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## A fine comparative study between the performance of front line demonstration and non-front line demonstration technology of chickpea at Panna district of Madhya Pradesh

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### Abstract

Chickpea is a major agricultural crop in terms of production in Madhya Pradesh (MP). In terms of gram crops production MP ranks highest in productivity in our country, where Vidhisa district ranks first in terms of production. In this comparative study the performance of front line demonstration technology (FLD) and non-front line demonstration (non-FLD) technology of chickpea was found in the total sample size of 60 number of farmers in one block of Panna district of Madhya Pradesh, depending upon some independent variables viz., age, education status, total annual income, farming experience. Farm mechanization, total farm size of chickpea, marketing behavior of chickpea etc. and some dependable variables viz. the adaptation of FLD technology by farmers, adaptation index, sample design, selection of area and respondent, instrument of data collection, method of data collection etc. Although the current study was not carried out in large number of samples in an adequately and comparatively large size of area, it can be concluded that, depending upon the results, FLD technology adopted farmers have more production, productivity, income and several other increased socio-economic parameters over the non-FLD adopted farmers.

**Keywords:** Chickpea, front line demonstration technology, comparison, pluses

### Introduction

Pulses are the major source of protein in agricultural crops. The Food and Agricultural Organization of United Nations declared 2016 as International Years for Pulses for promoting the production and popularity of pulse crops. India is one of the largest producers of pulses. Chickpea is produced near about 50% among all of the pulses in our country. India started MULLaRP (Mungbean, lentin, lathyrus, rajma and peas) program for promoting other pulse crops. Madhya Pradesh is one of the highest pulses producing states in India. The highest productivity of chickpea can also be observed in this state. Although chickpea is produced in large scale in Madhya Pradesh, it is quite popular than other pulse crops, so it is necessary to increase its production to fulfill the need of the country. For the increment of production new agriculture technologies with high yielding varieties have to popularize by extension worker and scientists to the farmers with urgency.

The technology transfer is the major issue in the developing countries like India. Here agricultural scientists develop method to counter the challenges like production but for lack of communication between farmer and scientific personals it can't be implemented properly. There are several other major issues also present which creates barriers for these.

The front line demonstration (FLD) technology is one of the major popular technology which can increase the production and productivity both to counter the challenges. Indian Council of Agriculture Research popularize this technique in 80s' for better production of crops like chickpea. Front line demonstration is the process which counters the gap between farmers and researchers. Front line demonstration technology involves direct planning, execution and feedback from farmers by agriculture scientists. There are several studies present for validating the impact and evaluation for front line demonstration technology as major technology for improving the production, economic condition etc. of the farmers in pulse crops among them Raj *et al.* (2013)<sup>[13]</sup>, Lakshmi *et al.* (2017)<sup>[7]</sup> are notably mentionable for their work.

In this current experiment Panna district of Madhya Pradesh was selected for carrying out the work of comparative studies on front line demonstration technology and non front line

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demonstration technology opted farmers for studying the actual changes either happens or not in front line demonstration technology is opted by any farmers. A study shows there was major decrease production in the year of 2015-16 of chickpea in some blocks of Panna district.

In front line demonstration technique subject matter specialist scientist develops generally one scientific procedure to encounter the problems majorly relatable to farmers and the extension scientist used to demonstrate the technique in front of farmers and promote the technology to the farmers. So, it is important to study about the comparison between front line and non front line technologies adopted farmers. Many studies *viz.*, Poonja (2011) [12], Singh (2012) [16], Patil (2015) [11], Mintala (2018) [8], Singh (2019) [17] showed front line demonstration technologies increases the economic and socio-economic status of farmer by increasing the production and productivity both of pulse crops in various states of India like Punjab, Uttar Pradesh, Gujarat, Andhra Pradesh etc. So, it makes sense for the current study scenario in the Panna district of Madhya Pradesh.

### Methods and Materials

The present study was conducted at different villages of Panna district of Madhya Pradesh. Panna is located at 24.72°N 80.2°E. It has an average elevation of 406 metres (1332 ft). The the study was carried out in the season of Rabi between 2014-15 and 2017-18 i.e. four continuous years at 10 distinct villages of Panna district of Madhya Pradesh, which adopted the technology of front line demonstration. The soil was black cotton soil, which is quite fertile and suitable for Rabi and Kharif season crop production chickpea. The climate condition was humid sub-tropical with hot summers, a somewhat cooler monsoon and cool winter followed by heavy rainfall with moderate climate study. Each of the demonstration was carried out 0.4 ha and 0.4 ha of area adjacent to the demonstration plot, which dominate the cultural cultivation practices as local checks. A total number of 60 front line demonstrations were conducted in 10 different villages. The improved FLD technologies comprised chickpea wilt resistant varieties, line sowing, integrated nutrient management and timely weed removal were taken to carried out the current experiment. Improved chickpea variety JG-11 and JG-16 with the seed rate of 75-80 kg/ha and seed treatment of Carbendazim at 1.5g/kg seed and other things *viz.*, Method of sowing, Spacing (30x10cm), Fertilizers (NPK) (50:150:70kg/hact), Plant Protection Measures, Applying Post harvest technology and Method of marketing were included to carry out proper FLD technology practices. No pest infestation had observed due to climatic condition's benefits. Plant height and other agronomic practices of data recording were done before harvesting and harvested the crop at maturity stage. For the analysis and interpretation of data 4 dependable variables *viz.*, Age, Education, Caste, Farming system; 4 socio-economic variables *viz.*, Total annual income, Farm mechanization, Farm size of chickpea, Marketing behavior of chickpea; 1 communication variable *viz.*, Information source utilization; 2 physiological variables *viz.*, Economic motivation and Knowledge about chickpea production technology and 1 dependable variable *viz.*, Adoption levels of chickpea production technology among farmers were included in this study.

### Result and Discussion

The improvement or change in level of knowledge and level

of adoption of FLD adopter chickpea growers over FLD non adopter chickpea growers due to adoption of frontline demonstration of chickpea production practices at field level determine the performance of the FLD. The frontline demonstration is a extension practices on the basis of seeing and believing in which the improved knowledge and adoption level of farmers ultimately effected in higher production, productivity, income, employment and simultaneously increased in socio- economic status of farmers. The possible impact of chickpea production technology on knowledge and adoption of chickpea growers is not yet evident. Table 1 clearly indicated the exiting knowledge and adoption status of adopter and non-adopter of frontline demonstration of chickpea growers in same situation of study area.

It is apparent from the data that there is clear cut shifting in number of (percentage) chickpea growers as they perceived level of knowledge and adoption due to front line demonstration from low category to higher one.

Incase level of knowledge, as observed in low and medium category chickpea growers, found higher in non FLD adopter than FLD adopter by 6.67 per cent and 1.65 per cent respectively. On the other hand, in high knowledge category chickpea growers, found higher in FLD adopter than non FLD adopter by 8.32 per cent.

Hence, it is concluded that the number of low and medium knowledge level of chickpea growers found to decrease in adopter condition over non adopter condition respectively. On the other hand, in high knowledge condition the chickpea growers found to increase in adopter condition over non adopter condition.

Incase level of adoption, as observed in partial and incomplete category chickpea growers, found higher in non FLD adopter than FLD adopter by 8.33 per cent and 15.00 per cent respectively. On the other hand, in complete adoption category chickpea growers, found higher in FLD adopter than non FLD adopter by 23.33 per cent.

Hence, it is concluded that the number of partial and incomplete level of adoption chickpea growers found to decrease in adopter condition over non adopter condition respectively. On the other hand, in complete adoption condition the chickpea growers found to increase in adopter condition over non adopter condition.

It is concluded that the number of low and medium knowledge level of chickpea growers found to decrease in adopter condition over non adopter condition respectively. On the other hand, in high knowledge condition the chickpea growers found to increase in adopter condition over non adopter condition. Frontline Demonstration is a form of applied research through agricultural scientists or agricultural extension personnel in which package of practices of crop on selected farmers" fields with a view to demonstrate the potentiality of the technologies to participating farmers. This is on the basis of seeing and believing that why the low and medium knowledge farmers are shifting towards high knowledge. This finding is in conformity with the findings as reported by Singh and Sohail (1976) [15], Kiran *et al.* (2004) [5], Singh *et al.* (2005) [14], Teggelli *et al.* (2015) [18].

It is concluded that the number of partial and incomplete level of adoption chickpea growers found to decrease in adopter condition over non adopter condition respectively. On the other hand, in complete adoption condition the chickpea growers found to increase in adopter condition over non adopter condition. Front Line demonstrations (FLDs) is a

unique approach to provide an direct interface between researcher and farmers as the scientists are directly involved in planning, execution and monitoring of the demonstrations for the technologies developed by them. That is the reason the demonstrated practices become high profitable and high remunerative, which attract low and medium package of

practices adopter towards high adoption. This finding is in conformity with the findings as reported by Singh and Sohel (1976) [15], Narayanaswamy and Eshwarapa (1998) [9], Kirar *et al.* (2004) [5], Patel and Tunver (2004) [10], Singh *et al.* (2005) [14], Khare *et al.* (2006) [6], Jangade (2009) [2], Kangali (2012) [4] and Verma (2013) [19].

**Table 1:** Impact of frontline demonstration on improved chickpea production technology on knowledge and adoption of chickpea growers

S. No.	Category	Adopter Percentage	Non-adopter Percentage	Additional over non-adopter Percentage
<b>A.</b>				
<b>Extent of Knowledge</b>				
1	Low	31.66	38.33	-6.67
2	Medium	36.68	38.33	-1.65
3	High	31.66	23.34	+8.32
<b>B.</b>				
<b>Extent of Adoption</b>				
1	Partial	23.34	31.67	-8.33
2	Incomplete	31.66	46.66	15.00
3	Complete	45.00	21.67	+23.33

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