

B-96: Effect of depth of seed bury on germination and emergence of weed seedlings

P. Maddumage¹, K K D S Ranaweera¹, W R G Witharana²

(¹Faculty of Applied Science, Uva Campus, Sabaragamuwa University of Sri Lanka, Buttala, ²Sugarcane Research Institute, Udawalawe)

A study on the effect of depth of seed buries on germination and emergence of weed seedlings was conducted at the Sugarcane Research Institute, Udawalawe. Among the weeds found in Sugarcane cultivated lands in Sri Lanka: *Borreria hispida*, *Dactyloctenium aegyptium*, *Echinochloa colonum*, *Euphorbia heterophylla* and *Euphorbia hirta* are of primary importance as these species contribute to reduce the yield. Seeds of these species were allowed to germinate at different depths (from surface to 20cm) in wooden boxes filled with sterilized soil. The soil boxes were kept in greenhouse conditions for germination and emergence of weed seedlings. The temperature within the greenhouse was $30^{\circ}\pm 2^{\circ}\text{C}$. In parallel, seed parties of the same weed species were separately kept within 2 wet filter papers and allowed to germinate in petri dishes at $30^{\circ}\pm 2^{\circ}\text{C}$ under the photoperiodism of 13 ± 1 h as well as in complete dark.

No inter-relationship among percentage germination, mean germination time and the rate of germination to the 1000-seed weight was found. However, weed seeds showed an irregular germination which took more than 40 days in some cases. Among the weed species studied *Borreria hispida* had the highest germination rate being 0.39 seeds day⁻¹ whereas that of *Dactyloctenium aegyptium* had the lowest figure of 0.01 seeds day⁻¹. The percentage germination, mean germination time and the rate of germination were always high under light than in complete dark. More than 80% of emerged seedlings were formed from seeds that were above 4cm soil depth in the surface soil layers. Seeds in deeper soil layers took upto 40 days to emerge their seedlings. Moreover, larger seeded weed species were capable of producing seedlings from deeper soil layers.