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## Role of cluster frontline demonstrations in enhancement of groundnut production

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#### Abstract

The cluster frontline demonstration (CFLDs) on Groundnut was conducted by Krishi Vigyan Kendra, Pipalia in three cluster covering 7 villages namely Talagana, Mekhatimbi, Dhank, Iswariya, Vadodar, Patanvav, and Mandlikpur during the Kharif season of 2017-18. The results revealed that from average of all cluster, the demonstrated treatments (Improved seed of Groundnut GJG-22 @ 100 kg/ha + Seed treatment of Biofertilizers i.e. Rhizobium & PSB @ 10 ml/kg seed + Soil application of Trichoderma @ 5 kg/ha + Spraying of Beauveria @ 60 gm/15 lit of water) recorded average highest yield 14.81% as compare to farmers plot. Were, in case of gross and net returns, which was Rs. 123560/- and Rs. 66911/- ha in demonstrated plot and Rs. 112218/- and Rs. 53955/-ha in farmers practices, respectively. Cost benefit ratio for demonstration and farmer practices was 2.18 and 1.92, respectively. It can be concluded that the Groundnut production could be enhanced by encouraging the farmers through adoption of recommended technologies which were followed in the CFLDs.

**Keywords:** CFLDs, groundnut, yield and net profit

#### Introduction

India is the largest producer of oilseeds in the world and the oilseed sector occupies an important position in the country's economy. The country accounts for 12-15 per cent of global oilseeds area, 6-7 per cent of vegetable oils production, and 9-10 per cent of the total edible oils consumption (FAO, 2011). The continuous increase in import of oilseeds crops specially groundnut and mustard occupies a prominent position in Indian oilseeds scenario. Groundnut is an important oilseed crop of Gujarat covering an area of 17485 ha with production of 52779 MT and 3019 kg/ha productivity. In Gujarat, specially cultivate during *Kharif* season in Rajkot, Junagadh and Porbandar district of Saurashtra region, Rajkot districts has been considered as productively potential region of groundnut due to assured irrigation facilities, precise irrigation management through sprinkler and favorable soil and climate conditions. However, there is a wide gap between the potential and the actual production realized by the farmers due to partial adoption of recommended package of practices by the growers. Technology gap i.e. poor knowledge about newly released crop production and protection technologies and their management practices in the farmers' fields is a major constraint in groundnut production. So far, no systematic approach was implemented to study the technological gap existing in various components of groundnut cultivation. Awareness of scientific production technology viz., new variety, seed treatment with fungicide, insecticide and biofertilizers which were a key reason for low productivity of groundnut. The production potential could be increased by adopting recommended scientific and sustainable management production practices with improved high yielding varieties and other critical inputs through cluster frontline demonstration (CFLD). Conducting cluster front line demonstrations on farmer's field help to identify the constraints and potential of the groundnut in specific area as well as it helps in improving the economic and social status of the farmers. The aim of the front-line demonstration is to convey the technical message to the farmers that if they use recommended package and practices then the yield of this crop can be easily doubled than their present level of production. Keeping this point in view, the FLD on groundnut using improved production technologies was conducted with the objective of showing the productive potentials of the integrated production technologies under actual farm situation.

#### Materials and Methods

The present investigation of CFLDs was conducted during *Kharif* season 2017-18 by the Krishi Vigyan Kendra (Rajkot - II) of Gujarat. Three cluster demonstrations were arranged in KVK jurisdiction. Total 125 farmers and 50-hectare area were selected for the cluster demonstration. Farmers were trained to follow the package and practices for Groundnut

Cultivation as recommended by the State Agricultural Universities and need based input provided to the farmers (Table 1).

The farmers followed the full package of practices like soil testing, seed treatment with bio-fertilizer, Trichoderma, fertilizer application, weed and water management, IPM

practices etc. In case of local check, the traditional practices were followed in existing varieties by the farmers. The yield data were collected from both CFLD and farmers practice plot (local check) and compiled results has been given in (Table 2).

**Table 1:** details of need based input material given on cflDs of groundnut

Cluster	No. of demon stration	Variety	Technology demonstration	Need base input
I	55	GJG - 22	Variety, INM, IPM & IDM	Improved variety, Trichoderma, Beauveria, PSB and Rhizobium
II	37	GJG - 22	Variety, INM, IPM & IDM	Improved variety, Trichoderma, Beauveria, PSB and Rhizobium
III	33	GJG - 22	Variety, INM, IPM & IDM	Improved variety, Trichoderma, Beauveria, PSB and Rhizobium

**Table 2:** Details of yield and economics of cluster frontline demonstration on Groundnut

Treatment	Yield (Q/ha)	Gross cost (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	B:C ratio	Yield increase (%)
Farmers practice	22.39	58262	112218	53955	1:1.92	--
Frontline line demonstration (Variety GJG – 22 100 kg/ha + seed treatment of Rhizobium & PSB @ 10 ml/kg + Soil application of Trichoderma 5 kg/ha + Spraying of Beauveria @ 60 gm/15 lit. of water.)	25.76	56649	123560	66911	1:2.18	14.88

### Result and Discussion

Cluster Frontline demonstrations on Groundnut were conducted by using variety GJG - 22 in Three cluster of KVK operational area. The need based inputs provided to farmers were variety GJG -22 seed 100 kg/ha, Liquid Rhizobium @ 10 ml/kg seed, PSB @10 ml/kg seed, Trichoderma viride @ 5 kg/ha and Beauveria bassiana @ 60 gm/15 lit water. Results concluded that average highest yield 25.76 q/ha found in demonstration plot followed by 22.39 q/ha in control plot. The similar results were also observed by Dubey *et al.*, (2010) [2] and Poonia and Pithia (2011) [3]. The same trend found in case of CFLDs gross and net returns, was Rs. 123560/- and Rs. 66911/- ha and for control Rs. 112218/- and Rs. 53955/- ha, respectively. The similarly findings was also obtained by Bairwa *et al.*, (2013) [1]. Benefit cost for demonstration and control was 2.18 and 1.92 respectively. This improvement in yield might be due to the new variety, application of seed treatment, use of Trichoderma, spraying of Beauveria bassiana for pest control, timely weed and water management and integrated pest management practices.

### Conclusion

Cluster frontline demonstrations on Groundnut conducted in three clusters in KVK, Pipalia operational villages and result concluded that average highest yield 25.76 q/ha found in demonstration plot followed by 22.39 q/ha in control plot. There was 14.88 per cent increase in yield observed in demonstration plot over farmers' practice. It was observed that ratio potential yield can be achieved by imparting scientific knowledge to the farmers, providing the quality need based inputs and proper application of inputs. Horizontal spread of improved technologies may be achieved by the successful implementation of frontline demonstrations and various extensions activities like training programme, field day, exposure visit organized in CFLDs programmes in the farmer's yields. For wide dissemination of technologies recommended by SAUs and other research institute, more number of FLDs should be conducted.

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