

Testing, testing... say 'hay' to Hart's intern!

UPDATE 3

October 23, 2020



Brianna Guidera

Hart update from Brianna...

Hi everybody,

Across the district the landscape is quickly changing colour, crops are being desiccated, hay bales are everywhere and canola is being windrowed. So with harvest fast approaching it's time for me to put out another update.

Since the last release, the weeks have seemed to fly by and we've been busy!

- On September 15, we hosted our first mini-event, 'Managing Weeds' and last week we held our second, 'Managing Varieties'. We had some fantastic presentations, a good turn out to both, and thankfully some nice weather.
- We have welcomed several guided and self-guided group tours to our field site. It's nice having the groups come out and see the work we've put in this year.
- Bek and I attended the annual SAGIT update earlier this month and it was great to listen to presentations on a range of interesting trials.
- Hart has announced Declan Anderson as our Regional Intern for 2021 / 22. We are all very excited to meet him and welcome him to the team.
- Bek and I have recently completed all of our biomass cuts for the season – a big effort to say in the least and not sorry that job is now done!
- And of course, we have been flat out with other assessments and field work.

Thankfully, we're up to date and feel like we can breathe a bit and prepare ourselves for harvest, which like the rest of the district, isn't far away.

Keep reading for specific updates on my focus projects. I'm happy to answer any questions you might have so please feel free to get in touch.

Cheers,

Brianna

Hart Regional Intern 2020

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National Hay Agronomy (NHA)

Since the last update, this trial has moved along substantially. After a dry June and July, 66.5 mm in August provided some relief. We then received an additional 45 mm in September, with about half of this (20 mm) falling at the very end of the month. However because of the warm, dry conditions during winter and the hot windy days we experienced in September, the trial matured faster than expected.

Within both time of sowing (TOS) treatments, Durack was the first to mature, about a week ahead of the other varieties. Vasse was the slowest in both treatments, however it was only a few days behind. In a typical season a spread of 7-10 days between cutting dates for early May sown Brusher and Wintaroo would be expected, however this was not observed due to seasonal conditions.

For this trial, we took a total of 432 biomass samples, or 864 metres worth of crop row... not that I've spent much time thinking about it.



Figure 1. The NHA trial at Hart on October 20.

The samples have been dried and sent to the Waite campus in Adelaide to be analysed for quality, the results of which will be available in our trial results book at the end of this season

Table 1. Summary of the NHA cutting dates for TOS and varieties at Hart, 2020.

| Variety | Maturity | Cutting date (watery ripe growth stage) | |
|----------|-----------------|---|----------------|
| | | TOS 1 (May 6) | TOS 2 (May 25) |
| Durack | Short | September 7 | September 17 |
| Williams | Mid | September 16 | September 21 |
| Carrolup | Mid | September 16 | September 21 |
| Koorabup | Mid | September 16 | September 21 |
| Yallara | Mid | September 16 | September 21 |
| Brusher | Mid to mid-long | September 16 | September 21 |
| Wintaroo | Mid-long | September 16 | September 21 |
| Mulgara | Mid-long | September 16 | September 21 |
| Vasse | Long | September 22 | September 24 |

For now, our preliminary hay yield results have been summarised below:

Hay yield response

Time of sowing:

Overall there was a significant response to TOS, with early May sown plots having higher yields (3.4 t/ha) compared to plots sown in late May (2.7 t/ha).

Nitrogen rate

Plots treated with 10 kg N/ha yielded significantly less than those treated with 30 kg N/ha; 2.7 t/ha and 3.1 t/ha respectively. Plots treated with rates above 30 kg N/ha yielded the same as those treated with 30 kg N/ha, due to the dry season preventing N uptake.

Variety

Regardless of TOS and nitrogen rate, there were yield differences between oat varieties. Yields for each variety are summarised below. Letters in the third column are to show statistical differences between varieties. Each letter corresponds to a group i.e. any variety labelled with the letter 'b' had, statistically, the same yield as other varieties labelled the same.

Table 2. Summary of hay yields (t/ha) of each variety in the NHA trial at Hart, 2020.

| Variety | Hay yield (t/ha) | |
|----------|------------------|-----|
| Vasse | 2.3 | a |
| Williams | 2.9 | b |
| Koorabup | 2.9 | b |
| Mulgara | 3.0 | bc |
| Durack | 3.1 | bcd |
| Wintaroo | 3.2 | bcd |
| Yallara | 3.2 | bcd |
| Carrolup | 3.4 | cd |
| Brusher | 3.5 | d |

Hay yields ranged from 2.3 to 3.5 t/ha across all varieties. A number of the varieties trialed were high yielding at Hart, including Brusher, Carrolup, Yallara, Wintaroo and Durack. Given the short season it was not surprising that Vasse produced the lowest hay yield as it is a long-season variety. Despite being at watery ripe, many Vasse heads had not emerged from the boot at cutting date. In a wetter year it could be expected to perform better in this environment.



Project: National Hay Agronomy Project
Funded by: Agrifutures Australia



Soil & plant testing

Like the large majority of crops in the district, these trials are moving along quickly and will be ready to harvest within the next few weeks. I recently learned the hard way that it's best to remove your trial markers from the crop before the crop outgrows the pegs – an upside to spending a couple days walking around the paddocks was that I got to see some crop responses to the treatments.

To recap, we have applied a nil, double and standard grower rate fertiliser strip in each of the ten paddocks, and one grower opted to implement an optional half rate strip. Majority of the strips are targeting P response. As you would expect, the majority of the nil strips are still clearly visible, but visual responses to the double and half rates have been variable.

Earlier in the year I provided some photos from Nantawarra showing the differences in plant vigour at different fertiliser rates. The tissue test data shows that both production zones responded to increased fertiliser, with biomass increasing by approximately 1.3 t/ha in the high production zone, and by approximately 0.5 t/ha in the low production zone (Figure 2) in the double rate treatments.



Figure 2. A fertiliser test strip during the season, with the difference in biomass between low and higher rates of fertiliser apparent.
LEFT: Nil strip
RIGHT: Double rate

Similarly, as fertiliser rate increased, as did the plant concentration of phosphorus (Figure 3).

Yield map data will be used by CSIRO to match yields to the fertiliser test strips. This will indicate whether altered fertiliser rates on either the higher or lower production zones will have a significant impact on grain yield. Economic analyses will be conducted to see whether altering the fertiliser rates is economically worthwhile.

For further information on this trial, the full report is available in our Hart Field Day Guide, which is on our website (www.hartfieldsite.org.au).

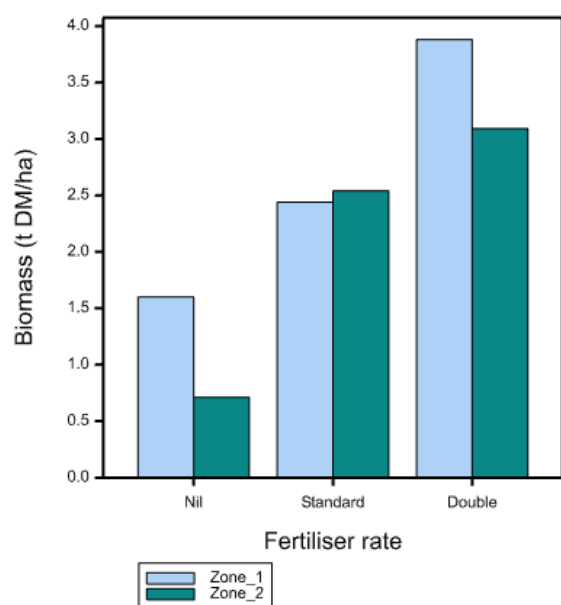


Figure 2. Biomass response to fertiliser treatments in both production zones.

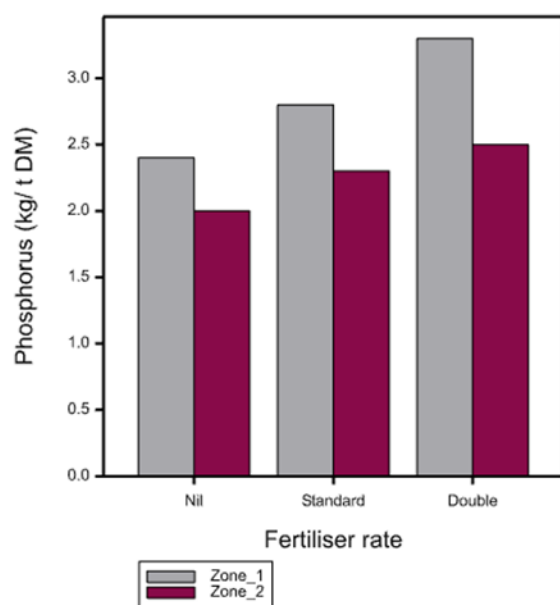


Figure 3. Plant tissue phosphorus concentration response to fertiliser treatments in both production zones.