

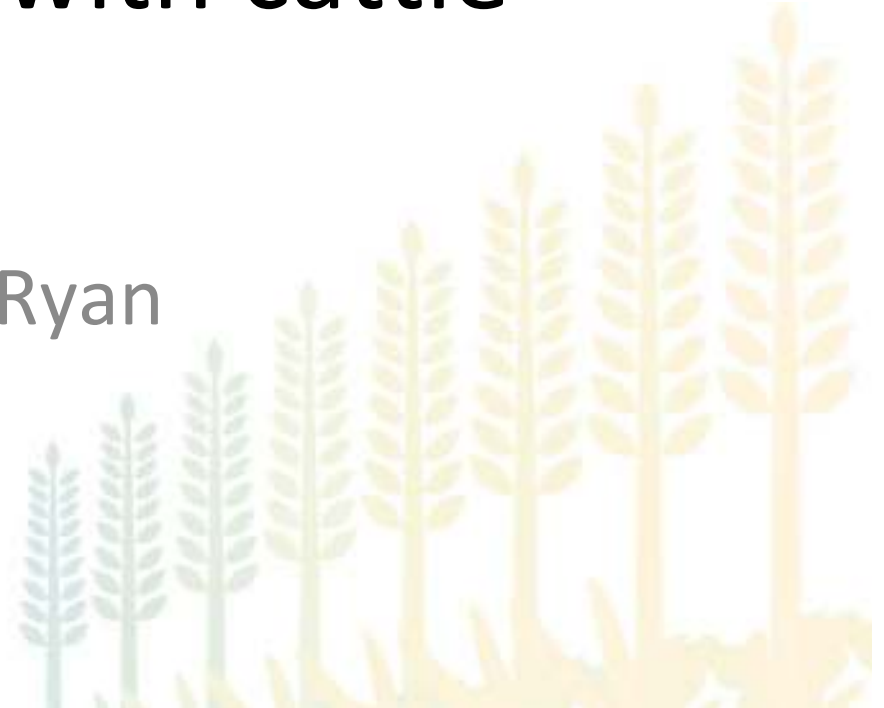


Department of  
Agriculture and Food



# Grazing crops with cattle

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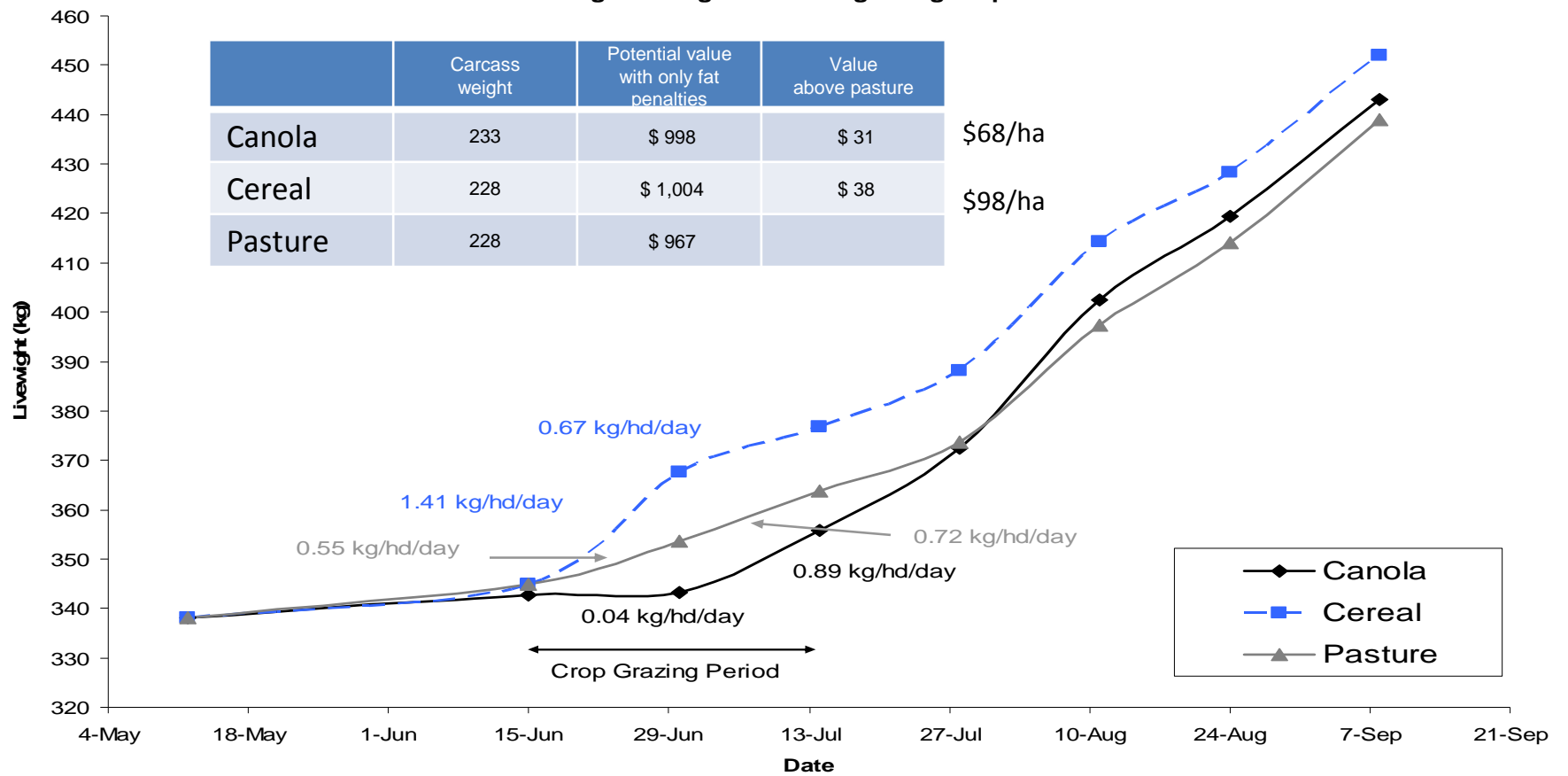


Sown April 15, Grazed 16<sup>th</sup> June-14<sup>th</sup> July (29 days)  
Pasture 9 DSE/ha (261 DSE days/ha), Cereal 22 DSE/ha (648 DSE days/ha), Canola 20 DSE/ha (592 DSE

# Major findings - canola

- Cattle take 2 weeks to become accustomed to canola
- Most canola varieties can handle grazing
  - Ones outside their comfort zone in terms of sowing date are more likely to be affected

**Liveweight change of heifers grazing crops**



- Cereal

- Start

- Z21
    - Start of tillering
    - Anchored

- Finish

- Z31
    - Start of stem elongation

- Canola

- Start

- 6 leaf stage
    - Anchored

- Finish

- Before flower bud reaches top of canopy
    - Flower bud < 10cm above ground



# Cattle browse off leaves (June 24)



July 13 44Y84 CL

Plot 6011



Grazed for 18 days  
"2 weeks"

Grazed for 29 days (4 Weeks)







# Grazing canola

- Delays development
  - @ 3-5 days if buds not eaten
  - Up to 22 days if bud eaten (GT Scorpion)
- Reduces final dry matter
  - 2 weeks grazing 13% reduction
  - 4 weeks grazing 25% reduction
- Changes plant architecture
- These changes do not always effect grain yield



Canopy  
height  
134 cm

**Ungrazed Hyola 404 RR**

**Sown April 15**

**GY = 2.4 t/ha**

Main stem 16%

Prim 60%

Sec 24%

Basal 0%



Canopy  
height  
118 cm

**Grazed for 2 weeks**

**Sown April 15**

**GY = 2.6 t/ha**

Main stem 15%

Prim 51%

Sec 26%

Basal 8%



Canopy  
height  
105 cm

**Grazed for 4 weeks**

**Sown April 15**

**GY = 2.1 t/ha** (std = 0.3)

Main stem 10%

Prim 29%

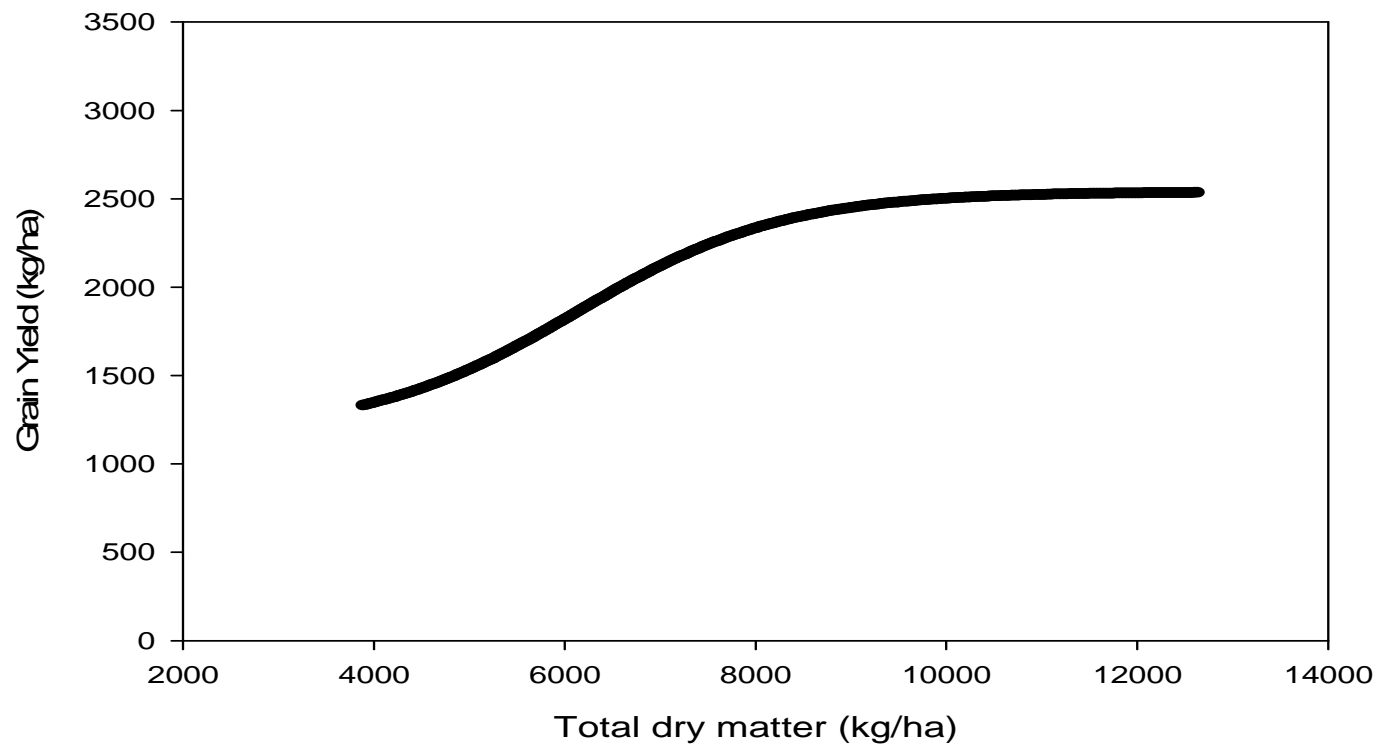
Sec 29%

Basal 32%

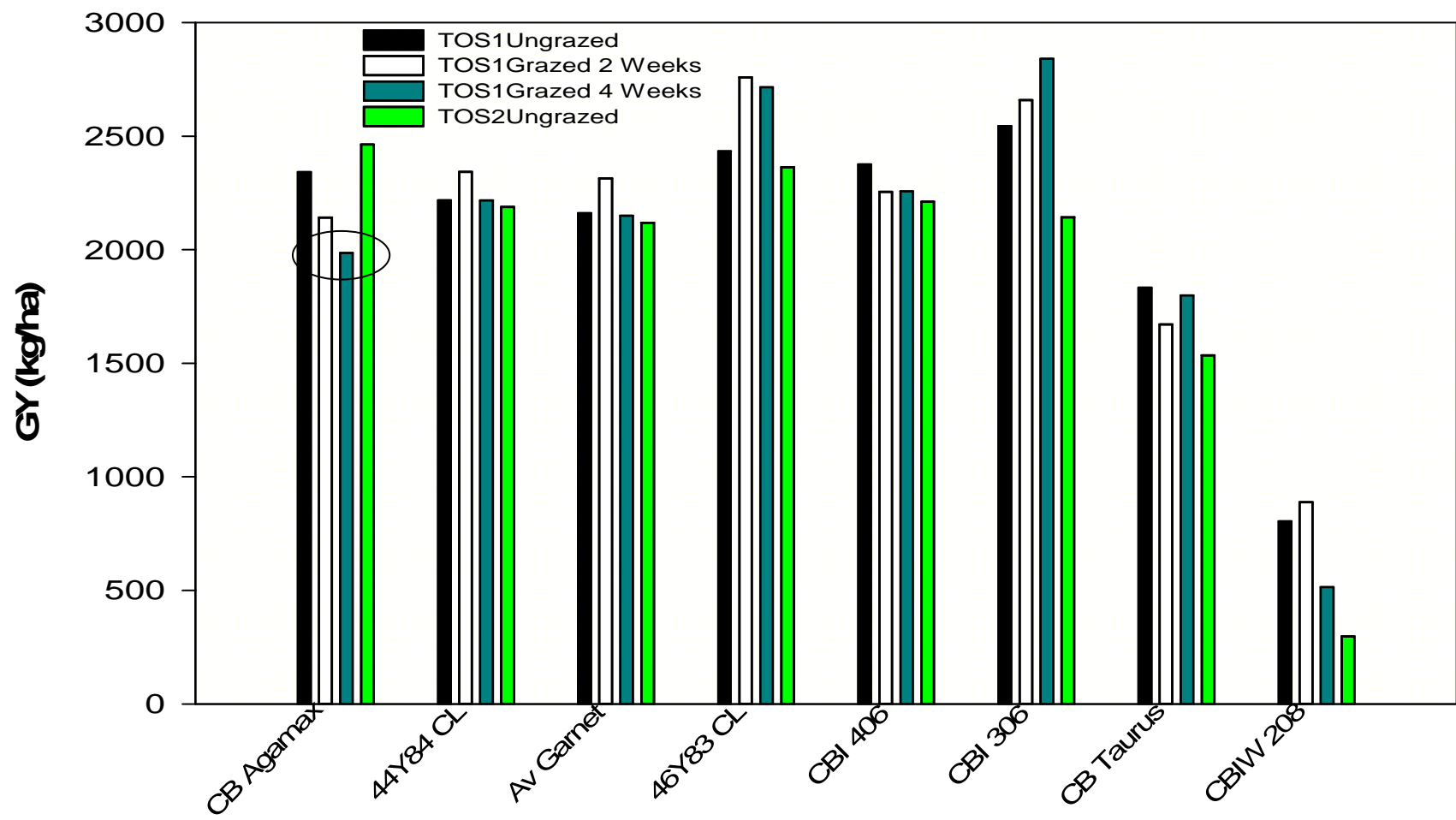
# Increasing canola biomass did not always lead to higher yield

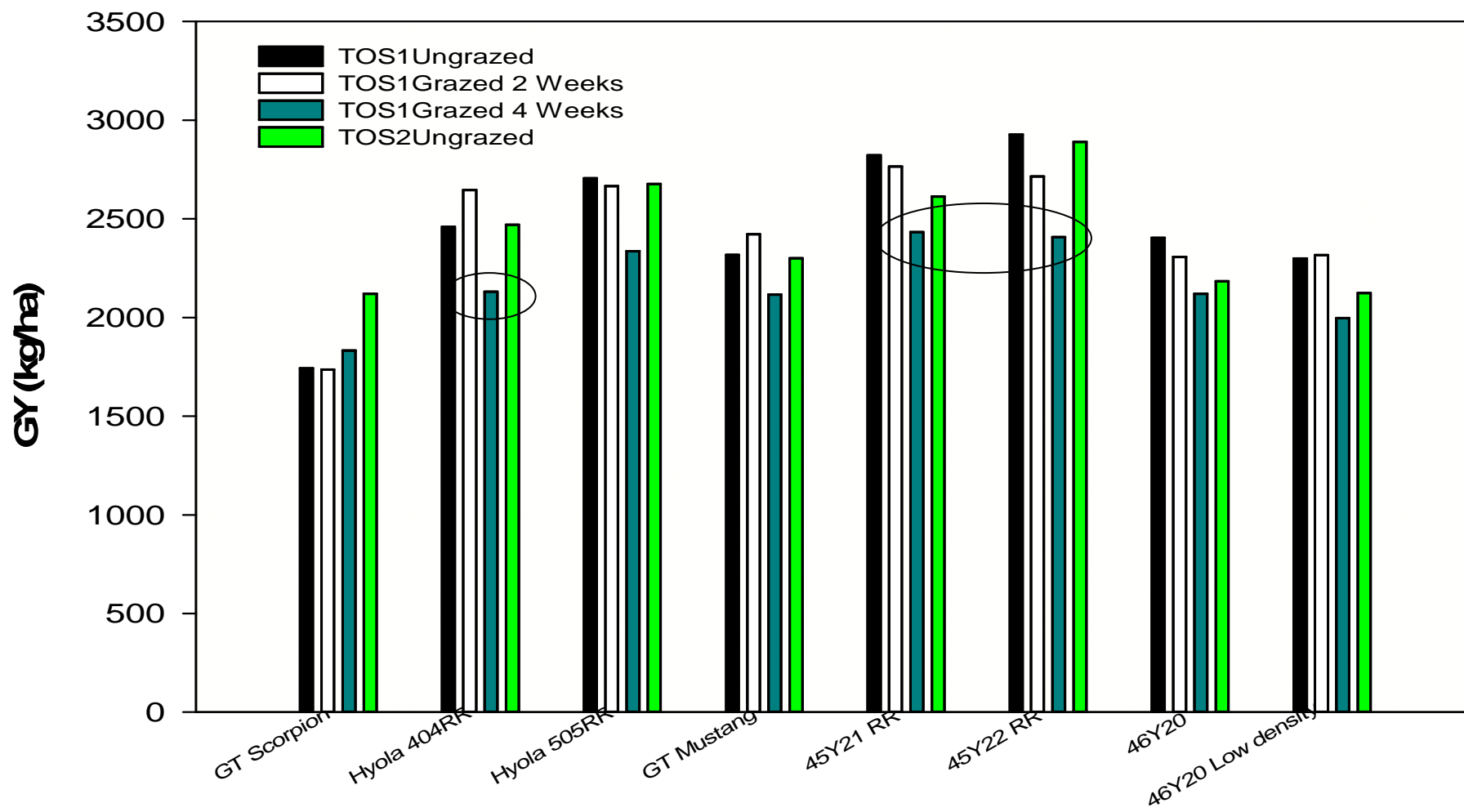
11ED15 April 15 sown Canola

$$f = y_0 + a / (1 + \exp(-(x - x_0)/b))$$



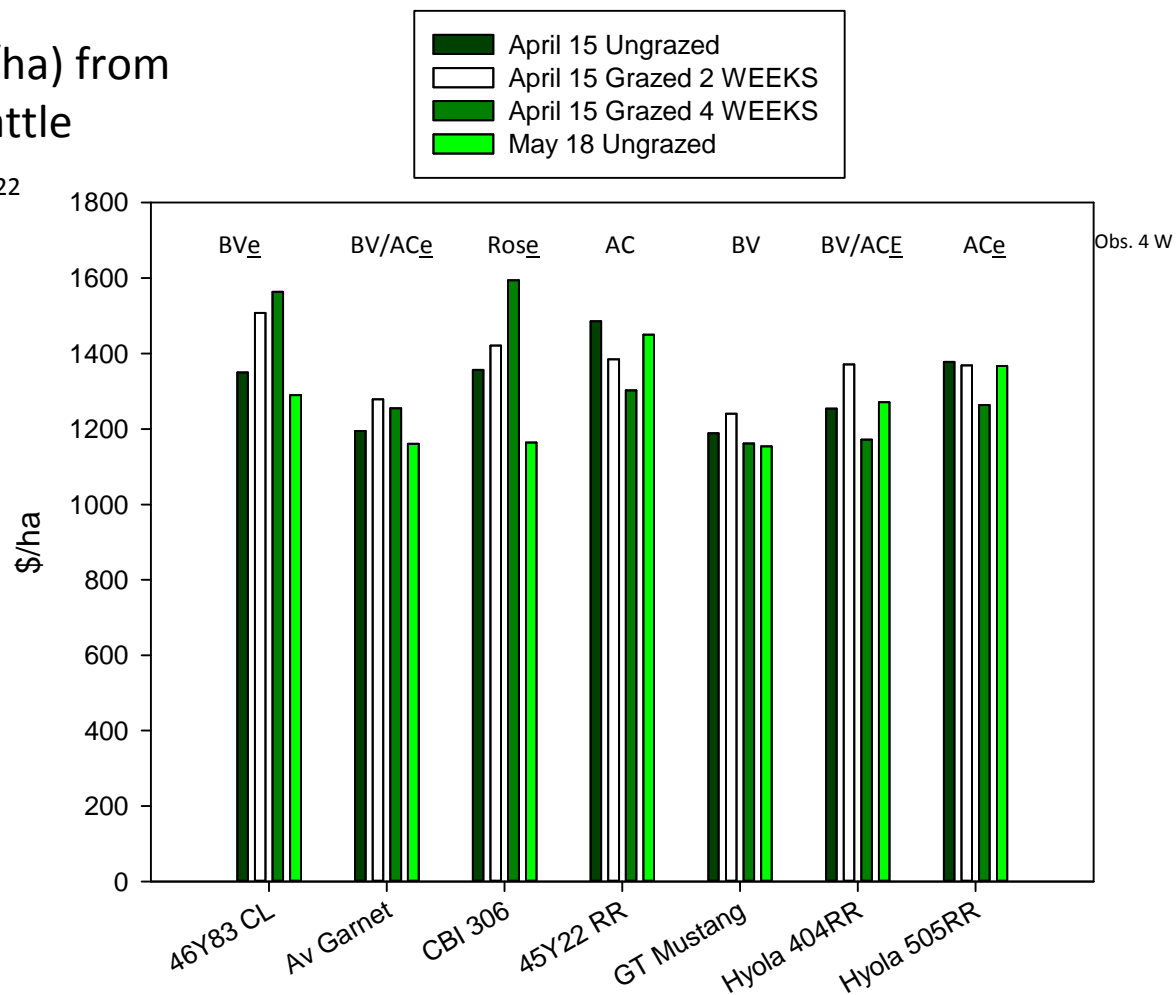






## Net GM (\$/ha) from crop and cattle

LSD same variety 222



Grazing of appropriate varieties did not reduce returns



# Canola comments



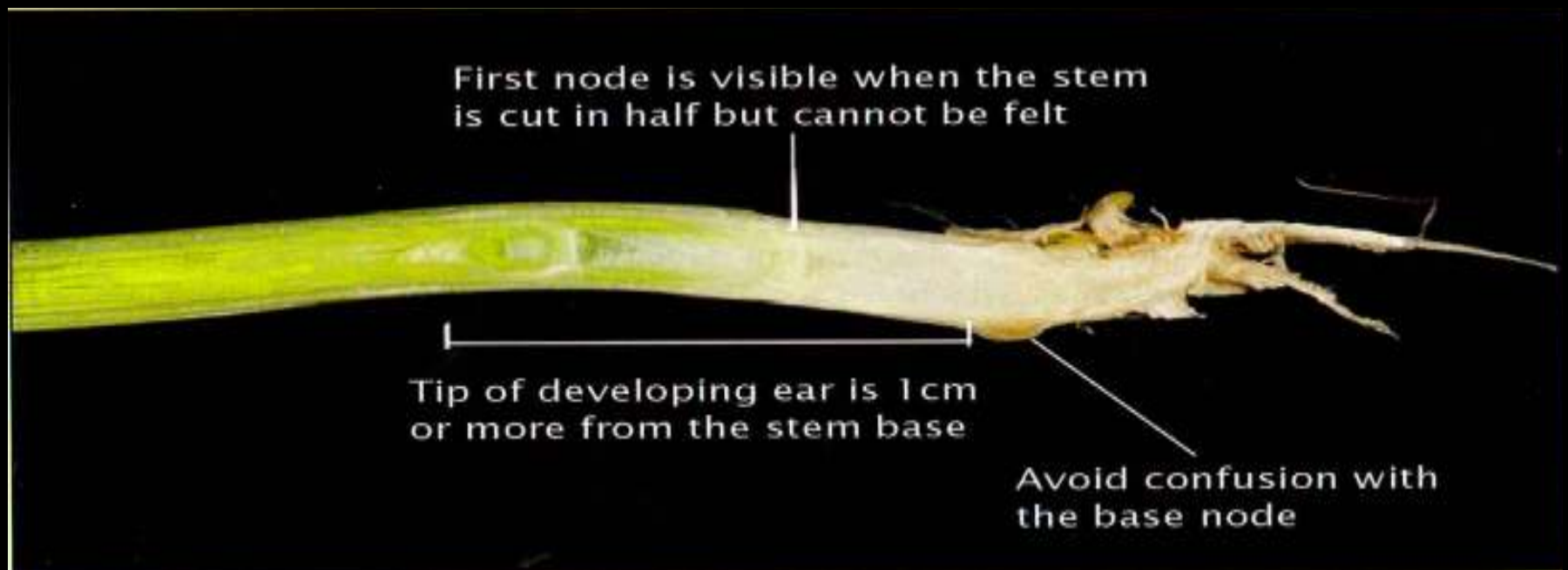
- Most varieties can handle some grazing
  - Pick the variety to suit your blackleg risk, time of sowing, weed profile etc.
    - Pick the latest maturity type (e.g choose mid-late over mid)
  - Seed dressings and WHP is tricky
  - TT – WHP issues require altered herbicide use
  - RR and CL hybrids
  - Conv. – Av Garnet, CBI 306 looks a good fit, CB Taurus might be too late for WA
- Need more than two weeks of grazing canola to get grazing benefit for cattle



Endure

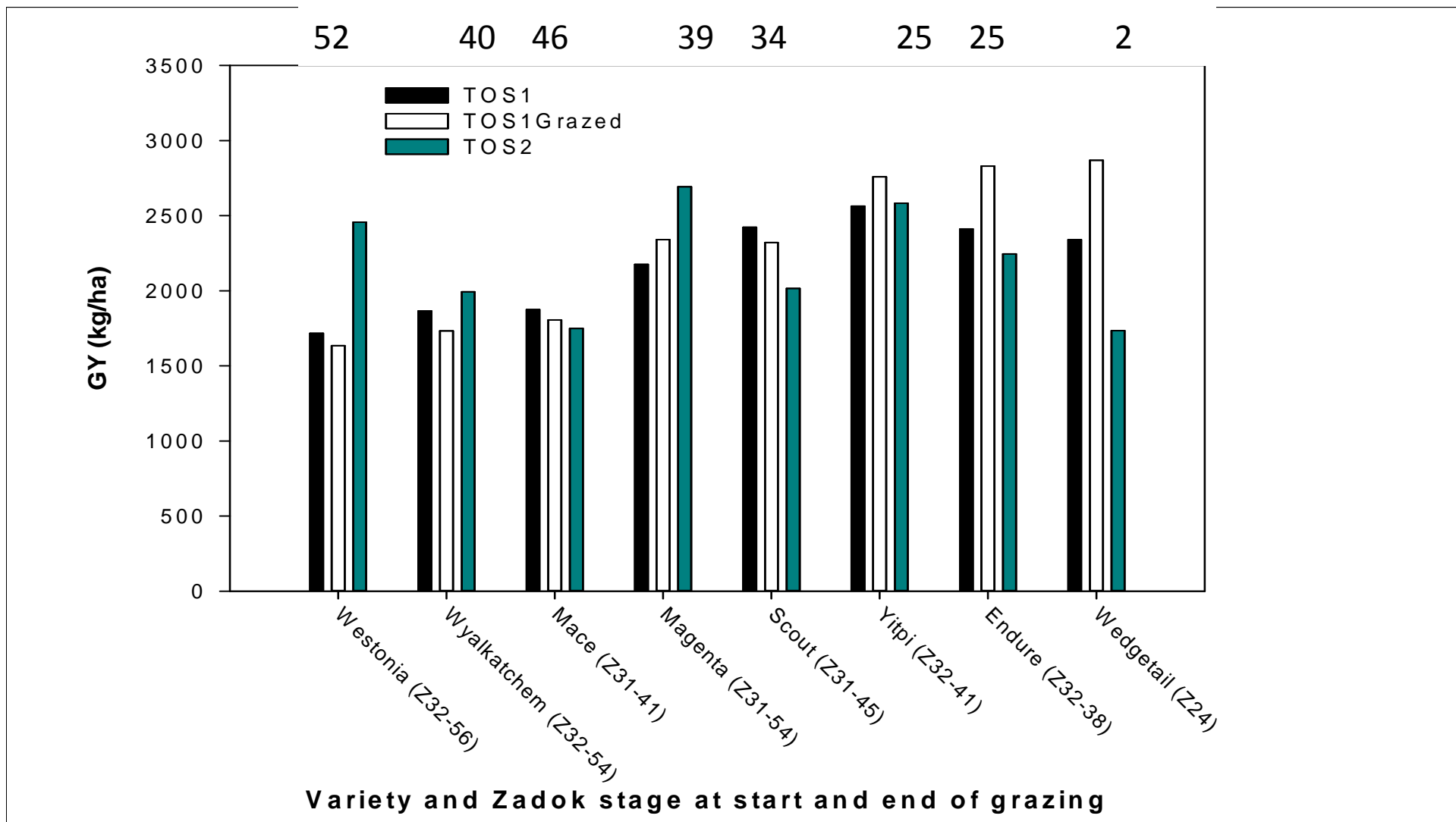
Magenta

Wedgetail



Graze before Z30 yields are usually unaffected  
Winter cereals take a while to reach Z30  
But what if you want to use a spring variety?





## What happens if you graze past Z30 but you stop grazing before July 15?

- Heading/ear emergence is delayed
  - Gairdner 8 days, Wedgetail 10 days, Urambie/Vlamingh 14 days,
  - Baudin, Oxford, Scout and Magenta 16-22 days
  - Buloke, Fleet, Endure, Mace, Magenta, Wyalkatchem, Yitpi about 1 month
  - Westonia – cattle ate the first ear!
- Reduced total dry matter
  - Barley by 21% and wheat by 13%
- More tillers and heads
- Equal yields to sowing early and not grazing
  - Sometimes higher yields – Urambie/Wedgetail
  - But delayed sowing till May 18 often higher yield - Barley

# Cereal comments

- April sown spring cereal varieties are likely to be 'running' up from the end of May – get in early!
- Spring barley ears were often lower and slower than spring wheats we have tested
  - Barley appears to recover quicker
  - Barley less nutrition issues
- In kind conditions cereals can recover from incorrect grazing
  - Tillering, head survival, increased photosynthetic activity
- Need more info for clip grazing at low DSE's for May sown crops
  - Graze more of your crop but lighter
  - Better for crop and animal



# Something to aim for



Rainfall zone	April sown winter barley		Early May sown Spring barley		Mid May -June sown Spring barley	
	e.g. Urambie		e.g. Gairdner		e.g. Buloke	
	Clip grazed	Crash grazed	Clip grazed	Crash grazed	Clip grazed	Crash grazed
L1						
L2						
L3						
L4						
L5						
M1						
M2						
M3						
M4						
M5						
H1						
H2						
H3						
H4						
H5	June 5 - July 30	June 5 - July 15	June 15 - July 15	June 15 - July 5	July 1 - July 15	July 1 - July 5

# Nitrate

Forage nitrate concentrations >1% nitrate dry-weight basis (10,000 ppm NO<sub>3</sub>) may cause acute toxicoses in un-acclimated animals, and forage nitrate concentrations 5,000 ppm NO<sub>3</sub> (dry-weight basis) are recommended for pregnant beef cows.

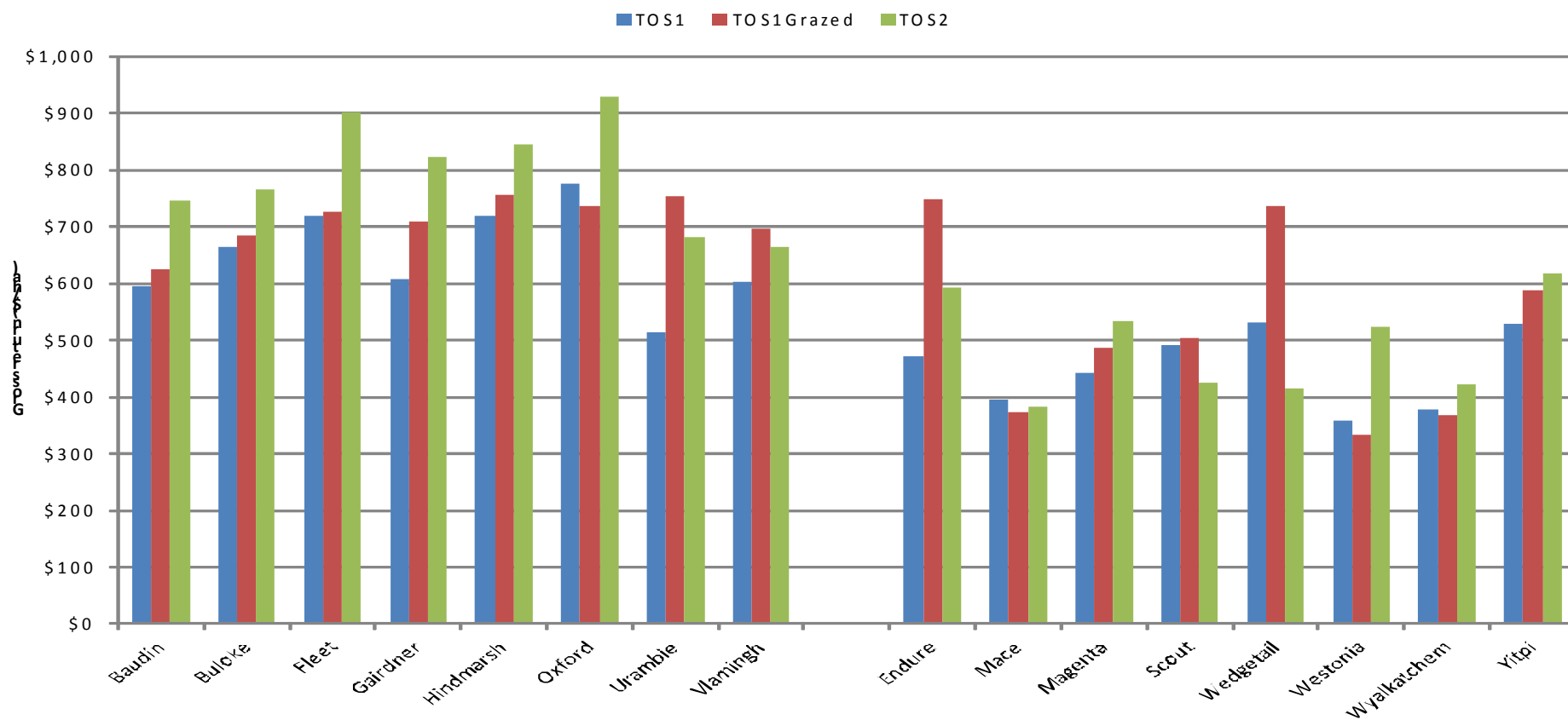
However, even forage concentrations of 1,000 ppm NO<sub>3</sub> dry-weight basis have been lethal to hungry cows engorging themselves in a single feeding within an hour, so the total dose of nitrate ingested is a deciding factor.

	Mean	% TT	11ED09	11ED11	11GS23	11NO21
CI	1682	40%	108	3202	1423	1995
TT	4173	100%	800	7476	4609	3808
RR	1867	45%	233	4263	1314	1659

# Gross return of cereal treatments in 2011.

LSD ( $P = 0.05$ ): TOSgraze = 82, Variety = 98, Tosgraze.Variety = 150,

Tosgraze.Variety (same TOSgraze ) = 137, Tosgraze.Variety (same Variety) = 139.





## Head numbers increased by grazing

