

**RESEARCH PAPER**

Knowledge level of pomegranate growers about recommended pomegranate production technologies of UAS Dharwad

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Abstract : The present study was conducted with specific objective to study the knowledge level of pomegranate growers about recommended pomegranate production technologies in Vijayapura and Bagalkot districts of Karnataka, respectively. Total of 8 villages were selected for the study and 15 pomegranate growing farmers from each village were randomly selected to constitute a total sample of 120 farmers. It was noticed that almost two fifth (39.17 %) of the pomegranate farmers belonged to medium knowledge level category, 32.50 per cent of them belonged to low knowledge level category and 28.33 per cent of them belonged to high knowledge level category, respectively. Cent per cent of the pomegranate growers had knowledge about the varieties, planting material, spacing, time of planting, frequency of pruning and mode of irrigation. Large majority of them had knowledge about chemicals to control pests (90.00%), size of the pit (85.00 %), chemicals to control diseases (80.00 %) and diseases of pomegranate (78.33 %). Majority of them had knowledge about the type of soil (71.67%), frequency of fertilizer application (66.67%) and pests of pomegranate (60.00 %). More than half (59.17 %) of them had knowledge about the frequency of irrigation and Bahar treatment (55.83 %). About 45.83 per cent of them had knowledge about the pit filling process with FYM, 43.33 per cent of them had knowledge about the growth regulators used, 41.67 per cent of them had knowledge about the proportion of NPK application per tree and 39.17 per cent of them had knowledge about the rest period given during Bahar treatment. Equal percentage of them (33.33 %) had knowledge about types of Bahar treatments and average yield per tree. About 30.83 per cent of knew about the quantity of FYM application and 23.33 per cent knew about intercropping in pomegranate and 19.16 per cent of them knew about the weedicides.

Key Words : Knowledge, Production technologies, Pomegranate growers

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INTRODUCTION

Pomegranate (*Punicagranatum* L.) is an important fruit in tropical and subtropical regions of the world. It is

commonly known as Anar, Dalib and Matulum. The center of origin of pomegranate is Iran, where it was first cultivated in 2000 B.C. It is extensively cultivated

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in various countries which include Spain, Morocco, Egypt, Iran, China, Japan, USA, Russia, Pakistan, India and other Mediterranean countries. Pomegranate occupies 18th place based on production among the world’s main fruit crops.

Karnataka has an area of about 29 thousand hectares under pomegranate cultivation and production of about 3 lakh metric tonnes contributing almost 11 per cent to the national pomegranate produce. The predominant pomegranate growing districts are Chitradurga, Koppal, Tumkuru, Bijapur, Bagalkot, Bellary and Dharwad. Varieties like Kesar (Bhagwa), Super Bhagwa, Ruby Red, Mridula and Ganesh are popularly cultivated here. Kesar variety is grown in major districts of Karnataka.

Pomegranate is known as a “super food” because of its nutrient-rich qualities. Pomegranates are low in calories and fat but high in fiber, vitamins (B3, B4, B6, B5, C and E) and minerals (Calcium, Magnesium, Sodium, Phosphorus and Zinc). Benefits include antioxidants, heart health, urinary health, exercise endurance and more. Pomegranate is acclaimed as the “healing fruit” for its ability to cure over 100 diseases. Studies have found that pomegranate extract may reduce oxidative stress and inflammation in the arteries, lower blood pressure and help fight atherosclerosis plaque buildup in the arteries, which can lead to heart attacks and strokes.

MATERIAL AND METHODS

The study was conducted in Vijayapura and Bagalkot districts of Karnataka in the year 2022-23 by using *Ex-post facto* research design and simple random sampling technique. Keeping the criteria of maximum area under pomegranate cultivation, two talukas from each district, viz., Vijayapura, Indi, Bagalkot and Bilagi are selected. Based on the highest area under pomegranate cultivation, two hoblis were selected from each selected taluk. By employing simple random sampling technique, 30 farmers growing pomegranate from each taluka, viz., Vijayapura, Indi, Bagalkot and

Bilagi, were randomly selected to constitute a total sample of 120 farmers. “*Ex-post facto*” research design was employed for the study. To study the knowledge of farmers about pomegranate production technologies, a structured interview schedule was prepared by reviewing the previous studies and pretested in the non-sample area. Statistical tools such as frequency, percentage, mean and standard deviation were used to categorize the knowledge level.

A teacher made test, as suggested by Anastasi (1961), was employed to measure the knowledge level of the respondents about pomegranate cultivation practices. A list of knowledge items was prepared by discussing with experts from Horticulture, staff of Krishi Vigyan Kendra, staff of the Agricultural Extension Education Centre and by referring to the package of practices book published by the University of Horticultural Sciences, Bagalkot. Each practice was framed in a question form to obtain the response from the respondents. For each question alternative, answers were given. The answers to the question were quantified by giving one score to correct answer and zero score to the incorrect answer. The test consisted of 24 knowledge questions. The questions covered a full range of cultivation practices, beginning from variety selection till the crop yield. Thus, the maximum possible score was 24 and the minimum was zero.

RESULTS AND DISCUSSION

The experimental findings obtained from the present study have been discussed in following heads :

Overall knowledge of pomegranate growers about recommended production technologies :

It could be seen from Table 1 that almost two fifth (39.17%) of the pomegranate growers belonged to medium knowledge level category, 32.50 per cent of them belonged to low knowledge level category and 28.33 per cent of them belonged to high knowledge level category, respectively. This may be due to the middle

Table 1: Distribution of pomegranate farmers according to overall knowledge of recommended production technologies (n=120)

Category	f	%
Low (<12.75)	39	32.50
Medium (12.75-16.25)	47	39.17
High (>16.25)	34	28.33
Mean=14.50		SD=4.12

f = Frequency

% = Percentage

age groups, experience in pomegranate cultivation, extent of extension participation and contact, mass media exposure and social media utilization, medium level of innovativeness, economic motivation and market orientations. The results are similar to those of Prashanth *et al.* (2018), Morwal *et al.* (2019), Anamika (2017) and Baswante *et al.* (2022).

Soil type :

It could be inferred from the table that majority (71.67 %) of the pomegranate growers knew that Sandy Loamy soil is the most suitable soil for pomegranate cultivation. Since majority of the study area came under sandy loamy and black soil.

Variety recommended :

In the case of varieties recommended, cent per cent of them knew about varieties like Kesar/Bhagwa, Super bhagwa and Ruby Red because of their popularity in the local area due to the high yielding capacities of the

recommended varieties compared to local varieties.

Planting material used :

Cent per cent of them knew about air layering (gootie), hardwood cuttings and tissue culture, which were recommended for pomegranate crop planting because of high recognition and awareness due to traditional knowledge, agricultural extension services, demonstrations and productivity and profitability from the planting material.

Time of planting :

Cent per cent of them knew that May-June or June-July were suitable times for planting pomegranate due to their knowledge of planting season over the years.

Size of the pit during planting :

Majority (85.00 %) of the pomegranate growers knew that 1x1x1 m³ was the suitable size of pit required for pomegranate planting. This might be due to the

Table 2 : Knowledge level of pomegranate farmers about individual recommended production technologies

Sr. No.	Recommended practices	n=120	
		f	%
1.	Soil type (Sandy loamy soil)	86	71.67
2.	Variety recommended (Kesar/Bhagwa, Super bhagwa, Ruby red)	120	100.00
3.	Planting material used (Air layering, Hardwood cuttings, Tissue culture)	120	100.00
4.	Time of planting (May-June/June-July)	120	100.00
5.	Size of the pit during planting (1x1x1 m ³)	102	85.00
6.	Spacing recommended for planting (4.5x4.5 m ² /5x5 m ² /6x6 m ²)	120	100.00
7.	Pit filling with FYM	55	45.83
8.	Quantity of FYM application (12.5t/ha/year to 25t/ha/year)	37	30.83
9.	Proportion/dosage of NPK application per tree (400g:200g:200g)	50	41.67
10.	Frequency of fertilizer application (Monthly once)	80	66.67
11.	Pruning frequency (Yearly once)	120	100.00
12.	Bahar treatment	67	55.83
13.	Types of Bahar treatment (Ambebahar, Mrigbahar, Hasta bahar)	40	33.33
14.	Rest period given during bahar treatment (3-4 months)	47	39.17
15.	Best mode of irrigation (drip irrigation)	120	100
16.	Frequency of irrigation (weekly once : summer, once in a fortnight: other seasons)	71	59.17
17.	Intercropping (with papaya, with cereals and with leafy vegetables)	28	23.33
18.	Growth regulators used (GA3, Ethrel)	52	43.33
19.	Pests of pomegranate (Pomegranate butterfly, Bark eating caterpillar, Stem borer, Mealy bugs, Thrips)	72	60.00
20.	Chemicals to control pests (Malathion, Imidacloprid, Quinalphos, Dimethoate)	108	90.00
21.	Diseases of pomegranate (Leaf spot, Bacterial blight Wilt)	94	78.33
22.	Chemicals to control diseases (Carbendazim, Mancozeb, Bordeaux mixture, COC)	96	80.00
23.	Weedicides (Diuron)	23	19.16
24.	Average yield (20-25 kg/tree)	40	33.33

practice of the same kind of pit size over the years.

Spacing recommended for planting :

Cent per cent of them knew that 4.5x4.5 m², 5x5 m² and 6x6 m² were the spacing between the pomegranate plantings recommended because of their participation in demonstration activities and training from the extension department and also the information disseminated from the experts and fellow growers.

Pit filling with FYM :

More than two fifth (45.83 %) of them knew about the proper method of pit filling with FYM.

FYM application :

Regarding FYM application, 30.83 per cent of the respondents knew that 12.5t/ha/year to 25t/ha/year was the recommended range of FYM application, since very few of them have information obtained from extension personnel and their fellow growers.

Proportion/dosage of NPK application per tree :

Regarding the proportion of NPK suggested per tree, 41.67 per cent of the pomegranate growers knew that 400g : 200g : 200g/tree was the recommended proportion of NPK per tree, since majority of them lacked information regarding the exact proportion and majority of them roughly applied NPK per tree as suggested by their fellow growers.

Frequency of fertilizer application :

With respect to the frequency of fertilizer application, majority (66.67 %) of the pomegranate growers knew that monthly once was the actual frequency of fertilizer recommended for pomegranate cultivation due to their practice of application over the years and their local knowledge inclination.

Pruning frequency :

Cent per cent of the pomegranate growers knew that yearly once pruning of pomegranate tree is recommended.

Bahar treatment, types of Bahar treatment and rest period given during Bahar treatment :

In the case of the Bahar treatment, more than half (55.83 %) of the pomegranate growers knew about the Bahar treatment since very few of them had exactly got

the information about the Bahar treatment, its importance and its impact on the prolific growth of the pomegranate. Only 33.33 per cent of them knew that AmbeBahar, Mrig Bahar and Hasta Bahar were the types of Bahar treatments since some of their fellow growers lacked information about the types of the Bahar treatments and lack of information gathered from the extension personnels and 39.17 per cent them knew that 3-4 months of rest period was given during Bahar treatment.

Best mode of irrigation

When it comes to the mode of irrigation, cent per cent of the pomegranate growers knew that drip irrigation was the best mode of irrigation recommended since the rate of success of drip irrigation towards the production and productivity of pomegranate crop was more.

Frequency of irrigation :

More than half (59.17 %) of the respondents knew that the frequency of the irrigation recommended was weekly once in summer and once in 2 weeks after the summer since many of them believed and practiced a more frequent range of irrigation of about 2 to 3 days of irrigation once over the years and practiced it from the fellow growers and nearby farms.

Intercropping :

Regarding intercropping, 23.33 per cent of the respondents knew that papaya, cereals and leafy vegetables could be grown as intercrop with pomegranate, since majority of them had grown pomegranate as a sole crop rather than intercrop and they lacked information about the intercropping means and importance of intercropping with pomegranate.

Growth regulators :

In the case of growth regulators, 43.33 per cent of the pomegranate growers knew that GA3 and ethrel were the best growth regulators recommended for enhancing pomegranate growth. This might be because of a lack of knowledge about the growth regulators, the complexity in understanding them and they need expertise advice in understanding.

Pests of pomegranate :

With respect to pests of pomegranate, half (50.00 %) of the pomegranate growers knew that Pomegranate butterfly, Bark Eating caterpillar, Stem borer, Mealy bugs

and Thrips were the major pests of pomegranate crop because of the level of damage they have caused in that particular area of cultivation.

Chemicals for pest control :

Large majority (90.00%) of the respondents knew about the important chemicals used for controlling pests of pomegranate since majority of them contacted the input dealers regarding gaining information about the recommended pesticides for controlling the pests.

Diseases of pomegranate :

Regarding the diseases of pomegranate, majority (78.33 %) of the respondents knew that Leaf Spot, Bacterial Blight and Wilt were the major diseases of pomegranate crop because of the level of damage they have caused in that particular area of cultivation.

Chemicals to control diseases :

Majority (80.00 %) of the respondents knew about the important chemicals used for controlling diseases of pomegranate since majority of them contacted the input dealers regarding gaining information about the recommended pesticides for controlling the diseases.

Weedicides :

Only 19.16 per cent of the pomegranate growers knew about Diuron, which is the recommended weed control chemical, since they have observed that majority of the pomegranate growers have adopted more of the hand weeding practice than the chemical mean and least usage of it.

Average yield :

With respect to the average yield per tree of pomegranate, 33.33 per cent of the respondents knew that a pomegranate tree has an average yield of 20-25kg per tree since most of them never calculated the yield per tree rather than the yield per acre.

Conclusion :

Knowledge level of farmers with regard to recommended production technologies of pomegranate was found to be medium. There is an opportunity to design and implement targeted educational programs and workshops. These programs can focus on enhancing their knowledge and skills related to pomegranate cultivation, pest management, and best agricultural practices. This

can help improve overall productivity and fruit quality.

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