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Abstract: In Jharkhand rice occupies about 1.44 million hectares with mean productivity of 1.6 ton/ha and out of total rice area 40% is accounted under direct seeded rice which is normally grown under upland and rainfed condition. Under this situation, direct seeded rice grows simultaneously along with weeds. Hence, crop suffers heavily from weed competition for resources like water, nutrient, light and space. The extent of yield loss due to weeds in direct seeded rice varied from 40-100%. Hence, a field experiment was conducted on "Integrated weed management in direct seeded rice" at university farm, Birsa Agricultural University, Ranchi during kharif season of 2007 on sandy loam soil (59.28% sand and 21.0% silt), acidic in nature (5.2 pH) having organic carbon (0.43%), available nitrogen (243.6 kg/ha), phosphorus (12.5 kg/ha) and potassium (152.0 kg/ha). Treatment consisted of 8 different integrated weed management practices viz. (i) pendimethalin (1 kg PE); (ii) pendimethalin (1 kg PE) + hand weeding (4 WAS); (iii) pendimethalin (1 kg PE) + 2, 4-D (0.5 kg, 4 WAS); (iv) pendimethalin (1 kg PE) + mechanical weeding (4 WAS); (v) dhaincha (broadcasting) + pendimethalin (1 kg PE) + 2,4 -D (0.5 kg, 4 WAS); (vi) dhaincha (intercropped) + pendimethalin (1 kg PE) + dhaincha incorporated (4 WAS); (vii) two hand weeding (4 and 6 WAS) and (viii) weedy check were laid out in randomized block design and replicated thrice. Results revealed that dhaincha intercropped and incorporated 4 weeks after sowing along with application of pendimethalin @ 1 kg/ha PE recorded lower weed population and weed dry matter accumulation throughout crop period and improved soil pH (5.3), organic carbon (0.45%), available nitrogen (275 kg/ha), phosphorus (15.9 kg/ha) and potassium (132.2 kg/ha) resulted in higher weed control efficiency (82.0%), leaf area index (3.25), crop growth rate (22.74 g/m²/day), relative crop growth rate (52.6 x 10⁻³ g/g/day), grain (66.0 kg/ha/day) and biomass (51.1 kg/ha/day) production rate, grain (2091 kg/ha) and straw (2405 kg/ha) yield, gross (Rs 19447/ha) and net (Rs. 8902/ ha) return and benefit : cost ratio (Re 0.84 per rupee invested) than other integrated nutrient management practices and weedy check. Balance sheet of nitrogen in soil after crop harvest was also positive (+ 7.23 kg/ha) in the earlier treatment suggesting dhaincha might have enriched the soil fertility after incorporation in to the soil.

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