

Residual effect of imidazolinone herbicide used in Clearfield® rice on non-clearfield rice

ABSTRACT

A pot experiment was conducted in the glasshouse at Field 2, Universiti Putra Malaysia, Selangor to study the residual effect of imidazolinone herbicide used in Clearfield® rice which is resistant to imidazolinone on non-Clearfield rice. The experiment comprising of two factorials and was laid out in Randomized Completely Block Design (RCBD) with four replications. Treatments included six cultivated rice varieties, namely MR219, MR220, MR253, MR263, MR269 and MR220CL2 and six different time of combinations such as 3, 6, 9, 12, 15, 18 weeks of direct seeding after imidazolinone herbicide application and control (no imidazolinone herbicide application). Before direct seeding of rice, all pots were sprayed with imidazolinone according to the treatments (0.22 kgOnDuty™ WG Herbicide/ha). Imidazolinone herbicide application stunted rice emergence and growth for non-clearfield rice. Imidazolinone herbicide had significant effect on emergence and growth of non-Clearfield rice compared to control (untreated) except Clearfield® rice (MR220CL2) because it is already tolerant to imidazolinone herbicide. Applied herbicide significantly reduced the percentage of the germination, dry weight of shoot and root and number of tillers of non-Clearfield rice. Non-Clearfield rice showed chlorosis and necrotic symptom on leaves and finally died. Imidazolinone herbicide also had residual effect in soil even though 18 weeks after application. This is very harmful not only for environment but also for the biodiversity of all beneficial organisms.