

# IMPACT OF FIELD ESTABLISHMENT AND WEED CONTROL METHODS ON MAIZE CULTIVATION IN POLONNARUWA DISTRICT

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Maize (*Zea mays* L.) is one of the most important cereal crops. Crop weed competition is the primary cause of maize yield loss. Therefore, this experiment was conducted to identify the best weed control method that increases the maize yield. Topramezone and Nicosulfuron are systemic post-emergence herbicides recommended to control weeds in maize. Sixteen treatments and three replicates in each were arranged in a split-plot design using the DK9955 maize variety during *Yala* 2022. Four field establishment methods namely; T1: Disk plough+harrow+broadcasting, T2: Disk plough+harrow+row seeding, T3: No-till+broadcasting, T4: No-till+row seeding as main plot factors and four weed control methods; H1: Topramezone 336 g L<sup>-1</sup> SC (Clio) 7-15 days after emergence, H2: Nicosulfuron 40 g L<sup>-1</sup> OD (Topaz) 10-15 days after emergence, H3: manual weeding by Mamoty 15 days after seedling emergence, H4: No weed control as subplot factors were used. Data on weeds and maize plants were collected from each plot using a quadrat (0.5 m x 0.5 m) at two-weeks intervals. Data were analysed using Statistix 10 statistical software. There was a significant difference in field establishment and weed control methods on weed density and weed dry matter content, because lowest values were observed in T2H1 sub plot, that is disk plough and harrow with herbicide Topramezone (Clio). The leaf length, root length, plant height, plant fresh and dry weight and yield components such as, cob length (19.70 cm), cob weight (163.75 g), kernel rows per cob (14 rows), grains per cob (461 seeds) and grain yield (6870.3 kg ha<sup>-1</sup>) were also highest in T2H1 sub plot compared to other treatments. As a result, the yield of maize was high in all Topramezone 336g L<sup>-1</sup>SC (Clio) treated plots. Also results suggest that, Topramezone (Clio) has the potential as a selective herbicide to control grasses, sedges and broad leaves in maize cultivation.

**Keywords:** Maize yield, Post-emergence herbicides, Weed control, Weed density