

## Herbicide demonstration trial, IREC Field site, Whitton 2018/19

Weeds are a significant threat to all farming systems. Glyphosate tolerant cotton has been rapidly adopted by the Australian cotton industry since its introduction 13 years ago and currently accounts for nearly all of the crops sown. This has led to a change in weed management practices with growers moving from applying residual herbicides in anticipation of a weed problem to dealing with weed issues using predominantly glyphosate. The use of other chemical or cultural methods to control problem weeds has reduced significantly during this period.

A shift in the weed species has resulted in an increase in broadleaf weeds such as flax leaf fleabane and sow thistle in both cotton fields and non-cotton fields in the rotation. The glyphosate resistance level of weeds such as awnless barnyard grass, windmill grass and feather top Rhodes grass are also increasing.

### Methods

All herbicide treatments were applied after the mimic weed seeds (aim 80 plants/m<sup>2</sup>) on 12<sup>th</sup> October 2018. The cultivar was 748 B3F and was sown at 16 seeds/m.

The demonstration aim was to highlight to growers that a diverse approach to weed control with less reliance on glyphosate will protect and prolong its usefulness. A side issue raised by growers is around crop establishment and plant stand issues when using pre-emergent and residual herbicides, especially early in the season under cooler conditions.

### *Treatments*

1. Glyphosate (Weedmaster DST) (1.5L/ha) only system; pre plant and post emergent Over The Top (OTT) as required, +/- mimic weeds to show "resistant" scenario
2. Glyphosate (1.5L/ha) pre plus Gly (1.5L/ha) + Bouncer (1L/ha) OTT post @ 4 nodes
3. Glyphosate (1.5L/ha) pre plus directed Gly (1.5L/ha) + Pendimethalin (2L/ha) (Rifle) @ 4 nodes
4. Pendimethalin (1.9L/ha) (Rifle) pre plant (PSI) plus Gly (1.5L/ha) + Bouncer (1L/ha) OTT @ 4 nodes
5. Diuron (1.5kg/ha) pre-plant (PSI) and Glyphosate (1.5L/ha)
6. Conventional; Pendimethalin (Rifle) (1.9L/ha) (PSI) + Glyphosate (1.5L/ha) + Gesagard 2.5L/ha (applied as layby)

## **Key Messages.**

- In comparison to the commercial crop (11.5p/m) there was no significant reduction in plant establishment averaged across all treatments (11 p/m), minor reductions in plant numbers between treatments did not carryover to boll numbers per metre
- Yields from handpicks showed a significant reduction in lint yield from weedy control & T 1 (9.6b/ha), compared to the highest yield from T 6 (13.2b/ha).
- Hand gin results had turnouts between 42 and 43% independent of herbicide treatment
- The importance of early weed control on crop establishment and growth and subsequent lint yield is clearly evident from this trial
- The critical weed free period for cotton before occurs in the first 300 day degrees ie: weeds need to be controlled prior to first square. Weed control later than this results in yield loss.

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