Estimation of Economics of Chickpea for Central Zone of Uttar Pradesh

Jitendra Ojha[1], Sumit Kumar Singh[2], K.K Mishra[3], Brajesh Kumar Mishra[4], Udaibhan Singh[5], Aneeta Yadav[6] and Anamika Jain[7]

[1-7]Faculty of Agricultural Sciences and Allied Industries, Rama University, Kanpur (U.P.)

Corresponding author- jitendra.fas@ramauniversity.ac.in

Abstract

Chickpea (*Cicer arietinum* L) is a major leguminous crop. To calculate the Economics of the Chickpea in central zone of Uttar Pradesh, the research was conducted during *Rabi* season 2017-18 at research farm of "Faculty of Agricultural Sciences and Allied Industries", Rama University, Kanpur (Uttar Pradesh). The experiment was laid out in Randomized Block Design (RBD) comprised of 11 treatments combination along with 3 replications. The variety of Chickpea under study was 'KGD-1168'. Based on the study, it was found that the application of 75 % RDF + FYM @2.5 t ha^{-1} +Vermicompost @ 1.0 t ha^{-1} followed RDF (20 kg N+ 60 kg P$_2$O$_5$ + 20 kg K$_2$O ha^{-1}] and 50 % RDF + FYM @ 5 t ha^{-1} + Vermicompost @ 2.5 t ha^{-1} is best for highest seed yield.

Keywords: Economics, Vermicompost, Treatments and Seed Yield.

Introduction

Gram or Chickpea (*Cicer arietinum* L.), belongs to family Fabaceae. Gram or Chickpea (*Cicer arietinum* L.) is self-pollinated leguminous crop. Chickpea is the third most important pulse crop in the world after French bean (*Phaseolus vulgaris* L) and Field Pea (*Pisum sativum* L) with an all time high production of 11.23 million tonnes during 2017-18. In India Gram or Chickpea (*Cicer arietinum* L.) is leading food legume crop covering 8.31 million hectare area, production 7.03 million tonnes and productivity of 843 kg. / Hectare. (AICRPC, 2016). The leading chickpea growing states are Madhya Pradesh, Rajasthan, Maharashtra, Uttar Pradesh, Karnataka, and Andhra Pradesh. These states contribute together 93 percent of the production from 92 percent of area.

Materials and Methods

The experiment was conducted during Rabi season of 2017-18 at research farm of "Faculty of Agricultural Sciences and Allied Industries", Rama University, Kanpur (Uttar Pradesh). The seasonal Rainfall was about 629.5 mm, mostly from 2nd fort night of June or First Fortnight of July to mid October with a few showers in winter season. The Maximum and minimum temperature in Rabi season was 35°C to 10 °C respectively.

The experiment was laid out in Randomized Block Design (RBD) compass of 11 treatments combination along with 3 replications. Each replication was divided into equal plots and the treatments were randomly allocated within them. Preferred Gross size of plot was 4m×3m = 12 m^2. The net plot size was 3.6 m×2.4 m = 8.64 m^2. The row spacing was 45 cm×15 cm and the chosen variety of Chickpea was 'KGD-1168'. The treatment specifies of the plot is presented in the table below:

S. No.	Treatments	Symbol used
1	Control	T$_1$
2	Farmers Practice[50 kg DAP ha^{-1}]	T$_2$
3	RDF [20 kg N+ 60 kg P$_2$O$_5$ + 20 kg K$_2$O ha^{-1}] through chemical fertilizer	T$_3$
4	FYM @ 10 t ha^{-1}	T$_4$
5	Vermicompost@ 5 t ha^{-1}	T$_5$
6	75 %RDF + FYM @2.5 t ha^{-1} + Vermicompost @ 1 t ha^{-1}	T$_6$
7	50 % RDF + FYM @ 5 t ha^{-1} + Vermicompost @ 2.5 t ha^{-1}	T$_7$
8	25 % RDF + FYM @ 10 t ha^{-1} + Vermicompost @ 5 t ha^{-1}	T$_8$

Results & Discussion

The data related to economics of Chickpea crop viz. cost of cultivation (Rs. ha^{-1}), gross return (Rs. ha^{-1}), net return (Rs. ha^{-1}), and B: C ratio as inveigled by deviating integrated nutrient management practices were statistically analyzed & presented in the table given below:

Treatments	Treatments Combination	Cost of Cultivation (Rs. ha^{-1})	Gross Return (Rs. ha^{-1})	Net Return (Rs. ha^{-1})	B:C Ratio
T_1	Control	19307	71491	52184	3.70
T_2	Farmers Practice[50 kg DAP ha^{-1}]	20407	79495	59088	3.90
T_3	RDF [20 kg N+ 60 kg P_2O_5 + 20 kg K_2O ha^{-1}] throught chemical fertilizer	21106	114885	93779	5.44
T_4	FYM @ 10 t ha^{-1}	24307	88102	63795	3.62
T_5	Vermicompost@ 5 t ha^{-1}	22807	86378	63571	3.79
T_6	**75 % RDF + FYM @2.5 t ha^{-1} + Vermicompost @ 1 t ha^{-1}**	**22606**	**123112**	**100506**	**5.45**
T_7	50 % RDF + FYM @ 5 t ha^{-1} + Vermicompost @ 2.5 t ha^{-1}	24456	109767	85311	4.49
T_8	25 % RDF + FYM @ 10 t ha^{-1} + Vermicompost @ 5 t ha^{-1}	28257	101694	73437	3.60

The table shows that gross return was recorded maximum i.e. Rs. 1,23,112.00 ha^{-1} with the application of   RDF + FYM @ 5 t ha^{-1} (T_6) followed by T_3 and T_7 respectively.

The highest return was recorded with the application of   75 % RDF + FYM @2.5 t ha^{-1} +Vermicompost @ 1 t ha^{-1} (T_6) Rs. 100506.00 as compared to control treatment (Rs. 45396.00 ha^{-1}). The Treatment T_2 (Rs. 93779.00 ha^{-1}) and T_7 (Rs. 85711.00) was also recorded higher as compared to other treatment.

B:C was high (5.45) with the application of 75 % RDF + FYM @2.5 t ha^{-1} +Vermicompost @ 1.0 t ha^{-1} followed by T_3 which received 100 percent RDF alone (5.44) as compared to treatment T_3 (FYM @ 10 t ha^{-1}) i.e. 3.18 followed with the application of 25 % RDF + FYM @ 10 t ha^{-1} + Vermicompost @5.0 t ha^{-1} (3.60).

Conclusion

On the basis of study conducted , the application of   75 %   RDF + FYM @2.5 t ha^{-1} +Vermicompost @ 1.0 t ha^{-1} followed RDF (20 kg N+ 60 kg P_2O_5 + 20 kg K_2O ha^{-1}) and 50 % RDF + FYM @ 5 t ha^{-1} + Vermicompost @ 2.5 t ha^{-1} recorded highest net return (Rs./hectare).

References

1. Dixit, G. P.; Shrivastava, A. K. and Singh, N. P. (2019). Marching towards self-sufficiency in chickpea.Current Science 116 (2): 239-242.
2. Fisher , R.A (1958). Skeleton Analysis of Variance. "Design of Experiment".
3. Tomar, G.S and S.N Khajanji (2009). Effect of Organic Maunring & Mineral Fertilizer on the growth , yield and Economics of Soyabean (Glycine max L) , International Journal of Agricultural Sciences 5(2): 590-594.
4. Singh, Huribal (2009). Effect of Farmyard Manure, macro and micronutrient of the growth and grain yield of Soyabean . Journal of Plant science Research 25 (2): 155-158
5. Anonymous (2018). Annual report 2017-18 of Sehore Center of AICRP on Chickpea.