IMPACT OF FIELD ESTABLISHMENT METHOD AND HERBICIDES ON WEED CONTROL OF MAIZE CULTIVATIONS IN ANURADHAPURA DISTRICT

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Weeds are a serious constraint to maize (*Zea mays* L.) production in Sri Lanka. Topramezone 336 g L^{-1} SC and Nicosulfuron 40 g L^{-1} OD are selective, post-emergent herbicides recommended to control weeds in maize. Further, land preparation plays an important role in weed management. An experiment was conducted to evaluate the response of maize variety *Pacific* to three methods of field establishment; T1: tilled+row seeding, T2: tilled+broadcasting, T3: zero tilled+row seeding and three methods of weed control; H1: Topramezone 336 g L^{-1} SC, H2: Nicosulfuron 40 g L^{-1} OD and H3: manual weeding applied at 15 days after sawing and control/H4: no weeding. A split-plot design was used for the study and ANOVA was used for factorial data analysis. Results showed that the manual weeding and broadcasting at tilled conditions had lower weed density, weed biomass, and higher grain yield than herbicide applied and control treatments. T1 treatment produced a significantly higher maize yield than T2 and T3. The final yield of maize in T1H1: Tilled+Row seeding with Topramezone 336 g L^{-1} SC is significantly higher and the yield of the other treatments were in the order of T2H2: Tilled + Broadcasting with Nicosulfuron 40 g L^{-1} OD >T2H3: Tilled+Broadcasting with Manual weeding >T2H4: Tilled+Broadcasting without Weeding >T3H1 Zero tilled+Row seeding with Topramezone 336 g L^{-1} SC >T3H2: Zero tilled+Row seeding with Nicosulfuron 40 g L^{-1} OD >T3H3: Zero tilled+Row seeding+Manual weeding >T3H4: Zero tilled+Row seeding with without weeding. The highest grain yield of 10293 kg ha^{-1} was obtained from plots treated with tilled+row seeding with Topramezone 336 g L^{-1} SC. In conclusion, Topramezone 336 g L^{-1} SC with tilled+row seeding has the potential to increase maize yield due to better weed control.

Keywords: Land preparation, Maize, Nicosulfuron, Till, Topramezone, Weed control