



Conservation tillage and weed management practices effect on weeds, yield and profitability of cowpea (*Vigna unguiculata*)

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ABSTRACT

An experiment was conducted from 2014–2018 to find out the effect of conservation tillage and weed management methods on weed flora, growth and yield of cowpea (*Vigna unguiculata* (L.) Walp. cv. RC 101) under pearl millet-mustard-cowpea cropping system. The results showed that amongst tillage treatments, zero tillage with residue application during both *kharif* and *rabi* season and only during *rabi* for four years significantly increased the grain yield by 49 and 18%, gross returns by 43 and 14% and reduced the total weed biomass by 48 and 32%, respectively with higher weed control efficiency compared to zero tillage without residue application. Among different weed flora, zero tillage with residue application during both *kharif* and *rabi* season and only during *rabi* reduced the narrow-leaved weeds population by 40 and 19%, broad-leaved weeds by 23 and 8%, respectively. All the tillage conditions had not significantly controlled sedges. On the other hand, among different weed management practices, the pre-emergence application of pendimethalin + imazethapyr 1.0 kg/ha with one hand weeding at 20–25 DAS resulted in the significant reduction of total weed biomass, highest grain yield, weed control efficiency and gross returns. The integrated weed management approach reduced the narrow-leaved weeds by 49%, broad-leaved weeds by 52% and sedges by 59% compared to herbicides application alone. However, the interaction effect of tillage practices and weed management approach was not significant except for the total weed biomass at harvest.

Key words: Conservation tillage, Cowpea, Productivity, Weed flora, Weed management