

Phyto-Toxicity of Herbicide; Benzobicyclon 280gl–1 SC on Rice

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Benzobicyclon 280 g⁻¹ SC is a broad spectrum pre- to early post-emergent herbicide used in direct-seeded and transplanted rice. This is very effective against annual and perennial weeds. It has a long residual activity in soil (60 days). It kills weeds by inhibiting 4-hydroxyphenyl pyruvate di-oxygenase (4-HPPD) enzyme. Phyto-toxicity of *Benzobicyclon280gl⁻¹ SC* can be seen as chlorosis and bleaching of leaves. Phyto-toxicity of *Benzobicyclon280gl⁻¹ SC* on 10 commonly grown rice varieties (*Bg250*, *Bg251*, *Bg252*, *Bg300*, *Bg310*, *Bg352*, *Bg358*, *Bg366*, *Bg374* and *Bg360*) was studied at the Rice Research and Development Institute, Batalagoda during Yala 2018. The objective of the study was to determine the severity of the herbicide injury by *Benzobicyclon280gl–1 SC* in commonly grown rice varieties in the dry zone and intermediate zone of Sri Lanka and to determine the possibility of using the herbicide, with minimum crop injuries. *Benzobicyclon280gl⁻¹ SC* was applied at the rates of 200, 300 and 600 g (a.i.) per ha at 07 days after sowing of paddy. Herbicide injury severity % was recorded two weeks after herbicide treatments according to Standard Evaluation System of Rice introduced by International Rice Research Institute. Data were subjected to ANOVA using SAS 9.0 software package. Results revealed that *Bg250*, *Bg251*, *Bg300* and *Bg310* showed no herbicide injuries under the tested dosages. *Bg252*, *Bg352*, *Bg358*, *Bg366*, *Bg374* and *Bg360* showed significantly higher herbicide injury severity % in all three tested dosages than other varieties ($p < 0.05$). Therefore, as phyto-toxic effect of *Benzobicyclon280gl⁻¹ SC* differs with the variety, variety-specific recommendations based on further studies with different varieties are required instead of a general recommendation of BSC for paddy cultivation in Sri Lanka.

Keywords: Benzobicyclon, Herbicide injury, Broad spectrum herbicide, Pre-emergent, Early post-emergent