

## ***NGA Activity Update, June 2009*** ***- an update of key recent results and planned activities***

### **General**

The main purpose of these update newsletters is to provide a brief snapshot of NGA activity, suitable for distribution to a wider grower audience. More detailed project results are available in Update papers and Validator style publications. We hope it continues to provide value.

Winter program initiation is well underway with 14 of 18 planting trials in the ground as of June 1. Remaining sites expected to be in by June 10. There are a number of projects detailed in this newsletter where we will be looking for trial sites in the near future. **Important sites we will be looking for soon are highlighted in yellow.**

### **Survey**

The second NGA survey was sent out in the last week of May. Encouragingly more than 25% of LCC members had already responded in the first 4 days. Many thanks. Looking forward to feedback from all other members over the next fortnight as this is a key activity to monitor progress and benefit of NGA activity and to assist in direction of future R&D.

### **New equipment**

Anthony Mitchell commenced with NGA (based at Moree) in September last year. For the summer program he largely shared our existing bike and sprayer setup with Clare. This was always an interim approach and was never going to be practical or efficient for operating within the much tighter application windows in winter. Expect to see Anthony and his new offset boom in a field near you soon !



## Key recent project results

### **1. Sorghum desiccation timing**

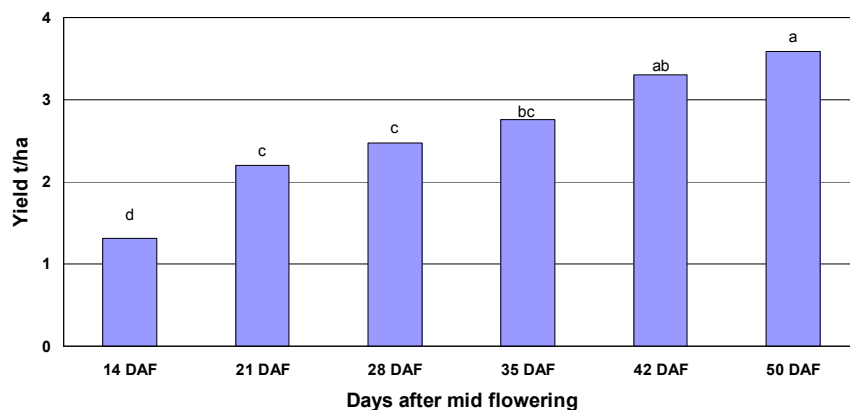
**Aim:** To assess the impact of desiccation timing on grain yield and quality and help confirm the most appropriate timing for desiccation.

**What was done?:** Eight small plot trials (3 by NGA - Narrabri north, 5 by NSW DPI - Liverpool Plains). Timing was scheduled in weeks post mid flowering with expectation that optimal desiccation would be at ~ 5-6 weeks after mid flowering. Samples and photos also taken of grain maturity at each timing together with head and grain moisture.

**Key findings:** Generally similar patterns to 2007/8 results.

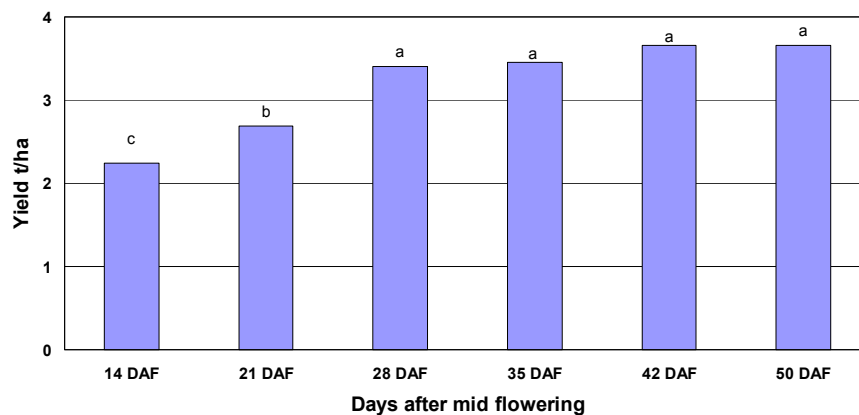
Site 1: Goondiwindi double skip site.

- Trial commenced 22/12/08
- Staygreen variety with late tillers very slow to mature
- Photos of grain indicated MAIN tillers only were at physiological maturity at 42DAF (days after flowering)
- Significant yield reductions at 35 and 42DAF indicate yield contribution of later tillers



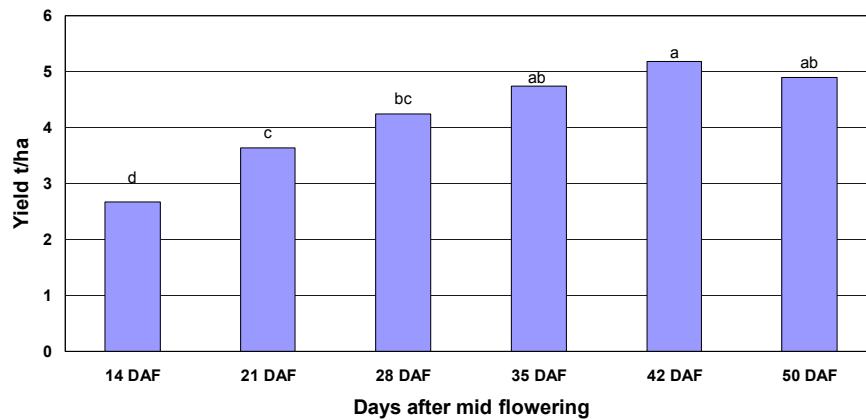
Site 2: Goondiwindi double skip site.

- Trial commenced 19/2/09
- Maturity much more advanced than site 1
- Photos of grain indicated ALL tillers at physiological maturity by ~28-35DAF



Site 3: Millie single skip site.

- Trial commenced 10/3/09
- Maturity intermediate between sites 1 and 2
- Photos of grain indicated ALL tillers at physiological maturity by ~42DAF



**Key points:** Best field indicator of optimal desiccation timing appeared to be **grain maturity of latest harvestable heads ie black layer**. Yield losses from earlier application can be substantial with additional grain quality losses. Residual soil moisture benefit only seen in 1 of 3 sites.

## 2. WeedSeeker brews

**Aim:** 1. Evaluate and benchmark a wide range of herbicide mixtures that may be considered for use through a WeedSeeker.

**What was done?:** Three small plot trials targeting large flowering fleabane. Large number of combinations in mixture with 2L Roundup CT.

**Key findings:** NO treatment provided consistent high levels of control in all trials – Don't ignore sensible weed stage timing even with WeedSeekers. Most promising mixtures were CT + Starane Advanced or CT plus Amicide + Ally.

## 3. Glyphosate adjuvants

**Aims:** 1. Comparison of efficacy of different glyphosate salts. 2. Quantification of impact of hard water and the benefit of ammonium sulphate in these situations.

**What was done?:** Four small plot trials with three conducted on common sowthistle.

**Key findings:** Poor levels of control obtained in all trials ie glyphosate rates were too marginal. Some differences in control with IPA salt (eg CT or Wipe-Out) tending to be poorer than potassium or mono-ammonium salts. However, **product rate was far more important than formulation** in addition to the dramatic negative impact of **high water hardness**. Addition of 2% Liase provided clear benefits in hard water.

## 4. Fleabane double knock

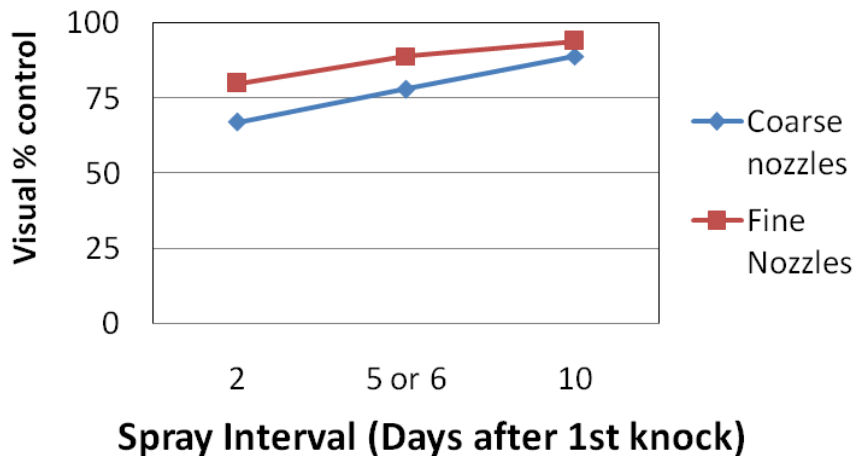
**Aims:** 1. Demonstrate impact of timing of double knock 2. Evaluate droplet spectrum used for Sprayseed efficacy.

**What was done?:** Two small plot trials on flowering fleabane at 70L/ha application volume. Compared second knock applied after 2, 5 or 10 day delay. Also evaluated performance of Sprayseed application at all timings with Fine v Coarse droplets.

**Control of flowering fleabane 5 – 6 weeks after treatment**

1<sup>st</sup> knock: Roundup CT @ 1.5L + Surpass 475 @ 1L + LI-700

2<sup>nd</sup> knock: Sprayseed @ 1.6 L/ha



**Key findings:** Poorest levels of control were obtained when second knock was applied after only a 2 day delay with highest level of control from 10 day delay (NB generally improved spray conditions at 10 day application). Visual control ratings indicated consistent benefit from using fine droplets for Sprayseed application.

**5. Residual herbicides – in summer FALLOW**

**Aims:** 1. To compare weed spectrum and length of residual control across a range of environments. 2. Monitor for plantback issues in 2009 commercial winter crop.

**What was done?:** Four small plot trials sprayed after winter crop harvest. Residual control was assessed immediately prior to any paddock knockdown spray. This allowed measurement of subsequent residual activity throughout summer.

**Key findings:** Very early days with impact on plantback obviously a key consideration. Encouraging levels of control at both sites that had awnless barnyard grass from 4 different herbicide groups (NB December 2008 had good incorporating rainfall which may have improved control). Good sowthistle control recorded for >2 months with a number of products and mixtures.

**Key winter projects 2009**

**1a. Aphid management in barley**

**Aim:** 1. To evaluate the length of protection and the economic benefits of a broad range of aphid management approaches.



**Key details:** Continuation of activity from 2008 when we recorded an average net benefit of \$30-40/ha across 4 trials using either a seed treatment or a foliar spray. Two small plot trials comparing 16 treatments (8 treatments on both Grout and Fitzroy). Intensive trials to generate additional efficacy, yield and economic data as well as aphid population dynamics.

**Trial locations:** Moree and Edgeroi (Both sown).

### **1b. Aphid management in cereals**

**Aims:** 1. To compare the impact of aphids on different winter cereals. 2. To continue to evaluate the regional importance and economic benefits of aphid management.

**Key details:** Designed to give a snapshot of aphid importance and presence over a wide geography. Eight small plot trials comparing 15 treatments (5 treatments each on Fitzroy, Livingston and Bellaroi). Much less intensive trials in collaboration with NSW DPI and QDPI&F.

**Trial locations:** Yallaroi, Bullarah, Cryon, Bithramere, Spring Ridge, Gilgandra, Dalby and Lundavra. (Gilgandra, Spring Ridge and Bithramere already sown)

### **2a. Crown rot and nematode tolerance**

**Aims:** 1. Provide additional data on crown rot tolerance of a range of winter cereals. 2. Assess relationship between *Pratylenchus thornei* rating and actual yield under nematode pressure 3. Examine relationship between crown rot and nematodes in varietal yield loss.

**Key details:** 4 trials conducted with 6 bread wheats, 2 barleys and 2 durums. Two sites on high nematode sites and two where nematode levels are low to nil.

**Trial locations:** North Star, Bullarah, Cryon and Bellata (all sown)

**Associated work:** NSW DPI 'time of sowing' evaluation as per 2008.

### **2b. Crown rot and foliar fungicides**

**Aims:** 1. To determine any impact of foliar fungicides on crown rot infection levels and severity. 2. To assess whether foliar fungicides provide any economic benefit.

**Key details:** Although the chances of success are not considered high, we are conducting two trials where EGA Gregory is inoculated with crown rot and then treated with fungicides at different crop growth stages. Trials will evaluate impact on disease incidence and severity but primarily focused on yield and economic returns.

**Trial locations:** Bullarah and Cryon (Both sown)

**Associated work:** NSW DPI evaluation in tandem.

### **3. Stripe rust management with in-furrow fertilizer**



**Aims:** 1. Measure the length of disease protection provided by in-furrow treatments. 2. Validate and compare the efficacy and economics of 'at planting' and 'in crop' management strategies.

**Key details:** Still broad interest in comparing efficacy and economics of in-furrow

treatments v seed treatment v foliar programs. Three trials are being established to compare the suite of key management options on EGA Wylie.

**Trial locations:** Moree, Edgeroi and Spring Ridge (all sown)

### **4. Salvage options for herbicide resistant wild oats**

**Aim:** 1. Compare efficacy of salvage herbicide options (with and without fungicide) in chickpeas following a Group A herbicide failure.

**Key details:** Two trials in chickpea crops where poor 2009 Group A field performance strongly indicates herbicide resistance. NGA will need to react quickly where situations arise as application window will be small.

**Trial locations:** High likelihood areas in Bellata to North Star region.

**Potential sites will need to be identified by advisers who then contact NGA. Need to have a fairly uniform population of wild oats over an area of ~40x40m. Target wild oat population of >2 plants/m<sup>2</sup>. We expect wild oat stage will be advanced (late tillering to jointing).**

### **5. Head scab**

**Aim:** 1. To evaluate the effectiveness of fungicides for head scab (*Fusarium graminearum*) management.

**Key details:** An important late season disease, particularly on Liverpool Plains. Intention is to conduct commercial scale evaluation of groundrig v aerial application.

**Trial locations:** Two trials on the Liverpool Plains in high risk situations. Majority of field sprayed aerially with groundrig used on upwind side for ~100 m width. Assess for disease control and yield impact.

**Will need adviser assistance to locate suitable sites/ co-operators during late stem elongation.**

**Associated work:** Screenhouse evaluation of the most promising fungicides. Focus on timing of fungicide relative to time of disease infection. Trial will evaluate

application up to a week before or after infection and also timing relative to flowering. Screenhouse activity is the only way to generate this management information.

## **6. Millet cover cropping**

**Aims:** 1. To validate the benefits of millet cover cropping in areas south of the border. 2. To determine the benefits and costs of applying N for the subsequent winter crop at cover crop planting.

**Key details:** Two trials established in September 2008 with millet sprayed out in November. Monitoring impact on 2009 wheat crop.

**Trial locations:** Edgeroi and Burren Junction (both sown).

## **7a. Residual herbicides – in winter FALLOW**

**Aims:** 1. To compare weed spectrum and length of residual control across a range of environments. 2. Monitor for plantback issues in subsequent winter crop (2010).

**Key details:** Two small plot trials comparing 15 residual herbicide treatments for fleabane management. Two additional trials looking at primary target of barnyard grass. Sites to be planted to winter crop in 2010.

**Trial locations:** At suitable sites in Goondiwindi/ Moree/Narrabri or Walgett districts.

**Will need assistance to locate suitable sites. Fleabane sites likely to be sprayed earlier than barnyard grass sites, with key information generated during spring/summer.**

## **7b. Residual herbicides – in winter CROP**

**Aim:** 1. To compare weed spectrum and length of residual control across a range of in crop herbicides. 2. To assess how 'clean' plots are to start the fallow.

**Key details:** Two small plot trials in wheat comparing 9 residual herbicide treatments. Primary target is common sowthistle.

**Trial locations:** At suitable sites in Goondiwindi/ Moree/Narrabri or Walgett districts.

**Will need assistance to locate suitable sites. Intention is to commence trials in July/August with key information generated post harvest.**

## **8. Tactical Nitrogen management in wheat**

**Aim:** To further investigate tactical N management under northern conditions.

**Key details:** Results from the work in 2008 finally showed a situation where significant yield INCREASES resulted from tactical N use on an early sowing of long season variety. In previous work, tactical N application has recovered yield potential but with no actual yield benefit.

**Trial location:** Small plot site near Spring Ridge. Intention was to have a similar site near North Star but unable to find a suitable site with N level low enough to generate any likely N response.

## **9. N volatilisation (lab and field)**

**Aims:** 1. Identify the impact of soil temperature on N volatilisation losses.  
2. Initiate field activity to quantify levels of field N volatilisation losses.

**Key details:** NSW DPI lab (chamber) based study in late 2008 clearly showed the impact of soil CaCO<sub>3</sub> level on driving volatilisation losses in a closed system. It also showed clear differences between N sources. Intention is to perform one more chamber experiment to evaluate the impact of soil temperature and to take volatilisation study to the field in spring 2009. Pilot approach will look at N losses when 4 different products are top dressed in winter crop with intention to expand to both pre plant and top dressing in 2010.

## **10. Nutrient impact on foliar disease**

**Aim:** Investigate whether there is a link between nutrition and disease susceptibility.

**Key details:** NSW DPI successfully used a glasshouse study in 2009 to evaluate impact and symptoms of Cl deficiency in winter cereals. Same approach to evaluate impact of K and/or Cl deficiencies on stripe rust and spot form net blotch expression.

## **11. Efficiency of P sources at planting**

**Aims:** 1. Compare efficiency of granular vs liquid MAP application approaches.  
2. Evaluate P response with varying row spacing.

**Key details:** 3 small plot trials comparing crop responses to granular P at 6 dose rates (0, 5, 10, 15, 20, 30 kg P/ha) and 3 row spacings (200, 300 and 400 mm) in wheat. Liquid and granular comparison at the 300 mm row spacing at the same 6 P rates.

**Trial locations:** Yallaroi, Spring Ridge and Gilgandra (Spring Ridge and Gilgandra already sown)

## **12. Plant growth regulators (PGRs) in winter cereals**

**Aims:** 1. To investigate crop responses to timing and rate of PGR.

**Key details:** Small plot replicated trials sown with plot seeder and established in growers paddocks. Trials are going to investigate responses to rate and timing of PGR application.

**Trial locations:** Yallaroi, Spring Ridge and Gilgandra (Spring Ridge and Gilgandra already sown)

For any further details please contact your Local Consultative Committee Contact or

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