden apple, Indian quince and Bengal quince^[2]. Bael fruit is one of the most nutritious fruits. Analysis of the fruit gave 61.5g moisture, 1.8 g protein, 0.39 g fat, 31.8 g carbohydrates, 1.7 g minerals, 55 mg carotene, 0.13 mg thiamine, 1.19 mg riboflavin, 1.1mg niacin and 8.0 mg vitamin C per 100 g of edible portion^[1]. No other fruit has such a high content of riboflavin. Tannic acid is only phenolic substance detected from bael fruits. At present, it is scattered throughout India and cultivated in an area of about 1,000 hectares with production of 10,000tons. India ranks first in area and production of

bael in the world. Bael is also one of the most religious plant prayers of Hindu deities Lord Shiva and Parvati.

Area production and productivity of bael in Sagar district is 35 ha, 560 tonnes and 16 tonnes/ ha, respectively. In general, bael is cultivated largely through a traditional system, under which it is difficult to achieve desired level of production because local and old trees provide low production per unit area and need high laborers inputs. Local trees take several years before they come into full bearing and poor quality of fruit. Documentation has been done by different workers on various aspects like genetic variability, varieties wealth, nutritional value, agro-techniques including top working and water management and post-harvest changes etc. On the other hand, limited information is available about area specific varieties suitability and performance of bael at farmer's orchards in Sagar district of Madhya Pradesh.

Keeping this in view the present study was carried out to determine the constraints faced by bael growers during production

Material and Method

The present study was undertaken in Sagar district of Madhya Pradesh. This investigation was related to bael cultivators and constraints faced by them during production and marketing. This district consists of six blocks from which block Sagar, Rehli and Deori were selected purposively. From each block four villages and from each village thirty farmers were selected, where the farmers were having largest area under bael cultivation. The farmers from each village were arranged alphabetically and random sample of 120 farmers were drawn by randomization. A structured interview schedule was

Results and Discussion

Knowledge and adoption level of bael growers

Knowledge and adoption level of the respondents were measured and data have been presented in Table 1. It has been observed from the data that more than half of the respondents were having medium knowledge level about bael production technology *i.e.* 56.66 per cent and 20.00 per cent and 23.33 per cent respondents were possessing low and high knowledge level, respectively. Further, it is evident from the table that 53.33 per cent of the

and marketing of bael and to know the suggestions offered in adoption of bael production technology.

prepared for collection of data with a view to study various aspects. During investigation, the respondents expressed many reasons due to which they could not use recommended practices in their farming. The reasons or the causes were termed as constraint in the studies. The respondents were asked to indicate the constraints faced in adoption of recommended practices with its intensity of feeling on “yes or no answer.” Obtained problems were expressed in terms of frequency and percentage. Rank order was given from the highest percentage to the lowest percentage.

respondents were medium adopters. It may be resulted from the above findings that majority of the respondents were possessing medium knowledge level about bael production technology and were medium adopters of the technology. This clearly indicates the need to put more efforts by all the concerned to convince the farmers about improved production technology of bael cultivation^[3, 4].

Table 1 Distribution of bael farmers according to their knowledge and adoption Level (n = 120)

Sr. No.	Categories	Knowledge	Adoption levels
1	High	28 (23.33)	25 (20.83)
2	Medium	68 (56.66)	64 (53.33)
3	Low	24 (20.00)	31 (25.83)
	Mean	33.33	33.33

Constraints faced by the respondents

The parts of constraints were kept open ended in the questionnaire. The responses were recorded in the schedule

itself. The constraints under each of the practice required to be rated by each and every respondent, in one of the three

categories viz., most important, important and less important. The frequency was calculated for each constraint and converted in to percentage and rank was given. The higher ranks indicated higher

Observations and analysis

The highest percentage observed in constraints were unavailability of quality planting material(rank first), Lack of knowledge about varieties suitable to their areas(rank second), Propagation techniques(rank third), Lack of knowledge about recommended bael production technology(rank fourth), Weight and quality loss during storage and transportation(rank fifth), Lack of knowledge about plant protection measures(rank sixth), Horticultural practices(rank seventh), Lack

perception of the respondents for that constraint and vice versa. The constraints and the mean score are given in the following Table 2.

of training at village level(rank eighth), Fluctuation of bael price in the market(rank ninth), Lack of marketing infrastructure facilities(rank tenth), High wages of laborer (rank eleventh),Lack of proper post-harvest management facilities(rank twelfth), Inadequate guidance by extension personnel (rank thirteen), Costly transportation (rank fourteen) and Harvesting technique (rank fifteen).

Table 2 Constraints faced by the farmers in adoption of recommended bael Production technology (n = 120)

Sr. No.	Constraints	Frequency	Percentage	Ranks
1	Lack of proper post harvest management facilities	72	60.00	XII
2	Lack of training at village level	85	70.83	VIII
3	Lack of marketing infrastructure facilities	78	65.00	X
4	Lack of knowledge about recommended bael production technology	104	86.66	IV
5	Propagation techniques	106	88.33	III
6	Weight and quality loss during storage and transportation	98	81.66	V
7	Horticultural practices	94	78.33	VII
8	High wages of labour	75	62.50	XI
9	Inadequate guidance by extension personnel	71	59.16	XIII
10	Harvesting technique	46	38.33	XV
11	Fluctuation of bael price in the market	82	68.33	IX
12	Costly transportation	68	56.66	XIV
13	Unavailability of quality planting material	117	97.50	I
14	Lack of knowledge about plant protection measures	95	79.16	VI
15	Lack of knowledge about varieties suitable to their areas	110	91.66	II

Suggestions from the farmers to overcome the constraints in adoption of bael production technology

The suggestions were invited openly from respondents and the frequency was calculated for each suggestion and

converted into percentage and rank was given (Table 3).The most important suggestions offered by the bael growers to

overcome the constraints in adoption of improved bael production technology were: Quality planting material should be made available easily(76.66%), Lack of knowledge about varieties suitable to their areas(73.33 %), Lack of knowledge about recommended bael production technology(62.50%), Training should be imparted to the bael growers (56.66%), Sufficient and timely credit facility should be made available(51.66%), Market facilities should be strengthened(50.0%) and Irrigation sources should be increased(43.33%).

It is clear from the Table 3 about the suggestions made by the majority of the farmers that these suggestions are based on the facilities have been availed but are not sufficient and satisfied up to the extent of their expectations. Thus, it can be concluded from the facts mentioned above that the facilities to the bael growers' are already being provided by the human resources or by natural resources needs to be strengthened and tailored according to the requirements of bael growers. The other suggestions offered by the farmers need to be looked in to account

very carefully by the appropriate agencies to improve the productivity of bael crop.

From the above discussion, it can be concluded that the majority of farmer's constraints about bael production technology were lack of knowledge about varieties suitable to their areas, Lack of knowledge about recommended bael production technology, Propagation techniques, unavailability of quality planting material, lack of knowledge about plant protection measures, lack of proper post harvest management facilities, lack of training at village level, lack of marketing infrastructure facilities, horticultural practices, weight and quality loss during storage and transportation, inadequate guidance by extension personnel, fluctuation of bael price in the market, high wages of laborers, harvesting technique, costly transportation and inadequate guidance by extension personnel. Amongst the farmers offered suggestions availability of area specific, suitable, improved variety planting material is the felt need or pre requisite to get higher production and economic returns.

Table 3 Suggestions from the respondents to overcome the constraints in adoption of recommended bael production technology (n = 120)

Sr. no.	Constraints	Frequency	Percentage	Ranks
1	Quality planting material should be made available easily	92	76.66	I
2	Training should be imparted to the bael growers	68	56.66	IV
3	Market facilities should be strengthened	60	50.00	VI
4	Irrigation sources should be increased	52	43.33	VII
5	Lack of knowledge about varieties suitable to their areas	88	73.33	II
6	Sufficient and timely credit facility should be made available	62	51.66	V
7	Lack of knowledge about recommended bael production technology	75	62.50	III

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