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Comparison of Different Types of Herbicides on the Succession of Weed Population and Seed Bank Composition in Tropical Coconut Plantations

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Weeds are a perennial problem in coconut plantations and causes significant losses in terms of nut yield. A field experiment was conducted to find out the effect of two different herbicides on weed control and seedling emergence pattern in coconut plantations in the low country dry zone in Sri Lanka. The treatments comprised two types of the standard market available glyphosate (T₁) and paraquat (T₂). All the treatments were applied twice a year. Based on a reduction in weed biomass, application of glyphosate (T₁) was very effective in reducing the total weed population. The effectiveness of paraquat application was low in reducing monocot weeds compared with glyphosate. Application of glyphosate was the best method to reduce weed seedling emergence density in the field. The effectiveness of paraquat was low in reducing monocotyledonous seedling emergence density than glyphosate. Both herbicides are very effective in reducing dicotyledonous seed count in two top soil layers. The total germinating weed seed count was reduced by 94.7 per cent, 92.8 per cent and 57.4 per cent, 40.2 per cent in two top soil layers (0-5 cm and 5-10 cm) in glyphosate and paraquat applied plots respectively. This suggests that glyphosate was more effective in managing both types of weed species. Considering all the soil layers, the decline in germinating weed seed count was very high in application of glyphosate treatment plots thus this was considered the best practice to reduce germinating weed seed count in soil of coconut plantations.

Keywords: *Glyphosate, paraquat, coconut, weed, seed bank.*