Testing, testing... say ‘hay’ to Hart’s intern!

UPDATE 2

July 28, 2020

Brianna Guidera

Hart update from Brianna…

Hi all,

Recently it occurred to me that I am halfway through my internship with Hart, and thought what better time to upload an update?

The last few months have been packed with assessments, assessments and, you guessed it, more assessments.

In between, we were busy preparing for our Winter Walk, which was held on the 21st July. It was a great turn out and we had some fantastic presentations from our speakers. After hearing tales of frozen fingers and hasty retreats into the shed away from rain during previous Winter Walks, it was somewhat bittersweet that we experienced a mild, sunny winter's day…

On that note, as is the case for many, Hart is experiencing a relatively disappointing winter; the total rainfall for June-July to date is 38.4 mm, bringing to growing season total to 117.4 mm. This, combined with warm days, has resulted in some relatively advanced crops that are water and nitrogen stressed. In particular our early sown winter and awnless wheats, and nitrogen in canola trials are in need of moisture. However overall, the trial site is looking quite good and if some decent rainfall is received in the next few weeks I am optimistic that things will perk up before the Hart Field Day on September 15.

Speaking of the Field Day, some of my favourite trials to keep an eye out for on the program: our trusty Herbicide Tolerance trial, National Hay Agronomy, and our intercropping trial.

Until next time…

Brianna
Hart Regional Intern 2020
brianna@hartfieldsite.org.au

National Hay Agronomy (NHA)

To recap, the NHA program is assessing the effects of time of sowing (TOS), nitrogen fertiliser rates, and variety on oaten hay yields. To do this we have sown nine oat varieties at two times of sowing; May 6 (TOS1) and May 25 (TOS2), and applied five rates of fertiliser; 10, 30, 60, 90,120 and 150kg N/ha, applied as DAP at seeding and top-dressed with urea. Our assessments so far have centred on NDVI, or canopy 'greenness' measurements, which indicate the level of biomass production. Later in the season we will assess plant height and hay yields.

Currently, TOS1 plants are just shy of GS31, while TOS2 is at GS21. Visually, Yallara and Mulgara plots in TOS1 appear to be producing substantial biomass across N treatments, however without any data we can't make too many claims at the moment. The plots given only 10kg N/ha are notably smaller than the other plots however there are no striking differences in the N treatments currently. There are no visual differences amongst the TOS2 treatments.

This trial is no different to the site overall and is facing water and N stress without another rainfall event. Going forward it will be interesting to see how the varieties perform under these conditions.

Oats: TOS 1 (May 6)

Oats: TOS 1 (May 6)

Project: National Hay Agronomy Project
Funded by: Agrifutures Australia

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Soil & plant testing

Following on from my last release, the Soil and Plant Testing project aims to investigate whether current N and P fertiliser decisions can be improved utilising the results of pre-season soil testing.

We have done this by collecting soil samples from high and low production zones in 30 paddocks spread across the Mid-North, and measuring nutrient status and constraints such as pH and EC.

From these results we chose ten suitable paddocks and implemented either nitrogen or phosphorus fertiliser test strips. The treatments are: Nil fertiliser, the grower's standard rate of fertiliser, double the standard rate and a half rate. The test strips run through the high and low production zones of the paddock. At the end of the season we will assess the yields of the test strips within each production zone. The aim is to gauge:

1. Paddock yield response to various rates of fertiliser
2. The potential to implement variable rate fertiliser applications to high and low yielding zones

The plants are sampled at GS30 for tissue analysis and about half of the paddocks have reached this stage. We are currently waiting for paddocks at Spalding, Burra and Marola to develop further. The tissue analysis provides levels of macro and micronutrients, and moisture percentage.

Drone imagery of the test strips at Nantawarra

While there are certainly noticeable differences between the nil fertiliser strips and the standard rates (as expected), overall there are only a few paddocks showing substantial differences in biomass production in the double fertiliser strips, compared to standard rate. There have not yet been obvious differences in production between the zones.

There will be further updates on this trial in the next few months; I am certainly interested to see whether the results will show increased yield potentials from altered fertiliser rates, and if so, whether these changes can be applied in a profitable way for growers.

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Nil vs double fertiliser rate strips at Nantawarra

Nil strip biomass at Nantawarra

Double strip biomass at Nantawarra

Photos: Simon Honner
(Thanks Simmo!)

Project: Soil & Plant Testing for Profitable Fertiliser Use
Funded by: GRDC

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Potted trials

bonus content

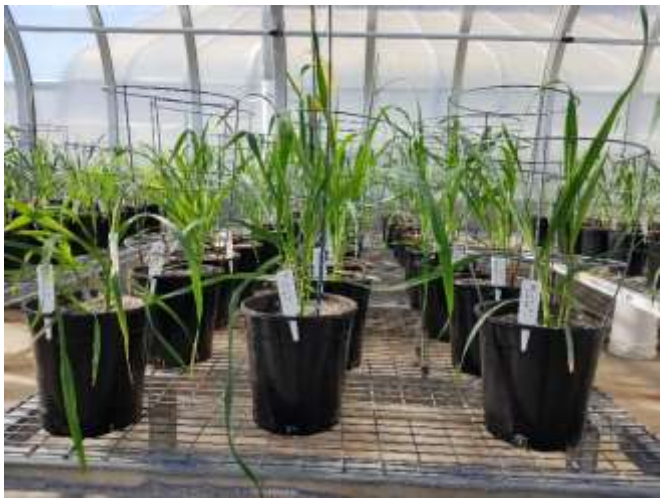
As a part of my internship I will complete four weeks with the SARDI Agronomy group at the Waite Campus, to gain some experience in lab-based agricultural research.

I am working on a project investigating the use of Plant Growth Regulators (PGRs) on oats as a way to encourage head emergence from the boot at later growth stages. We are doing this by applying ProGibb (Gibberellic Acid; GA) to potted oats at six application timings. Each plant will receive the same amount of GA.

We potted Mulgara, Brusher and Williams oats on the 15th of June. They are growing in a glasshouse and watered regularly. So far we have applied two of our GA treatments, one at early tillering and one at GS24. Throughout the next few weeks we will apply four more treatments of GA, with the intention of seeing which application timing has the largest effect on heading (if any). We have been tracking progression through plant height and the number of leaves and tillers present.

So far there have been no effects of the GA on plant growth, however it is astounding how rapidly plants will grow in warm, well-watered conditions. The plants are currently at approximately GS25 just six weeks after sowing. Williams is the most advanced at the moment, followed by Brusher and Mulgara. Once the plants enter the reproductive phase we will assess head emergence in each treatment.

Plants on July 6



Plants on July 23

SARDI Agronomy group