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Performance of frontline demonstrations on sesame in Erode district of Tamil Nadu

S SARAVANAKUMAR and RD SRINIVASAN

ICAR- Krishi Vigyan Kendra (MYRADA), Kalingiyam, Erode 638453 Tamil Nadu, India
Email for correspondence: agrisarwan@gmail.com

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ABSTRACT

Sesame is one of the most important oilseed crops cultivated over 7000 ha in Erode district of Tamil Nadu. Attempts were made to improve the productivity of sesame by adopting integrated crop management practices. The practices comprised demonstrations on introduction of high yielding variety, seed treatment and integrated nutrient and plant protection measures. The results showed that the higher grain yield of 762 kg/ha was recorded in demonstrations compared to 670 kg/ha in farmers' practices with an yield advantage of 13.23 per cent. The average extension gap, technology gap and technology index were 88 kg/ha, 92 kg/ha and 10.82 per cent respectively. The integrated crop management practices gave higher benefit-cost ratio of 2.12 compared to farmers' practices (1.96).

Keywords: Sesame; frontline demonstration; yield gap; index

INTRODUCTION

Sesame popularly known as Til or Gingelly is one of the oldest oilseed crops and an important oil yielding crop with oil content of 40 to 50 per cent. The sesame seeds or seed powder or oil are used in various Indian dishes as flavoring agent. Moreover premium quality edible and medicinal oil can be extracted from sesame which can be conserved for a long time. Sesame oilcake is good feed for poultry, fish, cattle, sheep and goat (Khan et al 2009). In India sesame is cultivated in 17.90 lakh hectare area with the average productivity of 448 kg/ha. Due to high competition among different high valued crops over the years the acreage and production of sesame have dramatically decreased. In Erode district the area under sesame cultivation has reduced from 12000 to 7000 ha over a decade. Unfortunately the major obstacle in sesame expansion is low seed yield which results due to lack of a variety which is non-shattering, suitable for waterlogged conditions and is disease and insect resistant.

Several biotic, abiotic and socio-economic constraints inhibit exploitation of the yield potential of crops and these are needed to be addressed. The productivity of the crop can be increased by adopting the improved production technologies, management practices and suitable varieties (Ranawat et al 2011). Hence to convince the farmers frontline demonstrations (FLDs) were laid out to demonstrate the production potential of an improved sesame variety with proper package of practices under the real farm situation to compare the locally cultivated varieties in the farmers' holdings of Erode district of Tamil Nadu.

METHODOLOGY

Frontline demonstrations (FLDs) on integrated crop management in sesame were conducted by Krishi Vigyan Kendra during rabi-summer 2017 in the farmers' fields of selected villages. Each demonstration was conducted in an area of 0.4 ha and adjacent to the farmers' fields in which the crop was cultivated with farmers' practices/variety. The selected progressive farmers were trained on all scientific sesame cultivation aspects before starting of demonstrations. The improved variety of sesame (TMV-7) was selected for demonstrations. The seeds were treated with bio-fertilizers and the sowing was done in the month of February 2017. Optimum plant population was maintained in the demonstrations. The demonstrated

fields were regularly monitored and periodically observed by the scientists of the KVK.

At the time of harvest yield data were collected from the plots of both viz demonstrations and farmers' practices. Cost of cultivation, net income and benefit-cost ratio were worked out. To study the impact of demonstrations data from FLDs and farmers' practices were analyzed. The extension gap, technology gap and technology index were calculated using the formulae as suggested by Samui et al (2000).

Extension gap (q/ha)= DY (q/ha) – LY (q/ha)

Technology gap (q/ha)= PY (q/ha) – DY (q/ha)

$$\text{Technology index (\%)} = \frac{\text{PY (q/ha)} - \text{DY (q/ha)}}{\text{PY (q/ha)}} \times 100$$

where DY= Demonstration yield, LY= Local check yield, PY= Potential yield of variety

RESULTS and DISCUSSION

The average yield of sesame under demonstrations was 762 kg/ha which was higher than the average yield of farmers' practices (670 kg/ha) (Table 1).

Technology gap and extension gap

The technology gap shows the gap between the potential yield of the crop over demonstrated yield. The technology gap was recorded as 92 kg/ha (Table 1). The extension gap shows the gap between the demonstration yield and local yield and it was 88 kg/ha. The extension gap and technology gap may be attributed to dissimilarities in soil fertility levels, pest and disease incidence, improper usage of manures and fertilizers (Mukherjee 2003). More and more use of latest production technologies with high yielding varieties will subsequently change this alarming trend. The new technologies will eventually lead to discontinuance of the old technologies and adoption of new technologies by the farmers.

Technology index

Technology index shows the feasibility of the variety at the farmers' fields. The lower the value of the technology index more is the feasibility. Table 1 reveals that the technology index value was 10.82 per cent. The findings of the present study are in line with the findings of Rai et al (2016).

Table 1. Yield, extension gap, technology gap and technology index of sesame variety TMV-7

Component	Value
Potential yield (kg/ha)	850
Demonstration yield (kg/ha)	762
Farmers' practice yield (kg/ha)	670
Technology gap (kg/ha)	92
Extension gap (kg/ha)	88
Technology index (%)	10.82

Economics

It was found that the average cost of cultivation under improved crop management practices was Rs 28532.00/ha (Table 2) against average cost of Rs 27375.00/ha in farmers' practices. The additional cost incurred in the improved crop management practices could be mainly due to the seed cost of new variety and micronutrient management practices carried out by the farmers. The demonstrated fields recorded the higher mean gross return of Rs 60960.00/ha and net return of Rs 32428.00/ha with high benefit-cost ratio of 2.12. These findings are in line with the findings of Hiremath and Nagaraju (2009) and Sreelakshmi et al (2012).

Table 2.Cost of cultivation, gross return, net return and benefit-cost ratio influenced by improved crop management practices

Parameter	Demonstration	Farmers' practice
Cost of cultivation (Rs/ha)	28532	27375
Gross return (Rs/ha)	60960	53600
Net return (Rs/ha)	32428	26225
B:C	2.12	1.96

The results indicated that the frontline demonstrations gave good impact over the farming community in Erode district as they were motivated by the improved production technologies applied in the demonstration plots. The findings of the present study are in line with those of Rai et al (2016) and Jyothi Swaroopa et al (2016).

CONCLUSION

There was an yield increase of 13.73 per cent over farmers' practices in the demonstration plots. Such increase was recorded with extra expenditure of Rs 1182/ha which could be afforded by even small and marginal farmers. Thus it can be concluded that the

demonstrations of high yielding sesame variety along with integrated crop management practices enhanced the productivity of sesame.

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