Success story on
Production Technology of *Kharif* Pulse Blackgram Var. PU-31 in Bishnupur District

Introduction

Pulses are an important commodity group of crops that provide high quality protein. The cultivation of pulses builds up a mechanism to fix atmospheric nitrogen in their root nodules and thus meet their nitrogen requirements to a great extent. Pulses can be produced with a minimum use of resources and hence it becomes less costly. Pulses are highly water efficient, can grow in drought prone areas and help improve soil fertility by fixing soil nitrogen.

Inspite of so many merits in pulse production, promotion of pulse in the district is not an easy job because most of the farmers are small and marginal farmers having land holding area less than 1 ha and as such sowing of *kharif* pulse coincides with the main crop rice. Also rabi pulse could not be sown in time as most of the field was occupied with paddy field upto the month of November and as such there is no time of land preparation and sowing time is always delayed which resulted into poor yield due to incidence of pests and diseases and sometimes the crop was damaged with occurrence of hailstorm mostly during March-April i.e. when the crop attains maturity stage.

The concerned efforts made in the technology front during the last three years under National Food Security Mission on Cluster Front Line Demonstration of Pulses paved way for significant increase in the productivity levels.

KVK Intervention

Although there were lot of constraints in pulse production, KVK, Bishnupur gave best effort to boost the pulse production through Cluster Front Line Demonstration on *kharif* pulse under National Food Security Mission. In the year 2016, blackgram was cultivated in an area of 20 ha in 4 villages viz. Irengbam, Kumbi, Saiton and Upokpi of Bishnupur district. Areas suitable for blackgram cultivation were identified, followed by selection of farmers willing to grow blackgram.As a precursor to organizing the CFLDs, a training programmes related to the technology with major focus on pulse production during *kharif* was organized in the selected villages. Such willing farmers were trained on package of practices of blackgram cultivation, the cost benefit advantage was explained to them. This was followed by hands - on training on growing of blackgram var. PU-31 in 8 clusters of 4 villages benefitting 28 farmers. The activities that were carried out under the programmme were distribution of inputs like pulse seed (blackgram), biofertilizers, fungicide and insecticide, organization of training and field days, distribution of literatures.

Blackgram with seed rate 25 kg/ha were treated with Carbendazim @ 2g/kg and Rhizobium @ 10g+ 10g sugar per kg of seed before broadcasting. Also NPKS@ 20:40:20:20kg/ha were applied to the field at the time of sowing. The variety used is PU-31, a pedigree of UPU 97-10 x DPU88-31, released in the year 2005, 70-75 days to maturity, resistant or tolerant to Yellow Mosaic Virus (YMV) and is suitable of *kharif* season. The CFLDs programme were carried out under the watchful eye of SMS (Agronomy) and co-workers SMS(Plant Protection) and SMS (Agril. Extension) of the KVK guided by Senior Scientist and Head of KVK, Bishnupur. Field visit in different crop stages were also carried out. Also field days were organized at village level to show the response of the blackgram cultivation to neighbourng farmers.

1. Training programme

2. Training programme

3. Training programme

4. Distribution of inputs

Output and Outcome

The programme has promoted efficient use of cultivated land in blackgram areas, optimized use of available resources i.e., water, labour and other inputs. It has not only provided additional yield of pulse averaging 5 q/ha but also improved soil health due to fixation of atmospheric nitrogen by root nodules of blackgram. Farmers could earn a net income of Rs. 15,000 inspite of prolonged rainfall during the cropping season and they could get a return of Rs.1.6 when Rs. 1 was invested.

Crop	Technology	No. of clusters	No. of farmers	Total area (ha)	Average yield			Gross Cost (Rs/ha)	Gross return (Rs/ha)	Net Return (Rs/ha)	B:C ratio
					Max.	Min.	Average				
Black gram var. PU-31	Seed rate- 25 kg/ha, Seed treatment with Mancozeb and carbendazim @ 2g/kg, Rhizobium @ 20g/kg , N:P:K @ 20:40:20 kg/ha)	8	28	20	8	3	5	25000	40000	15000	1.6:1

5. Land Preparation:

6. Seed treatment

7. Collection of GPS Data

8. Inspection of seedling stage

9. Inspection of Vegetative stage:

10. Farmers' Field day

11. Winnowing and Threshing

12. Seed production

Impact:

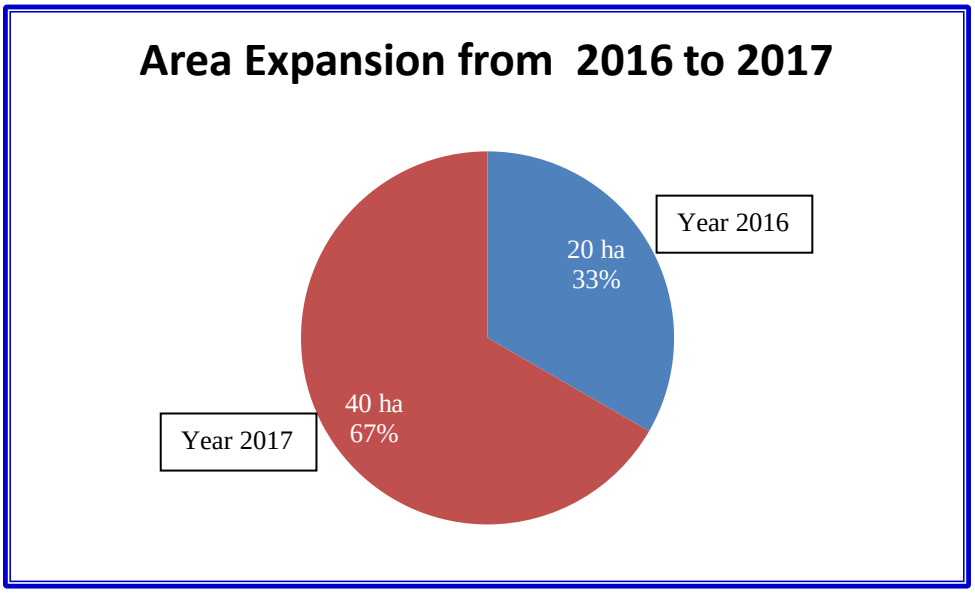
Having convinced with the production potential of blackgram cultivation, the area were expanded to 40 ha in the next *kharif* season 2017 in 8 clusters benefittng 80 farmers. But the most interesting part is that farmers practiced line sowing rather than broadcasting method which shows a promising result and the yield was increased by 41.65%.

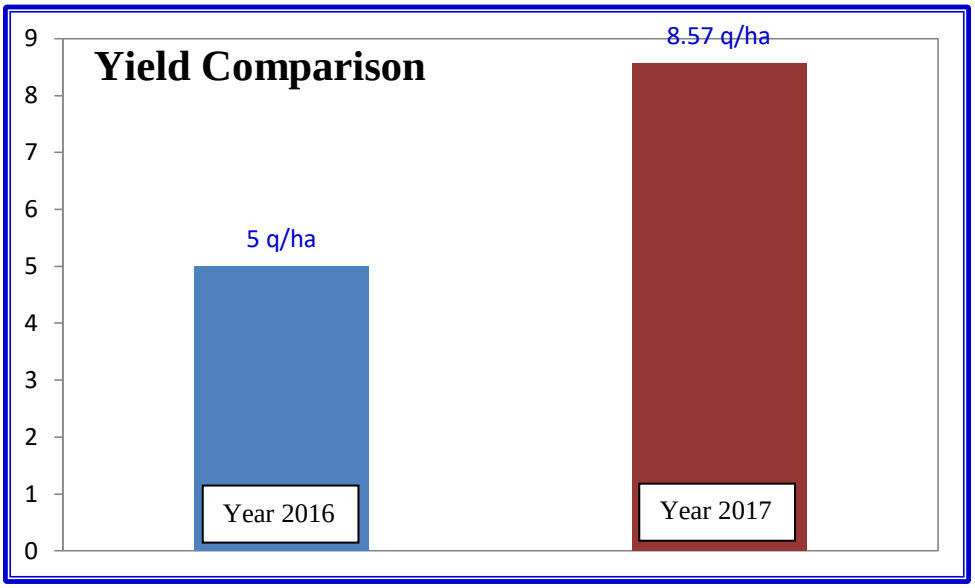


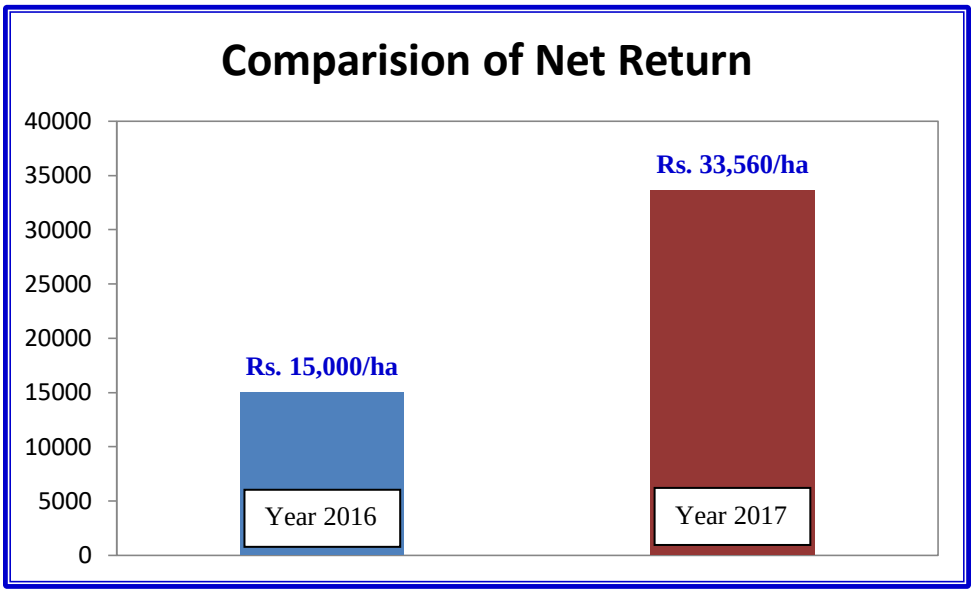

Photographs of Line Sowing

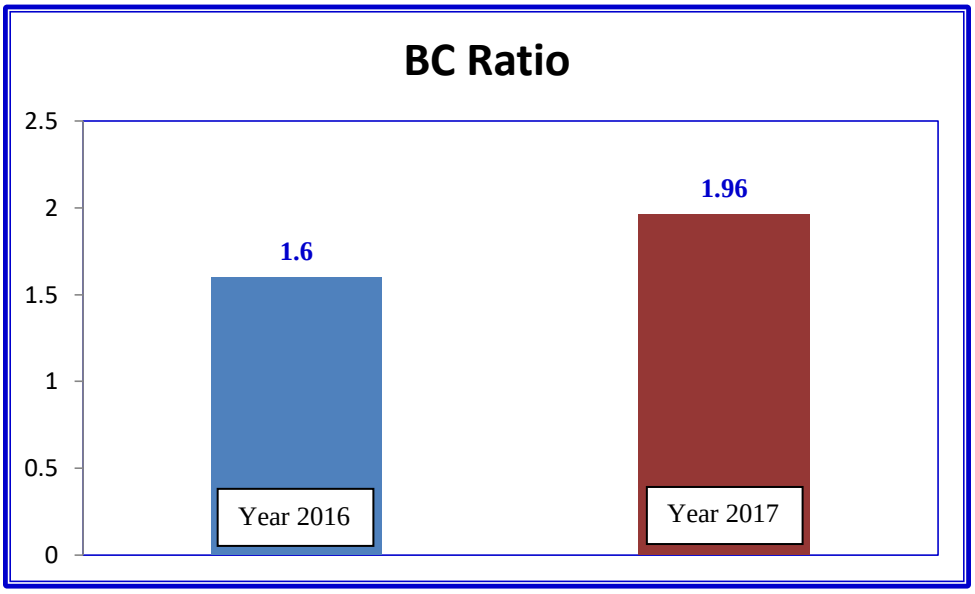
Buoyed by this success, a concentrated plan has been mooted to propagate seed production technology in blackgram on a wider scale through proper co-ordination of all related departments both at the district and state levels.

Crop	Technology		Area (ha)		Yield (q/ha)		Yield increased (%)	Net return (Rs/ha)		Net return increased (%)	B:C ratio	
Black gram var. PU-31	2016	2017	2016	2017	2016	2017		2016	2017		2016	2017
	Broadcast	Line sowing	20	40	5.00	8.57	41.65	15000	33560	55.30	1.60:1	1.96:1






Comparision of Net Return
40000
35000
30000
25000
20000
15000
10000
5000
0
Rs. 15,000/ha
Rs. 33,560/ha
Year 2016
Year 2017


BC Ratio
2.5
2
1.5
1
0.5
0
1.6
1.96
Year 2016
Year 2017