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Effect of Sowing Dates and Varieties on Quality and Economics of Indian Mustard (*Brassica juncea L.*)

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A B S T R A C T

A field experiment consisting of four dates of sowing and five varieties in split plot design. The result revealed that highest oil content% and economic return was computed under25th October sowing, with Coral-437 variety.25th October sowing with Coral-437 variety proved that the most qualitative and economically feasible for cultivation of Indian mustard.

Introduction

Rape seed and mustard are usually sown by the end of September to second fortnight of October in north India when grown as a sole crop or on dates of the main crop when sown as mixed or intercrop. But, with the development of new varieties of crops and adoption of multiple cropping systems under irrigated condition, it has become essential to extend their sowing from October to mid of November or even later. Singh and Singh (2002) conducted a field experiment at Faizabad (Uttar Pradesh) and recorded highest over yield with 14th October sowing as compared to 29thOctober, 13thNovember and 28th November sowing.

Delayed sowing would influence adversely the crop performance owing to change in abiotic and biotic environmental conditions. It necessitates developing suitable agro techniques to augment the productivity of the crop. Among the different agronomic practices, optimum sowing time plays an important role to fully exploit the genetic potentiality of a variety as it provides optimum crop growing environment such as

temperature, humidity and light etc. Sowing time is one of the most important non-monetary input which influences to a great extent on both the quality and economics of Indian mustard. Jadhav and Singh (1992) from IARI, New Delhi reported that 18th October sowing recorded higher benefit cost ratio (1.42) as compared to 17th November sowing (0.81).

Materials and Methods

A field experiment was conducted during the rabi season 2011 – 2012 at Agronomy Research Farm, Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad (U.P.) with four sowing dates as main plotsviz.25 September,05 October,15 October, and 25 October 2011andfive varieties viz.,Rohini,Kranti,Coral-437, Maya and PBR-357as subplots, designed in split lot with three replications. All varieties belong to (*Brassica juncea*) Indian mustard. The crop was fertilized with a uniform dose of nitrogen, phosphorus and potassium@ 120, 60, and 40kgha^{-1}respectively.Sulphur was applied as per treatment through elemental sulphur.

Results and Discussion

The quality of mustard seeds was measured in the term of oil and protein contents which were markedly influenced by dates of sowing. Oil content was significantly higher under 25th October sown crop as compared to 05th October and 25thSeptember sown crop. Protein content was not significantly influenced due to dates of sowing. The findings are in close proximity of Ghanbahadur *et al*., 2006. The quality of mustard oil and protein contents was not significantly influenced due to varieties.

Table.1 Effect of treatment on quality of Indian mustard

Treatments	Oil content (%)	Protein content (%)
Date of sowing		
D1 (25 Sep.)	33.93	20.84
D2 (05 Oct.)	40.06	21.39
D3 (15 Oct.)	41.17	21.98
D4 (25 Oct.)	41.62	22.22
SEm±	1.19	0.67
CD (P=0.05)	4.11	2.32
Varieties		
V1 (Rohini)	38.57	21.16
V2 (Kranti)	39.00	21.39
V3 (Coral-437)	39.80	21.90
V4 (Maya)	38.89	21.81
V5 (PBR-357)	39.72	21.77
SEm±	1.07	0.58
CD (P= 0.05)	3.09	1.68
D X V	NS	NS

Table.2 Effect of treatment on economics of Indian mustard

Treatments combination	Grain yield (q h-1)	Stover yield (q ha1)	Cost of cul tivation (Rs. ha-1)	Gross income (Rs. ha-1)	Net return (Rs. ha-1)	B: C ratio
D1V1	12.62	39.47	23213.74	48117.00	24903.26	1.07
D1V2	13.59	42.50	23213.74	51815.00	28601.26	1.23
D1V3	15.15	47.36	23213.74	57761.00	34547.26	1.49
D1V4	13.01	40.68	23213.74	49603.00	26389.26	1.14
D1V5	15.73	49.18	23213.74	59973.00	36759.26	1.58
D2V1	14.18	44.33	23213.74	54063.00	30849.26	1.33
D2V2	15.73	49.18	23213.74	59973.00	36759.26	1.58
D2V3	16.12	50.40	23213.74	61460.00	38247.26	1.65
D2V4	14.37	44.93	23213.74	54788.00	31574.26	1.36
D2V5	16.70	52.22	23213.74	63672.00	40458.26	1.74
D3V1	16.12	50.40	23213.74	61460.00	38246.26	1.65
D3V2	17.28	54.04	23213.74	65884.00	42670.26	1.84
D3V3	18.64	58.29	23213.74	71069.00	47855.26	2.06
D3V4	16.51	51.61	23213.74	62946.00	39732.26	1.71
D3V5	17.67	55.26	23213.74	67371.00	44157.26	1.90
D4VI	17.09	53.43	23213.74	65158.00	41944.26	1.81
D4V2	18.06	56.47	23213.74	68857.00	45643.26	1.97
D4V3	20.59	64.36	23213.74	78501.00	55287.26	2.38
D4V4	17.28	54.04	23213.74	65884.00	42670.26	1.84
D4V5	19.42	60.72	23213.74	74042.00	50828.26	2.19

The cost of cultivation was calculated (Rs.23213.74ha^{-1}) in all the treatments. The highest net return (Rs. 55287.26 ha^{-1}) was recorded with crop sown on 25th October with Coral-437 variety followed by the same sowing date with PBR-357 the similar trend was also noted in gross income.

The highest net incomes per rupees invest i.e. (2.38) was recorded sowing on 25th October with Coral-437 variety followed by the same sowing date with PBR-357 (2.19) the results are in close accordance with Iraddi and Mansur (2008).

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