

Productivity, Yield Attributes and Weed Control in Wheat (*Triticum aestivum* L.) as Influenced by Integrated Weed Management in Central High Lands of Ethiopia, East Africa

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Abstract :

Wheat (*Triticum aestivum* L.) crop is often fraught with weeds in central high lands of Ethiopia which are characterized by high rainfall, low humidity and low temperatures favorable for development of diseases and insect pests resulting in dwindled productivity. Field experiment was conducted at the Research farm of Plant Science department, Ambo University, for two consecutive years (2014 and 2015) to delineate the effect of 2, 4-D alone, hand weeding alone and their integration on weed control and wheat productivity in comparison with unweeded check in a randomized complete block design with six replications. The experiment comprised four treatments (hand weeding, hand weeding + 2, 4-D @ 2.0 kg/ha, 2, 4-D application @ 2.0 kg/ha and unweeded check). The experimental site was predominantly infested with different weed species belonging to different families such as grasses, broadleaved weeds and sedges. It was found that integrating hand weeding + 2, 4-D at 2.0 kg/ha significantly reduced weed density and dry biomass of weeds in both 2014 and 2015 cropping years compared with the other weed control methods. Highest grain yield (4322, 3989 kg ha⁻¹) was recorded with hand weeding + 2, 4-D at 2.0 kg/ha, followed by hand weeding (3500, 2851 kg ha⁻¹), whereas the lowest yield was recorded from unweeded check (1167, 1082 kg ha⁻¹) in 2014 and 2015 cropping seasons, respectively. Uncontrolled weed growth throughout the crop growth period caused a yield reduction of 72% in both cropping seasons. Application of Post-emergence herbicide 2, 4-D and/or hand weeding and hoeing at tiller stage could further reduce the deleterious effect of weeds on wheat crop raised in central high lands of Ethiopia.

Key Word :

2, 4-D; Hand weeding; Wheat yield; Weed density; Weed biomass; Weed control efficiency; Relative yield loss

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