

Improving Grass Weed Control in Durum

Kenton Porker and Rob Wheeler (SARDI NVA)

A project aiming to improve grass weed control in durum wheat is being led by the SA DGA thanks to funding by SAGIT and corporate sponsors. There are limited, safe and effective herbicide options for grass weed control in durum. Durum wheat is an inherently poor competitor with grass weeds and requires an increased reliance on herbicide use coupled with good agronomic practices (ie paddock selection). The introduction of new chemistry pre-emergent herbicides for managing resistant ryegrass populations has been welcomed by industry. However, BoxerGold and Avadex are the only registered pre-emergent options for durum; these herbicides still however present some issues in durum as they have potential to cause significant crop damage resulting in reductions in plant establishment, early vigour and yield. Furthermore ryegrass can still set large amounts of seed even if it has been treated with a pre-emergent herbicide. It is therefore prudent for growers to integrate other strategies to help improve a crop's competitive ability with weeds. Therefore this project aims to provide growers with information to help implement an integrated approach to improve grass weed control in durum wheat that (a) could improve the effectiveness and net benefit of commonly used herbicides, and (b) improve the herbicide safety of currently grown durum varieties.

Key messages to date:

- BoxerGold & Avadex at recommended label rates have been the most effective herbicides for ryegrass control in Durum. At rates required for effective control herbicide damage has still occurred resulting in plant establishment losses and stunted growth, but in general the crop has recovered and not resulted in any yield penalty. Improved crop safety was achieved by sowing seed deeper below the herbicide band and using larger seed. Plant establishment losses were also recovered by increasing seeding rate to compensate for any likely damage.
- To date there has been no significant or consistent varietal differences in tolerance to BoxerGold in durum. Sakura is not registered for durum and our trials suggest that registration is unlikely due to the level of unrecovered crop damage that occurred in old, new, and elite durum varieties.
- Current durum varieties differ in their weed competitive ability. In 2012 Sainly a more vigorous variety was found to be the most competitive of current varieties offering similar suppression of ryegrass as bread wheat but less than barley. Other varieties were more similar to the older variety Tamaroi (a known poor weed competitor), however Yawa a more erect variety with reduced early vigour was less competitive than Tamaroi.
- All 3 durum trials in 2012 (Roseworthy, Tarlee, Hart) showed improved weed competitiveness with increased crop density without any associated yield loss. Increasing seeding rate also improved the effectiveness of the pre-emergent herbicides under ryegrass infestations. Durum have a reduced tillering ability and previous work involving seeding rates has found no benefit in lowering seeding rates for both yield & quality in all durum varieties. Growers should maintain higher seeding rates (>200seeds/m²) for improved weed control, yield and quality.

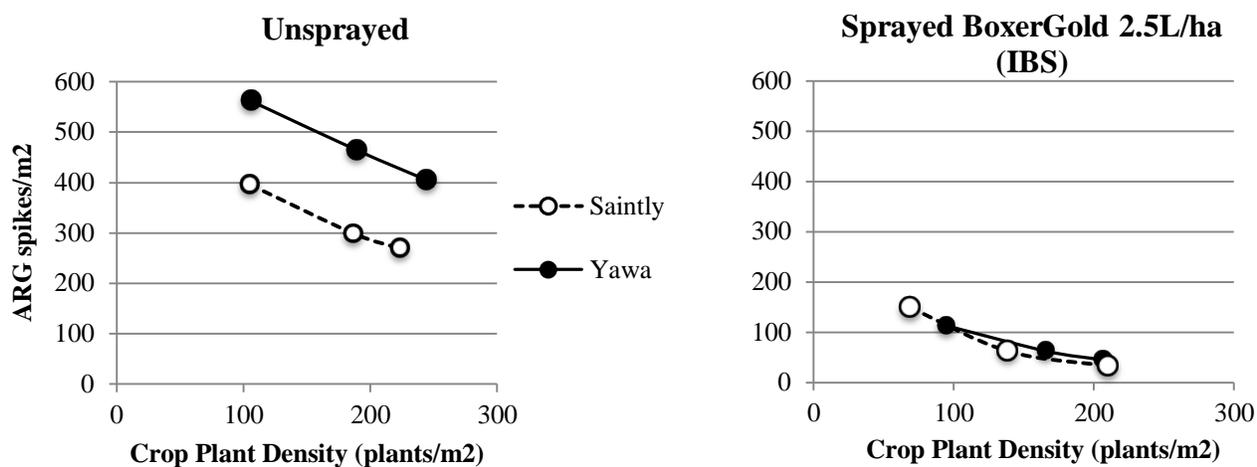


Figure 1: The effect of the management combination of variety, herbicide, and plant density on the density of annual ryegrass spikes at Tarlee 2012 (LSD 5% = 55 spikes/m²)

- Trials in 2012 demonstrated that the management combination of variety, seeding rate, and herbicide all play a significant role in the success of the system (figure 1). Herbicide was the main factor providing the greatest proportion of weed control, combining this with more vigorous varieties such as Saintly^(A) and increasing seeding rates from 100 to 300seeds/m² resulted in increased yield, improved weed competition and reduced weed seed set. This work is being continued in 2013, an aims to determine the optimal combination of herbicide, variety, and seeding rate for maximum weed control.