ISSN : 2583-0910
Agri-India TODAY
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Peer reviewed
monthly newsletter

Article ID : 02/I/03/0122

EFFECT OF PHOSPHORUS AND SULPHUR ON GROWTH YIELD AND QUALITY OF INDIAN MUSTARD (*BRASSICA JUNCEA* L.)

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An agronomic investigation entitled as "Effect of phosphorus and sulphur on growth yield and quality of Indian mustard (*Brassica juncea* L.)" was conducted at Experimental Farm, Agronomy Section, College of Agriculture, Latur, during *Rabi* 2020-21. The objective of present study was to study the effect of phosphorus and sulphur levels on growth, yield and quality of mustard and to study the economics of mustard cultivation.

The soil of experimental plot was clayey in texture, slightly alkaline in reaction, low in available nitrogen, medium in available phosphorous, very high in available potassium and low in available sulphur. The experiment was laid out in Factorial Randomized Block Design (FRBD) with nine treatment combinations, consisting of two factors i.e. different phosphorus levels and sulphur levels, which includes three levels each of different phosphorus levels and sulphur levels application. The different fertilizer levels were 25 kg P ha^{-1} (P_1), 37.5 kg P ha^{-1} (P_2) and 50 kg P ha^{-1} (P_3) whereas, sulphur levels were 15 kg S ha^{-1} (S_1), 30 kg S ha^{-1} (S_2) and 45 kg S ha^{-1} (S_3). The gross plot size of each experimental unit was 5.4 m × 4.5 mand net plot size was 4.5 m × 3.9 m. Sowing was done on 09th November, 2020 by dibbling method at spacing 45 cm x 15 cm. The crop was harvested on 22rd February, 2021.

Table 1: Seed yield (kg ha^{-1}), gross monetary returns (Rs. ha^{-1}), cost of cultivation (Rs. ha^{-1}), net monetary returns (Rs. ha^{-1}) and benefit cost ratio of mustard as influenced by different treatments at harvest.

Treatments	Seed yield (kg ha^{-1})	Gross monetary returns (Rs. ha^{-1})	Cost of cultivation (Rs. ha^{-1})	Net monetary returns (Rs. ha^{-1})	Benefit cost ratio
(A) Phosphorus (P)					
P_1 – 25 kg ha^{-1}	1499	59960	35419	24541	1.69
P_2 – 37.5 kg ha^{-1}	1849	73960	36998	36962	1.99
P_3 – 50 kg ha^{-1}	1897	75880	36331	39549	2.09
SE±	63	2232	-	2332	-
CD at 5%	188	6692	-	6692	-
(B) Sulphur (S)					
S_1 – 15 kg ha^{-1}	1510	60400	34926	25474	1.73
S_2 – 30 kg ha^{-1}	1722	68880	36063	32817	1.91
S_3 – 45 kg ha^{-1}	1864	74560	37920	36640	1.97

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Treatments	Seed yield (kg ha^{-1})	Gross monetary returns (Rs. ha^{-1})	Cost of cultivation (Rs. ha^{-1})	Net monetary returns (Rs. ha^{-1})	Benefit cost ratio
SE±	63	2232	-	2232	-
CD at 5%	188	6692	-	6692	-
(C) Interaction (P X S)					
SE±	109	3866	-	3866	-
CD at 5%	NS	NS	NS	NS	NS
General mean	**1724**	**69940**	**36276**	**33664**	**1.99**

The result of the experiment (Table 1) revealed that higher growth and yield attributes, seed yield (1897 kg ha^{-1}), straw yield (4723 kg ha^{-1}), oil yield (779.92 kg ha^{-1}), GMR (Rs.75880 ha^{-1}), NMR (Rs. 39549 ha^{-1}) and B:C ratio (2.09) was observed with an application of 50 kg P ha^{-1} (P_3) Higher growth and yield attributes, seed yield (1864 kg ha^{-1}), straw yield (4843 kg ha^{-1}), oil yield (718.27 kg ha^{-1}), GMR (Rs.74560 ha^{-1}), NMR (Rs.36640 ha^{-1}) and B:C ratio (1.97) was observed with an application of 45 kg S ha^{-1} (S_3). In case of seed yield and net monetary returns (Rs. ha^{-1}), application of 50 kg P ha^{-1} and 45 kg S ha^{-1} performed better.