MEAT & LIVESTOCK AUSTRALIA

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For the latest in red meat R&D

Dual-purpose cropping

Decision making and profitability

Ed Blackburn

'Wongaboori Station', Mendooran

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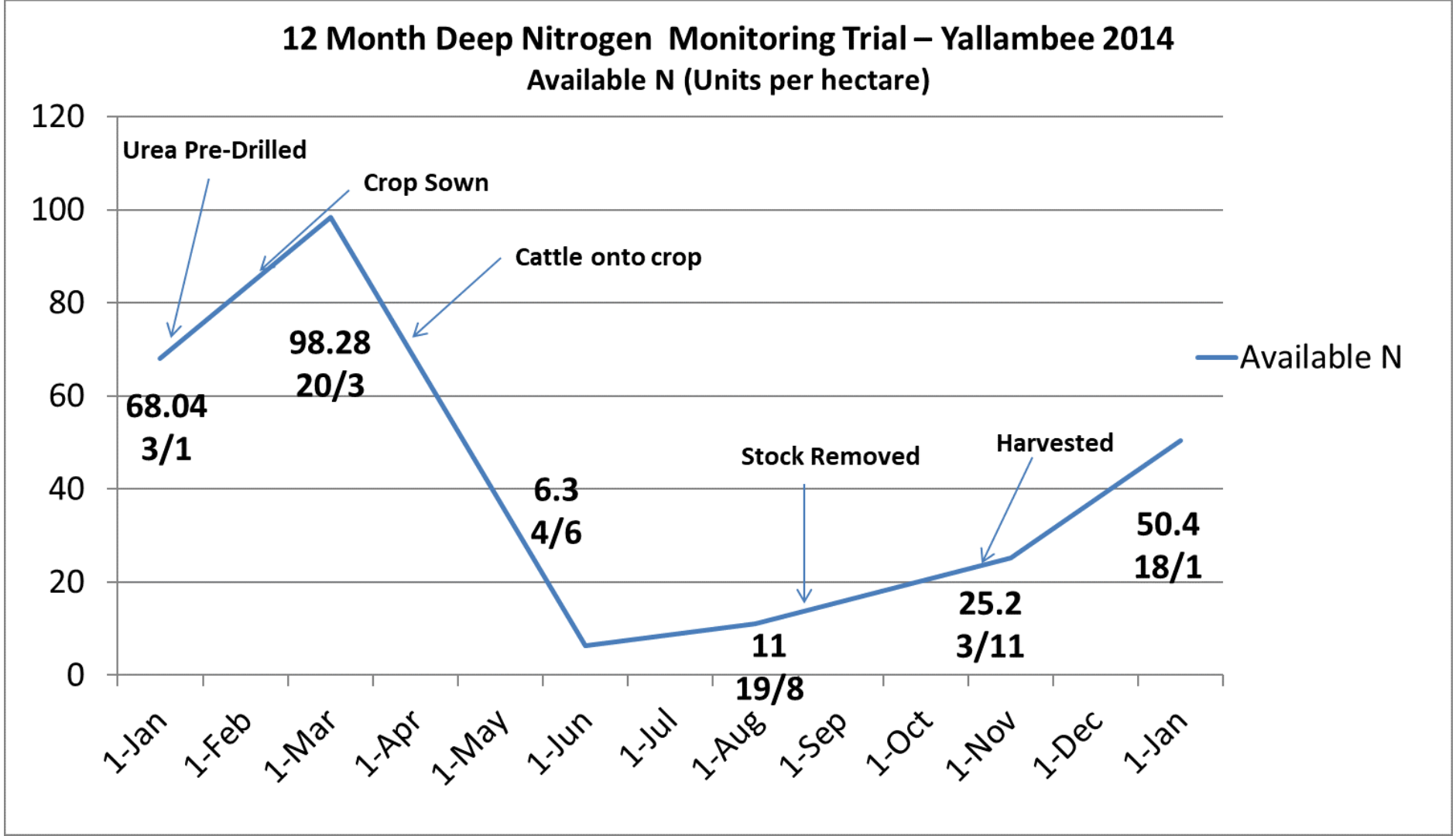
Some background,

- Grew up on family beef and cropping farm at Mendooran
- After university worked as an agronomist for 10 years first with Haynes Farm & Hardware, Coolah then Cudgegong Rural Supplies, Mudgee.
- Now managing an aggregation of 12 properties spanning 9,330ha (23,000ac) across 34km.
- Livestock - producing 1800-2000 F1 Angus x Wagyu cattle and 2500-3000 2nd crossbred lambs annually.
- Crops – barley, winter wheat, oats and canola (all livestock focused).
- Improved pastures – Sub-tropicals, lucerne, chicory, small areas of temperate grasses

Main discussion points

1. Management of the crop up to the point of grazing
2. Management of the crop from grazing through to harvest
3. Dual-purpose vs main season crop gross margins and profitability discussion

Treatment	Cut 1 DM T/Ha	Cut 1 Rank	Cut 2 DM T/Ha	Cut 2 Rank (Cut 1 Rank)	Combined DM T/Ha	Combined Rank	Combined % of Eurabbie
2-Eurabbie	3.06	2	5.79	1	8.85	1	100%
9-Outback	3.25	1	5.29	3	8.53	2	96%
5-Wizard	2.92	3	5.58	2	8.50	3	96%
4-Genie	2.79	5	5.23	4	8.02	4	91%
10-Drover Retained	2.64	6	5.20	6	7.84	5	89%
6-Taipan	2.80	4	5.01	8	7.81	6	88%
1-Yarran	2.60	8	5.04	7	7.64	7	86%
7-Comet	2.63	7	4.91	10	7.54	8	85%
8-Drover	2.48	9	4.98	9	7.45	9	84%
3-Aladdin	2.17	10	5.21	5	7.38	10	83%


12 Month Deep Nitrogen Monitoring Trial – Yallambee 2014
Available N (Units per hectare)
120
100
80
60
40
20
0
Urea Pre-Drilled
Crop Sown
Cattle onto crop
Stock Removed
Harvested
68.04
3/1
98.28
20/3
6.3
4/6
11
19/8
25.2
3/11
50.4
18/1
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
1-Jan
Available N

Profitability

- (Bell *et al* 2015) – Modelled the impact of adding dual purpose canola and cereals in a high rainfall zone farm
  - 10-20% of the farm could be DP cropped increasing DSE carrying 10-15%, farm output >25% and whole farm gross margin/hectare by >$150
  - Up to 20% of farm to DP crops and maintain the same stocking rate (DSE), with additional grain production of up to 5T/ha in cereals (1000ha farm = 1,000T wheat equivalent)
  - DP Cropping 30% or more is likely to impact stocking rate (reduced DSE's), though still increase farm output 10-15% and whole farm gross margin by $50-100/ha
- These improvements arise from supply of good quantities of high-quality forage in the typical winter feed gap, and the ability to lock up pasture for rest while stock are on crop
- Importantly these modelled improvements were consistent across the modelled wetter AND drier years

Prices	
Steers $/kg	$ 6.50
Kg gain/day	1.50
Stocking Rate (Strs/Ha)	2.00
Wheat Price H2 ($/T)	$ 350.00
Wint Wheat Yield (T/Ha)	2.5
MS Wheat Yield (T/Ha)	3.5

Gross Margin Snapshot	GM $/Ha
Winter Wheat	$ 2,125.00
MS Wheat	$ 753.00
Graze out oats	$ 1,890.00

Winter Wheat (90 Days Grazing)		
Costs		
Timing	Activity	Cost $/ha
1st Dec	Fallow Spray One	$ 25.00
1st Feb	Fallow Spray Two	$ 25.00
1st Mar	Knockdown Spray	$ 25.00
1st Mar	100kg Urea Pre-Spread	$ 100.00
1st Mar	Sowing	$ 20.00
	Seed Cost (if retained seed	$ 25.00
	Intake MAP @ 60kg	$ 100.00
15th April	Precept Broadleaf spray	$ 30.00
30th Jun	100kg urea topdressed	$ 100.00
15th Dec	Harvest	$ 55.00
Total Costs		$ 505.00

Income		
1st May-31st Jul	Grazing (90 Days)	$ 1,755.00
December	Sell Grain (On-Farm)	$ 875.00

Position day before harvest	$ 1,305.00
Gross Margin (Income - Costs)	**$ 2,125.00**

Main Season Wheat		
Costs		
Timing	Activity	Costs $/ha
1st Dec	Fallow Spray One	$ 25.00
1st Feb	Fallow Spray Two	$ 25.00
1st Apr	Fallow Spray Three	$ 25.00
15th May	Knockdown Spray	$ 25.00
	Pre-Em	$ 30.00
16th May	Sowing	$ 40.00
	Seed Cost	$ 25.00
	MAP at 60kg	$ 90.00
2nd Jun	Logran Spray	$ 11.00
15th July	100kg Urea Topdressed	$ 100.00
1st Aug	242&ally spray	$ 10.00
15th Dec	Harvest	$ 66.00
Total Costs		$ 472.00

Income		
December	Sell Grain (On-Farm)	$ 1,225.00

Position day before harvest	-$ 406.00
Gross Margin (Income - Costs)	**$ 753.00**

Graze Out Oats (120D grazing)		
Costs		
Timing	Activity	Costs $/ha
1st Dec	Fallow Spray One	$ 25.00
1st Feb	Fallow Spray Two	$ 25.00
1st Mar	Knockdown Spray	$ 25.00
1st Mar	100kg Urea Pre-Spread	$ 100.00
1st Mar	Sowing	$ 20.00
	Seed Cost (if retained see	$ 25.00
	Intake MAP @ 60kg	$ 100.00
15th April	Precept Broadleaf spray	$ 30.00
30th Jun	100kg urea topdressed	$ 100.00
Total Costs		$ 450.00

Income		
15Apr-15May	1st Graze (30D)	$ 585.00
15Jun-15Jul	2nd Graze (30D)	$ 585.00
15Aug-15Oct	3rd Graze (60D)	$ 1,170.00

Gross Margin (Income - Costs)	**$ 1,890.00**

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Myall Paddock 2019 - 36ha. Wedgetail wheat.

Stocking for the crop
16/5-20/5 (4 days) - 111 steers (av 290kg on) = 444 steer days
20/5-19/6 (30 days) - 129 steers (av 290kg on) = 3870 steer days
27/6-24/7 (27 days) - 56 steers (400kg on) = 1512 steer days
5/9-27/10 (52 days) - 44 cows and calves = 1.22 C&C/ha for 52 days.

Income (without taking into account appreciation between buy and sell price)
1 - Steer grazing - 162 steer days per hectare @ 1.6kg/hd/day ADG (actual) and $3.30/kg (actual) = $855.36/ha from steer grazing.
(Note that's straight out $/kg for the kg put on, not including the appreciation of buying at $2.80 and selling at $3.30.
2 - Cow&Calf grazing - 1.22units/ha x 52 = 63.44 C&C days/ha @ $2/day = $127/ha
Total = $982.24/ha gross income

Income (taking into account appreciation between buy and sell price)
1) 80 steers purchased at $2.80/kg and 285kg empty = $800. Sold at $3.30/kg and 392kg empty = $1293.6 after 70 days for a margin of $493/hd.
The paddock ran in effect 2.22 steers per hectare for the 70 days, and as such facilitated 2.22 trades per hectare.
2.22 x $493/hd trades per hectare equals $1094 trade margin or gross income per hectare.
2 - Cow&Calf grazing - 1.22units/ha x 52 = 63.44 C&C days/ha @ $2/day = $127/ha
Total = $1221/ha gross income

Notes
Crop dry sown in front of rain 22nd March, intended for Dual Purpose though due to dry season ended up grazed out.
Was locked up 24th August, before being opened back up to stock early September.
Sown at 55kg/ha seed with MAP fertiliser at 80kg/ha.
Broadleaf spray of 1L/ha Tordon 242, 25g/ha Paradigm and 500ml/100L Uptake on the early May.
Rotationally grazed and stock given access to Causmag and Salt mix ad-lib in troughs.
Minimal in-crop rainfall - one good 24mm fall on 4th May was practically it.

A 2018 case study

- One of the worst rainfall years on record
- The market for young store condition cattle was very weak - $1.8-2/kg for 200-250kg
- No crop to graze = feed at high cost or sell and take current market price
- At the same time the grid for feedlot steers (300-500kg) was around $3.10/kg and relatively firm.
- This presented a very enticing trading opportunity and/or allowed the value of homebred stock to be drastically increased.
- While growth of most crops was very disappointing,many would have run 2 light steers/hectare for 2.5 months
- A 250 kg steer at $1.90/kg was worth $475 (either bred or bought as trade).
- Growing at an average daily gain (ADG) of 1.25 kg for 75 days, the steer would have weighed 343.75 kg and at $3.10/kg into the feedlot, was suddenly worth $1,065
- An improvement of $590 in just 75 days. Two steers/hectare gives $1,180 gross income/hectare
- Even with a complete grain production failure in a terrible drought year.

Take home messages

- Timeliness – timing is free!
- Preparation
- Correct variety for situation
- Maximise utilisation
- Lockup timing

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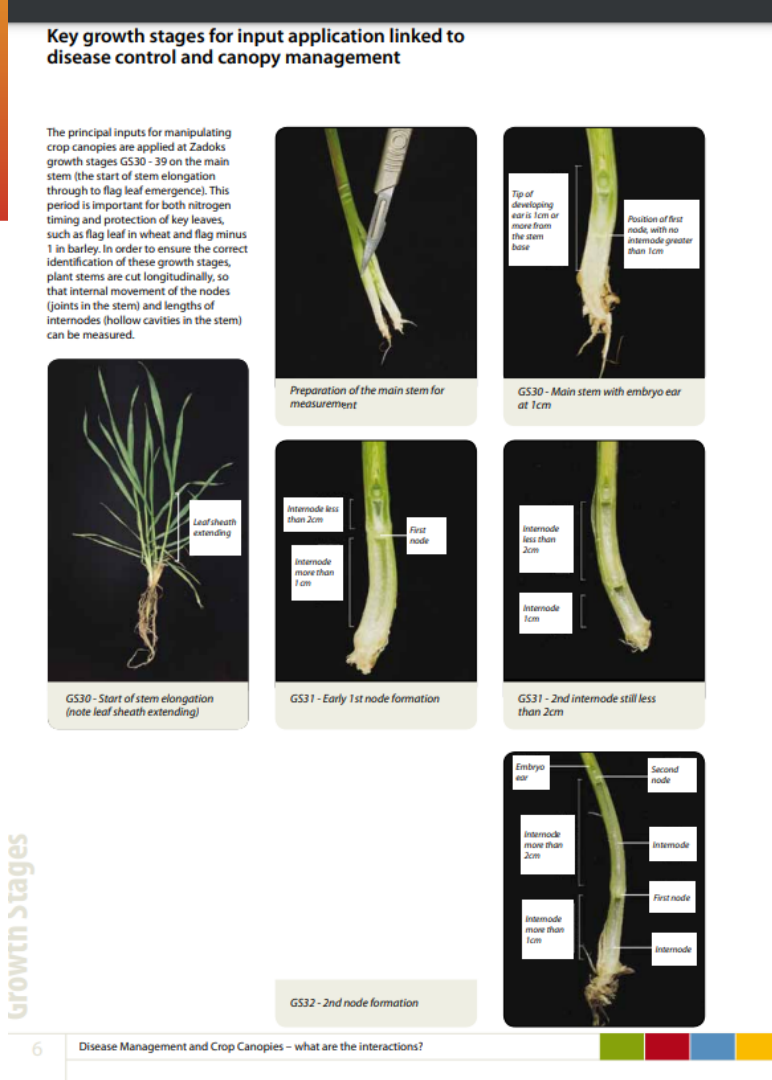
Tools and resources

- [GRDC Publication – ‘Disease management and crop canopies’]
  - Pages 2-8 to help you with your lockup timing decisions



Key growth stages for input application linked to disease control and canopy management

The principal inputs for manipulating crop canopies are applied at Zadoks growth stages GS30 - 39 on the main stem (the start of stem elongation through to flag leaf emergence). This period is important for both nitrogen timing and protection of key leaves, such as flag leaf in wheat and flag minus 1 in barley. In order to ensure the correct identification of these growth stages, plant stems are cut longitudinally, so that internal movement of the nodes (joints in the stem) and lengths of internodes (hollow cavities in the stem) can be measured.

Preparation of the main stem for measurement

GS30 - Main stem with embryo ear at 1cm

GS30 - Start of stem elongation (note leaf sheath extending)

GS31 - Early 1st node formation

GS31 - 2nd internode still less than 2cm

GS32 - 2nd node formation

Growth Stages

6 Disease Management and Crop Canopies – what are the interactions?

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