

Identification of Suitable Spacing and Herbicides for Dry Drilled Seeded Rice Cultivation

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Rice consumption in Sri Lanka is outstripping production, and with the increasing population, demand is likely to be increased. Weeds are the main hindrances affecting rice production. A study was carried out from October 2020 to January 2021 at Rice Research Station, Paranthan, Kilinochchi, to evaluate suitable spacing and herbicides for dry drilled seeded rice cultivation. Bg366 rice variety was used for this study. The study was laid in a Randomized Complete Block Design (RCBD) with three replicates under two different spacing (15×15 cm² and 20×20 cm² row SSspacing) in row seeding at a seed rate of 20 kg/ha. *Pretilachlor*, *Oxyfluotfen*, *Florpyrauxifen-benzyl* and *Bispyribac-sodium* were used as the treatments. Hand weeding was the control. The plot size of each treatment was 6×3 m². Plant height, number of weeds, weed dry biomass, number of tillers per plant, number spikelets per panicle, filled grains percentage and grain yield were measured. The data were assessed through ANOVA test by using SAS computer software package. The result revealed that an increase in crop density (15×15 cm²) significantly reduced the number and dry matter production of weeds. The average weed reduction (grasses and sedges) was higher in *Florpyrauxifen-benzyl* (15×15 cm²) followed by hand weeding. However, *Florpyrauxifen-benzyl* at 20×20 cm² row spacing was negatively controlled the broadleaved weeds. However, Maximum grain yield was recorded in hand weeding at 15×15 cm² (4.493 t/ha) followed by *Florpyrauxifen-benzyl* at 15×15 cm² (4.156 t/ha). The minimum weed population was observed in narrow spacing (15×15 cm²). The result of the study revealed that the weed biomass and density were efficiently controlled by *Florpyrauxifen-benzyl* which also increased the plant height, total number of tillers, and number of spikelets per panicle (176.11) at 15×15 cm² spacing under the dry drilled seeded method.

Keywords: Drilled seeded rice, Herbicide, Plant spacing, Weed density, Yield