EFFECT OF TEMPORAL WEED COLONIZATION ON THE GROWTH AND PRODUCTIVITY OF COTTON (*Gossypium hirsutum* L.) IN CENTRAL KENYA

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Abstract (C2122)

Cotton production in Kenya has been characterized by low yields due to weeds, insect and mites, and diseases. Uncontrolled weed growth reportedly results to 50–60% yield losses. To determine effects of temporal weed colonization on cotton, a split plot design was used where the main plot was weeding (hand weeding and spraying) and subplots were the timing of weeding (3, 6, 9 and 12 weeks after germination (WAG) and no weeding). The plots were maintained weed free after the treatment application throughout the season. The study was done at Mwea, Central Kenya, from October 2009 to April 2010. Weeds were sampled using 0.5 x 0.5m quadrats where all weeds within a quadrat were counted. Cotton height (cm) was measured from soil surface to the tip while the number of cotton squares and bolls was counted. A total of 43 weed species mainly from *Poaceae* and *Fabaceae* families were recorded. Plots weeded at 3 and 6 WAG were not significantly different in terms of yields and plant height. They had significantly ($P<0.05$) taller plants, more squares and productive bolls compared with those from other treatments. Plants in these plots were not significantly different ($P<0.05$) under hand weeding and spraying regimes (108.14cm±0.687 and 104.39cm±0.950 height 8.19 and 6.43 bolls, and, 8.26 and 6.13 bolls, respectively per plant) though hand weeding showed better effects. There was no significant different amongst the other treatments. Early weeding up to 6 weeks after germination is thus recommended to reduce weed colonization and ensure plants establish well with little or no competition from the weeds.

Key words: Weed infestation, Bolls, yield loss, weed competition