

The effect of herbicide tank mix on the weed species diversity in sugarcane (*Saccharum officinarum*)

Abstract

A field experiment was carried out at Triangle Estate, Zimbabwe to determine the efficacy of Pendimethalin, Chlorimuron ethyl and Metribuzin herbicide combinations on the weed species diversity in sugarcane. The experiment was laid out in a Complete Randomized Block Design (CRBD) with four replications. Treatments included; Chlorimuron ethyl (90g/ha), Metribuzin(2l/ha), Pendimethalin(2l/ha), Extreme Plus (0.8l/ha), Extreme Plus(1l/ha), Extreme Plus(0.8l/ha)+ Pendimethalin(2l/ha), Extreme Plus(1l/ha) + Pendimethalin(3l/ha), Pendimethalin(2l/ha) + Atrazine (2l/ha) and no weeding (control). The major weeds observed in this experiment are *Amaranthus viridis*, *Ipomoea sinensis*, *Boerhavia erecta*, *Rotboellia conchinchinensis*, *Commelina bengalensis* and *Cyperus* spp (purple and yellow). The herbicide tank mix of pendimethalin (2l/ha) + atrazine (2l/ha) significantly ($p < 0.05$) controlled all weed species in this study except *Ipomoea sinensis*. The tank mix pendimethalin (2l/ha) + atrazine (2l/ha) resulted in 98.83% and 93% control for *Amaranthus viridis* and *Rotboellia conchinchinensis* respectively. *Ipomoea sinensis* was effectively reduced by metribuzin and Extreme plus (0.8l/ha) although its control was difficult. Extreme plus (0.8l/ha) effectively controlled all broadleaf weeds and *Cyperus* spp. Generally, spraying herbicides without mixing resulted in reduced control of weeds.