WEEDS AND WEED MANAGEMENT OF *HELMALU* PADDY CULTIVATION SYSTEM IN *RATHNAPURA* DISTRICT

P.A.P. Kumara, T.A.B.D. Sanjeewa

Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

Helmalu is one of the paddy cultivating systems distributed widely in the hill country of Sri Lanka. Weeds is a major biotic constraint affecting yield in *helmalu* paddy cultivation system. This study was conducted to explore common weed species and the most effective agronomic practices supporting to control weeds in *Helmalu* paddy cultivation system in *Maha* season during December 2020 to March 2021. Fifty *helmalu* paddy farmers were randomly selected representing six divisional secretariats namely; Pelmadulla, *Openayake, Kahawaththa, Niwithigala, Godakawela* and *Balangoda* of Rathnapura district. The selected farmers were interviewed using a pre-tested structured questionnaire to gather the information on types of herbicides and fertilizers being used weeds controlling, irrigation, and lands preparation methods. Three weed samples were collected from each selected farmer field using a quadrate (0.25 m^2). Identification, quantification, and classification (into four major groups i.e., grasses, sedges, broad leaves, and aquatic) of weed species were performed. Descriptive statistics of the collected data were performed using SPSS software. Logistic regression analysis was carried out to investigate the impact of different agronomic practices on weed growth of farmer fields. The dependent variable was weed density with four categories. The independent variables were source of water, type of seed paddy, establishment method, seed rate and herbicide application. The most common weed species in *helmalu* paddy fields were *Isachne globose* (>12%), *Salvinia molesta* (>7%), *Marsilea quadrifolia* (>7%) and *Monochoria vaginalis* (>5%). Common weed controlling methods of the selected farmers were cultural and chemical. Logistic regression analysis revealed that establishment method has a significant effect on weed density ($p<0.05$). Weed density was significantly higher in broadcasted paddy fields compared to transplanted paddy fields ($p<0.05$).

Keywords: *Isachne globose*, Chemical weed control, Cultural weed control, Weed density