Research Article

Enhancing Yield and Economics of Okra through Front Line Demonstration

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Abstract

The major constraint of low productivity of okra in the Saharsa District of Bihar was non adoption of recommended package of practices and lack of awareness for okra cultivation. To replace this old age technology Krishi Vigyan Kendra conducted front line demonstrations during *kharif* season 2016 and 2017. Cultivation practices comprised use of high yielding variety (*Arka anamika*) at proper spacing (60 x 30 cm) with recommended dose of organic as well as inorganic fertilizer and plant protection measures. Results showed that average yield obtained were 146 and 150q/ ha under improved system, whereas, in local variety 118 and 120 q/ha yield was recorded during 2016 and 2017, respectively. The per cent increase in yield with high yielding over local variety was 14.06 to 25.0 per cent. The extension gap recorded was 18 and 30 per cent during 2016 and 2017, respectively.

Keywords: Economics, Extension gap, FLD, Okra, Technology gap and Technology index

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Introduction

Okra (*Abelmoschus esculentus* L. Moench) is an annual vegetable crop propagated from seed in tropical and subtropical regions of the world. Its pods are cooked as a vegetable in curries, stewed with meat, cooked into soups and canned and dried. Mature pods and the stem containing crude fibre and used in the paper industry. The root and stem of okra plants are used for cleaning the cane juice in the manufacture of Jaggery and Sugar [1]. Okra is a good source of vitamin A and B and contains vitamin C also. It is rich in protein and mineral elements. It is an excellent source of iodine, so useful for the control of goiter. It is good for people suffering from weakness of heart. Okra requires a long and warm growing season. As such when the crop is grown during kharif, it produces good yield of the fruits, okra thrives in all kinds of soils, but it grows best in a friable well manured soil [2].

Major importing countries of Indian vegetables are UAE, Pakistan, Srilanka, Nepal and Bangladesh. Okra is the major vegetable grown in India [3]. 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 [4]. 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 [5], Since now a day's needs of chemical free production is in demand popularly known as organic farming. The efforts are underway to increase the productivity of okra by imparting training and conducting demonstrations. To improve yield levels and make awareness to the okra growers, front line demonstrations (FLD) were conducted. In the present study, performance of okra variety *Arka anamika* against local check was evaluated in front line demonstrations conducted at farmer's field during *kharif* seasons 2016 and 2017.

Materials and Methods

Krishi Vigyan Kendra, Saharsa, Bihar conducted front line demonstrations on okra cv. *Arka anamika* during the year 2016 and 2017 in *Kharif* season. Totally 22 demonstrations in an area of 1.5 hectares were conducted on okra crop on farmers field. FLD's were conducted to study the gap between potential yield (180 q/ha), demonstration yield, extension gap and technology index. The data on output of improved and local okra plots were recorded. The farmers were guided by KVK scientists in respect of package of practices to be followed during the crop season. Technology gap, extension gap and technology index were calculated using following formula as suggested by [6].

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

$$\text{Technology gap} = \text{Potential yield} - \text{Demonstration yield}$$

$$\text{Extension gap} = \text{Demonstration yield- yield under existing practice}$$

$$\text{Technology index (\%)} = \frac{\text{Potential yield- Demonstration yield}}{\text{Potential yield}} \times 100$$

Results and Discussion

Yield performance

The results of front line demonstration revealed that average yield of 146 and 150q/ha were obtained during 2016 and 2017, respectively, which were found 14.06 and 25.0 percent consequently increased over local check. Data further showed that the yield of okra in the year 2017 was increased successively which clearly speaks of the positive impact of front line demonstration over local variety of okra (**Table 1**). [7] also observed that technology adoption is the key to increase crop productivity.

Technology gap

The technological gap (34 and 30 q/ha) in the year 2016 and 2017, respectively reflected the farmer's cooperation, in carrying out such demonstrations (Table 1). The technology gap observed may be attributed to variability in the soil fertility and climatic conditions. The extension gaps were 13 to 30q/ha during the period of study, emphasized the need to educate the farmers through various means for the adoption of improved agricultural technologies. More adoption of recent production technologies with high yielding varieties would subsequently change this alarming trend galloping the extension gap. These findings are similar to [8-10].

Table 1 Productivity, technology gap, technology index and extension gap of okra grown under FLD and local check

Year	Average yield (q/ha) in FLD	Yield of local check (q/ha)	Increase over local check (%)	Extension gap (q/ha)	Technology gap (q/ha)	Technology index (%)
2016	146.0	118.0	14.06	18.0	34.0	18.89
2017	150.0	120.0	25.00	30.0	30.0	16.67

Technology index

The technology index showed the feasibility of the evolved technology at the farmer's field. The lowest values of technology index indicate the more feasibility of the technology. As such, decreased the technology index from 18.89 to 16.67 per cent indicated that the demonstrated technology was feasible (Table 1). [11] in their study on technology index also agrees with the present observation.

Benefit: Cost Ratio

Benefit to cost ratio from recommended practice were comparatively higher than the local check during both the years of the demonstration (**Table 2**). The average net return/ha from the demonstration was Rs. 2,26,350/- and Rs.2,32,700/ha while from the local check Rs.1,76,100/- and Rs. 1,77,300/ha in during the 2016 and 2017, respectively. The benefit cost ratio of demonstration and local check were observed to be 4.44, 4.46 and 3.93, 3.82 during 2016 and 2017, respectively. This finding is similar with the findings of [8, 10].

Table 2 Economic Impact of Okra under FLD with traditional package of practices

Year	Cost of Cultivation (Rs/ha)		Gross Return (Rs/ha)		Net Return (Rs /ha)		B:C ratio	
	Demo	check	Demo	check	Demo	check	Demo	check
2016	65,650	59900	292000	236000	226350	176100	4.44	3.93
2017	67300	62700	300000	240000	232700	177300	4.46	3.82

Conclusion

The present study produced 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 had advocating for long time. The results of front line demonstrations convincingly brought out that the yield of okra could be increased by 14.06 per cent to 25.0 per cent with intervention on high yielding varieties. From the above findings, it could also be concluded that use of high yielding variety of okra cultivation reduced the extension and technology gap to a great extent. This would sustainably increase the income as well as the livelihood of the farmers of this district.

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Publication History
Received 11.01.2020
Revised 24.01.2020
Accepted 04.02.2020
Online 29.02.2020