

## Performance of Indian mustard (*Brassica juncea*) varieties in association with autumn-planted sugarcane (*Saccharum officinarum*)

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Intercropping of Indian mustard [*Brassica juncea* (L.) Czernj. & Cosson] with autumn-planted sugarcane (*Saccharum officinarum* L.) through border-planting technique has been developed by Rathi *et al.* (1979), in which 2 rows of Indian mustard is adjusted in place of every fourth row of sugarcane. Kumar (1983) suggested the use of 'Varuna' cultivar in intercropping with sugarcane. Presently, a number of new varieties of Indian mustard are available for commercial cultivation in Uttar Pradesh, but no information is available on their performance in association with sugarcane. Hence, an experiment was conducted to study the suitability of new varieties of

Indian mustard in comparison to already recommended variety. 'Varuna' through border technique of planting in association with sugarcane. 'Co 1146' variety of sugarcane was grown during the winter season of 1986–87 and 1987–88 in 4 replications of randomized block design. Two additional treatments of pure sugarcane by regular and border methods were also included to find out the effect of mustard on number of milliable canes of sugarcane. Planting of sugarcane was done on 30 October 1986 in 3 rows at 90 cm apart. In place of every fourth row of sugarcane 2 rows of Indian mustard varieties were adjusted and in addition to this 2 rows of

Table 1. Yield and yield attributes of Indian mustard varieties in association with autumn-planted sugarcane

| Treatment              | Seed yield (q/ha) | Stover yield (straw + stick) (q/ha) | Plant height (cm) | Branches/plant at harvest | Siliquae/plant at harvest | Seed yield/plant (g) | 1,000 seed weight (g) |
|------------------------|-------------------|-------------------------------------|-------------------|---------------------------|---------------------------|----------------------|-----------------------|
| Sugarcane + 'Varuna'   | 18.16             | 51.95                               | 181.94            | 78.11                     | 807.36                    | 38.42                | 4.86                  |
| Sugarcane + 'Krishana' | 15.78             | 45.46                               | 179.59            | 69.92                     | 779.79                    | 33.81                | 4.44                  |
| Sugarcane + 'Kranti'   | 12.71             | 39.76                               | 169.83            | 56.92                     | 740.98                    | 25.24                | 4.01                  |
| Sugarcane + 'Vardan'   | 13.16             | 37.83                               | 174.56            | 63.15                     | 805.54                    | 31.09                | 3.46                  |
| Sugarcane + 'Vaibhav'  | 13.35             | 39.88                               | 177.69            | 62.92                     | 933.29                    | 30.64                | 3.44                  |
| Sugarcane + 'Rohini'   | 15.41             | 43.43                               | 168.50            | 63.58                     | 790.10                    | 33.53                | 4.15                  |
| CD (P = 0.05)          | 2.56              | 2.67                                | 3.90              | 5.31                      | 18.20                     | 2.51                 | 0.006                 |

Indian mustard varieties were also sown in between 2 rows of sugarcane. The sowing of Indian mustard was also done on the same day, using 2 thinning for keeping a final distance of 20 cm between plants of Indian mustard. Sugarcane and Indian mustard received 60 kg N + 80 kg  $P_2O_5$  + 80 kg  $K_2O$ /ha as basal dressing in proportion to row ratio followed by 60 kg N/ha as top-dressing to Indian mustard after the first irrigation. Indian mustard received 2 irrigations and necessary plant-protection measures were taken. The crop was harvested at their full maturity. The soil was sandy loam, medium in fertility status having available  $P_2O_5$  24 kg/ha, available  $K_2O$  280 kg/ha and organic carbon 0.66%, with pH 7.8.

Significant differences were observed in seed and stover yields of Indian mustard varieties in association with sugarcane (Table 1). The already recommended variety 'Varuna' gave the highest seed yield of 18.18 q/ha, followed by 'Krishna' (15.78 q/ha) and 'Rohini' (15.41 q/ha). Other varieties ('Kranti', 'Vardan' and 'Vaibhav') gave significantly lower yield than 'Varuna'. Increased seed yield of 'Varuna' was owing to improved yield attributes like single plant

seed yield and test weight of seed. The above results are in close agreement with the findings of Kumar (1983).

In our study significant differences were also observed with yield components of Indian mustard varieties in association with sugarcane, e.g. plant height (cm), branches/plant, siliquae/plant, seed weight/plant (g) and 1,000-seed weight (g). Among the tested varieties 'Varuna' recorded the highest plant height (cm), branches/plant and 1,000-seed weight (g), whereas 'Vaibhav' recorded the highest number of siliquae/plant. 'Varuna' proved the best among the test varieties, as it gave the highest seed yield (18.18 q/ha).

#### REFERENCES

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