

## Evaluation of bioherbicide for controlling weedy rice and enhancing the yield of rice in Malaysia

### ABSTRACT

**Aim:** Rice (*Oryza sativa* L.) is the second most important food crop in Malaysia, and weedy rice is the severe constraint in the Malaysian rice field. An experiment was conducted in Shadehouse at Field 2, Universiti Putra Malaysia to assess the performance of *Agroplus BioDcomposer* as a bioherbicide to control weedy rice and to select appropriate dosage of *Agroplus BioDcomposer* for effective control of weedy rice in the rice field.

**Methodology:** Ten treatments of herbicides were applied in the experiment viz., control (0 ml), *Agroplus BioDcomposer*® (150 ml 20 l<sup>-1</sup> water, 300 ml 20 l<sup>-1</sup> water and 450 ml 20 l<sup>-1</sup> water), Paraquat (125 ml 20 l<sup>-1</sup> water, 250 ml 20 l<sup>-1</sup> water and 375 ml 20 l<sup>-1</sup> water) and the combination of *Agroplus BioDcomposer*® with Paraquat @150 ml 20 l<sup>-1</sup> water + @125 ml 20 l<sup>-1</sup> water, 300 ml 20 l<sup>-1</sup> water + 250 ml 20 l<sup>-1</sup> water and 450 ml 20 l<sup>-1</sup> water+375 ml 20 l<sup>-1</sup> water). Data on the percentage of weedy rice killed three days after treatments and percentage of weedy rice emergence 7 and 14 days after soil application of treatments were recorded to evaluate the efficacy of different treatments.

**Results:** The results revealed significant differences among treatments in the percentage of weedy rice killed, weedy rice emergence after treatments application and the ultimate yield of rice. Paraquat, @ 375 ml 20 l<sup>-1</sup> water and a combination of *Agroplus BioDcomposer*® and Paraquat (300 ml 20 l<sup>-1</sup> water + 250 ml 20 l<sup>-1</sup> water) performed better over other treatments to kill the weedy rice, to control the emergence of weedy rice from the seed bank and produced the highest rice yield.

**Interpretation:** The overall result revealed that the recommended rate of *Agroplus BioDcomposer*® + Paraquat (300 ml 20 l<sup>-1</sup> water + 250 ml 20 l<sup>-1</sup> water) is more appropriate and suitable for environmental friendly control of weedy rice in Malaysia.