

Performance of Improved Chickpea Variety RVG-202 Under FLDs : Towards Yield Maximization through Drip Irrigation (A Success Story)

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Abstract

Front Line demonstrations (FLDs) is a very popular and unique approach to disseminate the improved agricultural technologies through an direct interface between researcher and farmers. The scientists of Krishi Vigyan Kendra are directly involved in planning, execution and monitoring of the demonstrations for the technologies developed by different ICAR-Institutes, State Agricultural Universities in India. Direct feedback from the beneficiaries is also an important part of this technique. In the response of transfer of technology the recommendation of modern (improved) chickpea production technology a great emphasis was being paid by both the scientist and extension functionaries to increase the productivity of chickpea in the selected area. The present study was carried out to explore the possibilities of yield maximization through micro-drip Irrigation in Chickpea during *rabi* season of the year 2019-20 at Krishi Vigyan Kendra, Bajatta Farm Barwani and atr farmers field in villages *Lonsara Khurd* and *Balkuwan* in Barwani district under Cluster Front Line Demonstrations (CFLDs). KVK demonstrated the technologies- Scientific field preparation+ improved variety RVG-202+Seed treatment. with *Trichoderma viridae* and Vitavex power+ Line sowing + application of liquid Bio fertilizers and balanced dose of fertilizers FLDs were conducted during 2019-20 in total of 10

demonstrations with evaluation of the performance of RVG-202, variety of chickpea and recorded observations and the feedback information from farmers about performance of demonstrated technology. The results revealed that average yield of chick pea under FLDs were found 2160 Kg ha⁻¹ (under improved practice with variety RVG-202) as compare to 1080 Kg ha⁻¹ (under farmers practice locally available self- produced degenerated seed material of *Desi* gram with no drip irrigtaion) recorded in farmer's practice in 2019-20. It was observed that the gross return Rs. 105300 per ha and net return Rs. 82900 per ha against farmers practice gross return Rs. 52650 per ha and net return Rs. 35450 per ha, respectively. The C:B ratio under improved practice was 1: 4.70 as compare to farmers practice 1:3.06. Therefore, the result clearly indicates that the use of improved varieties with drip irrigation and scientific crop management resulted yield maximization.

Introduction

Chickpea (*Cicer arietinum* L. 2n=2X=16) globally ranks third among the pulse crops and accounts for 10.1 million tons annually. These three pulse (beans, peas, and chickpeas) account for about 70% of global pulse production with chickpea accounting for approximately 17% of the total annually. Production of chickpea in terms of harvested area from 1961-2017 ranged from a low of 9.1 million hectares in 1981 to high of 13.5 million hectares in 2017. The top Chickpea producing

states in India in descending order have been M.P, MH, KR, A.P, RJ, U.P and GJ. Chickpea has one of the highest nutritional composition of any dry edible grain legume with on an average 23% of highly digestible proteins, 64% of total carbohydrates, 47% of starch, 5% fat, 6% crude fibres, 6% soluble sugars and 3% ash. The area of chickpea crop was 3482.24 thousand hectares with the production and productivity of 3820 thousand tonnes and 1096 kg/ha, respectively in the year 2013. (Source-Agri. Statistic at Glance 2014).

Pulses help in nitrogen cycling with their ability to fix the atmospheric nitrogen in the soil, thus help in improving soil health. Chickpea contributes in India's export basket of pulses registering 64.10 and 62.64% (April to November, 2017) reported Annual report, ATARI-II (2017-18) share in the total pulses export during 2016-17 and 2017- 18. Following points need to be emphasized. Raise awareness about the vital role of pulses in sustainable food production and healthy diets and their contribution to food security and nutrition.

Material and Methods

The FLDs have been laid out at farmers field after the selection of the beneficiaries as well as field and soil samples were collected from their fields before the sowing of chickpea. After that on campus training organized at KVK Barwani and selected villages for skill and knowledge updation about RVG-202 chickpea production technology with weed and Nutrient management. IPM techniques applied for insect-pest management during the crop period. Irrigation management done by Drip irrigation. Scientist visit to farmers field during the crop period for technical advice as per crop condition.

Summarize results of FLDs as Success Story

The results of FLDs are given in table no. 1 in summarized form as representative of Mr. Santosh S/O shri Mangilal Village –Balkuwan, Dist. Barwani are:



Fig 1- View of SVF of Farmers Practice flood irrigation without drop



Fig (a & b) - View of Drip irrigation under recommended practice at Farmers Field under FLDs

KVK/Districts	:	Barwani	
Farmers Name	:	Mr. Santosh S/O Shri Mangilal	
Address	:	Village Balkuwa, Block Barwani Dist.Barwani Pin 451551	
Farmers Background information	:	Farmer was growing traditional local variety- <i>Desi</i> of chickpea with low quality degenerated seeds material of Chickpea.	
Name of Crop	:	Chickpea	
Variety	:	RVG-202	
Area (Acre)	:	1.00 Acre in Each Trial (Total no. of Trials -10)	
Institutional Involvement	:	Capacity Building Training, Field visit and Demonstration	
yield (q/ha)	:	17.80	
Important Parameters	:	Findings/results	
	:	Variety/ Practice/Intervention	Local/control
Germination	:	86%	69%
Plant population (per m²)	:	30.00	25.00
Weed count (per m²)	:	1.1	3-5
Plant height (per cm)	:	32.5	30.50
Pods/ plant (No.)	:	110.50	68-72
Yield (q/ha)	:	17.80	12.80
Technology Demonstrated under FLDs	:	<ul style="list-style-type: none"> • Technology 1 Improved variety RVG-202 • Technology 2 Seed treatment with <i>Trichoderma viridae</i> 5 gm/kg seed, <i>Rhizobium</i> culture 3 gm/kg+Vitavex power 1.5 gm /kg seed material. • Technology- Drip Irrigation + Use (soil application) of liquid bio-fertilizers NPK-3 (Rhizobium+PSB+KMB-Potassium Mobilizing Bacteria) @ 5 ml / litre of water. 	
Yield Performance (q/ha)	:	17.80	
Potential yield of variety	:	20-22.00 qt/ha	
District average (Previous year)	:	10.30 qt/ha	
State average (Previous year)	:	9.50	
Success Point	:	Improved variety with very good yield	
Farmer's Feedback	:	Farmers are convinced with the performance of variety.	

Table 1- Results of FLDs in summarized form

Economic Performance

Used Practices	Cost of Cultivation (Rs.)	Yield (q/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio
Farmer practices	17200.00	10.80	52650	35450	3.06
Demonstration	22400.00	21.60	105300	82900	4.70

A SUCCESS STORY

