

BAS684H a new tool for selective control of multi-resistant ryegrass

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Summary The response of herbicide susceptible and multiple resistant annual ryegrass populations and wheat (cv Magenta) to the herbicide BAS684H was examined. BAS684H was applied pre-emergence under carefully controlled conditions at different dosages. Plant survival (emergence followed by active growth) and plant growth (aboveground biomass) was assessed 28 days after herbicide treatments. A concomitant study to assess cross-resistance profile to the key pre-emergence herbicides prosulfocarb + metolachlor (Boxer Gold), pyroxasulfone (Sakura) and trifluralin was conducted. BAS684H was found to be safe to wheat. Good control (>85% kill rate and 89% biomass reduction) of herbicide-susceptible and multi-

resistant ryegrass was achieved at 400 g BAS684H ha⁻¹. We have observed some variability in herbicide efficacy and control of ryegrass, whereas crop selectivity was maintained at high doses in wheat. In addition to assess the risk of resistance to the new herbicide BAS684H we have also assessed the response of 200 ryegrass populations to BAS684H. Survivors in key populations with known profile of herbicide resistance were recurrently selected. After two generations we have information on the potential of ryegrass to evolve resistance to BAS684H. We conclude that BAS684H may have a significant commercial opportunity in the Australian grain-belt.