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Success Story on Greengram Seed Production under Precision Farm- ing in Dharmapuri District of Tamil Nadu

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Abstract

Greengram (*Vigna radiata* L.) commonly known as 'mungbean' or 'moong' and 'poor man's meat' is one of the main pulse crops in the world particularly in India, which is highly rich in protein (24.7%) along with fibre, vitamin and minerals. It is the third important pulse crop of India grown in nearly 8 percent of the total pulse area of the country. It plays an important role in improving soil health, long term fertility and sustainability of the cropping systems. It is also used as green manuring crop, which adds nitrogen in addition to humus to the soil. It is a soil protecting crop in rainy season. It requires low input and has wider adaptability to grow in short duration (60-90 days). It is also serves as intercrop in the long duration crops. The increasing demand and price escalation makes the farmer to move towards green gram cultivation.

Background Information

Green gram is being cultivated in an area of 2076 ha in Dharmapuri district mostly under rainfed condition. The non-adoption of high yielding varieties and improved production technologies viz., seed treatment with biofertilizers and biopesticides, foliar application of TNAU Pulse wonder @ 2 kg/acre at 50% flowering and integrated pest and disease management practices. To overcome the lack of awareness on improved short duration high yielding varieties suitable for rainfed and irrigated condition Tamil Nadu Agriculture Irrigated Modernization Project Phase-II (TN IAMP-II) Scheme intervention on "Pulse seed Production." The short duration high yield variety Co-8 with integrated crop management practices were demonstrated in the farmer field of Mr. P. Subramani, S/O Ponnusamy, Parayapatti Pudur Village, Harur block, Dharmapuri District, Tamil Nadu during 2019-20 in 0.5 hectare.

Institutional Involvement/ Intervention

The following integrated crop management technologies were demonstrated in the farmer's field.

- Seed treatment with *Trichoderma viride* 4 g/kg, *Pseudomonas fluorescens* @ 10 g/kg of seed.
- Foliar application of TNAU Pulse wonder @ 5 kg/ha at the time of 50% flowering Recommended dose of fertilizer @ 25:50:25 kg NPK/ha.
- Integrated pest and disease management with special emphasis for the spotted borer *Maruca testulalis* management.

Success Point/ Results

The farmer was adopted scientific technology during the season. TN IAMP-II intervention performed very well in farmers field (Table 1) as compared to the farmers

practice method. Once in three days drip irrigation and fertigation was given. Foliar spray of TNAU Crop booster viz., pulse wonder @ 2 kg/acre at 50 percent flowering and pod formation stage.

Table 1: Performance of green gram under TN IAMP-II intervention and farmer’s practice method

Parameters	TN IAMP Intervention	Farmers Practice
Plant height (cm)	35.7	26.8
Plant height (cm)	10.6	8.2
Number of cluster/plant	27	18
Number of pods/plant	3.8	2.5
100 Seed weight (g)	-	7.8
Pod borer damage (%)	5	15.0
Yellow Mosaic Virus (%)	4	12
Leaf crinkle (%)	4	12
Days to maturity	68	80
Grain Yield (q/ha)	7.82	6.36
Net Return (Rs./ha)	18434	11500
Benefit Cost Ratio	2.35	1.91



Figure 1: Performance of greengram under TN IAMP-II intervention at flowering stage



Figure 2: Raising maize border crop for TN IAMP-II intervention field

Outcomes

From the result, the TN IAMP-II intervention methods registered higher growth and yield parameters viz., plant height (35.7 cm), number of cluster/plant (10.6), number of pods/plant (27), low pest and disease incidence viz., no pod borer damage, yellow mosaic virus (5%), leaf crinkle (4%). The TN IAMP-II intervention recorded 23 percent higher yield than the farmer’s practice method and also farmer earned more profit from TN IAMP intervention. The farmer’s practice observed lowest growth, yield parameters and yield of green gram.

Conclusion

TN IAMP-II intervention of pulse seed production recorded higher growth and yield parameters and yield of greengram. Drip fertigation once in three days in greengram gave higher pod yield. Raising border in greengram is to reduce the pest incidence. Overall the TN IAMP-II intervention is performed very well in farmer’s field and increased the yield and net income of the farmer.