

RESEARCH ARTICLE

Evaluation of different mustard varieties with different sowing techniques in hill zone of West Bengal

■ Koushik Roy and H.K. Tarafder

SUMMARY

A field experiments was conducted to evaluate the effect of different types sowing technique on mustard varieties in Regional Research Station(Hill Zone), Uttar Banga Krishi Viswavidyalaya in the year 2015-16 during *Rabi* season (Dec-Feb). The aim of the present study was to evaluate three varieties viz., NC 1, PS 28 and Piloo NG in Hill Zone of West Bengal with respect to yield attributing characters. Mustard seeds were sown by broadcasting as well as line spacing (25cm×5-7 cm). It was found that the mustard yield and yield attributing characters in line spacing was higher (1.35 t/ha) compared to broadcasting (1.33 t/ ha). It was also observed that PS 28 have the best yield (1.42 t/ha) in comparison to NC 1 (1.31 t/ha) and Piloo NG (1.30 t/ha).

Key Words : Mustard, Line sowing, Broadcasting, Yield attributing characters

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Indian mustard is the second most important oilseed crop in India, after groundnut. In Darjeeling hills, it is an important winter (*Rabi*) oilseed crop grown as rained but its productivity is low (744.9 kg ha⁻¹) in comparison to the national average of 950 kg ha⁻¹. Therefore, adoption of suitable crop management practices are important factors for improving crop

productivity. Variety and spacing have pronounced effect on growth and yield of mustard (Mandal and Sinha, 2004). Since variety selection and spacing of Indian mustard in Darjeeling hills of West Bengal is meagre, an experiment was conducted to select suitable variety along with row spacing in these areas.

MATERIAL AND METHODS

The experiment was conducted in Regional Research Station (Hill Zone), Uttar Banga Krishi Viswavidyalaya in the year 2015-16 during *Rabi* season (Dec- Feb). The field was prepared by two ploughing followed by one harrowing. Seeds were sown by broadcasting as well as line spacing (25cm×5-7 cm). All the experimental plots (10 m²) received recommended

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Table 1 : Influence of sowing technique on yield attributing characters of three mustard varieties

	Plant height (cm)	Branching	No. of siliqua/plant	No. of seeds/siliqua	Dry weight/plant (g)	Length of siliqua (cm)	Yield (t/ha)
S ₁	65.39	2.35	20.51	14.01	10.48	4.86	1.33
S ₂	65.60	2.42	20.57	13.95	10.65	5.00	1.35
V ₁	61.68	2.37	20.49	13.82	10.47	4.91	1.31
V ₂	71.09	2.50	21.38	14.19	10.92	5.06	1.42
V ₃	63.72	2.29	19.75	13.93	10.31	4.83	1.30
S ₁ V ₁	61.53	2.30	19.73	13.67	10.47	4.93	1.30
S ₁ V ₂	71.13	2.50	21.40	14.23	10.82	4.87	1.40
S ₁ V ₃	63.51	2.26	20.40	14.12	10.16	4.78	1.29
S ₂ V ₁	61.83	2.43	21.25	13.97	10.46	4.89	1.32
S ₂ V ₂	71.05	2.50	21.35	14.15	11.02	5.24	1.43
S ₂ V ₃	63.92	2.32	19.10	13.73	10.46	4.87	1.30
S.E. ±	2.66	0.05	0.28	0.12	0.56	0.17	0.31
C.D. (P=0.05)	7.83	0.14	0.83	0.35	1.64	0.49	0.92

S₁: Broadcasting, S₂: Line sowing, V₁: NC 1, V₂: PS 28, V₃: Piloo NG

dose of fertilizers (80, 60 and 40 kg) N, P and K. Half dose of nitrogen and full dose phosphorus and potassium were applied as basal and half dose of nitrogen was applied as top dressing at flowering stage. Six treatment combinations with four replications were arranged in Factorial Randomized Block design. *i.e.* S₁V₁: broadcasting of variety NC 1, S₁V₂: broadcasting of variety PS 28, S₁V₃: broadcasting of variety Piloo NG, S₂V₁: line sowing of variety NC 1, S₂V₂: line sowing of variety PS 28 and S₂V₃: line sowing of variety Piloo NG. The yield attributing characters such as plant, branching, number of siliqua/plant, number of seeds/siliqua, dry weight/plant, length of siliqua and finally yield were taken on the basis of 5 random plants.

RESULTS AND DISCUSSION

The varietal variation, broadcasting and line sowing of seeds significantly influenced the yield and yield attributes of the crop. The yield components *viz.*, number of siliqua per plant, number of seeds per siliqua influenced significantly as a result of variety and spacing variation (Table 1). Across treatments, number of siliqua per plant ranged from 126.96 to 254.86 and number of seeds per siliqua ranged from 8.54 to 14.26. All these attributes were higher in PS 28 compared with NC 1 and Piloo NG. This was perhaps due to more number of primary and secondary branches per plant.

It was observed in Table 1 that there was significant difference in plant height due to varietal variation. Highest plant height was 70.13 cm and 70.05 cm in the both

plots treated with variety PS 28 in broadcasting and line sowing, respectively. The decreasing trend was plant height was PS 28 > Piloo NG > NC 1. Number of branches is one of the most important yield attributing characters. Highest number of branching was found in PS 28 in line sowing (2.50) followed by NC 1 (2.43) and Piloo NG (2.32). Number of siliqua plant⁻¹ and number of seeds siliqua⁻¹ the most important determinant of seed yield of mustard and were recorded at the time of picking. Significantly the highest number of siliqua plant⁻¹ and seeds siliqua⁻¹ were recorded (21.35 and 14.15) in PS 28 followed by NC 1 (21.25 and 13.97) and Piloo NG (19.10 and 13.73), respectively. The maximum dry weight and length of siliqua were (11.02 and 5.24) in PS 28 followed by NC 1 (10.46 and 4.89) and Piloo NG (10.46 and 4.87) respectively.

The highest seed yield (1.43 t ha⁻¹) recorded with PS 28 variety in line sowing followed by NC 1 (1.32 t ha⁻¹) and Piloo NG (1.30 t ha⁻¹). This is in conformity with the findings reported earlier by Mandal and Sinha (2004). Similar findings were also established by Shivani and Kumar (2002).

Conclusion:

On the basis of the experimental result it can be concluded that the mustard yield and yield attributing characters in line spacing was higher compared to broadcasting irrespective of the specific cultivar. Among the three cultivars it was also found that PS 28 is the best suited cultivar that gives best yield and yield

attributing characters in Hill Zone of West Bengal in comparison to cultivar NC 1 and Piloo NG.

REFERENCES

- Gawariya, S.C., Chopra, N.K., Chopra, N. and Harika, A.S. (2015). Effect of date of sowing and crop geometry on growth and yield parameters of forage mustard (var. Chinese Cabbage). *African J. Agric. Res.*, **10**(33): 3292-3295.
- Mandal, K.G. and Sinha A.C. (2004). Nutrient management effects on light interception, photosynthesis, growth and dry-matter production and yield of Indian mustard (*Brassica juncea*). *J. Agron. & Crop Sci.*, **190**: 119-129.
- Premi, O.P., Kandpal, B.K., Rathore, S.S., Shekhawat, K. and Chouhan, J.S. (2013). Green manuring, mustard residue recycling and fertilizer application affects productivity and sustainability of Indian mustard (*Brassica juncea* L.) in Indian semi-arid tropics. *Industrial Crops & Products*, **41**: 423-429.
- Shivani and Kumar, S. (2002). Response of Indian mustard (*Brassica juncea*) to sowing date and row spacing in mid-hills of Sikkim under rainfed condition. *Indian J. Agron.*, **47** (3): 405-410.

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