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Abstract: Finger millet (Eleusine coracana L. Gaertn) is an important cereal crop for subsistence agriculture in the dry areas of Eastern Africa, India and Sri Lanka. It is the 6th important crop of India after rice, maize, wheat, sorghum and barley. The grain of finger millet is high in amino acid. It is also a rich source of calcium, iron, protein, fiber and other minerals which are all crucial for human health. It is an important dryland crop due to its resilience and ability to withstand aberrant weather conditions and generally grown in soils having poor water holding capacity and nutrient supplying capacity. Therefore, upland rice can be easily replaced by finger millet under dryland areas. The production and productivity of finger millet is low because of poor nutrient management, heavy weed infestation, incidence of blast disease etc. Among these, weeds are the main problem of direct sown finger millet. The critical period of crop - weed competition is identified to be around 20 to 60 days after sowing and further delay in control of weeds leads to severe reduction in the grain yield ranging from 35 to 60%. Thus, managing weeds by different weed management practices in crucial for obtaining high productivity of direct sown finger millet. So, there is need to search for suitable weed management practices to overcome these problems. An investigation on “Studies on weed management practices in direct sown finger millet” was conducted at Agronomical Research Farm, BAU, Ranchi, Jharkhand during Kharif season of 2016 with the objectives to find out the effect of weed management practices on weed dynamics, growth, productivity and economics of direct sown finger millet. The experiment was conducted in randomized block design replicated thrice with twelve different weed management practices viz. pendimethalin (30 EC) @ 0.5 kg a.i./ha as PE, pendimethalin (30 EC) @ 0.75 kg a.i/ha as PE, bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 2 kg/ha (pre mix formulation) as PE, bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 3 kg/ha (pre mix formulation) as PE, isoproturon (50 WP) @ 0.5 kg a.i./ha as PE, pendimethalin (30 EC) @ 0.5 kg a.i./ha as PE fb one IC at 45 DAS, pendimethalin (30 EC) @ 0.75 kg a.i/ha as PE fb one IC at 45 DAS, bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 2 kg/ha (pre mix formulation) as PE fb one IC at 45 DAS, bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 3 kg/ha (pre mix formulation) as PE fb one IC at 45 DAS, isoproturon (50 WP) @ 0.5 kg a.i./ha as PE fb one IC at 45 DAS, weed free plot (One HW 20 DAS fb two IC 30 & 45 DAS), weedy check. The finger millet variety used was A-404. The soil was sandy loam, acidic in reaction (5.53), low in available organic carbon (3.13 g/kg soil) and available nitrogen (142.17 kg/ha), whereas medium in available phosphorus (18.55 kg/ha) and potassium (148.21 kg/ha). Results revealed that among the various weed management practices, weed free plot (one hand weeding at 20 DAS fb two inter-culture at 30 & 45 DAS) recorded the lowest weed density (34.33/m2), resulting in maximum plant dry matter accumulation (994.41 g/m2), LAI (3.21), CGR (10.64 g/m2/day), effective tillers (115.67/m2), weight of ear (11.65 g), ear length (8.59 cm) and grains per ear (1031.67). This weed free plot recorded highest grain and straw yield (3496 & 6164 kg/ha) which was comparable to the application of bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 3 kg/ha as pre-emergence (pre mix formulation) fb one inter-culture at 45 DAS and also with the application of bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 2 kg/ha as pre-emergence (pre mix formulation) fb one inter-culture at 45 DAS. The minimum yield loss (2.43% and 6.24%) was recorded with these treatments. The net return (` 45274 ha-1), B:C ratio (2.29) and WCE (98.17%) were maximum with application of bensulfuron methyl (0.6% G) + Pretilachlor (6.0% G) @ 3 kg/ha as pre-emergence (pre mix formulation) fb one inter-culture at 45 DAS being on par with the application of bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 2 kg/ha as pre-emergence (pre mix formulation) fb one inter-culture at 45 DAS with net return ` 43118 ha-1, B:C ratio 2.21 and WCE 97.55%. Hence, on the basis of result obtained, it can be concluded that pre-emergence application of bensulfuron methyl (0.6% G) + pretilachlor (6.0% G) @ 2 Kg/ha (pre mix formulation) fb one inter-culture at 45 DAS was found to be best as integrated weed management practice for better weed control efficiency, crop growth, higher productivity and profitability in direct sown finger millet production under rainfed condition of Jharkhand.

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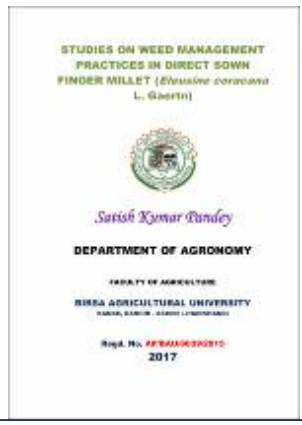

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