

## FRONTLINE DEMONSTRATION: AN EFFECTIVE COMMUNICATION APPROACH FOR DISSEMINATION OF SUSTAINABLE COTTON PRODUCTION TECHNOLOGY

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### ABSTRACT

Cotton is one of the most important cash, commercial and fiber crop of the country, occupy an area of about 8.5 million hectares. The development of the agriculture is primarily the application of the science and technology by making the best use of available resources. One of the major constraints of traditional cotton farming is low productivity due to non-adoption of recommended package of practices and improved varieties. To replace this anomaly, Krishi Vigyan Kendram Bharuch conducted Front Line Demonstrations at adopted farmers fields. During the period under study, it was observed that in front line demonstrations, the improved cotton variety Brahma recorded the higher seed cotton yield (1910 kg/h) when compared to local check (1530 kg/h). The percentage increase in the yield over local check was 24.80. over local check during the course of study. Technology gap (640 kg/h) and the technology index values were 640 kg/h and 25.09 respectively. It is concluded that wide gap existed in potential and demonstration yield in high yielding cotton varieties due to technology and extension gap in Bharuch District of Gujarat. By conducting front line demonstrations of proven technologies, yield potential of cotton can be increased to a great extent. This will substantially increase the income as well as the livelihood of the farming community.

### INTRODUCTION

The Indian Council of Agricultural Research started Front Line Demonstration during *Kharif* 1995 in All India Coordinated Cotton Improvement Project centers. Several demonstrations are being conducted for popularizing the improved released and pre released varieties and hybrids with improved agronomic and crop protection techniques. This project also involves in organizing extension programmes for disseminating the recent agricultural technologies to the farmer's field. Frontline Demonstration may play a very important role in proper transfer of technologies and changing scientific temperament of the farmers. Front-Line Demonstration is the new concept of field demonstration evolved by the Indian Council of Agricultural Research with the inception of the technology mission on oilseed crops during mid-eighties. The main objective of Front-Line Demonstrations is to demonstrate newly released crop production and protection technologies and its management practices in the farmers' field under dif-

ferent agro-climatic regions and farming situations. Front-Line Demonstrations are conducted in a block of two or four hectares land in order to have better impact of the demonstrated technologies on the farmers and field level extension functionaries.

The agricultural technology is not generally accepted by the farmers completely in all respects. As such there always appears to be a gap between the recommended technology by the scientist and its modified form at the farmer's level. The technological gap is thus the major problem in the efforts of increasing agricultural production in the country. A need of the day is to reduce the technological gap between the agricultural technology recommended by the scientist and its acceptance by the farmers on their field. In view of the above factors, frontline demonstrations were undertaken in a systematic manner on farmers' field to show the worth of a new variety and convince the farmers to adopt improved cultivation practices of cotton for enhancing productivity of cotton. Keeping in view the present investigation

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attempts to study the yield gap between front line demonstration trials and farmers' yield, extent of technology adoption and benefit cost ratio.

## RESEARCH METHODOLOGY

The study was conducted in Bharuch district of Gujarat during the year 2006-07 to 2011-12. The data on output of high yield variety of Cotton crop and inputs used per hectare have been collected from the front line demonstration trials conducted by KVK, Bharuch. All the participating farmers were trained on various aspects of cotton production technologies. Recommended agronomic practices and genuine seeds of cotton were used for FLDs in 0.5 ha area/demonstration. A one fifth area was also devoted to grow local standard check. To study the impact of front line demonstrations, out of 90 participating farmers, a total of 45 farmers were selected as respondent through proportionate sampling. In addition to this, data on traditional practices followed by farmers have also been collected. In the present study, technology index was operationally defined as the technical feasibility obtained due to implementation of Front Line Demonstrations in cotton. To estimate the technology gap, extension gap and technology index following formulae used by Samui *et al.* (2000) have been used:

Technology gap =  $P_i$  (Potential yield) -  $D_i$  (Demonstration yield)

Extension gap =  $D_i$  (Demonstration Yield) -  $F_i$  (Farmers yield)

## RESULTS AND DISCUSSION

### Performance of FLD

A comparison of productivity levels between demonstrated variety and local checks is shown in Table-1. During the period under study, it was observed that in front line demonstrations, the improved cotton variety Brahma recorded the higher seed cotton yield (1910 kg/h) when compared to local check (1530 kg/h). The percentage increase in the yield

over local check was 24.80. Similar yield enhancement in different crops in front line demonstration has amply been documented by Hiremath *et al.* (2007), Mishra *et al.* (2009), Kumar *et al.* (2010) and Dhaka (2010). From these results it is evident that the performance of improved variety was found better than the local check under same environment conditions. Farmers were motivated by results of agro technologies applied in the FLDs trials and it is expected that they would adopt these technologies in the coming years. Yield of the front line demonstration trials and potential yield of the crop was compared to estimate the yield gaps which were further categorized into technology index.

### Technology gap

The technology gap shows the gap in the demonstration yield over potential yield and it was 640 kg/h. The Front Line Demonstrations were laid down under the supervision of KVK Scientists at the farmer's field. There exists a gap between the potential yield and demonstration yield. This may be due to the soil fertility and weather conditions. Hence, location specific recommendations are necessary to bridge the gap. These findings are similar to the findings of Sharma and Sharma (2004).

### Technology index

Technology index shows the feasibility of the variety at the farmer's field. The lower the value of technology index more is the feasibility. Result of the study depicted in Table 1 revealed that the technology index value was 25.09. The results of the present study are in consonance with the findings of Singh *et al.* (2007) and Hiremath and Nagaraju (2009)

### Economics of frontline demonstrations

The economics of cotton production under front line demonstrations were estimated and the results of the study have been presented in Table 2. The Results of economic analysis of cotton production revealed that front line demonstrations recorded

**Table 1: Yield, technology gap and technology index of demonstration**

Variables	Yield (kg/h)	Increase(%) over Local check	Technology gap- (kg/h)	Technology index (%)
Local check	1530	-	-	-
Demonstration (Brahma)	1910	24.8	640	25.09

higher gross returns (Rs. 95500/ h) and net return (Rs. 56860/h) with higher benefit ratio (2.47) as compared to local checks. These results are in accordance with the findings of Hiremath *et al.* (2007) and Hiremath and Nagaraju (2009). Further, additional cost of Rs.3040 per hectare in demonstration has in-

creased additional net returns Rs. 15960 per hectare with incremental benefit cost ratio 6.25 suggesting its higher profitability and economic viability of the demonstration. More and less similar results were also reported by Hiremath and Nagaraju (2009) and Dhaka *et al* (2010).

**Table 2: Economics of frontline demonstrations**

Variables	Cost of cultivation	Gross return (Rs/h)	Net return (Rs/ h)	Benefit: cost ratio (Rs h)
Local check	35600	76500	40900	2.14
Demonstration	38640	95500	56860	2.47
Additional in demonstration	3040	19000	15960	6.25*

\* Incremental benefit cost ratio

## CONCLUSION

The findings of the study revealed that wide gap existed in potential and demonstration yield in high yielding cotton varieties due to technology and extension gap in Bharuch District of Gujarat. By conducting front line demonstrations of proven technologies, yield potential of cotton can be increased to a great extent. This will substantially increase the income as well as the livelihood of the farming community. There is need to adopt multi-pronged strategy that involves enhancing cotton production through improved technologies in Bharuch district. The study emphasizes the needs to educate the farmers in adoption of improved technology to narrow the extension gaps through various technology transfer centers. Therefore it is suggested that these factors may be taken for considered to increase the scientific temperament of the farmers.

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