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Assesment of okra verities through on farm testing in Bharuch district of Gujarat

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Abstract

As per mandate of KVK Bharuch is being conducting ON Farm Testing every year to increase awareness among farmers of districts for different high yielding varieties released by Agriculture universities as well as from various research institutes which are helpful to them for increasing income. The On Farm Trial were conducted to introduce the okra newly variety in Bharuch district. In the beginning awareness training was conducted for motivation and to disseminate information on standard package of practices. Bharuch District is the non-adoption of a recommended package of practices and an improved high-yielding variety. Gujarat Anand Okra (GAO-8, Anand Komal) released from Anand Agricultural University and Purna Rakshak (GNO-1) released from Navsari Agricultural University. In the demonstrated plot, the GAO-8 (Anand Komal) variety resulted in higher yield (117.87 q/ha) followed by variety GNO-1 (Purna Raksha) yield (113.45 q/ha) compared to local variety (91.23 q/ha) in kharif season. The yield increased compared to local variety was GAO-8 (29.20%) & GNO-1 (24.95%). The economic analysis of the data revealed that GAO-8 variety has higher gross returns (Rs. 330036/ha) with net returns (Rs. 24226/ha) and B:C ratio (3:3.76) followed by variety GNO-1 higher gross returns (Rs. 317660/ha) with net returns (Rs. 229850/ha) and B:C ratio (3.62) as compared to local variety.

Keywords: OFT, okra, yield, economics

Introduction

Okra (*Abelmoschus esculentus* L.) is an economically important vegetable crop grown in tropical and sub-tropical parts of world. It is widely consumed species of Malvaceae family. Okra (*Abelmoschus esculentus* (L.) Moench) is known as Ladies finger and Okra as common name in English. Okra is a major vegetable crop in South Gujarat, and is grown in districts such as Surat, Tapi, Navsari, Bharuch, and Valsad. Okra is a popular vegetable due to its nutritional value, taste, and medicinal and industrial uses. The availability of vitamin A, C and K and the mucilaginous matter, makes it helpful for growing muscular vigour as well as getting better skin physical condition. Fruits are cooked, canned and consumed in various forms (Rajesh *et al.*, 2018) [7]. It reduces cholesterol therefore, it is useful for heart. It is also used in constipation, dysentery, painful urination, cystitis, urethritis, gonorrhoeal cystitis and diabetes. Dry fruits and skin are useful in paper industry and fibre extraction. Okra can be cultivated in wide range of soil Navsari Agricultural University, Navsari, Gujarat released this variety in the year 2021 in the name of GNO-1 (Purna Rakshak). The farmer of Bharuch district particularly Hansot, Bharuch and Ankleshwar taluka, Okra is cultivated in large areas. Okra is a vegetable crop that is highly cherished for its wider adaptability in soil and its fresh pod and succulent types of leaves and can be grown under rainfed conditions (Akpan-Idiok *et al.*, 2012) [1]. Production of okra varies from plant to plant depending upon soil structure, application of fertilizers, intercultural operation, application of water, disease control method, and so on (Sachan *et al.*, 2017) [8]. Seeing the importance of okra in the terms of national and international markets, On Farm Testing demonstrations of two high yielding varieties of okra developed by Agricultural University, Gujarat were given in the farmer's field of Bharuch district of Gujarat. Hence, care the above points in awareness, a study work has been formulated with an objective to evaluate their yield performance in comparison to Agricultural university released high yielding varieties and local variety of this district to support the farmers in okra cultivation.

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Materials and Methodology

The current study was carried out in the adopted villages of 3 blocks of Bharuch district of Gujarat. During year 2022-23 & 2023-24 high yielding okra variety GAO-8 and GNO-1 was introduced as On Farm Testing of Krishi Vigyan Kendra, Bharuch. Total of 30 demonstrations were conducted on the selected farmers' fields of three blocks of districts in six villages covering an area of 10 ha. For easy understanding the difference as well as for demonstration plot of local variety were also grown. Moreover, farmers used a university recommendation dose of fertilizers and manure. All the recommended package of practices was followed for both the varieties as suggested by Anand Agricultural University, Anand and Navsari Agricultural University, Navsari. The data on yield, cost of cultivation, net returns with the benefit cost ratio of variety were collected from OFT as well as control from all selected farmers for further analysis. The demonstrations at farmers' fields were observed by KVK scientists in performing field operations, such as sowing, weeding, Pest and Diseases management, harvesting, and

grading, by imparting diagnostic field visits. The required step for the choice of the location, growers and plan of the demonstration were supervised as recommended by Choudhary (1999) [5] The Variety of Characteristics have been presented in Table 1.

Percentage increased yield =

$$\frac{\text{Demonstration yield} - \text{Local check yield}}{\text{Local Check yield}} \times 100$$

Benefit cost ratio calculated by the formula given below

$$\text{Benefit cost ratio} = \frac{\text{Gross Return}}{\text{Cost of cultivation}} \times 100$$

Table 1: Variety Characteristics

Variety	Year of Release	Special Features
Gujarat Anand Okra-8 (Anand Komal)	2021	Fruits of this variety are dark green colour, tender, smooth, medium long having narrow acute shape of apex. It has strong serration of leaf blade margin and deep depth of lobbing. Tall plant stature with more number of nodes and short internodes.
GNO-1 (Purna Rakshak)	2021	Gujarat Navsari Okra-1 (GNO-1: Purna Rakshak) is recommended for cultivation by okra growing farmers of South Gujarat. It shows moderately resistant reaction against YVMV, powdery mildew, ELCV disease as well as moderately resistant reaction against fruit and shoot borer, jassid and whitefly.

Results and Discussion

It has been noted that (Table 2) the GAO-8 variety recorded good average yield in demonstration plots i.e. 117.87 q/ha, followed by varieties GNO-1 32.8 t/ha and 113.45 q/ha respectively for the years 2022- 23 & 2023-24. However, the average Okra yields in control plots was 91.23 q/ha. This showed that there was a significant increase of Okra in the average yield of improved varietal plots i.e. GAO-8 (29.20%), followed by GNO-1 (24.35%), respectively as compare to the local variety. The findings lend support from Bagwale *et al.* and Darshan *et al.* for fruit yield per hectare. The main reasons of the low yield in control plots were, use of low yield producing variety, traditional cultivation practices, improper fertilizer and weed management causes economic losses to farmers. Introduction of high yielding varieties, created awareness among beneficiaries for scientific cultivation practices like timely

sowing, recommended spacing, balanced use of manure, fertilizers and weed management as well as integrated pest and disease management. The economics of Okra production under On Farm Testing was estimated and the results have been presented in Table 3. The data revealed that GAO-8 variety has higher gross returns (Rs. 330036/ha) as well as net returns (Rs. 242226/ha) and B:C ratio was 3.76 followed by variety GNO-1 which has higher gross returns (Rs. 317660/ha) as well as net returns (Rs. 229850/ha) and B:C ratio was 3.62 as compared to local varieties. These results are in line with the findings of Hiremath *et al.* (2007), Present study revealed that wide yield and management gaps in recommendations and farmers practices. Further improvement will be seen in succeeding years after adopting recommended management practices. The findings lend support from Bagwale *et al.* for fruit yield per hectare;

Table 2: Yield Performance of Okra

Name of variety	Demonstration Yield (q/ha)	Increased yield (%)	Potential yield of the demo variety (q/ha)
	Demo		
Local	91.23	--	--
GAO-8	117.87	29.20	129.45
GNO-1	113.45	24.35	127.20

Table 3: Economics of Okra production

Name of variety	Cost of Cultivation (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C ratio
Local	98560	255444	156884	2.59
GAO-8	87810	330036	242226	3.76
GNO-1	87810	317660	229850	3.62

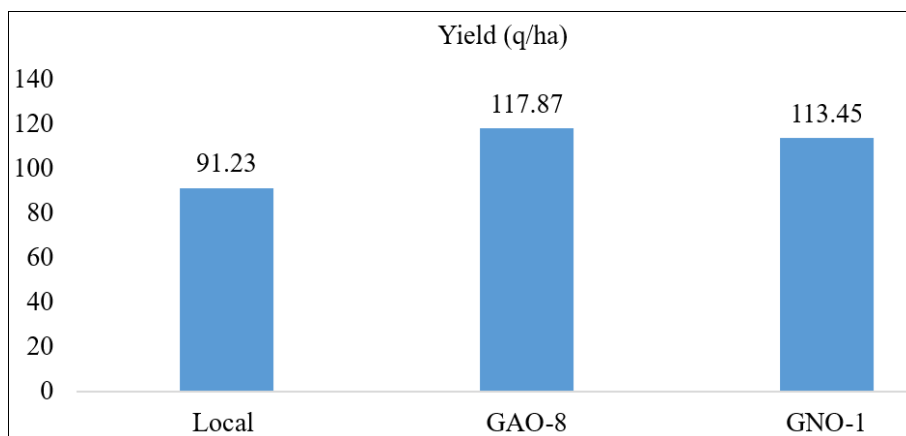


Fig 1: Yield performance

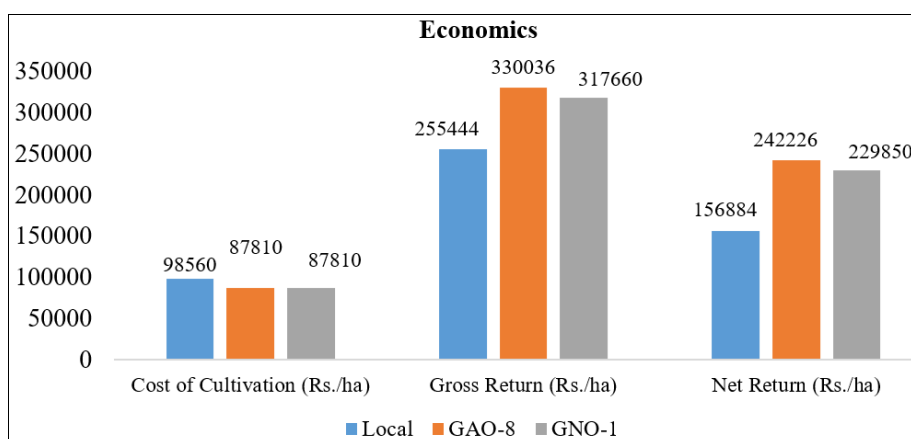


Fig 2: Economics impact

Concussion

The present study of okra var. GAO-8 & GNO-1 demonstration in farmer's field resulted in improved okra yield and profitability of the farmers by demonstration. The results convincingly indicated that the yield of okra could be increased with introduction of high-yielding varieties. This will support in increasing the income of farmers in the Bharuch district of Gujarat.

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