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**RESEARCH NOTE :**

# Front line demonstration of Indian mustard is a path of prosperity for resource poor farmers in rainfed area

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**SUMMARY :** The study was laidout during 2015-16 at ruined area, situated in Kanpur Dehat. The soil of pilot area is sandy loam, having low fertility status. The improved cultivar *Pitambari* of Indian mustard was tested with local check in cluster front line demonstration. The main objective of cluster front line demonstration was to increase the productivity of Indian mustard and replace the seed of old cultivars. The cultivar *Pitambari* was sown in the first week of November with full recommended package of practices. The cultivar *Pitambari* gave yield by 13.80 q/ha, which was higher over local check by a margin of 5.45 q/ha or 65.30 per cent. The growth and yield trait were concordant to seed yield.

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**KEY WORDS :**
Cluster demonstration Path, Pilot area, Prosperity, Resource poor

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India is one of the largest producer of Indian mustard in the world. Next only to groundnut, Indian mustard ranks second in terms of area and production in the country, contributing 23 per cent area of total oil seed production. Poor germination, reduced plant stand establishment, lack of high yielding varieties and inadequate plant protection are some of important constraints responsible for poor yield of Indian mustard. Of the total area under this crop in country, more than 60 per cent of it is in U.P., where about 6.86 lakh ha Indian mustard is grown with total production of 4.86 lakh mt and productivity of 7.77 q/ha (Anonymous, 2016).

The quality of mustard oil and its cake is an important aspect affected greatly by mineral nutrition. Intensive cultivation and use of unbalance and inadequate fertilizers accompanied by restricted use of organic manure have made the soil not only deficient in the nutrients but also deteriorated the soil health, resulting in, decline in crop response to the recommended dose of NPK fertilizers in the region. In order to bring the soil well supplied with all the essential plant nutrients and also to maintains it in good health, it is necessary to use recommended doses of all essential plant nutrients, which meet the requirement of micronutrients, besides

**Table 1: Growth, yield traits and yield of Indian mustard as influenced by full package of practices**

| Sr. No. | Variety | Primary branches/ plant | Siliqua/ plant | Seeds/siliqua | 1000-seed weight (g) | Seed yield (q/ha) |
|---|---|---|---|---|---|---|
| 1. | *Pitambari* | 6 | 223.33 | 15 | 4.35 | 13.80 |
| 2. | Local check | 4 | 150.37 | 13 | 4.10 | 8.35 |

improving soil health (Arbad and Ismil, 2011 and Singh *et al.*, 2013).

Singh *et al*. (2013) reported from that the front line demonstration with full package of practices on farmers field is the pin point for increasing the productivity of oilseed crops.

Keeping the above point in view, the present study was under taken to enhance the productivity of Indian mustard through cluster front line demonstration on farmers fields.

The present study was carried out during autumn season at C.S. Azad University of Agriculture and Technology, Kanpur. The soil of pilot area was degraded sandy loam, having pH 7.1-7.6, organic carbon 0.21 per cent-0.31 per cent, total nitrogen 0.02 per cent-0.03 per cent, available phosphorus 10-12 kg/ha and available potash 188-211 kg/ha, therefore, the fertility status of pilot area was poor. The pH was determined by electrometric glass electrode method (Piper, 1950), while organic carbon was determined by Colorimetric method (Datta *et al.*, 1962). The total nitrogen was analysed by Kjeldahl's method as discussed by Piper (1950). The available phosphorus and potassium were determined by Olsen's method (Olsen *et al.*, 1954) and Flame photometric method (Singh, 1971), respectively.

The improved cultivars *Pitambari* of Indian mustard was tested with local check in cluster front line demonstration. The recommended dose of NPK was given to Indian mustard @ 120 kg N, 60 kg $P_2O_5$ and 60 kg $K_2O$/ha. Before seeding of Indian mustard, the seed was treated with thirum 75 per cent @ 3 g/kg of seed. The Indian mustard was sown in the first week of November and harvested in mid March after 125 days of sowing. The recommended package of practices was followed in *Pitambari* cultivars as suggested by Singh *et al.* (2016). The cluster demonstration was laidout on 58 farmers field of Kanpur Dehat.

The average data obtained from the cluster front line demonstration are reported in Table 1 and discussed here under.

In front line demonstration, cultivar *Pitambari* of indina mustard registered higher primary branches/plant (6.00) as compared to local cultivar (4.00), which is familiar among the farming majority in pilot area. The highest siliqua/plant (223.33) was also counted in cultivar *Pitambari*, while local check produced (150.37) siliqua/ plant. The highest seeds/siliqua (15.00) was also counted in front line demonstrated *Pitambari* cultivar of Indian mustard. The 1000-seed weight was weighed higher under improved cultivar *Pitambari* (4.35 g) over the local variety taken under farmers practice (4.10 g).

The highest average yield (q/ha) of Indian mustard was recorded in cultivar *Pitambari* (13.80 q/ha), while lowest average seed yield of 8.35 q/ha was recorded in local check. There had been considerable increase in primary branches/plant, seeds/siliqua and weight of 1000-seed in cultivar *Pitambari* sown under front line demonstration over local check that contributed to increase the seed yield (q/ha). These results are in agreement with those reported by Singh *et al*. (2016).

The full package of practices followed in demonstrated cultivar *Pitambari* of Indian mustard maintained better source-sink relationship. Under this situation the dry matter or photosynthates produced by source organs translocated towards sink organ (economic part) and produced higher seed yield of Indian mustard. The sowing of cultivar *Pitambari* of Indian mustard had higer number of seed/siliqua means it possessed higher sink capacity to utilized the photoassimilates translocated from source, resulted in higher weight of 1000-seed and more seed yield. These results confirm the findings of Panwar *et al.* (1986), Shrivastava and Bharadwaj (1986); Pachpor and Shete (2010) and Singh *et al*. (2016).

## Conclusion :

The cultivar *Pitambari* of Indian mustard gave higher yield on degraded soil, therefore, farm families of Indian mustard growing tract can be suggested for adoption of aforesaid cultivar with full package of practices.

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