

# Disc seeders and pre-emergence herbicides

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An increasing proportion of no-till farmers are making transition to disc-based zero-till cropping. Disc seeding systems can significantly reduce soil disturbance than knife-point seeding systems, enable greater stubble retention, allow faster sowing and can result in more uniform crop establishment. However, use of pre-emergence herbicides with disc seeders can result in crop damage and consequently most pre-emergent herbicide labels do not recommend their use with disc seeders. There is a wide range of disc seeders available in Australia and growers are unsure about their suitability for use with pre-emergence herbicides.

Field trials were undertaken at Roseworthy Campus in the Mid North of South Australia in 2012 and 2013 to investigate the behaviour of pre-emergence herbicides with disc seeders. More specifically the trials were designed to evaluate the effect of different seeding systems on pre-emergence herbicide control of annual ryegrass and their phytotoxicity to wheat. The disc systems comprised KHart and Bertini triple discs, and JD (90 series), NDF (650 series) and DayBreak (Duodec) single discs.

Use of triple disc seeders with pre-emergence herbicides provided similar crop safety to standard knife-point press wheel system. Of the herbicides examined, Sakura<sup>®</sup> caused no damage to wheat and provided >90% control of ryegrass and appears to be the most suitable pre-emergence herbicide for use with discs. In contrast, trifluralin significantly reduced wheat emergence with single discs (<50%) but not with triple discs. However, inclusion of residue managers fitted ahead of the single disc openers significantly reduced the risk of herbicide damage from trifluralin and Boxer Gold<sup>®</sup>. The residue managers were set to remove crop residue from a 3-4 cm wide band in front of the discs, which resulted in partial removal of herbicide treated soil from the crop furrow and improved crop safety.

Increasing the sowing depth of single discs (i.e. by 1-2 cm) was also shown to improve crop safety, which was most likely due to an increase in herbicide displacement by soil disturbance.

## Key messages

- Due to crop safety concerns most pre-emergence herbicides are not recommended for use with disc seeders.
- Wheat was seriously damaged by the use of trifluralin under single discs. In contrast Sakura<sup>®</sup>, which caused no damage to wheat and was highly effective on ryegrass, appears to be the best pre-emergence herbicide option for use with discs.
- Pre-emergence herbicides were consistently safer under triple disc than single disc.
- Use of residue managers in front of single disc blade significantly improved the level of crop safety.

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