

## **A Case Study on Effect of Herbicides and their Mixtures on Weed Control and Yield of Rice (Var. At 362) at Akuressa and Athuraliya Divisional Secretariat Divisions in Matara District of Sri Lanka**

**A.P. Susil Mendis, H.K.M.S. Kumarasinghe and D.L. Wathugala\***

Department of Crop Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya, Sri Lanka

### **Abstract**

The present study was carried out to examine the effect of weed control and yield performances of At 362 paddy variety in response to the type of herbicide and their combinations in Akuressa and Athuraliya Divisional secretariat divisions within the agro-ecological zones WL2a and WL2b respectively in Matara district. This research comprised of a survey using a pretested questionnaire and field data collection with the participation of 100 farmers in 2016/2017 Maha season. Random sampling technique was employed to select farmers. Primary data was collected through several focused group discussions with agricultural instructors. Yield parameters of paddy and weed data were recorded at 60 and 95 days after field establishment. t-test and Kruskal-Wallis one way ANOVA were used to analyze the results. According to the data obtained from this survey farmer fields were first divided into 4 categories based on the method of post emergent weed control (single chemical<sup>(T<sub>1</sub>)</sup>, mixed chemicals<sup>(T<sub>2</sub>)</sup>, no chemical (T<sub>3</sub>) and both chemical with mechanical<sup>(T<sub>4</sub>)</sup>) and subsequently 2 categories based on field establishment method (broadcasting and transplanting). Highest percentage of farmers used mixed chemicals (44%) for weed management. T<sub>1</sub>, T<sub>3</sub> and T<sub>4</sub> methods were used by 20%, 16% and 20%, farmers respectively. Fields which used T<sub>4</sub> method gave significantly higher total yield when compared only with T<sub>1</sub> treatment. Broadcasted fields with T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> weed management methods gave significantly higher yield than transplanted fields under similar methods of weed management. Degree of weed control was more than 95% in all weed control methods. These results revealed that if adequate labor is available no chemical method can be used and it gives considerably higher yield similar to chemical applied fields for weed control. It also enhances the environmental health and food quality. This survey also revealed that, it is meaningless to apply mixed chemicals for weed control, when compare the yield and the degree of weed control with single chemical application. Chemical application and mechanical weeding (T<sub>4</sub>) with transplanting is the most suitable practice for better performance of paddy and weed control. Therefore, strong awareness campaign on herbicide application is essential to educate farmer. However further research in several seasons need to be performed to understand the exact effects of various weed management methods on rice yield and weed density of the paddy field.

**Keywords:** Broadcasting, Herbicides, Paddy, Transplanting, Yield

**\*Corresponding Author:** wgdakmini@crop.ruh.ac.lk