

PRODUCTIVITY AND PROFITABILITY OF INDIAN MUSTARD (*BRASSICA JUNCEA* L.) UNDER SULPHUR LEVELS AND WEED MANAGEMENT PRACTICES

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Abstract: Field investigations were carried out during winter seasons of 2015-16 and 2016-17 at Varanasi to evaluate the effect of sulphur levels and weed management practices on density and dry matter of weeds and crop-weed competition for sulphur in Indian mustard (*Brassica juncea* (L.) Czernj and Cosson). Amongst sulphur levels, minimum weed density and dry matter production was recorded with the application of 60 kg S/ha which was found to be significantly superior to other sulphur treatments. Amongst weed management treatments, the minimum weed density and weed dry matter production was observed with pendimethalin (0.75 kg/ha) + Hand weeding (HW) at 30 DAS and was at par with the hand weeding twice during both the years, and in second year this was statistically similar to oxyfluorfen (0.2 kg/ha) and oxadiargyl (0.1 kg/ha). More seed yield was observed with 60 kg S/ha (2.19 t/ha) in first year, and in second year more yield was associated with 40 kg S/ha (2.07 t/ha). During the first year, maximum seed yield was registered with oxyfluorfen (0.2 kg/ha) amongst herbicidal treatments, and was at par with all treatments except weedy check, fluchloralin (0.75 kg/ha) and oxyfluorfen (0.15 kg/ha), and in the second year highest seed yield was recorded with the hand weeding twice (20 and 40 DAS), and was statistically at par with the oxyfluorfen (0.2 kg/ha), pendimethalin (0.75 kg/ha) + HW at 30 DAS and oxadiargyl (0.1 kg/ha). In main plot treatments, the least nutrient uptake by weeds was recorded with the application of 60 kg S/ha. Within sub-plot treatments, the least nutrient depletion by weed was registered with hand weeding twice during both the years of data and was at par with pendimethalin (0.75 kg/ha) + HW at 30 DAS. Economics revealed that application of 60 kg S/ha gave the maximum net return (₹ 19,380). However, highest benefit: cost ratio (2.03) was registered with the application of 40 kg S/ha. The highest net return (₹ 19,950) was observed with the hand weeding twice (₹ 19,950/ha), and was followed by application of pendimethalin (0.75 kg/ha) + HW at 30 DAS (₹ 19,850/ha). Maximum benefit: cost ratio (2.06) was recorded with the application of oxyfluorfen (0.2 kg/ha) and was closely followed by pendimethalin (0.75 kg/ha) + HW at 30 DAS (1.91).

Keywords: Economics, Sulphur level, Mustard, Nutrient uptake, Weed management, Yield

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