



Research Article

## Role of front line demonstrations on transfer of pulses production technologies in Vellore district of Tamil Nadu

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**SUMMARY :** Under centrally sponsored scheme on oilseeds and pulses production technology KVK, Vellore has conducted front line demonstrations on farmers fields. During the period from 2005 to 2010 in all 90 demonstrations were conducted on the pulse production technology to transfer the latest technologies among the farmers of Vellore district. The findings in respect of greengram and blackgram overall yield trend of demonstrations ranged from 7.82 to 9.15 q/ha and 8.15 to 9.25 q/ha and yield increase ranged from 31.25 per cent to 51.01 per cent and 21.86 per cent to 54.68 per cent over the local practices yield. Obviously, this can be attributed to improved technology as well as improved varieties. The yield levels were considerably low under local practices because of considerable variations in the extent of adoption of recommended package of practices depending upon the amount of risk involved in terms of cost, convenience, skill and knowledge about the concerned practice. The productivity was better over local practice under demonstrations. Hence, pulses production technology have a broad scope for increasing the area and productivity of pulses at each and every level *i.e.*, Farmers, State and National level.

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Pulses, Impraed varieties, Front line demonstration

### BACKGROUND AND OBJECTIVES

Over a period of time, a number of improved pulses varieties and production technologies have been developed, but full potential of these varieties as well as technologies could not be exploited due to low rate of adoption and low yields. Thus, factors limiting the productivity can not be overlooked. Research and extension programmes need to be diverted to produce value additive pulses. It may emphasize on quality attributes, adoption and popularization of new agro technology, evolving better varieties for stress conditions and improving present yield potential. The aim of these devices in general is to raise production through transfer of farm technology. The efforts were taken with planning, execution and follow up action of the pulses production technology through front line demonstrations, the present investigation was therefore undertaken to ascertain the role of these demonstrations in importance of pulses production technology in

increasing the yield.

Pulses are the major source of protein in Asia – compared to cereals, oilseeds and other crops. Production of pulses has increased at a much slower rate over the last two decades. In India, out of total food grain production of 220 million tonnes, pulses constitute a meager share of 16 million. tons in 2002-2003. Pulses production in the country has been stagnant between 10 and 14 million tonnes inspite of continued efforts both by farmers and authorities. According to Chowdhury (2000), the pulses output was stagnating around 10-14 million tonnes for the past four decades. Pulses production is mostly from the crop raised under rainfed conditions. Cultivation of pulses in marginal lands, limited area of pulses under irrigated conditions, limited high yielding responsive varieties, pests and diseases and processing loss upto 6-8 per cent are some of the problems in the stagnation of pulses production over decades.

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In Tamil Nadu, India pulses are annually grown over an area of 9 lakh hectares with a production level of 4 lakh tonnes. Presently Tamil Nadu imports the surplus requirement of pulses from Madhya Pradesh, Maharashtra and Uttarpradesh (Dhanakodi *et al.*, 1998). Dharmapuri district in TamilNadu has an average area of 1,38,465 ha under pulses. Mostly rainfed pulses command higher share than irrigated pulses. The major pulse crops *viz.*, redgram cowpea, horsegrame, blackgram, greengram and mochai.

Pulses cultivation is under rainfed situation in India. Crops like blackgram, greengram, redgram and cowpea are the major pulse crops grown. Pulses are rich in protein. Generally, consumption of pulses are more among the people. New varieties and production technologies are played a vital role in the improvement of yield and production in India. But, area under cultivation of pulses is declining trend nowadays. It is mainly due to cultivation of pulses only under inter/mixed cropping system and also negligible crop among the farming community.

## RESOURCES AND METHODS

Under centrally sponsored scheme on oilseeds and pulses production technology KVK, Vellore has conducted front line demonstrations on farmers fields. During the period from 2005 to 2010 in all 90 demonstrations were conducted on the pulse production technology to transfer the latest technologies among the farmers of Vellore district. The management technologies for blackgram and greengram cultivation were introduced and demonstrated to the farmers on various aspects, *viz.*, varietal, seed treatment with rhizobium, trichoderma viridi, DAP spray, planofix spray and application of zinc sulphate resulted in increasing the overall performance of the yield. And also nutrient management, weed management, integrated pest and disease management including high yielding and improved varieties with recommended practices. The technologies to be demonstrated for green gram and blackgram were identified based on Participatory Rural Approach (PRA) technique. Compact demonstration plot involving holdings of different categories of farmers in a single village were selected for each crop. A

group of co-operative farmers were identified based on their participation and feed back received during the preliminary survey and interactive meeting. A total area of 5-10 hectare in every year was fixed for the demonstration of technologies in green gram and blackgram. Control plots in an area of 2.2 ha each for the crops were fixed in the holdings of demonstration led farmers. Pre-sowing trainings were organised involving the selected farmers in their village for the crops and local extension functionaries. Critical inputs for the technologies to be demonstrated were procured and distributed to the farmers after the training. Subsequently demonstrations were conducted during different crop growth phases by the KVK scientists and local extension functionaries. Finally field day was conducted involving demonstration holding farmers, other farmers in the village and local extension functionaries to demonstrate the superiority of the technology for each crop. Crop yield was recorded from the demonstration and control plots for all the three crops at the time of harvest.

## OBSERVATIONS AND ANALYSIS

The main findings and discussion of the research were being presented theme wise below:

### Crop wise area and demonstrations (2005-2010):

In Vellore district, farmers are cultivating greengram variety T<sub>9</sub> and blackgram KM<sub>2</sub>. It is mainly due to availability of seeds in the market and agricultural depots. Further they are grown pulses as intercrop in groundnut and cotton crop.

The findings in respect of greengram and blackgram overall yield trend of demonstrations ranged from 7.82 to 9.15 q/ha and 8.15 to 9.25 q/ha and yield increase ranged from 31.25 per cent to 51.01 per cent and 21.86 per cent to 54.68 per cent over the local practices yield. Obviously, this can be attributed to improved technology as well as improved varieties. The yield levels were considerably low under local practices because of considerable variations in the extent of adoption of recommended package of practices depending upon the amount of risk involved in terms of cost, convenience, skill and knowledge about the concerned practice. The productivity was better over local practice under

**Table 1: Cropwise area under demonstration on pulses conducted is as follows**

Sr. No.	Years	Crop	District	No of demos conducted area (ha)	Total no of farmers benefited
1.	2005-2010	Greengram	Vellore	45	108
2.	2005-2010	Blackgram	Vellore	45	108
		Total		90	216

**Table 2: Major farming situations of demonstrations**

Sr. No.	Crop	Variety	Local check	Source of irrigation	Soil type	Previous crop grown
1.	Greengram	VRM(Gg1) VBN5	KM <sub>2</sub>	Irrigated / Rainfed	Red loam	Castor and horsegram
2.	Blackgram	TMVI VBN4	T <sub>9</sub>	"	"	"

**Table 3: Yearwise and cropwise result of demonstrations conducted**

Years	No of FLDs (Rabi/Kharif) in ha	No. of farm families	Average demo	Yield of local check	Percentage
<b>Greengram</b>					
2005-06	5	12	8.96	6.11	46.64
2006-07	10	24	7.96	5.25	51.61
2007-08	10	24	8.92	6.80	31.17
2008-09	10	24	8.12	5.92	37.16
2009-10	10	24	9.15	6.05	51.01
<b>Blackgram</b>					
2005-06	5	12	8.15	6.69	21.82
2006-07	10	24	8.16	5.61	45.45
2007-08	10	24	9.12	6.72	35.71
2008-09	10	24	8.75	6.15	42.27
2009-10	10	24	9.25	5.98	54.68

demonstrations. Hence, pulses production technology have a broad scope for increasing the area and productivity of pulses at each and every level *i.e.*, Farmers, State and National level.

It indicates that pulses grown with low yield are identified by low knowledge, unfavourable attitude towards high yielding varieties, low risk bearers with negative perception of pulses production technology. In otherwards, it may also due to then socio economic status , lower holdings and unavailability of inputs and credit facilities and to some extent supply and marketing problems. This is a point of concern for research and extension functionaries to disseminate improved pulses

production technologies for raising the productivity of pulses at all the levels. Similar type of investigation has been also carried by Tomar *et al.* (2003) and Samai *et al.* (2000).

#### **Pest and disease problems during the season:**

Incidence of pod borer during pulse crop maturation and pulse beetle infestation upon storage is a ever ending menace in the district.

Tikka leaf spot and pod borer prevalence and infestation is a major problem in the vellore district in the groundnut crop.

**Table 4: Feed back**

<b>Crop: Green gram</b>		
1.	For future research	: VRM(Gg) <sub>1</sub> and VBN <sub>4</sub> green gram possess more number of trichomes causing itches and skin allergy to pod pickers. Further research should be conducted to overcome this problem.
2.	For development department	: Farmers should be encouraged to take up seed production for attaining self sufficiency in green gram seed supply.
3.	For policy consideration	: -
4.	Farmers reactions	: The variety, being highly drought tolerant, shorter in duration and high yielder with longer pods gains tremendou momentum among rainfed farmers.
<b>Crop: Black gram</b>		
1.	For future research	: -
2.	For development department	: Timely supply of adequate seeds should be ensured by the department of agriculture.
3.	For policy consideration	: Procurement price of blackgram seed is less compared to the sales price of blackgram grains in market, so procurement price of seeds needs to be increased.
4.	Farmers reactions	: TMV <sub>1</sub> and VBN <sub>5</sub> is shorter in duration compared to T <sub>9</sub> cultivation of improved variety <i>viz.</i> , TMV 1 has resulted in increased number of pods per plant compared to locally grown varieties since the clusters per plant in TMV 1 is 15-18 Foliar spray of DAP has resulted in profuse flowering and spray of planofix has reduced flower drop drastically 1000 grain weight of TMV 1 is more than T <sub>9</sub>

### Conclusion:

Thus, it can be said that the adoption of improved package of practices of pulses production technology may result in higher productivity per unit area. It is an admitted fact that the production of pulses crop do not keep pace with advancement in technology specially in Tamilnadu. Considering the yield potential of the pulses, there is an urgent need to popularize the improved production technology of pulses in the area with the coordination of all responsible agencies like research, development and training institutions through single forum. It can be said that package of practices of pulses should supply to the farmer through single window systems.

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