

# Impact of Front Line Demonstration on the Yield and Economics of Okra

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## Abstract

Conventional farming is one of the major issues leads to lesser productivity due to lack of available package of practices and high yielding varieties. To replace these difficulties, Krishi Vigyan Kendra, Madurai conducted Front Line Demonstrations (FLDs) in the twenty farmer's field. The FLDs' was done in the farmers fields of Lekkadipatti village, Kottampatti Block and Melanedungulam village, Thruparangundrum Block during 2020-21 and 2021-22. The farmers realized very good fruit (Okra hybrid CO 4) yield (10.14 t/acre) in okra and could sell the produce @ Rs 18 per kg in nearby market and got gross return of Rs. 1,82,520/-. He is eyewitnessed the performance of IIHR Vegetable Special in terms of better fruit size, fruit weight, extended crop duration, yield and net returns. They earned average net profit of Rs. 1,02,194 for four months crop duration and very much satisfied. Whereas the conventional farming ie. Farmers practice average yield was 9.05 t/acre and got gross returns of Rs. 1,62,900/- and net returns of Rs. 80,450/-. The percentage increase over farmers practice is 12.06. IIHR Vegetable Special can give continuous flowering and fruiting. Further, the farmer convinced that as the 1.5 % IIHR Vegetable Special spray had the maximum plant height (97.89 cm), and very good fruit length. It also helps in retaining more number of flowers, thus increase in the fruit set leading to higher yield. Once he started spraying IIHR vegetable special in his field, neighboring vegetable growers also came to know about this fertilizer and performance which he was used in the field. Now farmers are using IIHR vegetable special regularly for all the vegetable crops as he has noticed improvement in yield and fruit quality particularly in okra. The farmers were experienced the technologies and very well adopted in the field and attained the socio economic benefits.

**Keywords:** Okra, Vegetable Special Foliar Spray, Yield, Economics, Impact Assessment

## 1. Introduction

Okra is mainly a crop of tropics and subtropics. It occupies fifth position, next to tomato, in area under vegetables in the country with a production of 33.24 lakh metric tonnes from an area of 3.47 lakh hectares. The crop is cultivated for its young tender fruits, used in curry and soups after cooking. It is a good source of vitamins A and B, protein and minerals. Dried fruit contain 13-22% edible oil and 20-24% protein and is used for refined edible oil. The field demonstrations conducted under the front line demonstrations. Front line demonstration is the most efficient tool of extension because farmers, in general, are driven by the awareness that is Seeing is Believing. The basic objective of front line demonstration is immediate spread of new technology and its

cultural management practices in the farmer's field under different agro-ecological zone of different crops in the district. While, demonstrating the technologies at farmer's field, the scientists are required to study the factor constraints of production of any crop. Keeping all these, demonstrations were conducted at farmers' field with the aim to achieve the maximum production of fruit yield in district by adopting improved technology.

## 2. Materials and Methods

The present study was carried out in Krishi Vigyan Kendra, Agricultural College and Research Institute, Madurai during Kharif season of 2019-20 and 2020-21. Ten farmers each village were selected in Melavalavu and Melanedungulam villages,

Kottampatti and Thiruparangundrum blocks of Madurai district during 2019-20 and 2020-21. He followed standard package of practices recommended by Tamil Nadu Agricultural University, Coimbatore. To improve the yield of okra, the recommended dosage of foliar application of Arka Vegetable Special @ 75 grams in 15 liters of water (5 grams per litre) along with 1 shampoo sachet and 2 medium sized lemons was applied for four times. Training programme was imparted to the beneficiaries related to crop production technologies as a part of demonstration. The various aspects included in the frontline demonstration were introduction of new variety, integrated nutrient management, weed management, proper irrigation schedule, integrated pest management and harvesting. The detail guidance regarding scientific cultivation practices of okra cultivation were given to the farmers to increase the awareness of improved technology and to increase productivity of okra. Yield data were collected from farmer's practices and improved practices. Cost of cultivation, gross return, net return and benefit cost ratio (B: C ratio) were computed and analysed. The yield and economics data of crop was collected from the benefited farmers through personnel interview. Based on the market price the cost of cultivation and economics were calculated. The technology gap, extension gap and technology index were calculated by the formulae as recommended [1,2].

% increased over farmers practices =  $\frac{\text{Improved practices (IP)} - \text{Farmers practices (FP)}}{\text{Farmers practices (FP)}} \times 100$

Technology index =  $\frac{\text{Potential Yield} - \text{Demonstration Yield}}{\text{Potential Yield}} \times 100$

Technology gap = Potential Yield - Demonstration Yield

Extension gap = Demonstration yield - Yield under Farmers Practices

B: C ratio =  $\frac{\text{Gross income (Rs. / ha)}}{\text{Gross cost (Rs. / ha)}}$

### 3. Results and Discussion

#### 3.1 Yield

The average yield of okra under improved practices was 10.14 q/ha during 2019-20 and 10.20 q/ha during 2020-21. The yield was much higher than compared to that of farmer's practices which was only 9.05 q/ha during 2019-20 and 9.12 q/ha during 2020-21. The average percentage of increase in the yield over farmer's practices was 12.06 % and 12.0% respectively during 2019-20 and 2020-21. The results indicated that the Frontline Demonstration gives better impact on farming community of Madurai district by higher productivity due to adopting new improved cultivation practices [3,4].

#### 3.2 Extension Gap (EG)

The average extension gap in the improved practices was 10.91 q/ac during 2019-20 and 1.08 q/ac during 2020-21. This gap shows that there is need to educate the farming community about the improved crop management techniques. There is also need to educate the farmers about new high yielding varieties to replace the low yielding local or old varieties. This will increase the yield per capita and overcome the extension gap (Table 1) [5]

#### 3.3 Technology Gap (TG)

The average technology gap in the improved technology was found to be 1.00 q/ha during 2019-20 and Nil during 2020-21. This technological yield gaps may be endorsed due to variation in soil fertility and specific management practices [5,6,7]

#### 3.4 Technology Index (TI)

The technology index shows the feasibility of the evolved technology at the farmer's field and the lower the value of technology index more is the feasibility of the technology. The technology index was found to be 0.98 percent during 2019-20 and Nil in 2020-21 of this study [5,6,8].

#### 3.5 Economic Return (ER)

The inputs and outputs prices of produce prevailed during the study of demonstration were taken for calculating cost of cultivation, gross return, net return and benefit: cost ratio (Table 2). The demonstration of okra under improved practices gave higher net return and B: C ratio of Rs. 102194/- and 2.27 during 2019-20 and of Rs. 103258/- net returns and 2.29 B:C ratio during 2020-21. This might be due to higher yield obtained from improved technology as compared to farmer's practices

### 4. Conclusion

Based on the findings, it can be accomplished that use of good agricultural practices of cultivation under cluster front line demonstration (CFLD) programme on large scale reduced the technological gap thus it will leads to increased productivity. Moreover, Krishi Vigyan Kendra (KVK), Non Governmental Organization (NGO) and Agriculture Technology Management Agency (ATMA) are the extension agencies which will provide more technical support and guidance to the farmers through method demonstrations, training programmes', exposure visits' to other successful farmers fields and field days which will increased the horizontal spread of the technology to more number of farmers besides the improvement of livelihood of the farmers.

Crop	Variety	Planting method	Area (ha)	yield (t/ha)		Increase over FP	Technology index (%)	Technology gap (q/ac)	Extension gap (q/ac)
				IP	FP				
2019-20									
Okra	CO 4	Line Planting	4	10.14	9.05	12.06	0.98	1.00	10.91
2020-21									
Okra	CO 4	Line Planting	4	10.20	9.12	12.00	-	-	1.08

**Table 1: Technology Index, Technology Gap and Extension Gap of Okra**

Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
2019-20							
80425	182520	102194	2.27	82450	162900	80450	1.98
2020-21							
80342	183672	103258	2.29	83976	164160	80184	1.95

**Table 2 : Economic Impact of the Demonstration**

S No.	Name of Farmer	Village	Dist.	Variety	Crop	Area (ha)	IP Yield (q/ha)	FP Yield (q/ha)	Net Income (Rs/ha)	B:C Ratio	IOFP (%)	TI (%)	TG (q/ac)	EG (q/ac)
1	Bhavani	Melavalavu	Madurai	CO 4	Okra	0.4	10.15	9.09	102565	2.28	11.66	0.88	0.9	10.60
2	Balu R	Melavalavu	Madurai	CO 4	Okra	0.4	10.20	9.34	101131	2.23	9.21	0.39	0.4	8.60
3	Chidambaram	Melavalavu	Madurai	CO 4	Okra	0.4	9.22	9.02	87020	2.10	2.22	9.96	10.2	2.00
4	Gopalan V	Melavalavu	Madurai	CO 4	Okra	0.4	10.61	9.15	110684	2.38	15.96	-3.61	-3.7	14.60
5	Maduraiveeran	Melavalavu	Madurai	CO 4	Okra	0.4	10.54	8.85	109196	2.36	19.10	-2.93	-3.0	16.90
6	Mani B	Melavalavu	Madurai	CO 4	Okra	0.4	9.50	8.86	91746	2.16	7.22	7.23	7.4	6.40
7	Manikandan S	Melavalavu	Madurai	CO 4	Okra	0.4	11.02	9.05	117098	2.44	21.77	-7.62	-7.8	19.70
8	Karuppiyah N	Melavalavu	Madurai	CO 4	Okra	0.4	10.54	9.10	108331	2.33	15.82	-2.93	-3.0	14.40
9	Ramesh S	Melavalavu	Madurai	CO 4	Okra	0.4	9.37	9.04	88486	2.10	3.65	8.50	8.7	3.30
10	Rani J	Melavalavu	Madurai	CO 4	Okra	0.4	10.25	8.99	105689	2.34	14.02	-0.10	-0.1	12.60
<b>Total Average</b>							<b>10.14</b>	<b>9.05</b>	<b>1,02,194</b>	<b>2.27</b>	<b>12.06</b>	<b>0.98</b>	<b>1.00</b>	<b>10.91</b>

**Table 3. FLD farmer's Details and Economic Analysis of Okra (2019-20)**

S No.	Name of Farmer	Village	Dist.	Variety	Crop	Area (ha)	IP Yield (q/ha)	FP Yield (q/ha)	Net Income (Rs/ha)	B:C Ratio	IOFP (%)	TI (%)	TG (q/ac)	EG (q/ac)
1	Ganesan	Nedungulam	Madurai	CO 4	Okra	0.4	10.08	9.04	105166	2.34	11.5	0.02	0.16	1.04
2	A.Nandagobal	Nedungulam	Madurai	CO 4	Okra	0.4	10.26	9.23	104774	2.32	11.2	0.00	-0.02	1.03
3	C.malairajan	Nedungulam	Madurai	CO 4	Okra	0.4	10.24	9.78	90301	2.03	4.7	0.00	0	0.46
4	C.pandi	Nedungulam	Madurai	CO 4	Okra	0.4	9.95	9.52	100918	2.13	4.5	0.03	0.29	0.43
5	P.rajaram	Nedungulam	Madurai	CO 4	Okra	0.4	10.24	9.15	110399	2.39	11.9	0.00	0	1.09
6	K.saraswathy	Nedungulam	Madurai	CO 4	Okra	0.4	10.54	8.97	102116	2.36	17.5	-0.03	-0.3	1.57
7	Alagupillai	Nedungulam	Madurai	CO 4	Okra	0.4	9.91	9.09	102290	2.23	9.0	0.03	0.33	0.82
8	Makkai	Nedungulam	Madurai	CO 4	Okra	0.4	10.74	8.45	105959	2.33	27.1	-0.05	-0.5	2.29
9	Kannan	Nedungulam	Madurai	CO 4	Okra	0.4	10.06	9.05	101381	2.23	11.2	0.02	0.18	1.01
10	Perumal	Nedungulam	Madurai	CO 4	Okra	0.4	9.98	8.96	109280	2.56	11.4	0.03	0.26	1.02
<b>Total average</b>							<b>10.20</b>	<b>9.12</b>	<b>103258</b>	<b>2.29</b>	<b>12.0</b>	<b>-</b>	<b>-</b>	<b>1.08</b>

**Table 4. FLD farmer's Details and Economic Analysis of Okra (2020-21)**

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