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Analysis of impact of front line demonstration in minimize the technological gap in sorghum-mustard cropping system

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Abstract
This study was undertaken in Meerut district of western U.P. it is based on front line demonstration conducted under oil seed based front line demonstration programme. This was conducted under sorghum (fodder)-mustard sequence from 2001-02 to 2003-04. An attempt has been made to find out the economic feasibility of technology, its adoption and constraints faced by the farmers in adoption. The study revealed that a wide gap-exists in cost of cultivation of both the method. The gap was categorized in technological gap and extension gap, which was 58.5 q/ha and 49 q/ha in sorghum respectively and 3.2 and 1.75 q/ha in mustard respectively.

Keywords: demonstration, minimize, technological gap, sorghum-mustard

Introduction

The sorghum-mustard is not major cropping system of the area but some farmers is doing this intensive cultivation. This rotation provide opportunity to farmers for growing the oilseed crop with fodder its help to farmers in supply the fodder for animal in rainy season and increase the production of oil seed in interest on nation as well as farm family. So this cropping system exists one oilseed and one fodder crop in a year with 200% crop intensity.

Methods and Materials

The five front line demonstrations were conducted on different location of Meerut district from 2001-02 to 2003-04. The cross sectional data on out put of crops and inputs used per hecater have been collected from demonstration trial and average was calculated of relevant data of all the demonstration of all the three years. Further, data were tabulated to estimate the technological gap. Technological index, extension gap and adoption index the following formulas were used.

1. Technological gap=potential yield- demonstration yield (PY-DY)
2. Technological Index= [(PY-DY)]/PY
   Where PY=Potential yield

   DY= Demonstration yield of the crop

3. Extension gap=Demonstration yield – Central plot yield (DY-CY)

$$\text{Adoption Index} = \frac{\text{MAS} \times 100}{\text{PAS}}$$

Where

MAS Maximum attainable score in adoption of crop used technology

PAS Possible attainable score obtained by farmers in adoption of crop based technology (list of recommended practices each one was assigned a score of 5

Monetary gain: To estimate the mainly grain cross sectional impact and output data were calculated an tabulated in the farm mention as under:

A. Cost of cultivation, gross return and net return of sorghum fodder of farmers-Improved method
B. Cost of cultivation, gross return net return of system of farmers and improved method.
C. Cost of cultivation, gross return, net return of system of farmers and improved method.

Difference between net return of farmers' method and improved method was also calculated irrespective of sorghum and whole system to estimate the economic viability of front line demonstration.

Result and Discussion

Yield of central plot and potential yield of the respective crop were compared to estimate the yield gap which was further categorized into to categorize into technological gap and extension gap. Table-1 reveals that the technological gap was 58.5 and 3.2 q/ha respectively in sorghum and mustard crop. Increase the demonstration over the control plots was 25.5% in sorghum and 23.1 % in mustard. Through the demonstration trial were laid down under the supervision of the scientist in the farmers field, there exist a

gap between the potential yield and demonstration yield, which may be due to low fertility of soil and unfavorable weather condition. The extension gap was lower in both the crops as compared to technological gap. It shows the required educating the farmers in recommended technology so as narrow the extension gap. Similar, results were also presented by Prasad *et al*. they pointed out that farmers were found significant increase in production of systems and also suggested that the extension workers and policy makers should target on potential yield through Front Line Demonstration.

Table 1: Yield and yield gap between Farmers yield, demonstration yield and potential yield

Crop	Yield kg/ha			% increase in demonstration yield over control DY over FY	Technology gap Q/ha (PY-DY)	Extension gap Q/ha (DY-FY)	Net return (Rs/ha) of demonstration	Net return Rs/ha of farmers field
	PY	DY	FY					
Sorghum (fodder)	30.0	24.45	24.45	25.5	58.5	490	7500	5100
Mustard	1.30	0.90	0.90	23.1	3.2	1.75	1310	9250

PY-Potential yield, DY-Demonstration yield, FY-Farmers Yield

Technology and Adoption Index

The adoption of technology in demonstration was studied through technological index, which are followed by the farmer. The technology index shows the feasibility of the evolved technology on the farmers' field. Lower the value of technological index more in the feasibility of the technology. The technological index was higher in mustard (25.6) in compare to sorghum 19.5. This indicates that there is a wide gap between the technology evolved at regional station and the technology adopted by the farmers in their field. The adoption index was satisfactory in both the crops 70% in sorghum and 64% in mustard due to their suitability to fit into the cropping system.

Comparison of input-output net return

The adoption of recommended practice in demonstration trials on both the crops lead to on increase in the field over respective control field. Table-1 revealed that the yield increase in demonstration plot over the control plot was 25.5% in sorghum and 23.1% in mustard, resulted gross return of improved practice of sorghum, mustard and whole system become much higher (12000, 18600, 30600 Rs/ha) in compared to farmer method (9900, 15000, 24900) respectively. The cost of cultivation of improved method was little less in compared to farmers' method. Resulted net return increases 2400 Rs/ha in case of sorghum and 3850 Rs/ha in case of mustard. So farmers got 6250 Rs/ha per year through FLD and suggested that wide publicity of results and extra monetary gain policy accelerating role in technology dissemination.

Constraints faced by farmers

Study show that we can minimize the technological and extension gap through conducting the field demonstrations on farmers' field under supervision of scientist. But some times farmers are facing some constraints in continue adoption of the technology such as high cost and unavailability of inputs and late sowing of mustard because the sowing time of mustard and harvesting time of fodder sorghum in some case. Many time weather conditions during flowering stage of mustard effects the production.

Suggestion

Front line demonstration is a powerful method to show the visual impact of any technology but their visual impact should be on board level, it can be done through wide publicity of result of demonstration so that farmers can compare the own method to improved method, field day, farmers day and other type of relevant gathering of farmers must be organize during crop season so that interaction between farmers to farmers and farmers to scientist can be more effective. In addition farmers should be convinced properly on different respect of improved technology.

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