Journal of AgriSearch **2**(1): 69-71
Peer Reviewed Quarterly
ISSN : 2348-8808 (Print), 2348-8867 (Online)
Short Note

Impact of Frontline Demonstration on Okra (*Abelmoschus esculentus* (L.) Moench) Yield Improvement

HL KACHA* AND SK PATEL

Krishi Vigyan Kendra, Anand Agricultural University, Dahod, Gujarat, India

ARTICLE INFO

Received on : 04.12.2014
Accepted on : 27.01.2015
Published online : 10.03.2015

ABSTRACT

The major constraint for low productivity of okra in the Dahod District of Gujarat is non adoption of recommended package of practices and lack of awareness about the improved okra cultivation. To replace this old age technology Krishi Vigyan Kendra, AAU, Dahod conducted 30 front line demonstrations on high yielding variety (GAO-5) during kharif season 2013 and 2014. Cultivation practices comprised under FLDs viz. use of high yielding variety, maintained recommended plant to plant and row to row distances, recommended dose of organic and inorganic fertilizers and control of diseases and pest. An average yield of okra in FLDs ranged from 124.60 to 126.40 q/ha whereas in local practices 103.20 and 103.80 q/ha during 2013 and 2014, respectively. It was recorded that the percentage increase yield with high yielding variety over local variety was recorded in range of 20.74 to 21.77 %. Similarly, the extension gap ranged between 21.40 to 22.60 q/ha during the years 2013 and 2014, respectively.

Keywords: Okra, FLD, Extension gap, Technology gap, Technology index.

INTRODUCTION

Okra [*Abelmoschus esculentus* (L.) Moench] is an annual vegetable crop belongs to family Malvaceae. The centre of origin is tropical and sub-tropical region of the world. Okra is known as 'Gumbo' in United States of America, 'Ladys Finger' in England, whereas 'Bhinda' or 'Bhindi' in India. Okra is the most profitable summer vegetable. It occupies a place of prominence amongst summer vegetables in our country. Its adaptability to a wide range of growing condition makes it popular among vegetable growers. It is widely grown for its immature tender fruits which are used as vegetable. It is used in curries, stewed with meat and cooked into soups. Fruits are also canned green or dried off season uses. The root and stem of okra plants are used for cleaning the cane juice in the manufacture of Jaggery and Sugar (Chauhan, 1972). Okra fruits also have nutritional and medicinal values as the fruit contain 6.4 g carbohydrates, 2.2 g protein 0.2 g fat, 66 mg calcium, 500 mg phosphorus, 15 mg iron and 13 mg vitamin-C per 100 g edible portion. Similarly, okra fruit is excellent source of iodine which is necessary for the resistance against throat disease like goiter (Chauhan, 1972). It is good for the people suffering from heart weakness (Yawalkar, 1969). Ripen seeds are roasted ground and used as substitute for coffee in turkey. Matured fruits and stem contain crude fibre are used in paper industry. Among fruit vegetable okra is an important fruit vegetable having good demand throughout the year for its tender fruits.

Corresponding author Email: kacha.hitesh@yahoo.com

India is the largest producer of okra in the world (Anonymous, 2013). Total area under okra cultivation in India is estimated to be 3.6 lakh hectares with an annual production of 35 lakh metric tones (MT) (Shanmagasundaram, 2004). The area under okra cultivation in Gujarat is 65.66 thousand hectares, with the production of 723.33 thousand MT (Anonymous, 2013).

Okra crop requires long warm growing season and is susceptible to frost. The optimum day temperature for its better growth is between 25°C to 40°C and that of night is over 22°C. It thrives in all kinds of soils but to well drained medium black and light clayey soils, rich in organic matter and favourable soil pH range from 6.0 to 6.8 is more suitable for okra cultivation. However, the yield per hectare is very low in the district as compared to other parts of Gujarat. Low yield per unit area can be attributed to the number of yield affecting factors such as low fertility of land, lack of knowledge of technology on the part of okra growers and ultimately low adoption of recommended cultivation technologies. One of the objectives of this demonstration was to aware the okra growers about its scientific cultivation right from high yielding variety to overcome the low productivity. Selecting appropriate cultivar/variety for based on location specific requirements and agro-climatic conditions are one of the simple and yet more efficient way to improve productivity of targeted crop (Singh *et al*., 2008). For example simple technology like planting depth and planting geometry are nonmonetary input to improve crop production.There is need to develop and evaluate the technology considering good agronomic practices (Singh *et*

al., 2013) , Since now a day's needs of chemical free production is in demand popularly known as organic farming.

In present study performance of okra variety GAO-5 against local check was evaluated through Front Line Demonstration conducted as farmer's fields during the *Khaif* season 2013 and 2014. The study was carried out by the Krishi Vigyan Kendra, Anand agricultural University, Dahod. Total 30 demonstrations were conducted on the selected farmer's field of seven adopted villages and covering an area of 4.0 ha. The seeds were planted in 1st fortnight of July. The soil in Dahod District, in general has neutral pH. Electrical conductivity, too, is low. Organic carbon, nitrogen and phosphorus content of the soil are medium whereas, Potassium content is high. So, overall, the soil fertility indices are good for agriculture point of view.

The FLD was conducted to study the gaps between potential yield and demonstration yield, extension gap and technology index. In the present evolution study, the data on output of okra cultivation were recorded from FLD plots, besides the data on local variety adopted by the farmers of this region were also collected. The difference between FLD and local check were okra variety. However, other critical inputs such as recommended dose of fertilizers, agrochemicals and rest of the agronomical practices was did similar. The demonstration farmers were facilitated by KVK scientists in performing field operations i.e. sowing, spraying, weeding, harvesting, grading etc. during the course of training and visits. The technologies demonstrated are maintained and compared with local variety. The technology gap, extension gap and technological index (Samui *et al*., 2000) were calculated by using following formula as given below equations [Eq. 1-4]:

$$\text{Percent increase yield} = \frac{\text{Demonstration yield-farmers yield}}{\text{Farmers yield}} \times 100 \quad \text{Eq. 1}$$

$$\text{Technology gap} = \text{Potential yield-Demonstrated yield} \quad \text{Eq. 2}$$

$$\text{Extension gap} = \text{Demonstrated yield} - \text{Yield under existing practice} \quad \text{Eq. 3}$$

$$\text{Technology index} = \frac{\text{Potential yield - Demonstrated yield}}{\text{Potential yield}} \times 100 \quad \text{Eq. 4}$$

Results of 30 frontline demonstrations conducted during kharif 2013 and 2014 in 4.0 ha area on farmers field of seven villages of Dahod district indicated that the cultivation practices under FLDs viz. demonstrated high yielding variety (GAO-5) recommended planting spacing (60 cm x 30 cm), recommended dose of fertilizer (N:P:K @ 100:50:50 kg/ha), timely interculturing operations like weeding and control of pest and diseases through recommended chemicals at economic threshold level. The average FLDs yield was recorded 124.60 and 126.40 q/ha during 2013 and 2014, respectively, which were found 20.74 and 21.77 per cent consequently, increased over local check. Data further shows that the yield of okra in the year 2014 was increased successively which clearly speaks of the positive impact of FLD over local variety of okra (Table 1).

The results indicate that FLDs has given a good impact over farming communities of Dahod district as they were motivated by the new recommended new high yielding okra variety. Moreover, from first year onwards, farmers cooperated enthusiastically in carrying out FLDs which leads to encouraging results in the second year. The similar results of yield enhancement in chick pea in front line demonstration had also documented by Singh *et al* (2014).

The technological gap (69.97 and 71.77 q/ha in the year 2013 and 2014, respectively) reflected the farmer's cooperation, in carrying out such demonstrations with encouraging results in subsequent year. The technology gap observed may be attributed to variability in the soil fertility status and agro climatic conditions. The existing gap which ranged from 21.40 to 22.60 q/ha during the period of study emphasized the need to educate the farmers through various means for the adoption of improved agricultural technologies to reserve this trend of wide extension gap. More adoption of recent production technologies with high yielding varieties will subsequently change this alarming trend galloping the extension gap.

The technology index shows the feasibility of the evolved technology at the farmer's field. The lowest value of technology index which indicate the more feasibility of the technology. As such, decreased the technology index from 36.55 to 35.63 per cent indicated that the demonstrated technology was feasible (Table 1). The benefit cost ratio of the front line demonstration (Table 2) revealed that B:C ratio from recommended practice were subsequently higher than the local check i.e. farmers

Table 1: Productivity, technology gap, technology index, extension gap of okara as grown under FLD and local variety

Years	Area	No. of FLDs	Demonstration Yield (q/ha)			Yield of Local check (q/ha)	Potential yield (q/ ha)	Increased yield (%)	Extension gap (q/ha)	Technology gap (q/ha)	Technology index (%)
			Highest	Lowest	Average						
2013	4.0	30	132.10	99.80	124.60	103.20	196.37	20.74	21.40	71.77	36.55
2014	4.0	30	128.90	97.70	126.40	103.80	196.37	21.77	22.60	69.97	35.63

Table 2: Economic Impact of Okra as yield under FLD and traditional package of practices

Year	Cost of Cultivation (Rs./ha)		Gross Return (Rs./ha)		Net Return (Rs./ha)		BC Ratio	
	Demo.	Local check	Demo.	Local check	Demo.	Local check	Demo.	Local check
2013	32785.00	30985.00	311500.00	258000.00	278715.00	227015.00	9.50	8.33
2014	33505.00	31705.00	341280.00	278640.00	307775.00	245135.00	10.19	8.32

practices during the both the years of the demonstration. Average net return per hectare from the demonstration was Rs. 2,78,715.00 and Rs. 3,07,775.00, while from the local check Rs. 2,27,015.00 and Rs. 2,45,135.00 during the 2013 and 2014, respectively. The benefit cost ratio of demonstration and local check were observed 9.50, 10.19, 8.33 and 8.32 during the demonstration year 2013 and 2014, respectively. Similar finding was reported by Sharma (2003) in moth bean.

The present study of front line demonstrations produces a significant positive result and give researchers an opportunity to demonstrate the productivity potential and profitability of the recent developed technology under real farming situation, which they have advocating for long time. The results of front line demonstrations convincingly brought out that the yield of okra could be increased 20.74 per cent to 21.77 per cent with intervention on high yielding variety. From the above findings it can also concluded that use of high yielding variety of okra cultivation reduced the extension and technology gap to a great extent. This will sustainably increase the income as well as the livelihood of the tribal farmers of the district.

REFERENCES

Anonymous. 2013. District wise area and production of Horticultural Crops. Department of Horticulture, Gandhinagar, Gujarat.

Chauhan DVS. 1972. Vegetable production in India (3rd Ed.) Pub. by Ram Prasad and Sons, Agra.

Samui SK, Mitra S, Roy DK, Mandal AK and Saha D. 2000. Evaluation of front line demonstration on groundnut. *Journal of the Indian Society Costal Agricultural Research* **18** (2):180-3.

Shanmagasundaram S. 2004. The Hindu Survey of Indian Agriculture. Pub. by Kasturi and Sons Ltd. Chennai, pp.126-7.

Sharma OP. 2003. Moth Bean yield improvement through Front Line Demonstration. *Agricultural Extension Review*. **15** (5): 11-3.

Singh AK, Bhatt BP, Sundaram PK, Gupta AK and Singh D. 2013. Planting geometry to optimize growth and productivity faba bean (*Vicia faba* L.) and soil fertility. *J. Environ. Biol*. **34** (1): 117-22.

Singh AK, Manibhushan, Chandra N and Bharati RC. 2008. Suitable crop varieties for limited irrigated conditions in different agro climatic zones of India. *Int. J. Trop. Agri*. **26** (3-4): 491-6.

Singh D, Patel AK, Baghel SK, Singh MS, Singh A and Singh AK. 2014. Impact of Front Line Demonstration on the Yield and Economics of Chickpea (*Cicer arietinum* L.) in Sidhi District of Madhya Pradesh. *Journal of AgriSearch* **1**(1): 22-25.

Yawalkar KS.1969. Vegetable crops of India. Agri. Hort. Pub. House, Nagpur.

Correct Citation

Kacha HL and Patel SK. 2015. Impact of frontline demonstration on okra (*Abelmoschus esculentus* (L.) moench) yield improvement. *Journal of AgriSearch* **2**(1): 69-71