The Pharma Innovation Journal 2023; SP-12(9): 2579-2581

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(9): 2579-52581

www.thepharmajournal.com
Received: 13-07-2023
Accepted: 22-08-2023

SR Dhuware
Scientist, Department of Agricultural Extension, KVK Balaghat, JNKVV, Jabalpur, Madhya Pradesh, India

Ghanshyam Deshmukh
Associate Professor, Department of Agriculture Engineering, College of Agril Waraseoni, Balaghat, JNKVV, Jabalpur, Madhya Pradesh, India

Rajni Agashe
SMS, Department of Agricultural Extension, KVK Mahasamund, IGKVV, Raipur, Chhattisgarh, India

Sukhlal Waskel
Programme Assistant, Department of Horticulture, JNKVV, Jabalpur, Madhya Pradesh, India

DR Agashe
SMS, Department of Agricultural Meteorology, KVK Balaghat, JNKVV, Jabalpur, Madhya Pradesh, India

Corresponding Author:
SR Dhuware
Scientist, Department of Agricultural Extension, KVK Balaghat, JNKVV, Jabalpur, Madhya Pradesh, India

Cluster front line demonstration (CFLD oilseed)'s economic effects on linseed in Madhya Pradesh's Balaghat District

SR Dhuware, Ghanshyam Deshmukh, Rajni Agashe, Sukhlal Waskel and DR Agashe

Abstract
In order to determine the yield differences between the upgraded package and practices employed in the cluster front line demonstration (CFLD oilseeds) and farmer's practice (FP) of linseed crops grown in rainfed circumstances, the study was conducted by the Krishi Vigyan Kendra Balaghat district of Madhya Pradesh. To show how enhanced agro-techniques affect output and economic benefits under rainfed conditions, cluster front line demonstrations on linseed were conducted on farmer's fields throughout the Rabi season in successive years, from 2017 to 2022. 280 farmers and the KVK scientific team worked on the five years of CFLDs in the 20 to 30 ha area. According to data analysis, the plots that produced the most grain had average.

Keywords: Frontline demonstration, impact, yield, and technology index

Introduction
A significant rabi oilseed crop in Madhya Pradesh's Balaghat area is linseed. When compared to the national average, the district's oilseed productivity of 650 kg/ha is low, primarily because of subpar crop management techniques and a lack of high-quality seed of improved linseed varieties and other inputs. Linseed (*Linum usitatissimum* L.) is a member of the genus Linum and family Linaceae. Compared to fiber varieties, seed types with branching habits have a lower harvest index. The harvest index typically ranges from 0.19 to 0.31. The test weight per 1,000 seeds is roughly 4.5 g. The major yield component affecting linseed yield and quality is the number of capsules per unit area. In essence, linseed is a type of industrial oilseed crop. Different accessions of the linseed crop have variable oil contents in the seed, ranging from 33% to 47%. High levels of dietary fiber and minerals can be found in flax seeds. Additionally, it has linoleic acid, an omega-3 fatty acid that makes it palatable and advantageous for heart patients. Improved cultivars have a seed oil content that ranges from 40% to 44%. On a very small scale, the oil from the seed is used directly to make oil cloth, soap, and water-resistant fabrics. The remaining 80% of the oil is used in industries to make paints, varnishes, and printing ink. The oil cake is the most valuable food cake for animals because it has 85% of its weight in protein at 36%. Linseed is currently grown on 4.36 lakh acres and contributes 1.67 lakh tonnes to the nation's yearly oilseed crop. JLS27 is a bold-seeded cultivar with a 120–125-day crop period, depending on the environmental factors. It includes 40% oil and is advised for rainfed conditions. KVKs are grassroots groups designed to promote technology through the improvement, evaluation, and demonstration of tried-and-true production techniques in a variety of microfarming environments (Das, 2010) [3]. At order to increase productivity and income from agriculture and related sectors, Krishi Vigyan Kendra's principal goal is to shorten the time gap between technology generations developed at research facilities and those transferred to farmers. The major goal of the National Food Security Mission's Cluster Front Line Demonstration.

Materials and Methods
In Linseed (JLS27), Krishi Vigyan Kendra Balaghat of JNKVV Jabalpur performed Cluster Frontline Demonstrations (CFLDs) on better farm technology 125 farmers would profit throughout the Rabi 2018–2019 and Rabi 2019–2020 on a 50 ha area of the Balaghat district. The soil of CFLDs was composed of sandy loam to sandy clay loam, and its pH ranged from 6.18 to 7.11. Better technology was maintained throughout the study's duration, including

improved seed varieties (JLS27), a technique for line sowing using a Nari plough and seed drill, seed treatment with thirum and biocontrol agents, weed management, and integrated pest management strategies. Seed was treated with thirum (3 gm/kg), trichoderma (5 gm/kg), and PSB (5 gm/kg) before to sowing. The following formula was used to determine how much more was produced during demonstrations than during farmer practice was calculated by using following formula.
The yield increase in demonstrations over farmers practice was calculated by using following formula.

$$\text{\% Yield increase over farmer's} = \frac{\text{Demonstration average plot yield} - \text{Famer's average plot yield}}{\text{Farmer's average plot yield}}$$

- Estimation of the technology gap, extension gap, and technology index
- The extension gap is the difference between demonstration operations that used superior transfer technology and conventional agricultural practices that produced higher grain yields. The same observations were also found in the black gram crop, according to Bairwa *et al*. (2013) [1], Hiremath and Nagarju (2010) [5], and JamwalAnamika *et al*. (2020) [13]. The technology gap, extension gap, and technology index were calculated using the methods described in Kadian *et al*. (1997) [6] and Samui *et al*. (2000) [2].

Extension yield gap = Demonstration plot average yield-Farmer's plot average yield

$$\text{Technology index} = \frac{\text{Technology yield gap}}{\text{Potential Y}} \times 100$$

Table 1: Utilizing technology in CFLD and farmer practicesploughings

S/No.	Demonstrated intervention	Intervention	Farmers involvement
1	fieldwork	Ploughing	Local single-plough
2	Technique for Planting Seed Variety	Line sowing by seed drill &Nari	Broadcasting
3	treatment of seeds	Rajeshwari	Local
4	rate of sown	Thirum @ 2.5 gm/kg of seed, Rhizobium, PSB &Trichoderma @ 5gm/kg of seed	Nil
5	Fertilizers and manures	20kg/ha	35-40 kg/ha
6	weed control	PSB 500ml, Rhizobium 500gm with 100kg vermicompost and sulphor 20:40:20:10	Nil
7	IPM metrics	Pendimethaline @ 2,5lit/ha	There was no preemergence.
8	technical direction	IPM practices	No Imbalance use of pesticides
9	fieldwork before	Timely	Nil

Line sowing with a seed drill and NariRajeshwariThirum at 2.5 gm per kg of seed, Rhizobium, PSB, and Trichoderma at 5 gm per kg of seed, 20 kg per ha of PSB and Rhizobium, along with 100 kg of vermicompost and sulphor, and 20:40:20:10 lit per ha of pendimethaline are IPM techniques.

The Findings and Discussion
The study's conclusions and pertinent discussion have been summarized as follows:

Crop Yield
Table 2's data showed that, relative to farmer practice, the linseed cluster frontline demonstrations' use of enhanced technology increased yield. The improved seed variety, seed treatment with a biocontrol chemical, and integrated pest management techniques were responsible for the demonstration plot's better yield. In comparison to farmers' practices, which ranged from 5.4 to 6.8 q/ha, the average seed production of the demonstration plots was greater at 9.1 to 11 q/ha (Table 2). In the Cluster Frontline Demonstration over local check, the enhanced yield percentage over control ranged from 58 to 81%. However, the seed yield in CFLDs was only 9.1 to 11 q/ha.

Yield gap extension
3.7 to 4.43 q/ha on average separated farmers' practices from those that had been demonstrated (Table 2). The current study's higher extension gap indicates that farmers need to be encouraged and informed to use new technology for linseed farming over traditional local farming methods. Additionally, Bairwa *et al*. (2013) [1], Gangadevi *et al*. (2018) [4], JamwalAnamika *et al*. 2020 [13], and Bairwa *et al*. (2013) [1] reported similar findings.

Table 2: Pigeonpea year-over-year production, the extension gap, the technology gap, and the technology index under CFLD and farmer practices

Years	Yield q/ ha		Increase yield (%) compare to Control	Extension gap (q/ha)	Technology gap (q/ha)	Technology Index (%)
	Demo	Farmer's Practice				
2017-18	11.00	6.8	62	4.2	4	26
2018-19	9.79	6.2	58	3.59	5.21	34
2020-21	9.93	5.5	81	4.43	5.07	33.8
2021-22	9.88	5.7	73	4.18	5.12	34
2022-23	9.1	5.4	69	3.7	5.9	39

Stretch Yield gap

Between farmer practices and those that have been proved, there is a 2.82 q/ha extension gap on average (Table 2). According to the current study's higher extension gap, it is necessary to motivate and inform farmers to choose sophisticated technology over traditional local farming methods in the pigeonpea industry. Additionally, Bairwa *et al*. 2013 [2] showed comparable outcomes. Gangadevi and others in 2020 [4].

Technology and the technology index yield differences

According to the data in Table 2, the technological gap was estimated to be between 4 and 5.9 q/ha, and the technology index was estimated to be between 26 and 39%. These findings may be related to decimal soil status differences, lake of irrigation facilities adverse weather conditions, disease and pest attacks, and changes in farming practices. Even if the CFLD'S were strictly carried out on the farmers' fields under the leadership of farm scientists, the technological gaps frequently still show up. The developed technology might be deployed in farmer's fields under the current agroclimatic conditions, according to the Technology Index (Vedna *et al*. 2007) [11]. The likelihood increases with decreasing technology index value**.**

Table 3: Shows the price of pigeonpea cultivation, the gross return, and the B:C ratio under demonstration and farmer techniques.

Year	Cost of Cultivation (Rs/ha)		Gross Return (Rs/ha)		Net Return (Rs/ha)		B:C Ratio	
	Demo	Farmer's Practice	Demo	Farmer's Practice	Demo	Farmer's Practice	Demo	Farmer's Practice
2017-18	20500	17500	57550	55000	37050	37500	2.8:1	1.6:1
2018-19	19800	20000	37600	31350	17800	11350	1.9:1	1.6:1
2020-21	20500	20000	44670	27000	24170	7000	2.2:1	1.4:1
2021-22	21000	20000	49400	31350	28400	11350	2.4:1	1.6:1
2022-23	22000	20000	57300	27000	35300	7000	2.6:1	1.4:1

Studying the economics of front-line demonstrations in a cluster

The average cost of cultivation on the demonstration plot is greater (Rs 19800 to 22000/ha) than the farmer's practice (Rs 17500 to 20000/ha). The data in table 3 made it abundantly clear how important Cluster Frontline Demonstration at Farmer's Field was during the study period, when demonstration plots obtained higher average net returns of rupees 17800 to 37050 than farmer's practice of rupees 7000 to 37500/ha. In addition, the demonstration plots' benefit-cost ratio was higher (1.9:1 to 2.8:1) than the farmer's actual practice (1.4:1 to 1.6:1). Numerous researchers have discovered that improving farm technology results in higher financial returns and a reduced Benefit cost (B:C) ratio (Vedna *et al*. 2007, Bairwa *et al*. 2013) [11, 1].

Conclusion

According to the results of the current study, implementing better farming practices and involving local farmers in the process has a positive impact on raising grain yields and linseed's economic return in Balaghat district. The farmers were spurred to adopt these practices by the economic viability of the technologies that were being used in farmer fields.

References

1. Bairwa RK, Verma SR, Chayal K, Meena NL. Popularization of Improved Blackgram production through Front line demonstration in humid southern plain of Rajasthan, Indian Journal of Extension Education and R.D. 2013;21:98-101.
2. Choudhary AK, Yadav DS, Singh A. Technological extension yield gaps in oilseed in Mi district of Himachal Pradesh. Indian J of Soil Conserv. 2009b;37(3):224-229.
3. Das Mamoni, Puzari NN, Ray BK. Impact of training of Agricultural Extension Review. 2010;1(1):29-30.
4. Devi Ganga M, Kumar CH, Anil, Kumar, Yugandhar M. Performance Evaluation of Cluster Front Line Demonstration in Blackgram. India Int. J Curr. Microbial App. Sci. 2018;7(8):4349-4354.
5. Hiremath SM. Evaluation of front line demonstration trials on onion in Haveri District of Karnatka, Karnatka J Agric Sci. 2009;22(5):1092-1093.
6. Kadian KS, Sharma R, Sharma AK. Evaluation of frontline demonstration on oilseeds in Kangra valley of Himachal Pradesh, Annals of Agric. Res. 1997;18(1):40-43.
7. Kothyari Singh, Hukam, Meena KC, Meena BL, Aseray Ram. Evaluation of Cluster Front Line Demonstration on Black gram in SawaiMadhopur District of Rajasthan, India. Int. J Curr. Microbial App. Sci. 2018;7(1):1569-1573.
8. Kumar Sanjeev, Khar Sanjay, Sharma Magdeshwar, Singh Praveen. Stability analysis for seed yield attributing traits in chickpea (*Cicer arietinum* L.) under Mid Hills of J & K. Leg. Res. 2014;37(5):552-555.
9. Kumar Sanjeev, Mahajan Vishal, Sharma Kumar Pawan, ParkashSuraj. Impact of front line demonstrations on the production and productivity of moong (*Vigna radiata* L.) mash (*Vigna mungo* L.) rajmash (*Phaseolus vulgaris*), Lentil (*Lens culnaris* L) and Chickpea (*Cicer aeritinum* L) under rainfed ecology in mid hills of J & K, India. Leg. Res. 2019;42(1):127-133.
10. Samui SK, Maitra S, Roy DK, Mondal AK, Saha D. Evaluation of font line Demonstration on groundnut (*Arachis hypogea* L.) in Sundarbans, Journal of Indian Society of Coastal Agriculture Resources. 2000;18(2):180-1.
11. VednaKumari, Kumar A, Bhateria S. Demonstration an effective tool for increasing productivity of repeseed-Linseed in Kangra district of Himachal Pradesh. J Oilseeds Res. 2007;33(2):257-261.
12. Meshram Vishal, Bharti Pranay, Ahirwar RP, Pandre NK, Suryawanshi VS, Sahare KV. Impact assessment of cluster frontline demonstrations (CFLD) oil seeds on increasing yield of linseed (*Linum usitatissimum* L.) under rainfed conditions in tribal district of Mandla, Madhya Pradesh. The Pharma Innovation Journal. 2022;11(1):1216-1219.
13. Jamwal A, Mahajan V, Ajrawat B, Kumar A, Sharma VK. Impact of cluster frontline demonstrations (CFLD) on yield of black gram (*Vigna mungo*) under rainfed conditions in Kathua district of Jammu and Kashmir. IJCS. 2020;8(4):3314-3316.