

Evaluation of herbicide efficacy on weed control and grain yield in rice field under flooded condition

ABSTRACT

Weeds listed as one of the biotic factors that increase the rice production cost worldwide. The importance of their control has always been highlighted by many researchers in years. Application of herbicides accompanied by appropriate water management can increase efficacy of weed control and consequently increase the grain and yield quality. Therefore, this investigation was carried out to assess the herbicides performance under flooded condition on weed control and grain yield in Kelantan, Malaysia. This experiment was evaluated for two seasons which are main season and off season. This experiment was performed in randomised complete block design (RCBD) with three replications. Herbicide evaluation found twelve weed species grown in the experimental plot, where *Monochoria vaginalis* and *Echinochloa crus-galli* were the most dominant weed species discovered in both seasons, followed by *Leptochloa chinensis*, *Fimbristylis milliacea*, *Ludwigia hyssopifolia*, *Limnocharis flava*, *Cyperus iria* and *Scirpus grossus*. The herbicide treatments showed significant results in terms of weed control, grain yield and higher net benefits from economic analysis aspect. From this study, the herbicide combinations of pretilachor fb bentazon/MCPA, pretilachor+pyribenzoxim, fb bentazon/MCPA, bispyribac-sodium fb bentazon/MCPA and pyrazosulfuron fb bentazon/MCPA performed best in the flooded condition with high WCE in both seasons and pyrazosulfuron fb bentazon/MCPA resulted as the highest net benefit amongst treatments.

Keyword: Herbicides combination; Weed management; Rice production