ASSESSMENT OF TECHNOLOGY GAP AND PRODUCTIVITY GAIN THROUGH CROP TECHNOLOGY DEMONSTRATION IN CHICKPEA

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ABSTRACT

There is a tremendous opportunity for increasing the production and productivity of chickpea crop by adopting the improved technologies. Total 2450 Crop Demonstrations on chickpea variety RSG-888, BG-372 and GNG-663 were conducted at farmers’ fields in district Jhunjhunu (Rajasthan) during five consecutive rabi seasons 2007-08 to 2011-12. On overall average basis, 17.81 % higher grain yield was recorded under demonstrations than the farmers traditional practices (check). The extension gap, technology gap and technology index were 168/195 and 221 kg per ha, 867, 725 and 964 Kg per ha and 43.33, 32.95 and 43.82 % in variety RSG-888, BG-372 and GNG-663, respectively. Data on technology index reduced from 47.50% (2007-08) to 43.82% (2011-12) exhibited the feasibility of technology demonstration.

Key words: Chickpea, Economics, Gap analysis, Grain yield, Technology gap.

INTRODUCTION

Pulses, or ‘daal,’ are an integral part of the average Indian meal. A large proportion of the Indian population is vegetarian, and pulses form the main source of protein. The protein content in pulses is about 18–25 per cent. This makes pulses one of the cheapest sources of protein for human consumption. However, the per capita domestic consumption of pulses has declined from 60g / day in 1970-71 to 36g / day in 2007-08.

The World Health Organization recommends 80g / capita / day of pulse consumption for India. Based on expected population growth, India will require about 38 million tonnes of pulses by 2017-18 to avoid protein deficiency. Considering the current domestic production levels (15.11 million tonnes in 2007-08), there is a huge gap that needs to be addressed if India has to be self-sufficient in pulses. If India has to meet the above projected demand, it would have to either double its acreage at current yield levels or double the yield while keeping acreage constant. Since either of the above may not be feasible in isolation, the country needs to look at a combination of both.

Chickpea commonly known as gram, bengal gram and garbanzo beans is an important Rabi pulse crop of India. It occupies about 38.71 per cent of area and 48.28 per cent of the total pulses production in India. In Rajasthan state the total area under Chickpea cultivation is 12.31 L. Ha (16.70 per cent of the nation) with the estimated production of 05.73 L. tonnes (9.73 per cent of the nation) and average productivity of Chickpea in the state is 465 kg/ha. The shortfall of pulses which is to be minimized either by increasing the area or by increasing the productivity levels of pulses also indicated by Gupta et al. (2004). The pulse production targeted to be 32 million tons with the productivity of 850 kg/ha for the period of 2007-12 by Govt. of India (Yadav and Kumar, 2007). Till date the productivity level of pulses is not sufficient on account of several biotic and abiotic stresses besides unavailability of quality seeds of improved varieties in time and poor crop management practices due to unawareness and non-adoption of recommended production & plant protection technologies. Therefore, it is very essential to demonstrate the high

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yielding varieties, resistant to biotic and abiotic stresses and other production technologies to which the farmers generally do not adopt. A wide gap exists between the available techniques and its actual application by the farmers which is reflected through poor yield in the farmers’ fields. There is a tremendous opportunity for increasing the production and productivity of Chickpea crop by adopting the improved technologies. There are so many appropriate technologies generated at agricultural universities and research stations but the productivity of Chickpea is still very low due to poor transfer of technology from the points of its development to the points of its utilization and only a little new knowledge percolates to the farmers fields hence a vast gap has been observed between knowledge production and knowledge utilization.

To achieve target of additional production of pulses, it is necessary to concentrate efforts on scientific cultivation of Chickpea, the most important pulse crop of India. Therefore, Crop Technology Demonstration (CTD) of pulses on farmer’s field may be helpful. The basic objective of this programme is to demonstrate improved proven technology of recently released, early maturing, high yielding, bold seeded, disease resistant varieties in a compact block with IPNM, IWM & IPM at farmers field to bring in enhanced application of modern technologies to generate yield data and collection of farmers feedback. Keeping the importance of this, Agriculture Department, Jhunjhunu conducted total 2450 demonstrations on Chickpea crop at farmer’s field during rabi

**MATERIALS AND METHODS**

Crop technology demonstrations on Chickpea variety RSG-888, BG-372 and GNG-663 were conducted at 2450 selected farmer’s field in a compact block in district Jhunjhunu (Rajasthan) during rabi 2007-08 to 2011-12. The soils of the district is generally sandy loam in texture, low in nitrogen, low to medium in phosphorus and medium to high in potash. All the demonstrations were of 0.5 ha area each and were conducted using recommended package of practices. Farmers were provided with quality seed of Chickpea variety RSG-888, BG-372 and GNG-663, DAP fertilizer, insecticides for plant protection purpose, suitable herbicide for weed control, and required fungicide and culture packets for seed treatment, zinc & Sulphur for balanced nutrition to the farmers during both the years of the study on subsidised rates. The sowing was done during mid October to last week of October under assured irrigated conditions and harvested during last week of March. The demonstrations on farmer’s fields were regularly monitored by the Extension functionaries of agriculture department, Jhunjhunu right from sowing to harvesting. The grain yield of demonstration crop was recorded and analysed. Different parameters as suggested by Yadav et al. (2004) were used for calculating gap analysis. The detail of different parameters is as follows:

1. **Extension gap** = Demonstration yield - Farmers practice yield
2. **Technology gap** = Potential yield - Demonstration yield
3. **Technology index** = Potential yield - Demonstration yield x 100/ Potential yield

**RESULTS AND DISCUSSION**

Results of 2450 demonstration conducted during in 2225 ha area on farmer’s field of Jhunjhunu district presented in Table-1 indicated that use of high yielding variety (RSG-888, BG-372 and GNG-663), balanced application of fertilizer and micronutrients and control of insect & disease at economic threshold level gave average 17.81 % more yield of chickpea compared to farmer practices (1038 kg/ha). The result indicated that the crop technology demonstration has given a good impact over the farming community as they were motivated by recommended technology applied in the demonstration fields. Data further indicated that yield of mustard in following years increased successively within each variety. This clearly suggests the positive impact of demonstration over farmer’s practices. The increase in grain yield under demonstration was 14.13 to 21.77 % over farmer’s local practices. On an average 17.81% yield advantage was recorded under demonstrations carried out with improved cultivation technology as compared to farmer’s traditional way of Chickpea cultivation.

It is explicit from the data that yield gap between potential and demonstration yield was reduced successively within each variety from 2007-08 to 2011-12.

Yield of chickpea variety used in demonstration is presented in table-2. Data indicated
that The extension gap, technology gap and technology index were 168, 195 and 221 kg per ha, 867, 725 and 964 Kg per ha and 43.33, 32.95 and 43.82 % in variety RSG-888, BG-372 and GNG-663, respectively.

The higher value of extension gaps and technology gap 725 to 964 kg/ha & 168 to 221 kg/ha, respectively during 2007-08 to 2011-12 emphasized the need to educate the farmer's through various means for the adoption of improved/recommended production technology to decrease the gaps.

The technology index (Table-2) shows the feasibility of the evolved technology at farmer’s field. Lower the value of index more is the feasibility of technology. Data on technology index reduced from 47.50% (2007-08) to 43.82% (2011-12) exhibited the feasibility of technology demonstration.


### REFERENCES


