

Response of Indian mustard (*Brassica juncea*) varieties to nitrogen

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An experiment was conducted at Jorhat during 1988–89 with 3 varieties of Indian mustard [*Brassica juncea* (L.) czernj. & cosson] as main-plot treatments and 5 levels of nitrogen as subplot treatments and was replicated thrice in split-plot design. The soil was sandy loam with pH 5.8, containing organic carbon 0.62%, available N, P and K @ 295.0 kg/ha, 28.5 kg/ha and 160.0 kg/ha respectively. A uniform dose of 35 kg P₂O₅/ha and 15 kg K₂O/ha was applied before sowing. Data were statistically analysed.

All the yield attributes and yields were increased with the levels of nitrogen compared with no nitrogen. Number of branches, siliquae, nitrogen concentration, nitrogen uptake, dry-matter yield, grain and stover yields and oil yield were increased significantly along with the increasing levels of nitrogen. However, oil content in seeds decreased but 1,000 grain weight and number of seeds/siliquae remained unaffected (Table 1). In all respect significant response was observed up to 75 kg nitrogen/ha.

Varietal differences were observed among the varieties in respect of all the characters, except for the oil content in seed. 'Varuna' proved superior with the highest grain yield (13.63 q/ha), stover yield (41.46 q/ha) and oil yield (530.75 kg/ha); however, oil yield was non-significant in respect of varieties (Table 2). All the 3 varieties were matured almost at the same time and showed delayed maturity by 5–6 days with higher doses of nitrogen.

Table 1. Yield-attributing characters, grain and stover yields and oil yield and oil content, and N concentration and N uptake of mustard varieties as influenced by nitrogen levels

Treatment	Branches/plant		Siliquae/plant	Seeds/siliquae	1,000 seed weight (g)	N concentration (%)		N uptake (kg/ha)		Dry matter plant (g)	Grain yield (q/ha)	Stover yield (q/ha)	Oil yield (kg/ha)	Oil content (%)
	Primary	Secondary				Grain	Stover	Grain	Stover					
Variety														
'Varuna'	7.92	10.79	138.80	10.28	4.18	3.46	1.53	47.67	63.6	11.95	13.63	41.46	530.75	39.15
'Tm 2'	6.80	9.59	126.40	9.67	2.96	3.29	1.48	33.32	44.37	10.11	9.65	29.50	395.75	38.95
'Tm 3'	7.35	10.32	133.90	9.84	3.78	3.43	1.52	41.21	56.05	11.35	11.65	35.65	465.60	39.28
CD (P = 0.05)	0.52	0.28	2.35	0.24	0.43	0.06	0.03	3.54	2.60	0.67	0.77	2.25	11.30	NS
N (kg/ha)														
0	4.27	6.05	68.30	9.89	3.59	3.01	1.32	19.03	27.63	9.26	6.35	20.85	250.95	40.15
25	7.08	8.74	109.29	9.92	3.63	3.20	1.42	31.04	42.88	10.58	9.63	29.99	389.90	40.65
50	8.24	10.85	139.30	9.93	3.66	3.38	1.52	44.15	58.63	11.53	12.83	38.74	498.75	39.45
75	9.07	12.66	170.30	9.96	3.65	3.65	1.63	53.00	70.50	12.16	14.53	43.79	560.15	38.25
100	9.13	12.77	172.30	9.97	3.67	3.69	1.67	54.00	72.10	12.49	14.88	44.80	555.25	37.05
CD (P = 0.05)	0.14	0.32	3.11	NS	NS	0.10	0.06	1.32	2.18	0.45	0.53	1.40	6.52	0.80