Asian Journal of Agricultural Extension, Economics & Sociology

Volume 41, Issue 10, Page 783-787, 2023; Article no.AJAEES.107025
ISSN: 2320-7027

Assessment of Knowledge of Pomegranate Growers of Banaskantha District, Gujarat on Pomegranate Production Technology

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2023/v41i102225

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/107025

Original Research Article

Received: 04/08/2023
Accepted: 10/10/2023
Published: 16/10/2023

ABSTRACT

Aims: To assess the knowledge level of pomegranate growers in the Banaskantha district of Gujarat, regarding pomegranate production technology both before and after training programme.
Study Design: No experimental quantitative ex post facto research.
Place and Duration of Study: Targeted farmers from four talukas within the jurisdiction of the Krishi Vigyan Kendra (KVK).
Methodology: Total 30 trainings covering various aspects of pomegranate production were, conducted both on-campus and off-campus, during year 2019-2022 and 150 trainee farmers were randomly selected for pre- and post-training evaluations. The questionnaire was prepared to evaluate the knowledge.

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Results: The overall findings revealed that 48.33 percent of growers possessed low knowledge, 36.50 percent had medium knowledge, and 15.17 percent exhibited a higher level of knowledge concerning pomegranate production technology. Specifically, 20.67 percent and 16.67 percent of growers demonstrated good knowledge in integrated nutrient management and harvesting techniques, respectively. Conversely, 49.33 percent and 40.00 percent of growers exhibited low knowledge levels in harvesting techniques, fruit cracking and sun scalding management, and integrated nutrient management. Moreover, the majority of pomegranate growers demonstrated limited knowledge in post-harvest handling (61.33 percent), pest and disease management (56.00 percent), bahar management (50.67 percent), layout and planting, as well as the management of fruit cracking, sun scalding, 48.67 percent), as well as fruit setting and fruit quality management (48.00 percent). The mean knowledge score for pest and disease management was 108.33, which showed substantial improvement from the pre-training mean score of 36.03. Whereas, the aspect of bahar management demonstrated the most significant increase in knowledge (125.15).
Conclusion: The post-training evaluation indicated an overall knowledge enhancement of 92.57 percent on various aspects of pomegranate production technology. The assessment of knowledge among pomegranate growers on pomegranate production technology reveals both strengths and areas for improvement.

Keywords: Pomegranate; knowledge level; production technology.

1. INTRODUCTION

Pomegranate is an important fruit crop in arid and semi-arid regions. It belongs to the family Punicaceae and the genus Punica. Pomegranate fruits are mainly used for table purposes; however, they are also processed to make products like bottled juice, syrup, jelly, and wine. It is a good source of carbohydrates (14.5%), proteins (1.6%), fats (0.1%), and minerals (0.7%), comprising calcium (10 mg/100 g), magnesium (12 mg/100 g), phosphorus (70 mg/100 g), and iron (0.3 mg/100 g). Pomegranate also supplies vitamins like thiamine, riboflavin, nicotinic acid, and ascorbic acid [1,2]. The rind of pomegranate fruits contains tannins, which are successfully used in the leather industry and pharmaceuticals [3]. The rind of fruit is also a source of dye, which has been used for dying wool and silk. The pomegranate rind possesses intestinal disorders. That extract from fruits has antiviral activity [4]. Gujarat is the third-largest pomegranate-growing state in India after Maharashtra and Karnataka [5], Kutch and Banaskantha is the major pomegranate-growing districts in the state, sharing about 77% of the total area of Gujarat. Since last decade, the pomegranate area in northern Gujarat has increased substantially, particularly in Banaskantha district, which share about 82% of the area of the north Gujarat region [6], but the productivity and quality of fruits are deteriorating. Since the pomegranate crop in the area was not native, the knowledge of farmers regarding scientific production technology practices was low. A farmer needs sufficient knowledge about cultivation practices, which is crucial. Training in the production practices of pomegranates provides farmers with the knowledge and skills needed to overcome challenges, optimize production, and ultimately improve their livelihoods [7]. While it's true that some farmers might initially lack knowledge, providing training addresses this gap and empowers them to become more successful in their farming. Therefore, it felt necessary to find out the knowledge level of the pomegranate growers before developing a suitable strategy and planning an effective capacity-building program to overcome the problems related to the pomegranate production practices.

1.1 Objective

To evaluate the level of knowledge among pomegranate growers regarding pomegranate production technology. This assessment aims to identify areas of strength and areas that may require improvement in their understanding of the techniques and practices involved in pomegranate cultivation.

1.2 Hypothesis

There may be variations in the knowledge levels of pomegranate growers in the District. Factors such as experience, knowledge level on modern Production practices, may influence their skills with advanced pomegranate production techniques.

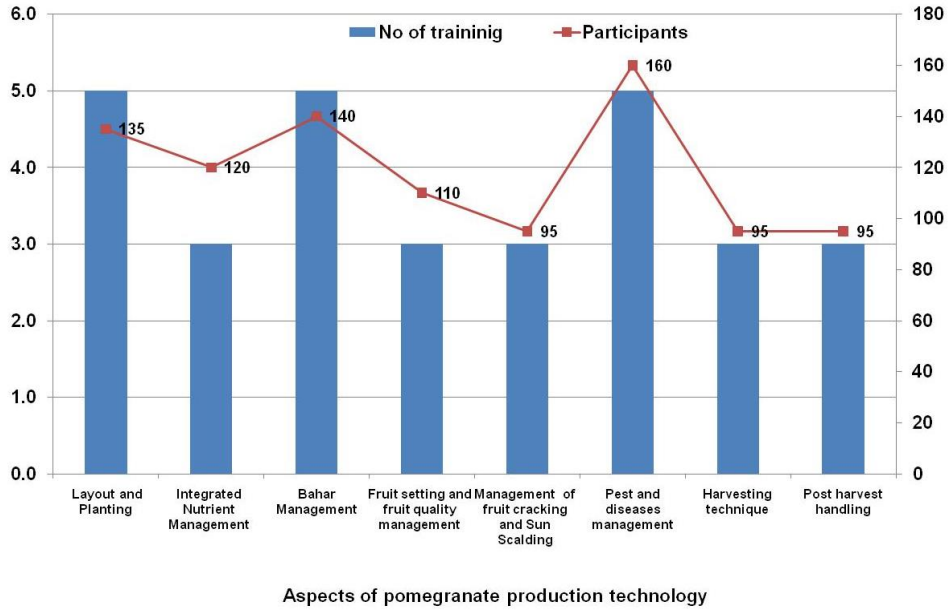

Fig. 1. of Trainings conducted on the various aspect of pomegranate production technology and participants

1.3 Purpose of the Study

To provide valuable insights into the current state of knowledge among pomegranate growers in the District, pertaining to pomegranate production technology. Find out specific areas where growers may benefit from additional training, extension services, or educational resources to enhance their proficiency in pomegranate cultivation. That can contribute to the overall improvement of pomegranate production practices in the region, leading to increased yields, economic prosperity for growers, and potentially a more sustainable and efficient pomegranate industry in Banaskantha District, Gujarat.

2. METHODOLOGY

The farmers training programmes was organized at Krishi Vigyan Kendra Banakanha II Tharad Gujarat during the month of Jan to Dec 2019-2022. The farmers were covered from five talukas of KVK jurisdiction area of the district viz; Tharad Lakhani, Deodhar, Bhabhar and Vav. A total of 30 training programs, including twelve on campus and eighteen off campus, were conducted to impart knowledge on different aspects of pomegranate production (Fig. 1). A total of 150 trainee farmers were randomly selected for pre- and post-training evaluations. The questionnaire was prepared to evaluate the knowledge. The knowledge was assessed in low, medium, and high-level categories. The questions on different aspects were asked, and pre- and post-training assessments were done. The collected data were tabulated and analyzed

3. RESULTS AN DISCUSSION

The knowledge level of the pomegranate growers (trainees) on different aspects of the production technology of pomegranate is presented in Table 1. The data depicted in the table indicated that 15.17 percent of pomegranate growers had a high level of knowledge 38.33 percent of growers had a medium level of knowledge. However, 67.75 percent of pomegranate growers had low-level knowledge. In the case of knowledge on various aspects of pomegranate production technology, 20.67 percent and 16.67 percent of growers had good knowledge about integrated nutrient management and harvesting techniques, respectively. However, 49.33 and 40.00 percent of growers were found to have a low level of knowledge on harvesting techniques, management of fruit cracking and sun scalding and integrated nutrient management. In terms of knowledge on post-harvest handling (61.33), pest and disease management (56.00), bahar management (50.67), layout and planting, and management of fruit cracking and sun Scalding 48.67, fruit setting, and fruit quality management (48.00 percent), pomegranate growers were found to have little knowledge. All aspects of pomegranate production, from layout and planting to post-harvest handling, are crucial for

commercially viable pomegranate production. The growers should be well equipped with advance knowledge on production practices. An appropriate understanding of improved cultivation practices helped to increase their knowledge level [8]. The current finding reveals that there is a large gap in the appropriate knowledge of the pomegranate growers on production technology. The findings are in agreement with Jakkawad et al., [9] and Baswante et al. [10].

The knowledge improvement of pomegranate growers on different aspects of production technology is elucidated in Table 2. The data on pre-evaluation revealed that the extent of knowledge on the aspect of fruit setting and fruit quality management practices had the lowest score (18.77). Fruit quality management is an integrated approach that helps farmers gets competitive prices from the market. The maximum score (43.17) was recorded in the aspect of harvesting technique, as maturity indices and harvesting technique were known to the pomegranate growers. The highest percentage change in knowledge (125.15) was observed in the aspect of bahar management, as this is a crucial aspect for pomegranate production that decides the quality and quantity of production and contributes to its higher benefit and low cost of production. The flowering season is decided based on the weather situation, resource availability, and market position. The participants acquired knowledge on this aspect can ensure the maximum profit. The mean knowledge score on pest and disease management after imparting training was 108.33, compared to the mean knowledge score of 36.03 before training. The overall improvement in knowledge level was 92.57 percent. The findings coincide with those of Sontakke [11] and Prashanth *et al.,* [8]. The present findings indicate that there is scope to improve knowledge levels on various aspects of pomegranate production technology. The assessment of knowledge pre- and post-training of the pomegranate growers was in agreement with the findings of Malshe et al., [12].

Table1. Knowledge level of the pomegranate grower (trainees) on various productions technology practices of pomegranate

Sr. No.	Particulars	Frequency (N = 150)		
		Low	Medium	High
1	Layout and Planting	73(48.67*)	50 (33.33)	27(18.00)
2	Integrated Nutrient Management	59(39.33)	60(40.00)	31(20.67)
3	Bahar Management	76(50.67)	54(36.00)	20(13.33)
4	Fruit setting and fruit quality management	72(48.00)	56(37.33)	22(14.67)
5	Management of fruit cracking and Sun Scalding	73(48.67)	60(40.00)	17(11.33)
6	Pest and diseases management	84(56.00)	44(29.33)	22(14.67)
7	Harvesting technique	51(34.00)	74(49.33)	25(16.67)
8	Post harvest handling	92(61.33)	40(26.67)	18(12.00)
Overall average		72.50(48.33)	54.75(36.50)	22.75(15.17)

*(*indicates percentage of respective frequencies)*

Table2. Knowledge level of the pomegranate growers on different aspects of Production technology after pre- and post training evaluation

Sr.No.	Technology	Knowledge(Score)			Per cent change	Rank
		Before	After	Mean difference		
1	Layout and Planting	20.86	42.48	21.62	103.64	III
2	Integrated Nutrient Management	36.39	52.26	15.87	43.61	VIII
3	Bahar Management	26.28	59.17	32.89	125.15	I
4	Fruit setting and fruit quality management	18.77	35.68	16.91	90.09	V
5	Management of fruit cracking and Sun Scalding	38.62	71.49	32.87	85.11	VII
6	Pest and diseases management	36.03	75.08	39.05	108.38	II
7	Harvesting technique	43.17	81.64	38.47	89.11	VI
8	Post harvest handling	41.60	81.32	39.72	95.48	IV
Overall average score		32.72	62.39	29.68	92.57	

4. CONCLUSIONS

The appraisal of results regarding the extent of knowledge about pomegranate production technologies by the growers clearly indicates that more than fifty percent (48.33%) of the growers had a low level of knowledge about pomegranate production technologies. Whereas, these training programs improved an overall knowledge enhancement of 92.57 percent on various aspects of pomegranate production, the efficient training programs can improve the knowledge level of the farmers about the technology, which can help them manage their orchards effectively, increase production, and fetch a good price for the produce.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/107025