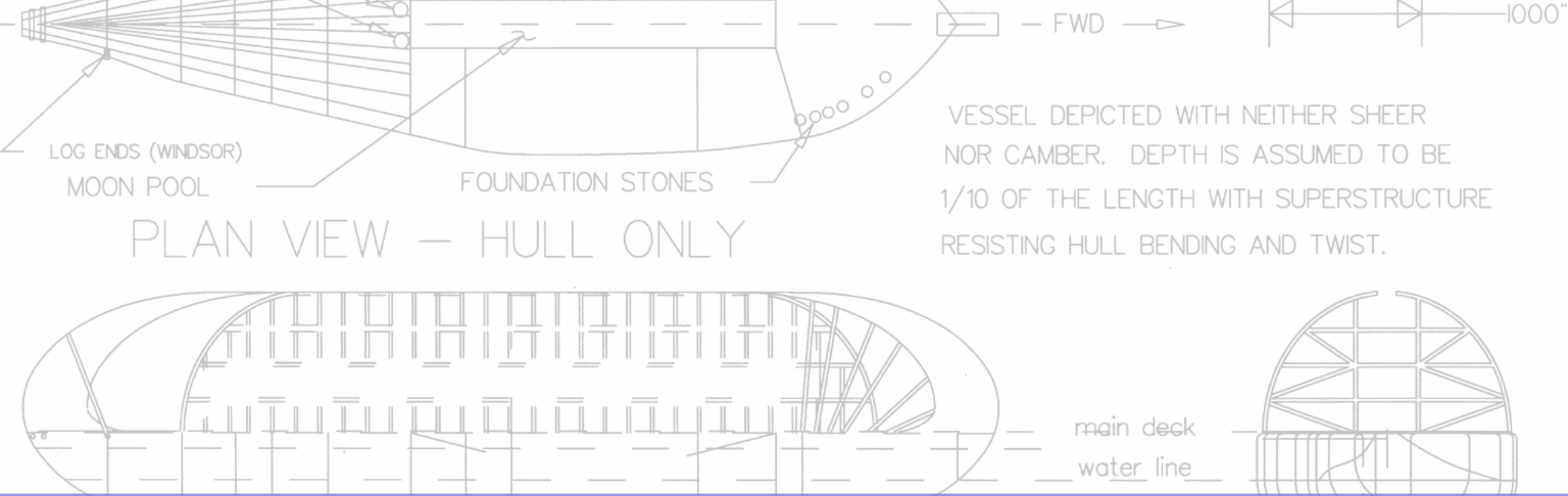

Seasonal Update
February 2020

Cropping options – irrigation & dryland

Damian Jones
Irrigated Cropping Council

Today's Discussion

Planning for 2020

Forage, fodder and cropping options

Gross margins

Happy to answer questions any time

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Planning

“It takes as much energy to wish as it does to plan.” – Eleanor Roosevelt

What do I need and when do I need it?
What have I got?
What can I get?

But plan to be flexible as the season unfolds

“Just because you made a good plan, doesn’t mean that’s what’s gonna happen.” - Taylor Swift

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Planning

- Price of water – now and for spring
- The break and rainfall outlook
- Depends on flexibility of the crop to sowing date
  - cereals flexible
  - canola & fabas are not
- Yield penalty from “late” sowing
- Commodity prices in spring

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So you want to grow cereals or canola for forage and fodder?

When do you want feed?
Starting date: 6 – 8 weeks before you need feed
Variety characteristics – development may be controlled by temperature and daylength (vernalisation)
High temperatures may affect germination

Sown April 7th and watered up

Sowing rates targeting 200 plants/m^2 or 70 – 134 kg/ha

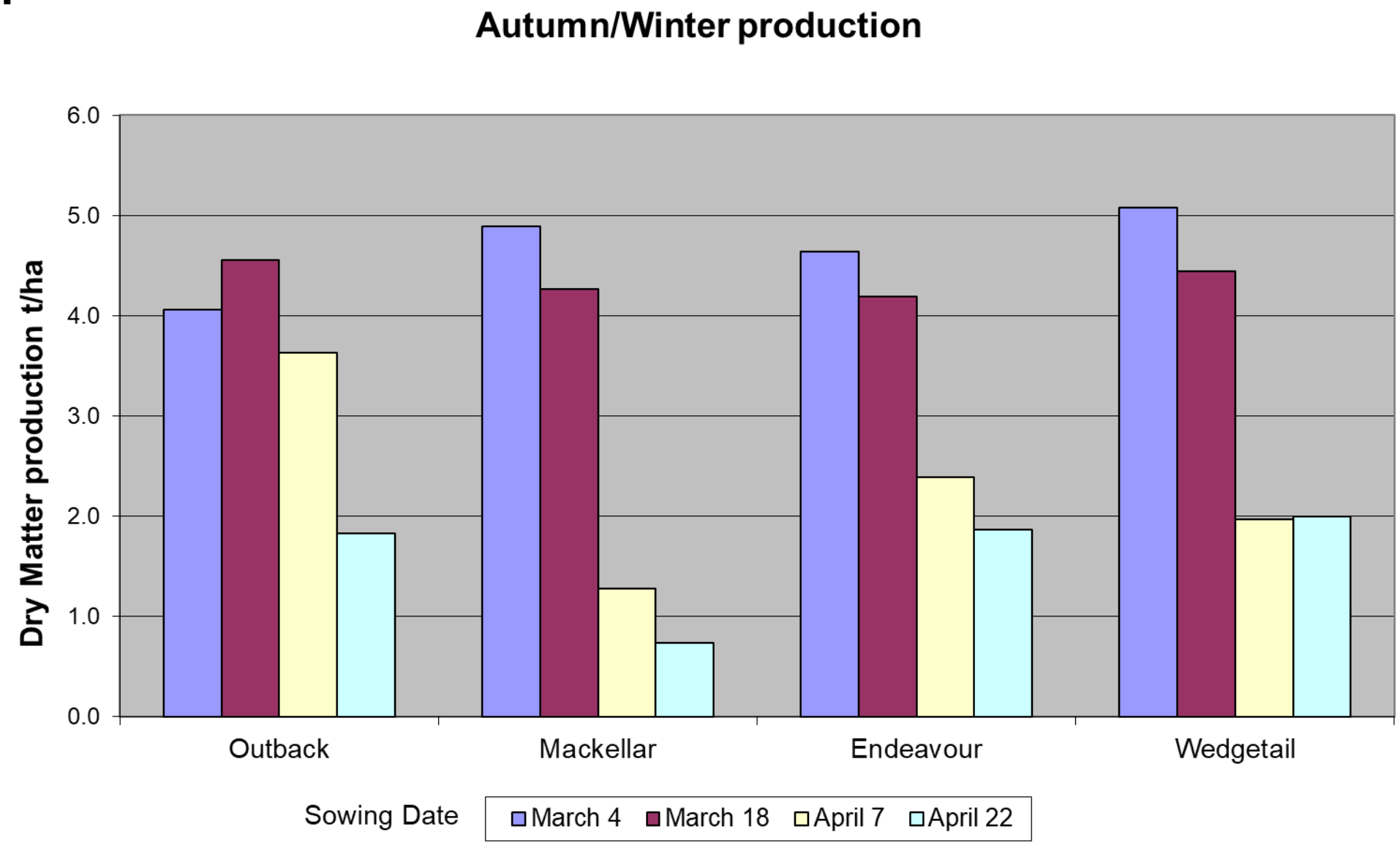
		Cut 1	Cut 2	^	^	Cut 3	Totals	
Variety		28-May	24-Jun	Z32	Booting	Milky Dough	Total* DM (t/ha)	Grain (t/ha)
Tetila Rye		1.36	1.33	0.60	4.46	9.90	12.59	-
Yiddah	Oats	1.35	1.02	1.13	4.53	9.43	11.80	2.51
Eurabbie		1.05	1.10	1.07	6.29	11.23	13.37	6.45
Graza 80		1.10	0.56	0.46	3.30	13.53	15.19	3.91
Rufus	Trit	1.22	0.82	0.38				-
Yukuri		1.31	0.79	0.59				-
Endeavour		1.10	0.78	0.89	4.10	13.78	15.66	6.35
Dictator	Barley	1.43	0.57	0.41	3.57	7.64	9.64	1.69
Gairdner		1.30	0.94	1.21	3.67	9.63	11.88	5.94
Urambie		1.22	1.27	1.08	5.12	10.20	12.69	6.16
Yitpi	Wheat	1.01	0.70	0.90	2.78	8.18	9.89	4.11
Wedgetail		1.16	1.23	1.12	4.36	12.63	15.02	5.60
Mackellar		0.30	0.82	0.97	5.79	15.09	16.21	7.42

^Plots were not "grazed" but small areas sampled

*not including Z32 & booting DM assessments

Dry matter cuts not hay cuts

Long season cereals: 4 sowing dates, starting early March



So should I irrigate or buy feed?

- Cereal for grazing (assuming water = $700/Ml)
  - May sowing, 1.5 Ml/ha to grow 2.5 t/ha or $547/t
  - March sowing, 2.5 Ml/ha to grow 5 t/ha or $413/t

- Cereal for hay (for silage halve the yield)
  - May sowing, 2.5 Ml/ha to grow 10 t/ha = $207/t
  - April sowing, 4.5 Ml/ha to grow 14 t/ha = $248/t

Pitfalls of grazing cereals/canola for forage

Variety doesn’t match sowing date/sowing opportunity
Too much sown/Not enough stock
Grazing withholds pesticides
Grazing past the beginning of stem elongation
Fail to anchor due to dry conditions
Mineral deficiencies from extended grazing
Carcass taint? (canola)
Grazing will reduce total biomass grown (reduces hay yields)
Is the end product what you want?

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Positives of growing cereals/canola for forage

Range of varieties/herbicide tolerance/weed control
Water efficient
Require less preparation
Higher growth rates in winter
Can provide winter feed and ‘break’ for pastures
Grazing can reduce lodging and delay flowering
Grazing can reduce leaf disease infection/severity
Part of a pasture renovation program

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Pre-irrigation – Is it worth it?

Gross margin cost of water vs $ return or $ lost

Better production from spring irrigation but you must have a crop that can respond

- Shoots, biomass, maturity, N status

Weed control

- options for autumn
- crop competition

Risk of rainfall (too wet, too dry)

When to start spring irrigation – soil reserves

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2019 ICC ‘best value/Ml’ trial

Best value/Ml
Canola and fabas: pre-irrigation plus full spring
Cereals: no pre-irrigation plus 1 spring irrigation (variety dependent)

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Trial Gross Margins

	Irrigation (Ml)			Water = $60		Water = $500/750	
Wheat ASW @$329/t	Pre-irrigation	Spring	Yield (t/ha)	$/ha	$/Ml	$/ha	$/Ml
No pre-irrigation + 1 spring	0	1.5	3.62	$780	$520	-$255	-$170
No pre-irrigation + full spring	0	3.4	5.00	$1,105	$381	-$897	-$308
Pre-irrigation + 1 spring	1.75	1.0	4.95	$1,075	$391	-$385	-$140
Pre-irrigation + full spring	1.75	2.9	6.15	$1,255	$270	-$1,516	-$326

$/Ml p=<0.001, lsd=$53, cv%=6.8

	Irrigation (Ml)			Water = $60		Water = $500/750	
Barley @ $291/t	Pre-irrigation	Spring	Yield (t/ha)	$/ha	$/Ml	$/ha	$/Ml
No pre-irrigation + 1 spring	0	1.5	2.75	$412	$275	-$623	-$416
No pre-irrigation + full spring	0	2.5	4.03	$702	$281	-$1,023	-$409
Pre-irrigation + 1 spring	1.75	1.0	4.69	$860	$313	-$600	-$218
Pre-irrigation + full spring	1.75	2.0	4.83	$717	$191	-$1,433	-$382

$/Ml p=0.357, lsd= NS, cv%=>20

Trial Gross Margins

	Irrigation (Ml)			Water = $60		Water = $500/750	
Canola @ $605/t	Pre-irrigation	Spring	Yield (t/ha)	$/ha	$/Ml	$/ha	$/Ml
No pre-irrigation + 1 spring	0	1.5	0.9	$114	$76	-$921	-$614
No pre-irrigation + full spring	0	2.5	1.2	$214	$85	-$1,512	-$605
Pre-irrigation + 1 spring	1.75	1.0	2.2	$720	$262	-$740	-$269
Pre-irrigation + full spring	1.75	2.0	3.7	$1,463	$390	-$687	-$183

$/Ml p=<0.001, lsd=$70, cv%= >20

	Irrigation (Ml)			Water = $60		Water = $500/750	
Fabas @ $600/t*	Pre-irrigation	Spring	Yield (t/ha)	$/ha	$/Ml	$/ha	$/Ml
No pre-irrigation + 1 spring	0	1.5	0.3	-$372	-$248	-$1,407	-$938
No pre-irrigation + full spring	0	3.4	2.66	$960	$331	-$1,041	-$359
Pre-irrigation + 1 spring	1.75	1.0	1.88	$501	$182	-$959	-$349
Pre-irrigation + full spring	1.75	2.9	4.2	$1,779	$383	-$992	-$213

$/Ml p=<0.001, lsd=$60, cv%=18

2020 ‘best value’ Gross Margins

Break even price for water

Barley $240/t, 5t/ha, one spring irrigation (1.5 Ml/ha),

water < $550/Ml

Wheat $285/t, 5t/ha, one spring irrigation (1.5 Ml/ha),

water < $700/Ml

Canola $575/t, 3.5t/ha full irrigation (3.5 Ml/ha), **water < $400/Ml**

Fabas $350/t?, 3.5t/ha full irrigation (3.5 Ml/ha), **water < $225/Ml**

Hay $240/t, 10 t/ha, pre-irrigation plus 1 spring (2.5 Ml/ha)

water < $600/Ml

Dryland Cropping

Realistic expectations on sowing date and rainfall

Yield Potential based on rainfall

Yield = (Growing Season Rainfall Apr-Oct – evaporation) x WUE

Cereals WUE = 20 kg grain/mm

Canola WUE = 12 kg grain/mm

Evaporation = 90-110mm depending on maturity

Eg Rochester 258mm GSR = 3t/ha wheat, 3.3t/ha barley

Dryland Cropping

Clay soils = less effective rainfall

250mm by big or small events/seasonal distribution/stored soil water?

Very similar rules to irrigation

- Set your target yield
- P fertiliser 4 kg P/t at sowing
- N fertiliser in crop 40 kg N/t (include soil N) in crop (flexibility)

In summary:

Plan
Realistic expectations
Do the maths – there are tools to help
Pray/dance/pay some ~~fraud~~ guy to make it rain

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