

Testing pre-emergence herbicide options for brome grass on Mallee sand

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Background

Brome grass is the most costly weed to grain production in the Mallee region despite herbicide resistance being relatively low. For growers looking to reduce reliance on Group B herbicides, pre-emergence herbicides can be an important part of brome management strategies but trifluralin has limited efficacy. Previous pre-emergence herbicide trials at the MSF Karoonda site have shown the potential for greater than 75% brome control, but also the potential for variability under different early-season conditions.

Why was the project done?

The treatments applied on a non-wetting sand at the MSF Karoonda site were aimed at testing whether extra investment in alternative pre-emergent herbicide treatments can lead to better brome control under different no-till seeding conditions. The trial used Kord wheat and compared: 1. *Trifluralin (control) at standard local rate (1.5 L/ha)*; 2. *Trifluralin + Metribuzin (1.5 L/ha + 150 g/ha)*; 3. *Trifluralin + Metribuzin + post emergence Avadex Xtra (1.5 L/ha + 150 g/ha + 2.0 L/ha)*; 4. *Trifluralin + Avadex Xtra (1.5 L/ha + 2.0 L/ha)*; 5. *Sakura (118 g/ha)*; 6. *Sakura + Avadex Xtra (118 g/ha + 3.2 L/ha)*; 7. *Sakura + Metribuzin (118 g/ha + 150 g/ha)*. The herbicides were tested under marginal soil moisture conditions at seeding that resulted in poor crop emergence (30 April seeding: 49 crop plants/m²; 20 May seeding: 21 crop plants/m²) that led to patchy competition from the crop.

Key messages

- The later seeding had very poor crop establishment, resulting in significantly higher brome seed production (115% more panicles) than early seeding, but seeding time did not interact with herbicide treatment effects.
- Only the treatments including Sakura resulted in significantly ($P < 0.01$) better brome control than trifluralin alone (measured by number of panicles/m²).
- Sakura alone resulted in 55% less brome panicles than trifluralin alone, and Sakura + Avadex resulted in 72% less brome panicles than trifluralin alone.
- Sakura's extended residual soil activity, which can restrict root growth of brome, combined with the dry spring, was probably responsible for the reduced seed set.
- Substantially better brome control and seedset reduction is possible by using pre-emergence options other than trifluralin. The additional herbicide cost needs to be evaluated against the better level of control, including the longer-term seedbank benefits.

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