Available online at www.ijpab.com

DOI: http://dx.doi.org/10.18782/2320-7051.5852

ISSN: 2320 – 7051

Int. J. Pure App. Biosci. **5 (6):** 1172-1175 (2017)

Research Article

International Journal of Pure & Applied Bioscience

OPEN ACCESS

Increasing Oilseed Production through Cluster Demonstration in Patna District: A Case Study

Binita Rani, Rajeev Kumar and Prakash Chandra Gupta*

Krishi Vigyan Kendra, Agwanpur, Barh, Patna-803214, Bihar, India

*Corresponding Author E-mail: pcguptauas@gmail.com

Received: 6.10.2017 | Revised: 19.11.2017 | Accepted: 22.11.2017

ABSTRACT

Cluster Frontline Demonstration was conducted by Krishi Vigyan Kendra, Patna, Bihar to study the impact of improved cultivar, seed treatment, sulphur application and diseases and pest management on production and productivity of linseed and mustard. It was observed that Shekhar variety of linseed performed very well as compared to local variety as there was 28.64 % yield gap between both the varieties. In the same manner, RNG-48 of mustard gave 31.98 % higher yield in comparison to the local variety. This study clearly indicates that the use of improved varieties of linseed and mustard with scientific package and practices under Cluster Frontline Demonstration programme can play a major role in improving the quantity of seed production of oilseeds and may contribute significantly in state and national oilseeds production programme.

Key word: *Oilseed, Linseed, Mustard, Production, Demonstration*

INTRODUCTION

Oilseed crops are the second most important determinant of agricultural economy, next only to cereals. India is the largest producer of oilseeds in the world and accounts for about 14 per cent of the global oilseeds area, 7 % of the total vegetable oils production, and 10 % of the total edible oils consumption. In India, oilseeds account for 3% to the Growth National Products and 10% to the total value of all agricultural products. The total oilseed cultivated area, the total oilseed seed production and the total edible oil production, under the nine oilseed crops, were 27 million ha, 29 million matric tones (mmt) and 7.45 mmt respectively. Presently, India's annual edible oil consumption is about 17.5 mmt, which in the last decades has increased steadily at a compounded annual growth rate of 4.6%. The growth in per capita consumption is attributable to both rising income levels and living standards. However, the current per capita consumption of 14.3 kg/year in 2012-13 in India is considerably lower than the global average of 24 kg/year. Indian mustard is the second important oilseed crop in India, next to groundnut[5]. Mustard seed is the second largest produced oilseed in the world with an area of 37.0 m ha, with the production of 63.09 m tonnes and the productivity of 18.50 q/ha.

Cite this article: Rani, B., Kumar, R. and Gupta, P.C., Increasing Oilseed Production through Cluster Demonstration in Patna District: A Case Study, *Int. J. Pure App. Biosci.* **5(6):** 1172-1175 (2017). doi: http://dx.doi.org/10.18782/2320-7051.5852

In India it had the area of 6.3 m ha with production of 7.6 m tonnes and productivity of 11.90 q/ha [1]. Among rabi oilseed crops in India, linseed happens to occupy the second position i.e. next to rapeseed-mustard in area as well as production[2]. India ranks first in the world in respect of acreage accounting for 23.8% of the world and third in production contributing 10.2% of the world. In India, it is cultivated on 0.53 m. ha with a production of 0.21 m. tonnes. Its cultivation is mostly confined to Madhya Pradesh, Maharashtra, Chattisgarh, Uttar Pradesh and Bihar[3]. Now a day, mustard and linseed crop is maintaining its increasing trend in productivity while, the area registered shows a declining trend resulting in its stagnant production. The decrease in area might be due to socio-economic factors as percapita holding is shrinking owing to population increase, thereby encouraging the growers to grow linseed and mustard by scientific method. In order to increase the area and productivity of mustard and linseed, we have to make it more remunerative with added advantages to attract growers for oilseed production and cluster demonstration programme may be a good approach to achieve the goal.

MATERIAL AND METHOD

Cluster Frontline Demonstration was conducted by KVK, Patna (BAU, Bhagalpur, Bihar) on farmer's field at six blocks namely Barh, Pandarak, Ghoshwari, Fatuha, Sampathchak, and Mokama, which were traditionally oilseed producing area.

In this study, 121 farmers were involved for large scale cluster demonstration of various oilseed crops *viz.* Linseed and mustard in 20 ha and 30 ha area, respectively. Soil of the selected fields for cluster demonstration was analysed for pH, EC, Organic carbon, N, P, K, Fe, Cu, Mn and Zn. Seed treatment of the entire oilseed crops was done at farmers house in supervision of KVK scientist with Carbendazim@2gm/Kg seed and Chlorpyriphos 20EC@6ml/Kg seed. Based on the soil test value, fertilizers were applied as $N:P_2O_5:K_2O$ :: 50:37.5:20 in linseed and 80:50:40:10 in mustard crop. N was applied in two split half as basal and remaining half after 35 days of sowing after irrigation. Suitable plant protection measures were applied in problematic field to protect the crop from white rust in mustard. No disease was observed in linseed crop. Only pod borer was reported to be a serious problem in Sampatchak block for which Profenophos@ 2 ml/lit water was recommended to spray.

RESULT AND DISCUSSION

From above study it was observed that soil samples of all the plots were deficient in zinc and sulphur. So, recommended dose of Zn and S along with other fertilizers were applied in the entire demonstration field. Linseed (Shekhar) was given to 50 farmers of Barh and Pandarak blocks for sowing in 20ha area (Table 1). It was observed that the productivity of linseed in demonstration plots in Barh and Pandarak block ranged from 8.14 q/ha and 7.75 q/ha respectively (Table 2), where as in check plots where farmer's local variety was grown, the yield range from 6.36 q/ha to 6.23 q/ha. The average yield of 50 demonstration plots of linseed was 7.95 q/ha which is 28.64 % higher than that of local check. It was observed that the % increase in yield of demo plot ranged from 28.69 % in Barh block to 28.58 % in Pandarak block. In case of mustard, the yield of demonstrated plots where improved cultivar i.e. RNG-48 was introduced, it was observed to be maximum (10.17 q/ha) at Ghoshwari block and minimum (8.85 q/ha) at Barh block. The yield of farmer's local variety ranged from 6.90 q/ha to 7.94 q/ha, the lowest productivity found in Sampathchak block and higest productivity found in Ghoshwari block. The percentage increase in yield in demo plot over the check plot ranged from 25.60 % in Pandarak to 44.93 % in Sampathchak block. The average yield of 71 demonstration plots of mustard was observed to be 10.17 q/ha which was 29.26 % higher than the local check where only plant protection measure was followed (Table 2).

The linseed and mustard crop yield varies from place to place depending on the

climate, soil and technology. The linseed crop yields obtained under CFLDs with improved technology varied from 7.75 to 8.14 q/ha and 6.23 to 6.36 q/ha in check plot. There is a vast gap between the check yield and yield of demonstrated variety through Frontline Demonstrations on farmers' field[6]. also supported that Frontline Demonstrations is better than farmer practices. The mustard crop yields obtained under cluster frontline demonstration with improved technology varied from 8.85 to 10.17 q/ha and 6.90 to 7.94 q/ha in check plot. Bhati and Sharma (2014) also supported that mustard yield varies from 11.28 to 15.56 q/ha under effective management of mustard. The present findings are also in accordance with the findings of Sharma[4] who found that the yield levels under farmers' practices were always lower than obtained under frontline demonstration. Keeping this in view, programme of cluster frontline demonstration should be popularized for other oilseed crops also in order to increase farmer's income and attain self sufficiency in oilseeds production.

Table 1: Area covered for different oilseed crop in different block under CFLD in Patna district

Linseed (Shekhar)			Mustard (RNG-48)		
Block	**No of farmers**	**Area (ha)**	**Block**	**No of farmers**	**Area (ha)**
Barh	41	16.4	Barh	36	15.2
Pandarak	09	3.6	Pandark	03	1.2
			Ghoshwari	06	2.6
			Fatuha	04	1.6
			Sampathchak	01	0.4
			Mokama	21	9.0
Total	**50**	**20**		**71**	**30**

Table 2: Yield of different oilseed crop in different block under cluster demonstration programme in Patna district

Name of the Block	**Name of the technology demonstrated**	**No. of the farmer**		**Yield(q/ha) Demonstration**		**Yield(q/ha) Local check**		**% increase in yield over check**	
		Linseed	**Mustard**	**Linseed**	**Mustard**	**Linseed**	**Mustard**	**Linseed**	**Mustard**
Barh	Improved cultivars, Sulphur application, weed management, Seed treatment with Carbendazim@2gm/Kg seed, Chlorpyriphos 20EC@3ml/Kg	41	36	8.14	8.85	6.36	7.05	28.69	26.50
Pandark		09	03	7.75	9.10	6.23	7.27	28.58	25.60
Ghoshwari			06		10.17		7.94		29.26
Fatuha			04		10.13		7.65		31.70
Sampathchak			01		10.0		6.9		44.93
Mokama			21		10.07		7.53		33.90
Average				**7.95**	**9.72**	**6.30**	**7.39**	**28.64**	**31.98**

CONCLUSION

Present study showed that Cluster Frontline Demonstration may contribute significantly in state and national oilseed production programme. Demonstrated of linseed (Shekhar) and mustard (RNG-48) with scientific package and practice of both oilseed crop performed very well as compared to local variety grown by farmers as there was 28.64 % yield gap in linseed and 31. 98 % yield gap in mustard.

Acknowledgement

The authors acknowledge B.A.U., Sabour, ATARI Kolkata and ICAR, New Delhi for providing financial assistance and technological support for conducting the Cluster Frontline Demonstration programme.

REFERENCES

1. Bhati, R. and Sharma, R. C., Efficacy of newer chemicals against mustard aphid. *Biolife,* **2(4):** 1165-1169 (2014).

2. Chauhan, M. P., Singh, S. and Singh, A. K., Post Harvest Uses of Linseed. *J. Hum Ecol.*, **28(3):** 217-219 (2009).
3. Damodaran, T. and Hegde, D. M., *Oilseeds Situation: A Statistical Compendium*, Directorate Oilseeds Research, Indian Council of Agricultural Research, Hyderabad (2005).
4. Sharma, V. P., Problems and Prospects of Oilseeds Production in India, Centre for Management in Agriculture (CMA), Indian Institute of Management (IIM), Ahmedabad 380 015, November (2014).
5. Shivani and Kumar, S., Response of Indian mustard *(Brassica juncea)* to sowing date and row spacing in mid-hills of Sikkim under rainfed conditions. *Indian Journal of Agronomy*, **47(3):** 405-410 (2002).
6. Vittal, K. P. R., Kerkhi, S. A., Chary, G. R., Sankar, G. R. M., Ramakrishna, Y. S., Srijaya, T. and Samra, J. S., *Districtwise Promising Technologies for Rainfed Linseed based Production System in India*. A Compendium by NARS, State Department(s) of Agriculture and Agro-Industries. All India Coordinated Research Project for Dryland Agriculture Central Research Institute for Dryland Agriculture Santoshnagar, Hyderabad 500 059 (2005).