

# WHICH WHEATS FOR WHEN? AND AGRONOMY OF EARLY SOWN WHEAT



**GRDC**  
GRAINS RESEARCH  
& DEVELOPMENT  
CORPORATION

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What a fantastic view.....





What a fantastic view.....



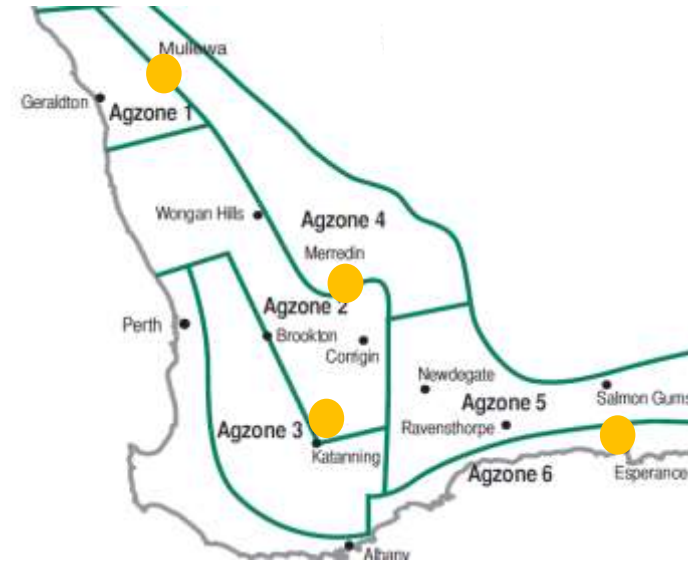
But not always the case.....

Scepter and Mace frosted

- At 69%, Scepter/Mace dominates the planned area sown in WA, compared to 15% ANW and 5% for your mid-long varieties.
- Is Scepter/Mace suitable for all sowing times?
- What other varieties are more suitable?

## Today's discussion

- Focus on wheat agronomy trials at Mullewa, Merredin, Katanning and EDRS in 2018 & 2017
- Sown early April, late April, early May, late May and June/July
- Also early April sown trials at 4 locations with winter wheats compared at density, delayed N and “grazing”



# Key findings

- A yield penalty can occur if sowing a short-mid variety too early (April) in the central and southern areas.
- Mid–long varieties have either out yielded or are equivalent in yield to Scepter in the pre mid May sowings.
- In frost risk areas
  - Use winter/long varieties to minimise frost damage
  - or
  - Don't sow wheat in April.





**This is what the trials look like.....Katanning 2018**





**This is what the trials look like.....Katanning 2018**

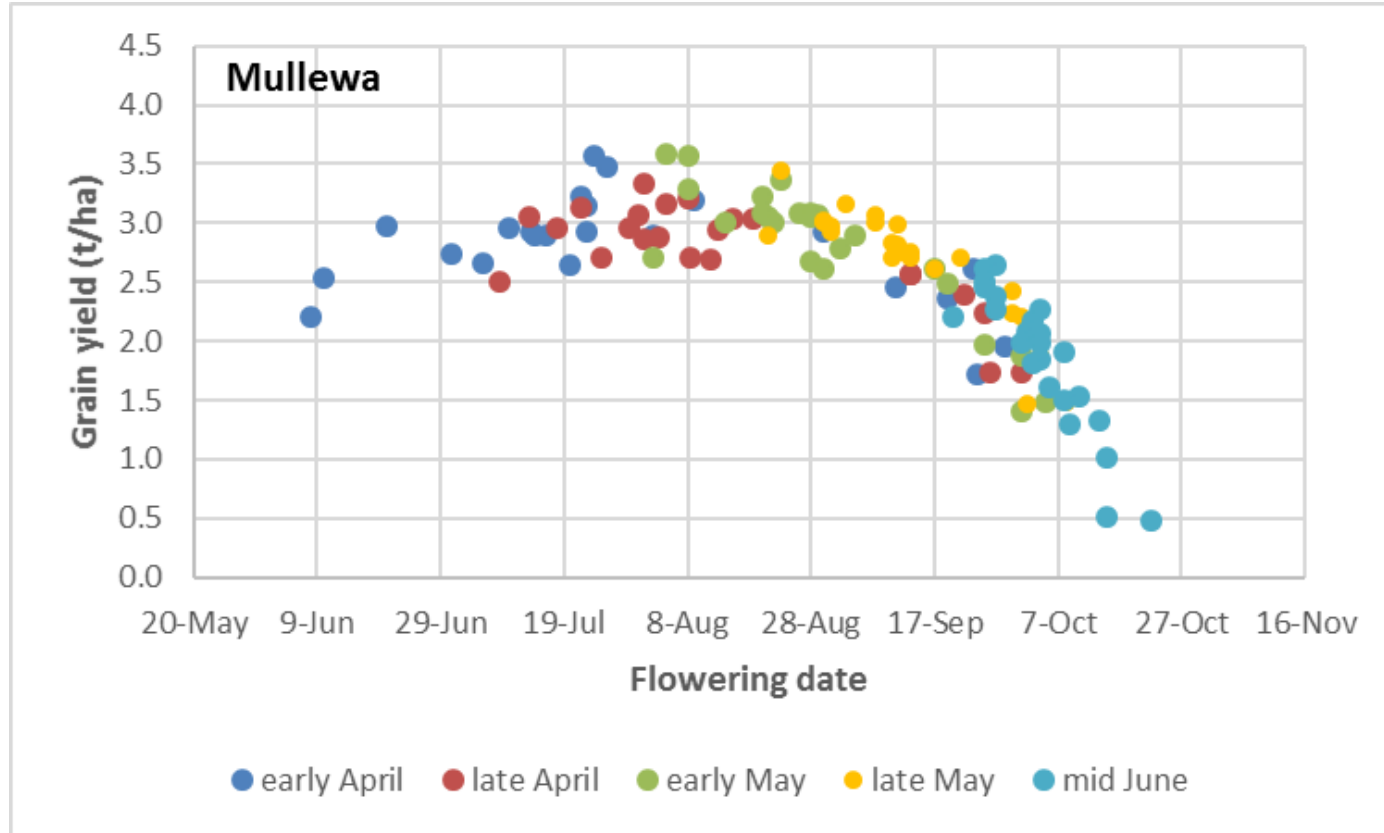


**Which wheats for when?**



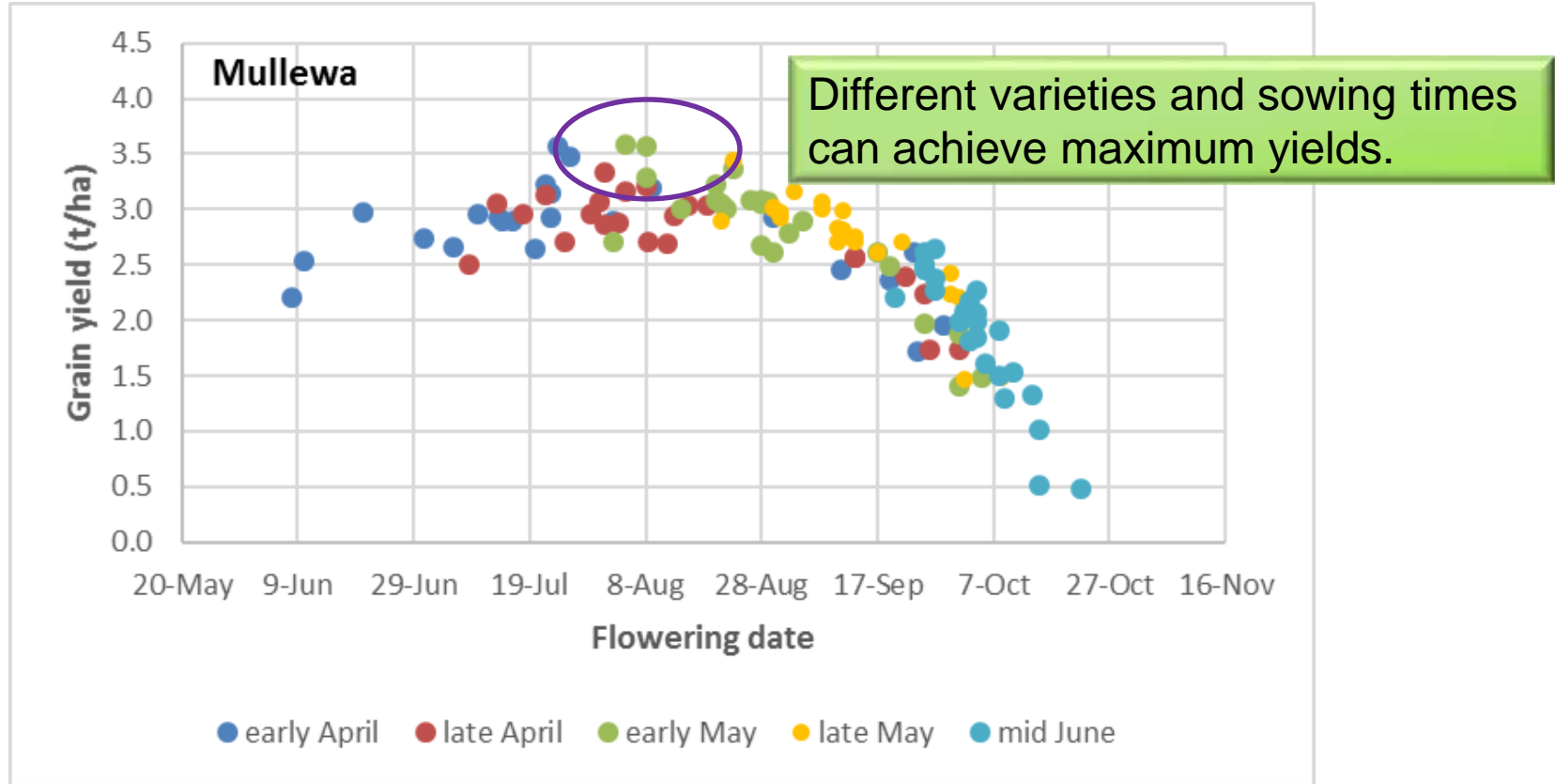
**Agronomy of early sown wheat**

## Maximise yields by flowering at the optimum time





## Maximise yields by flowering at the optimum time



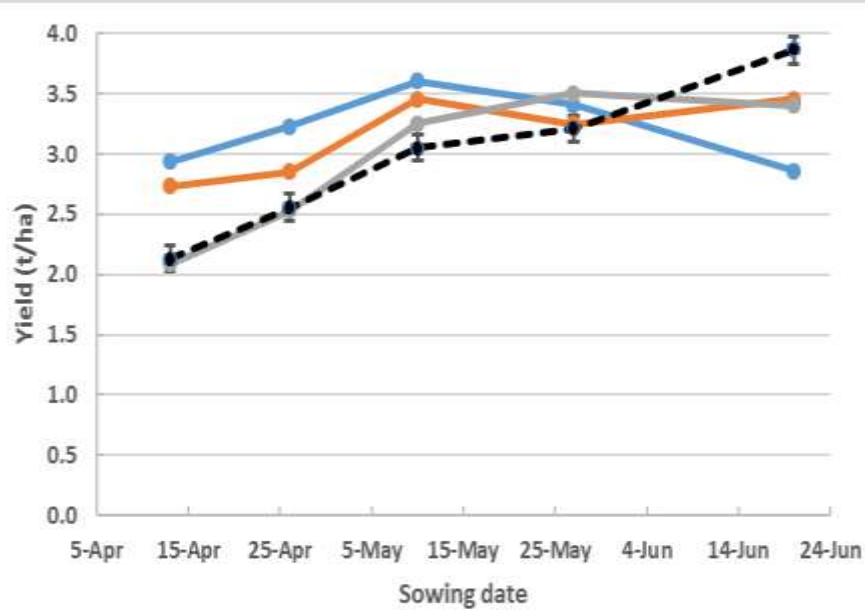
## Days flowering after/before Mace – Av across 4 sites in 2018

Maturity	Variety	early April	late April	early May	late May	mid June
Short	Emu Rock	-12	-13	-12	-7	-3
Short	Vixen	-15	-10	-10	-6	-2
<b>Short-mid</b>	<b>Devil</b>	<b>-8</b>	<b>-5</b>	<b>-3</b>	<b>-1</b>	<b>-1</b>
<b>Short-mid</b>	<b>LRBP Havoc</b>	<b>-4</b>	<b>-7</b>	<b>-3</b>	<b>-1</b>	<b>-2</b>
<b>Short-mid</b>	<b>Mace</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Short-mid</b>	<b>Scepter</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>1</b>
Mid-long	Magenta	10	6	7	6	7
Mid-long	Trojan	15	10	5	4	3
Mid-long	Kinsei	16	11	10	6	5
Mid-long	Cutlass	26	20	13	10	6
<b>Fast winter</b>	<b>Longsword</b>	<b>57</b>	<b>36</b>	<b>21</b>	<b>15</b>	<b>8</b>
<b>Long spring</b>	<b>Forrest</b>	<b>59</b>	<b>37</b>	<b>26</b>	<b>19</b>	<b>10</b>
<b>Mid winter</b>	<b>Wedgetail</b>	<b>65</b>	<b>43</b>	<b>28</b>	<b>21</b>	<b>15</b>
<b>Winter</b>	<b>RGT Accroc/DS Bennett</b>	<b>78</b>	<b>52</b>			

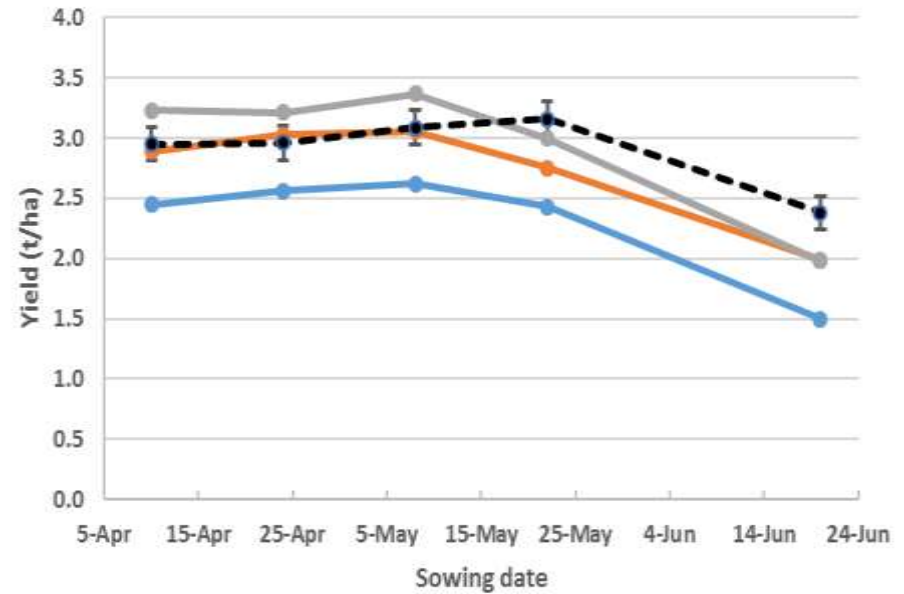


—●— Scepter   
 —●— Cutlass   
 —●— LRPB Trojan   
 —●— Forrest

2017

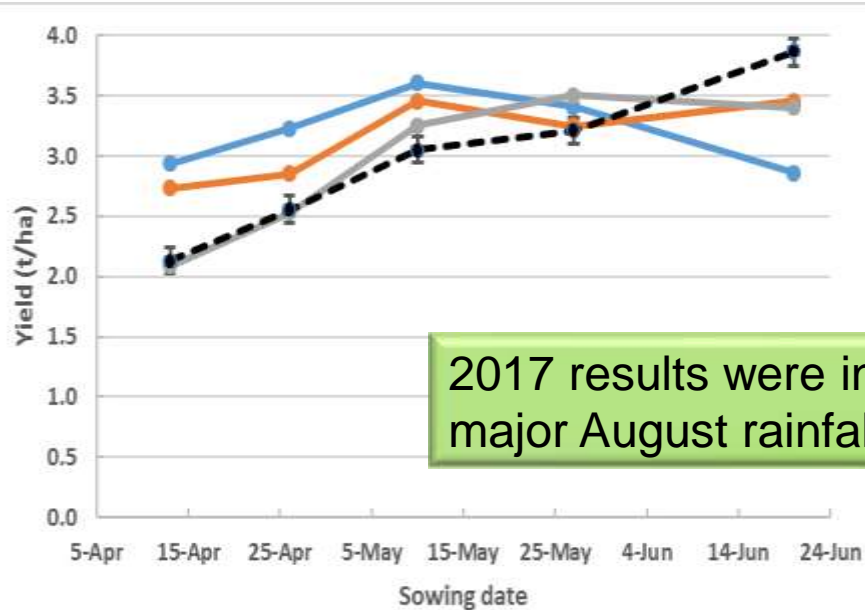


2018



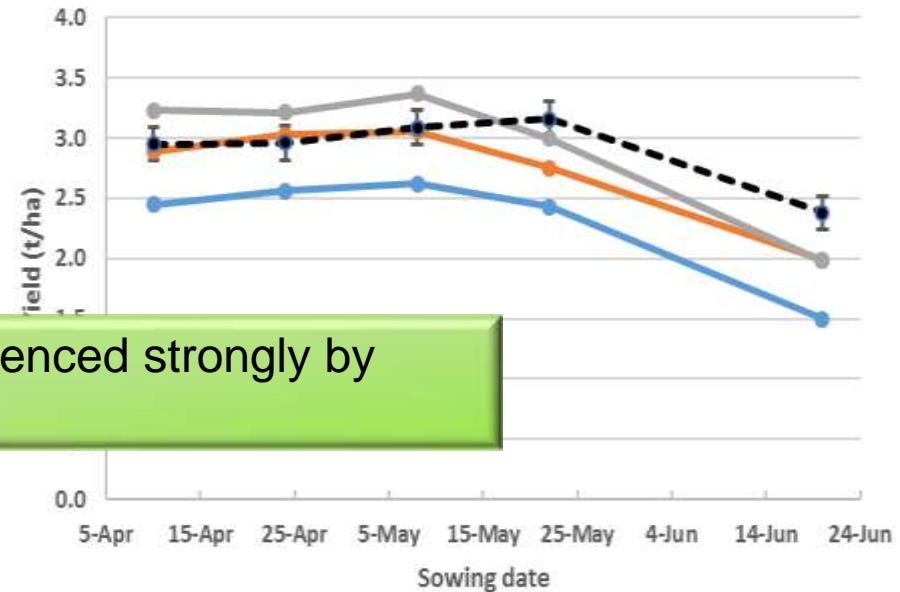
—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Forrest

2017



2017 results were influenced strongly by major August rainfall.

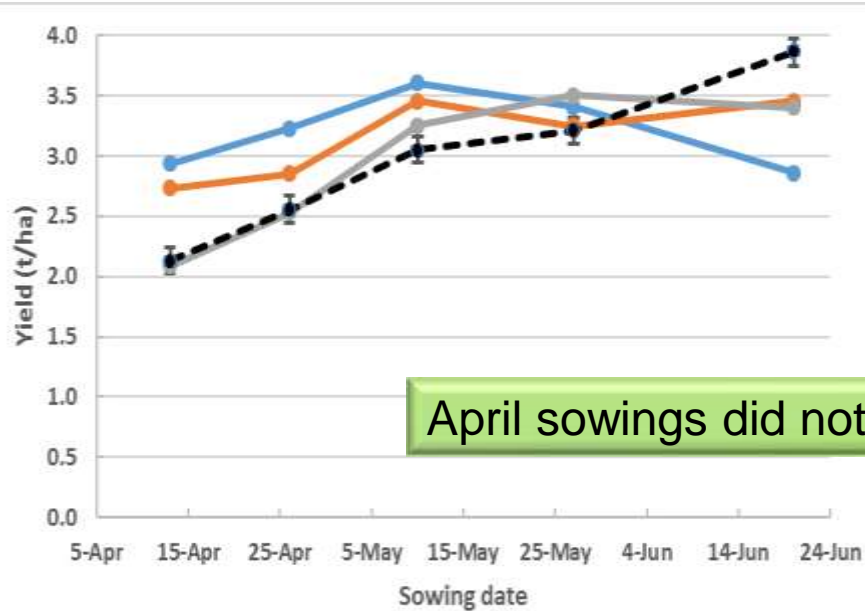
2018



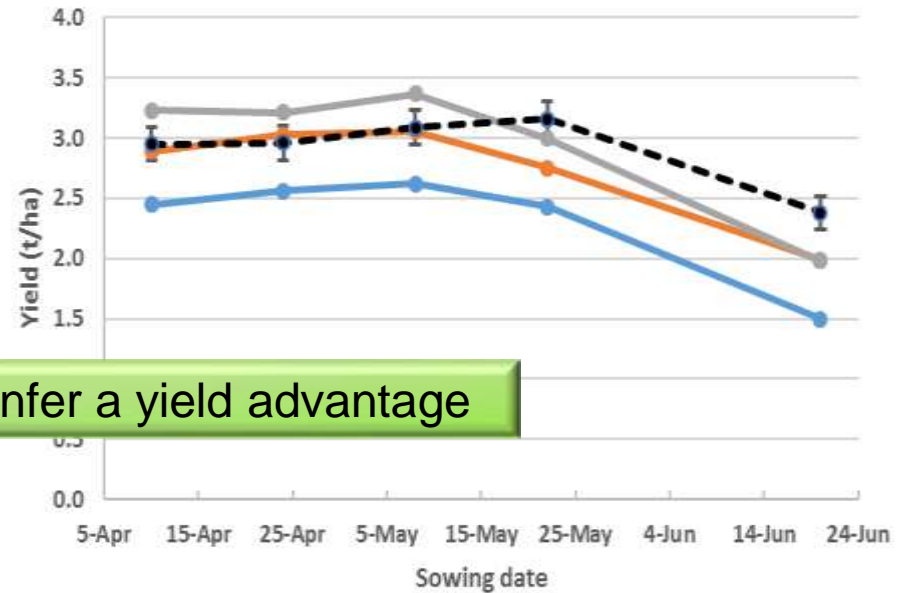


● Scepter   
 ● Cutlass   
 ● LRPB Trojan   
 ● Forrest

2017



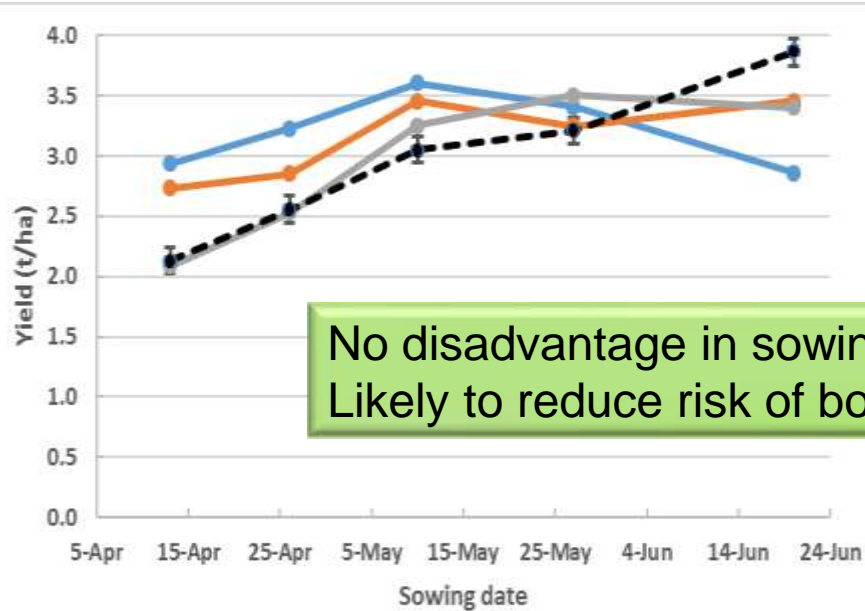
2018



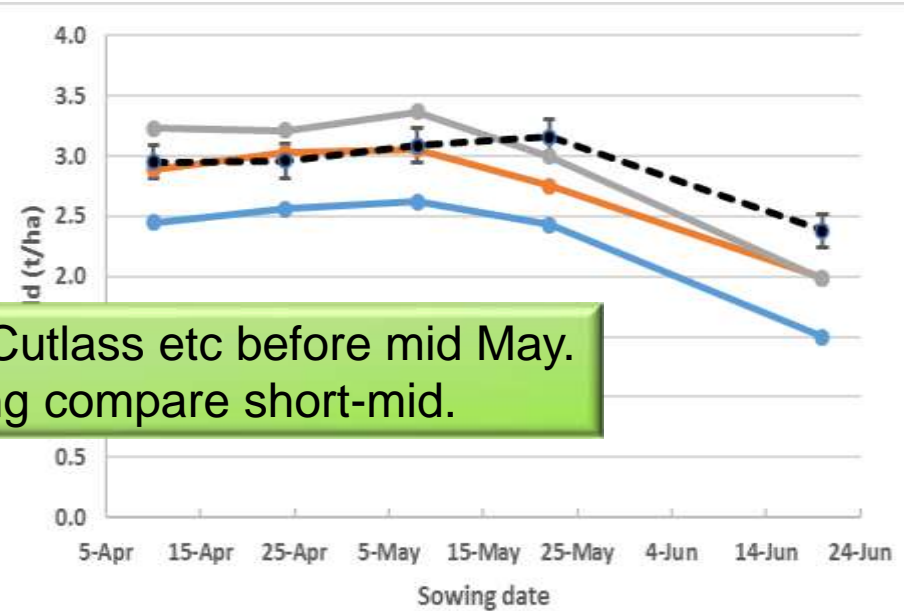
April sowings did not confer a yield advantage

● Scepter   
 ● Cutlass   
 ● LRPB Trojan   
 ● Forrest

2017



2018

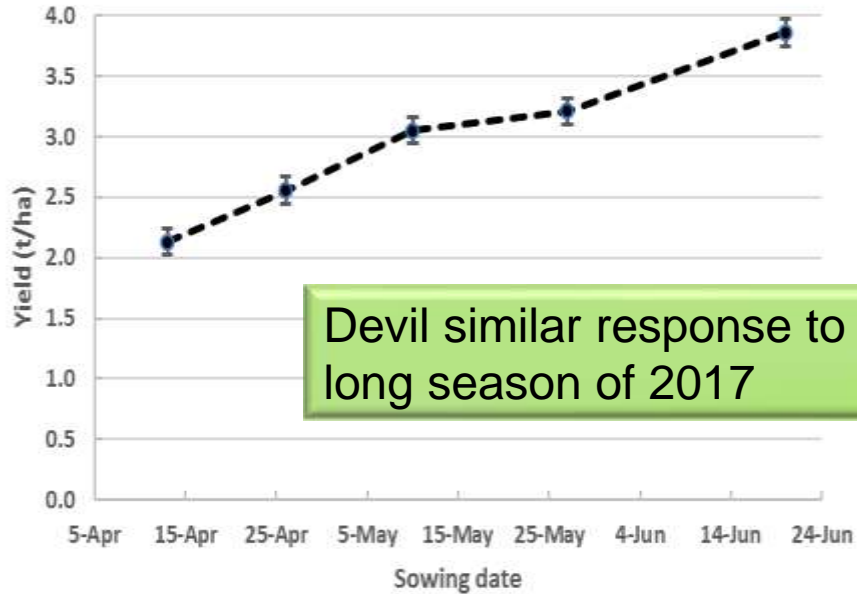


No disadvantage in sowing Cutlass etc before mid May. Likely to reduce risk of bolting compare short-mid.



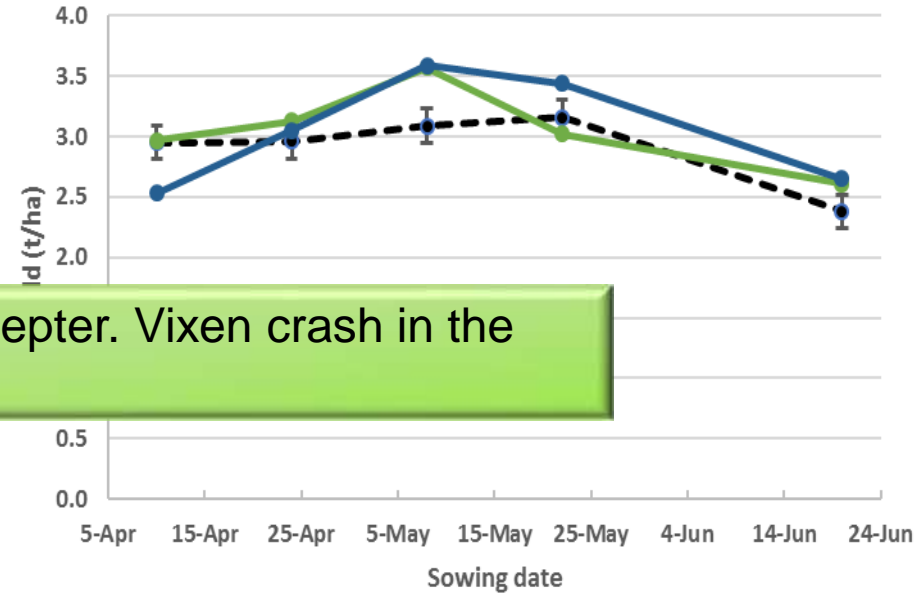
--●-- Scepter    
 --●-- Devil    
 --●-- Vixen

2017



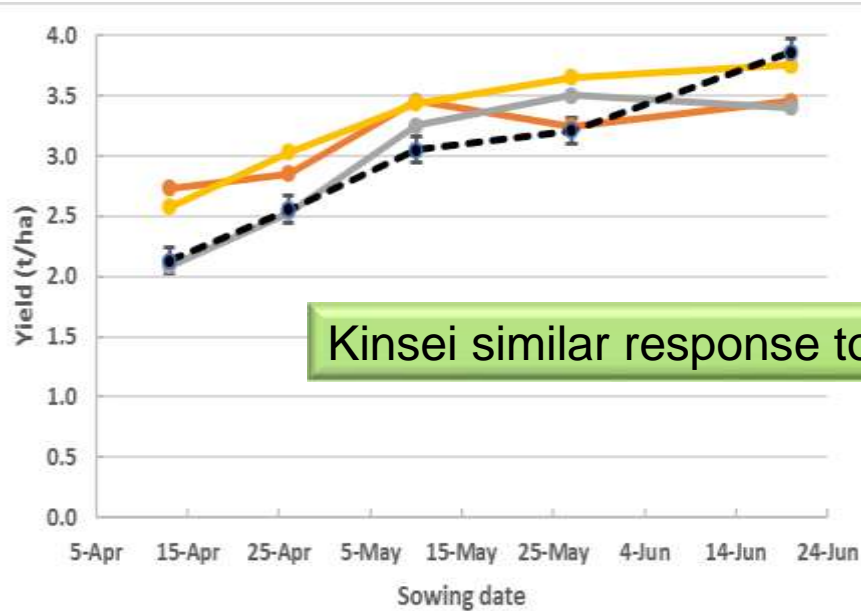
Devil similar response to Scepter. Vixen crash in the long season of 2017

2018



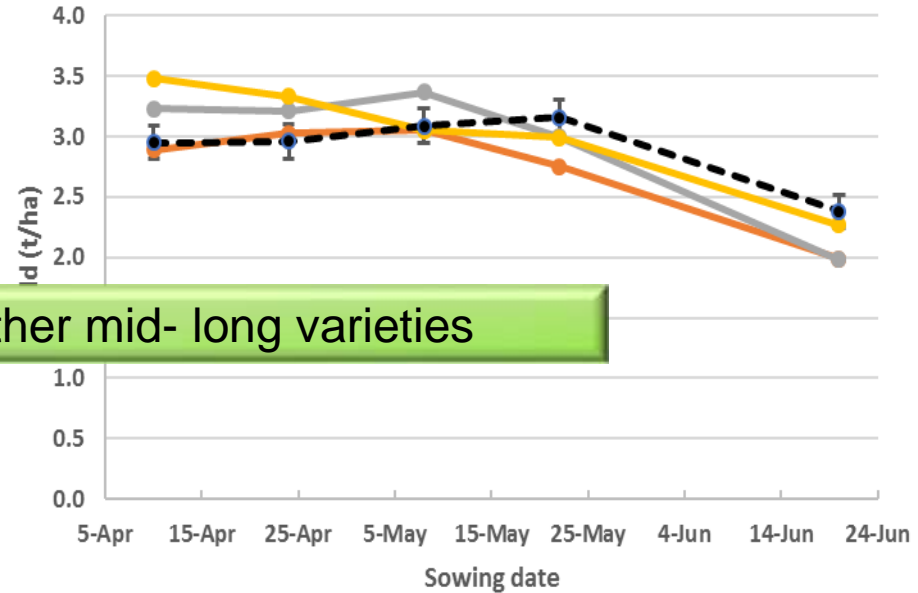
—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Kinsei

2017



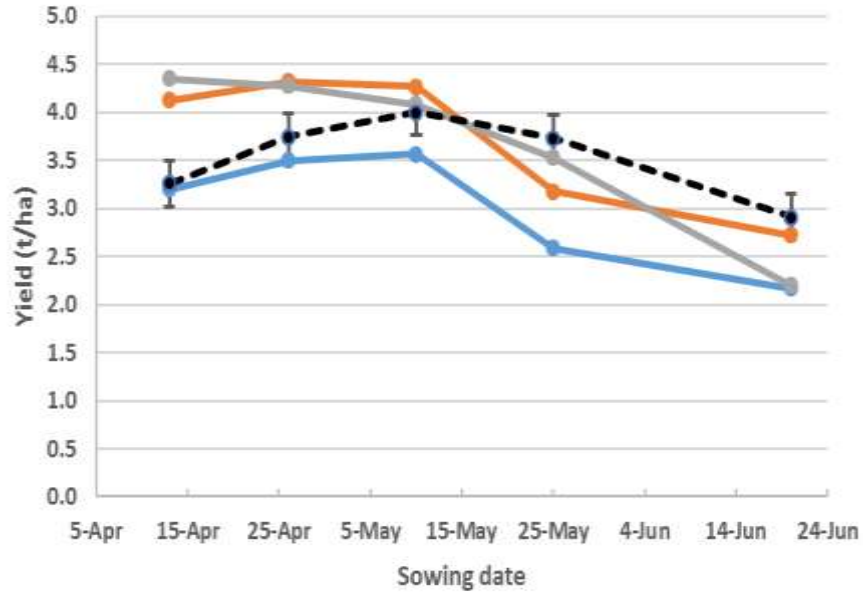
Kinsei similar response to other mid- long varieties

2018

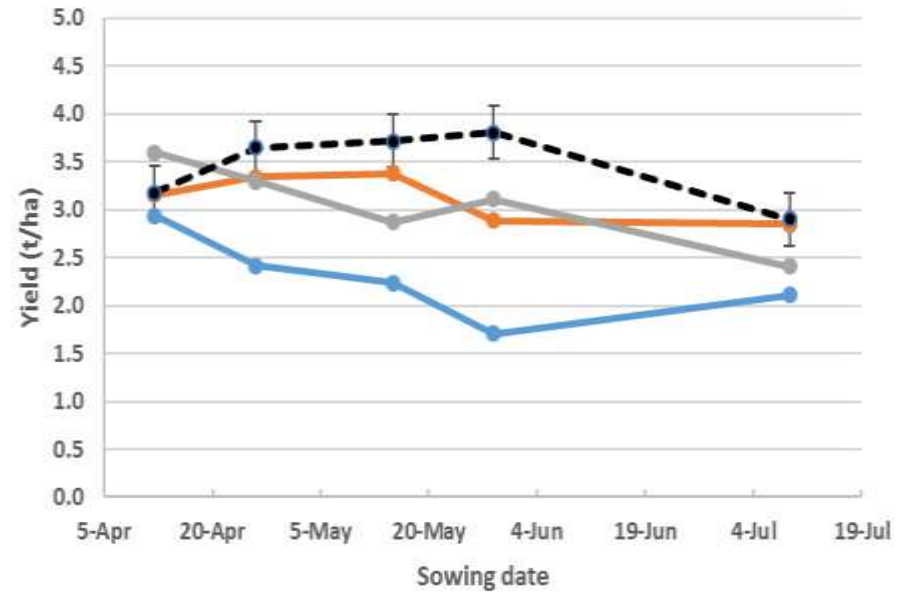


● Scepter    
 ● Cutlass    
 ● LRPB Trojan    
 ● Longsword

2017



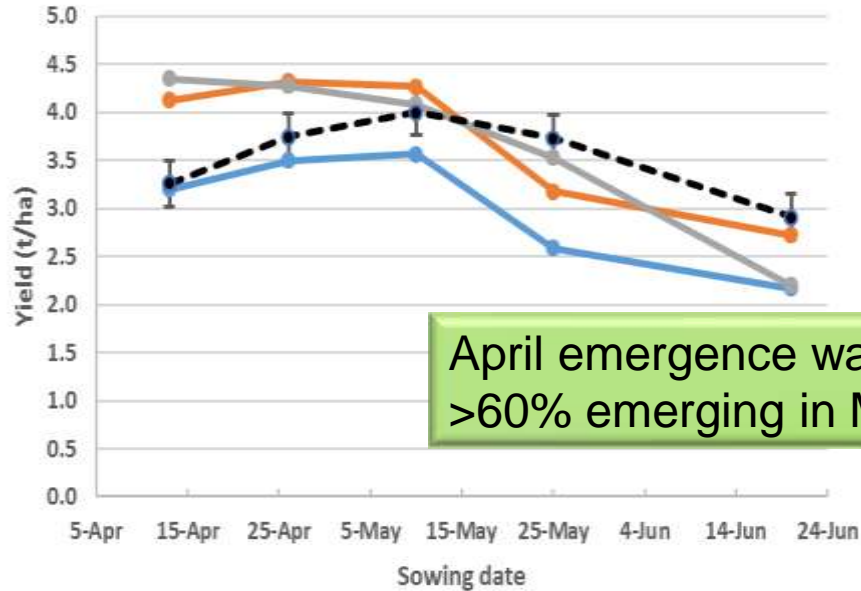
2018



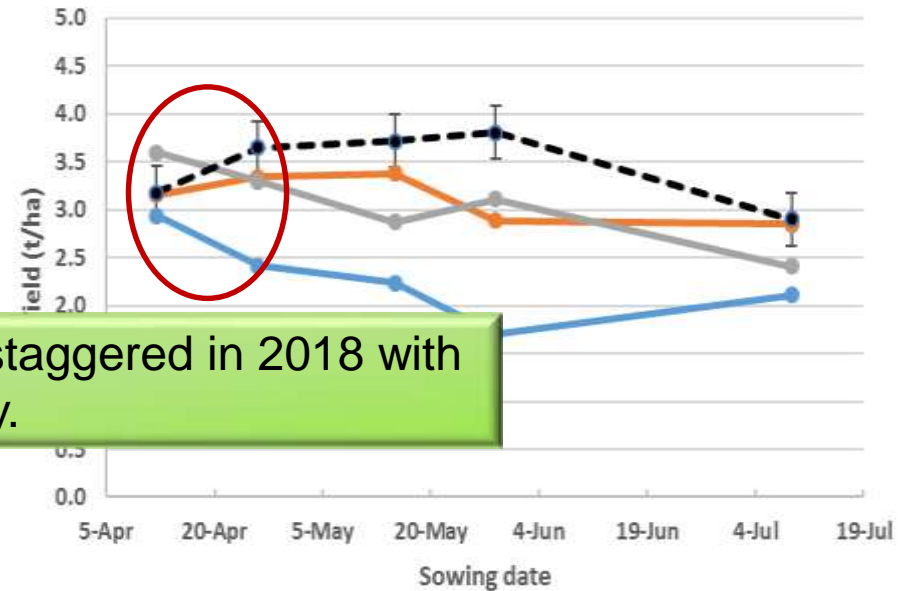


—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Longsword

2017



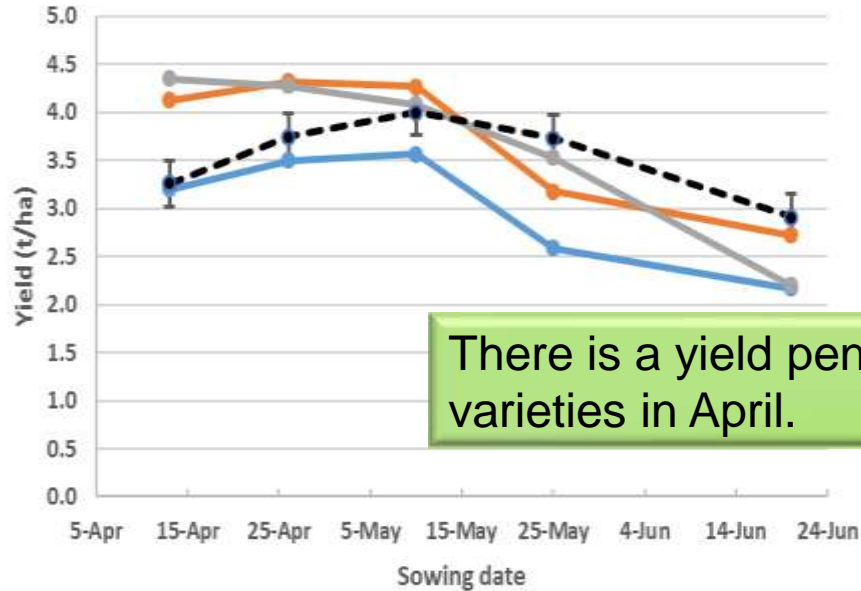
2018



April emergence was staggered in 2018 with >60% emerging in May.

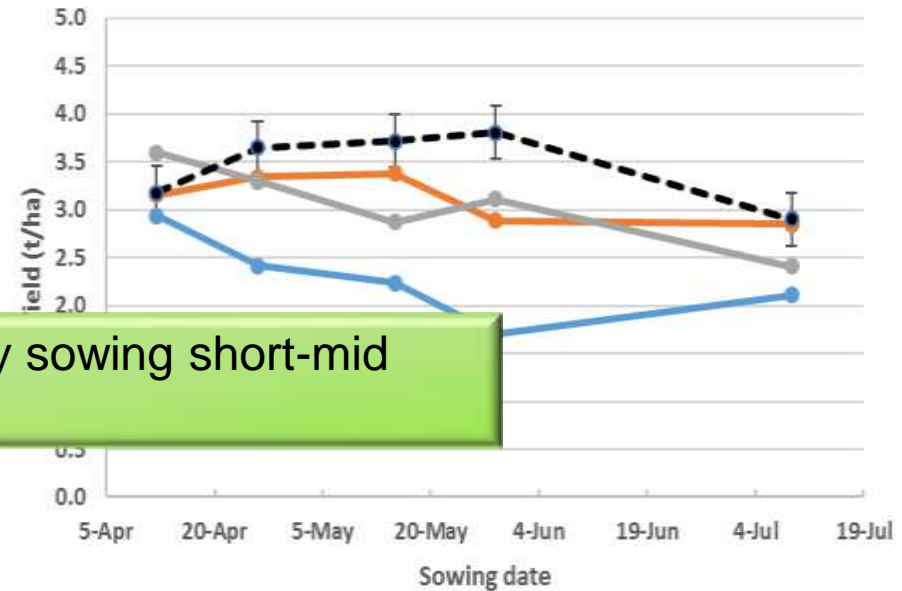
—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Longsword

2017



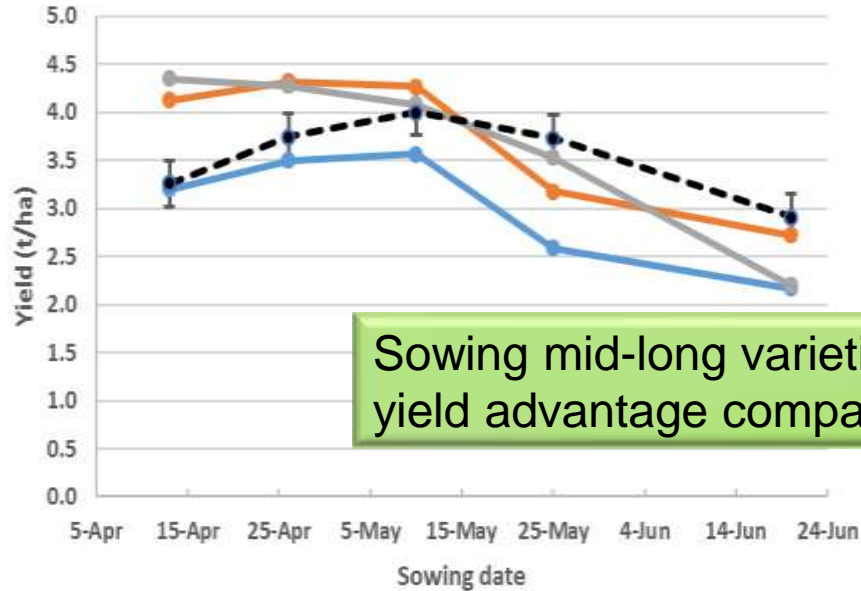
There is a yield penalty sowing short-mid varieties in April.

2018

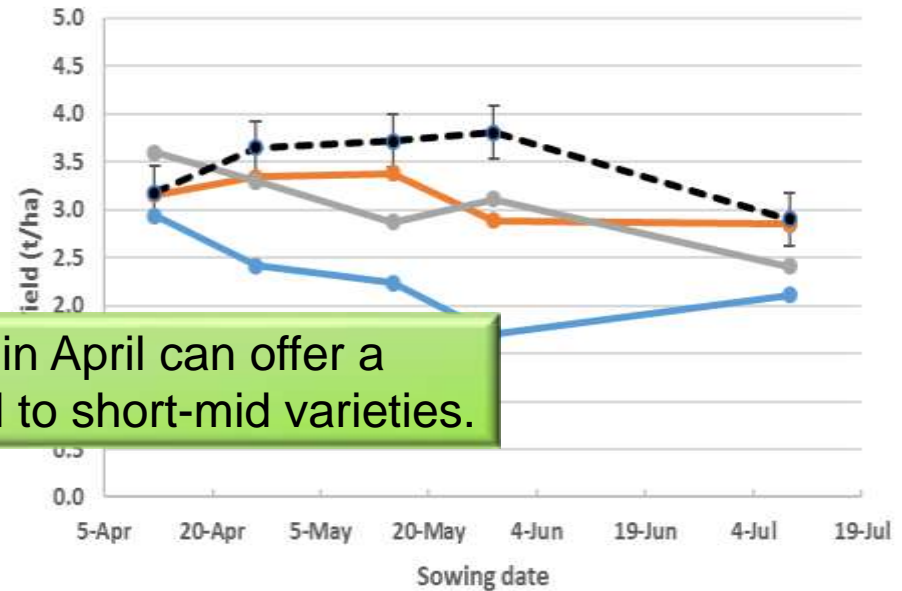


—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Longsword

2017



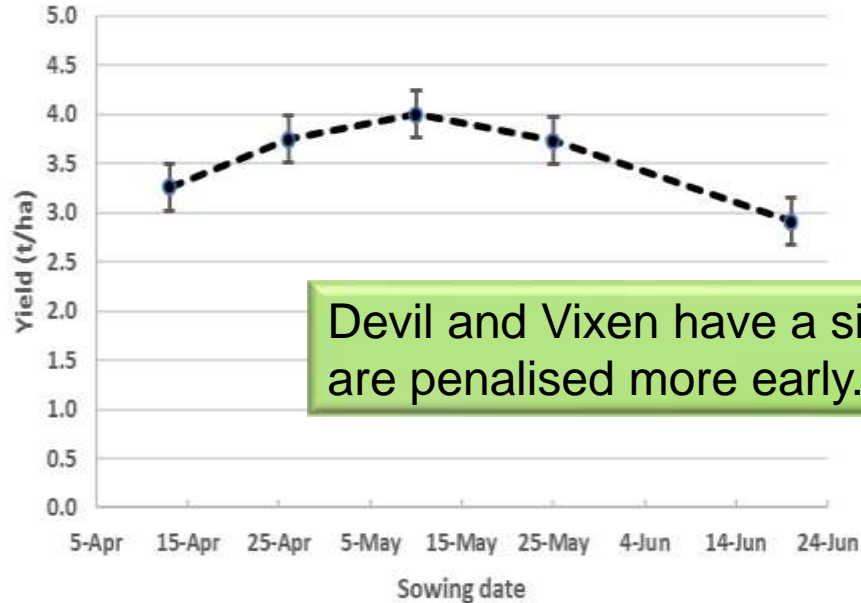
2018



Sowing mid-long varieties in April can offer a yield advantage compared to short-mid varieties.

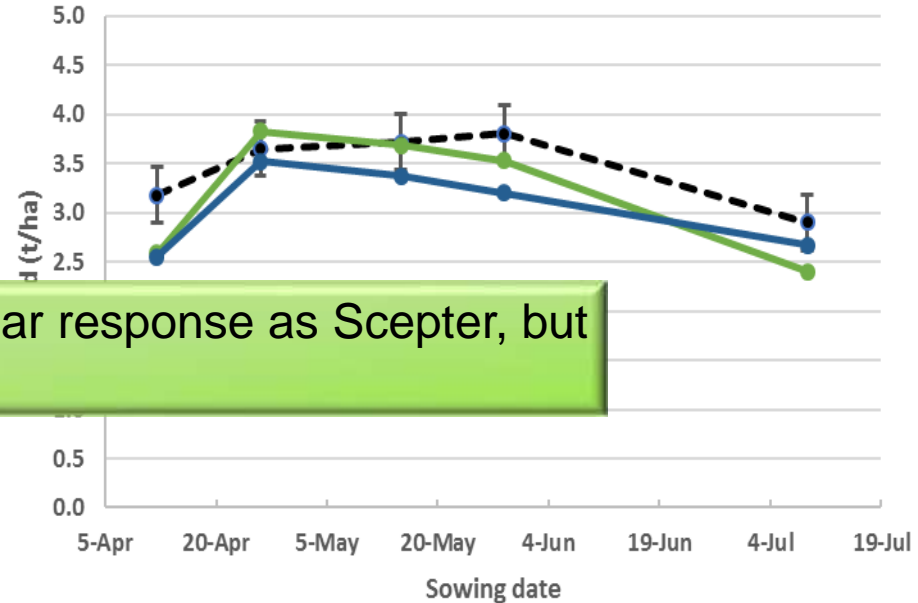
--●-- Scepter
 --●-- Devil
 --●-- Vixen

2017



Devil and Vixen have a similar response as Scepter, but are penalised more early.

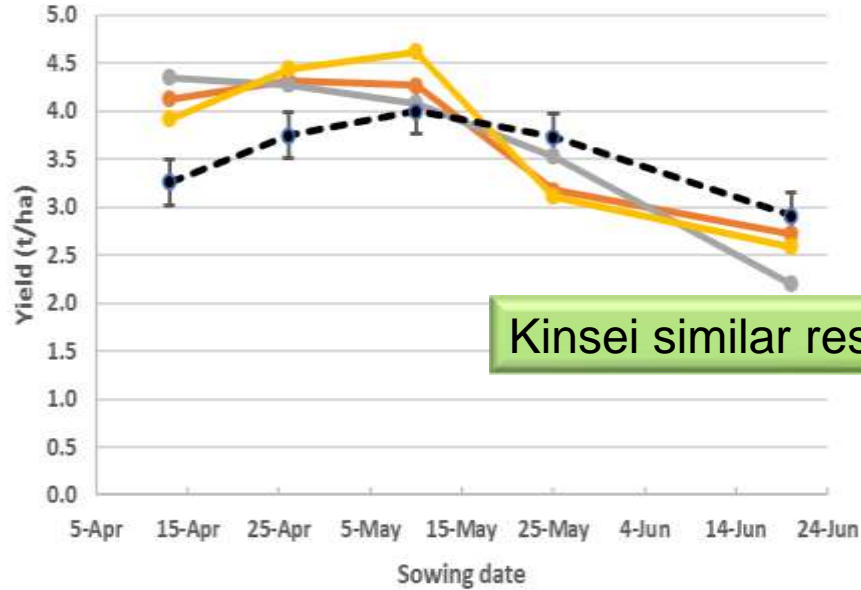
2018





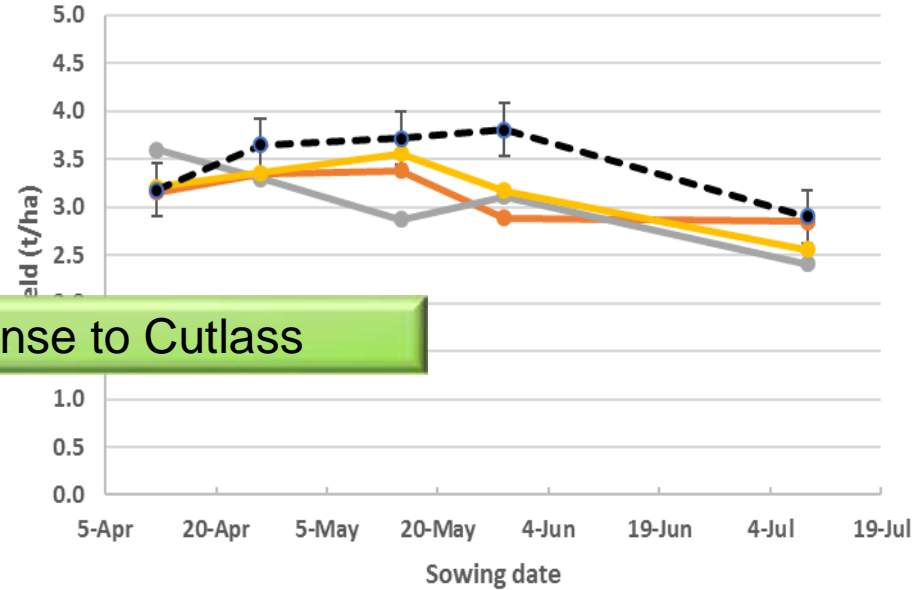
—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Kinsei

2017



Kinsei similar response to Cutlass

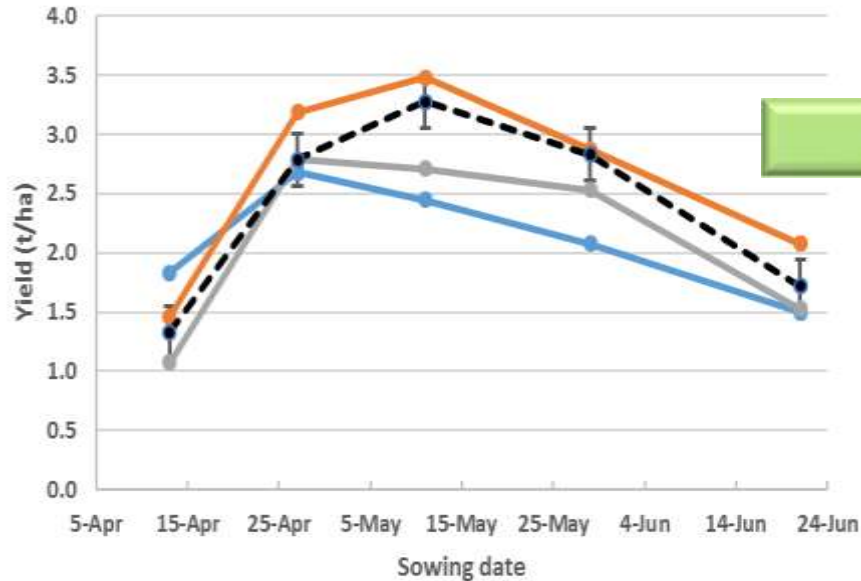
2018



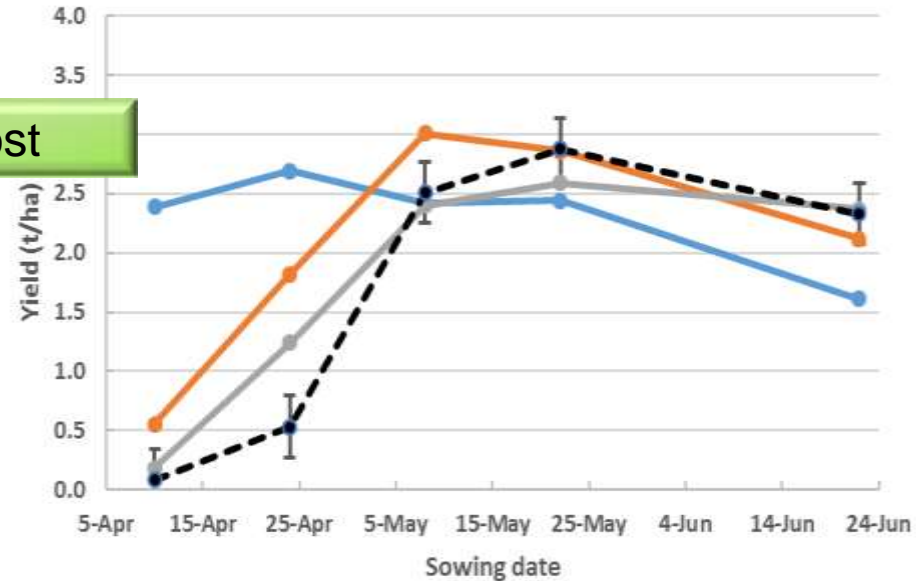
# Katanning

—●— Scepter    —●— Cutlass    —●— LRPB Trojan    —●— Wedgetail

2017



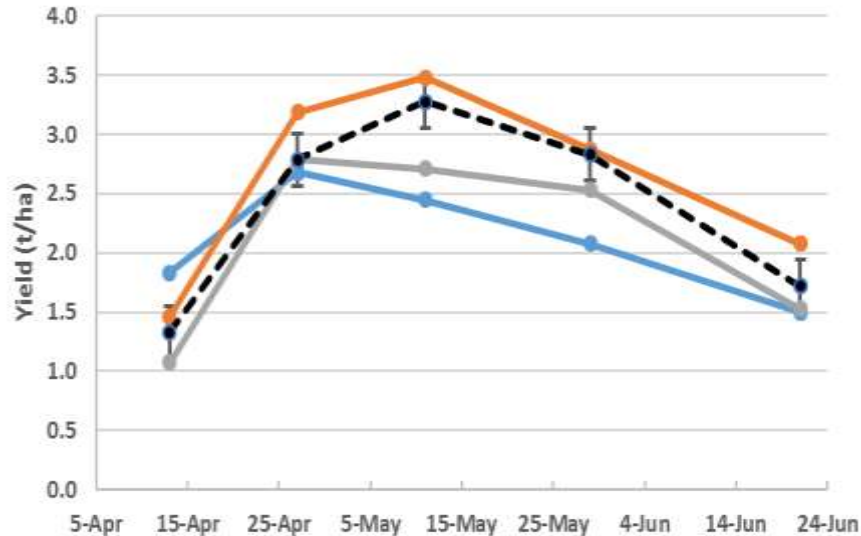
2018



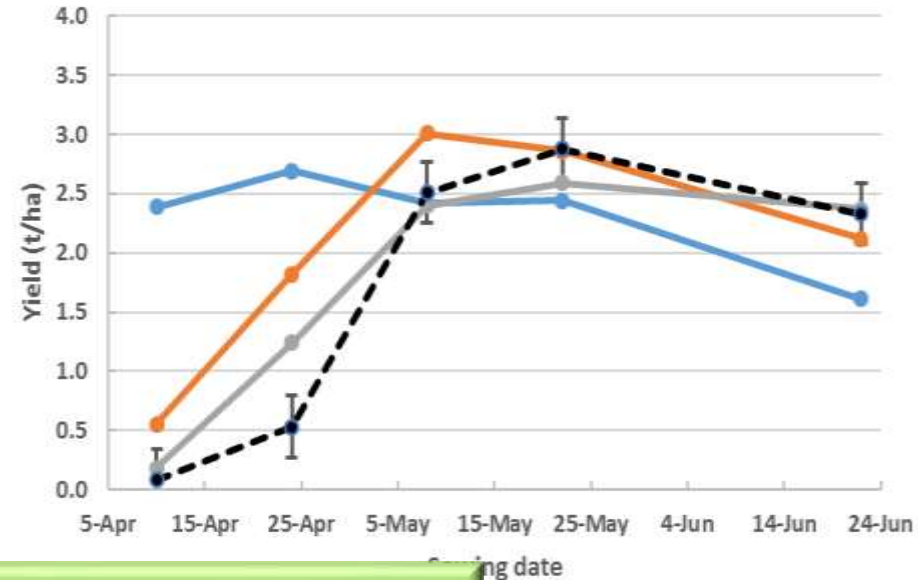
# Katanning

—●— Scepter    —●— Cutlass    —●— LRPB Trojan    —●— Wedgetail

2017



2018

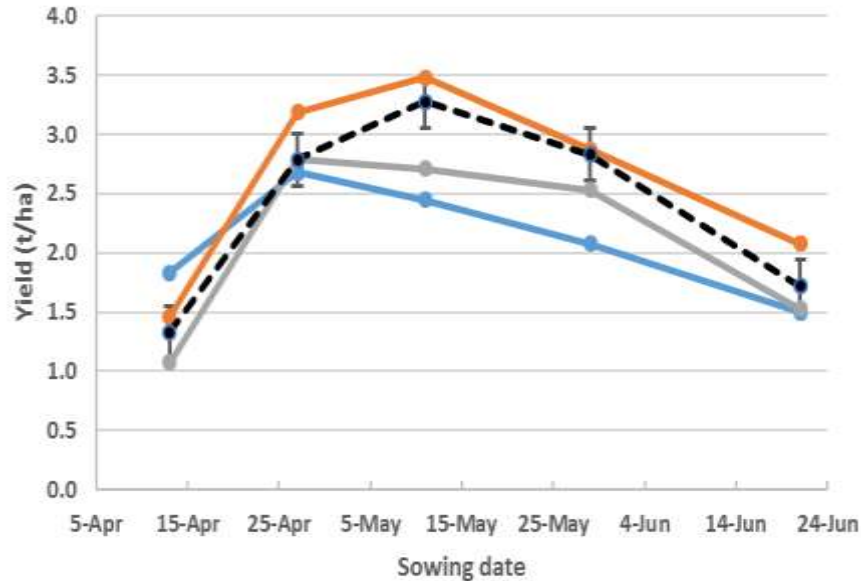


Avoid April sowing due to frost risk –  
delaying seeding will likely increase yields.

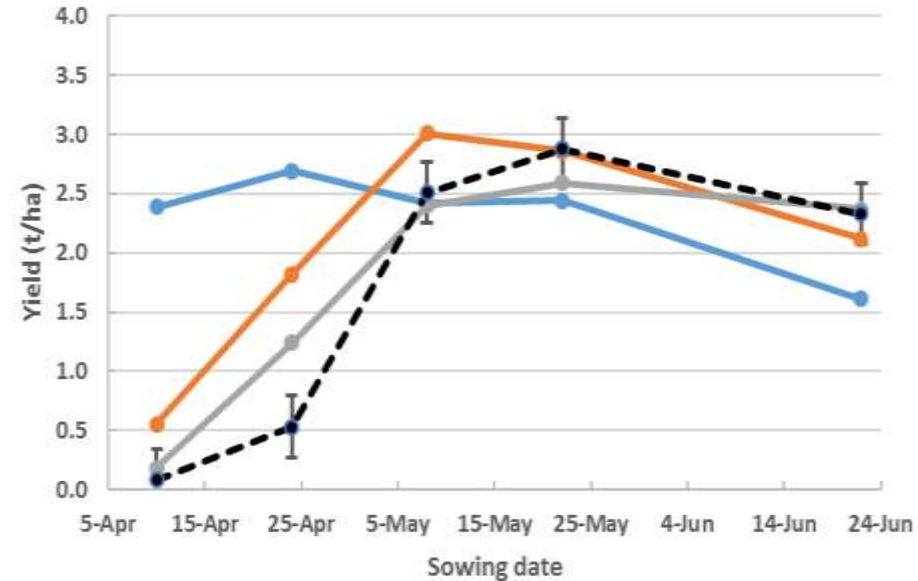
# Katanning

—●— Scepter    —●— Cutlass    —●— LRPB Trojan    —●— Wedgetail

2017



2018

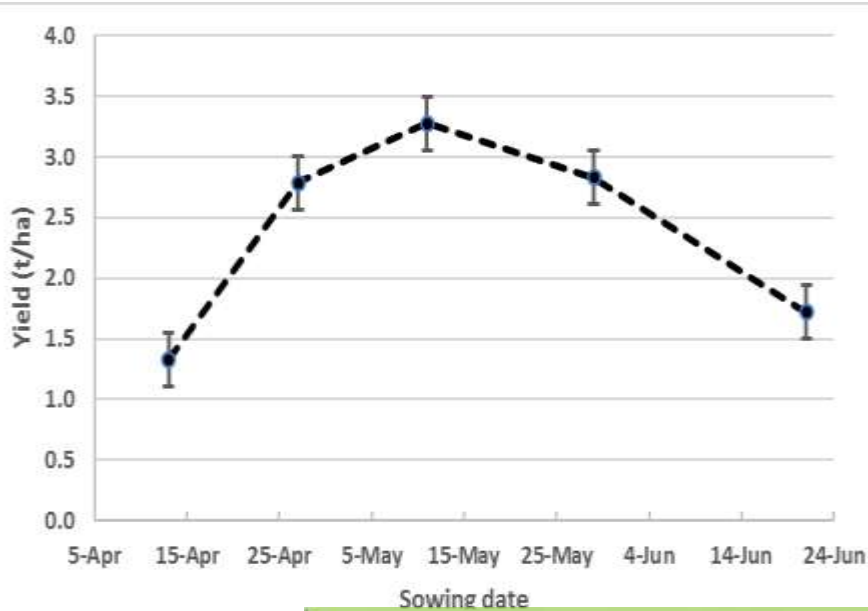


If sowing in April use winter/long wheat OR  
OTHER CROP TYPES.

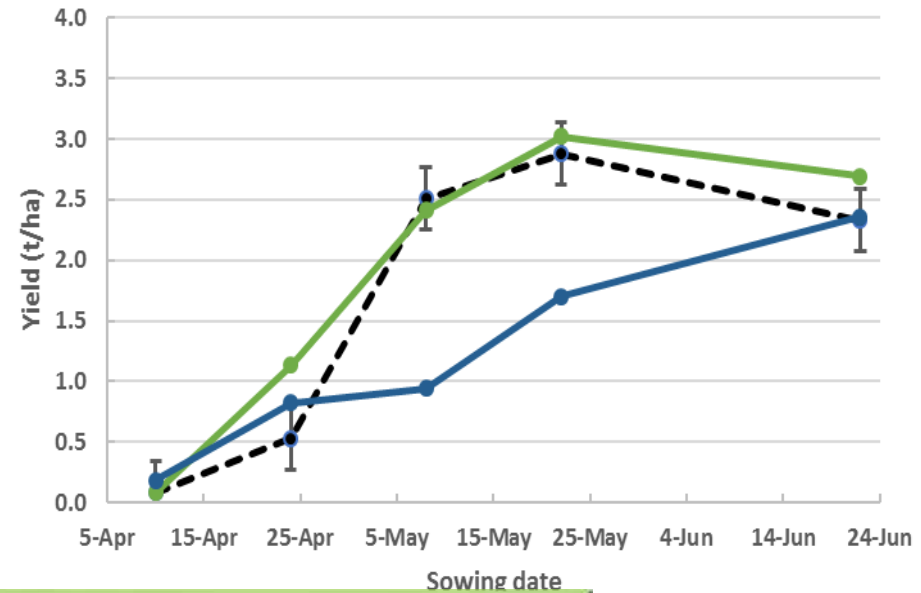


# Katanning

2017



2018

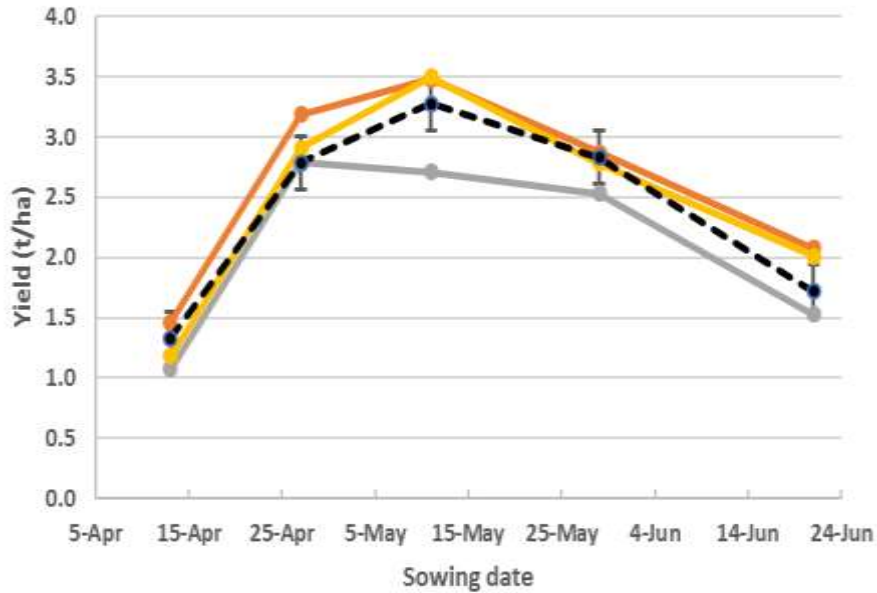


Devil similar response to Scepter, but Vixen's maturity is too short for April and May.

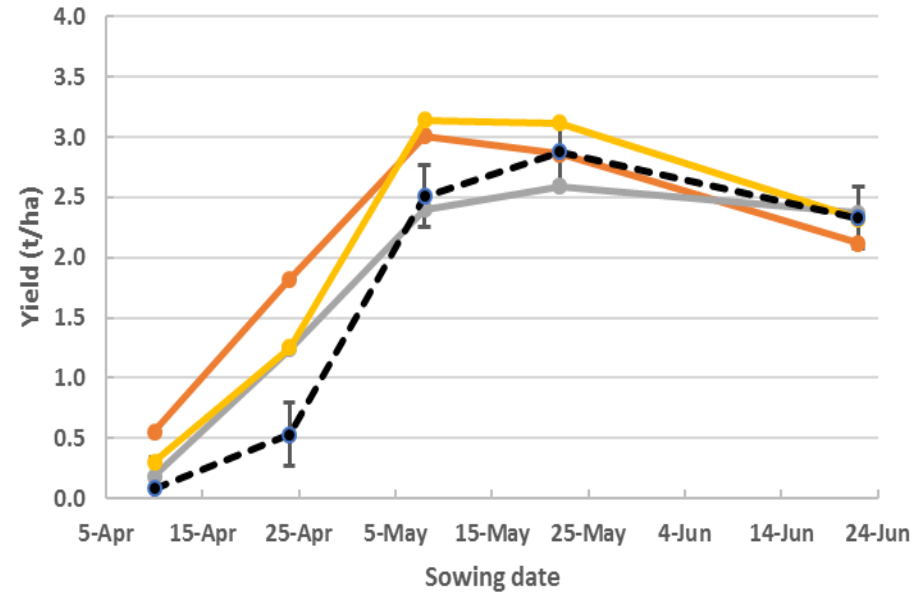
# Katanning

—●— Scepter    —●— Cutlass    —●— LRPB Trojan    —●— Kinsei

2017



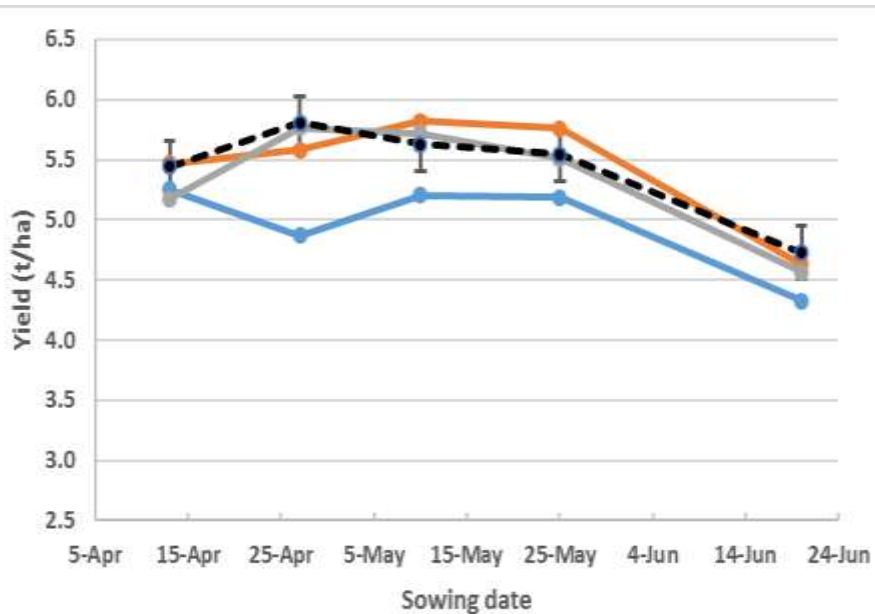
2018



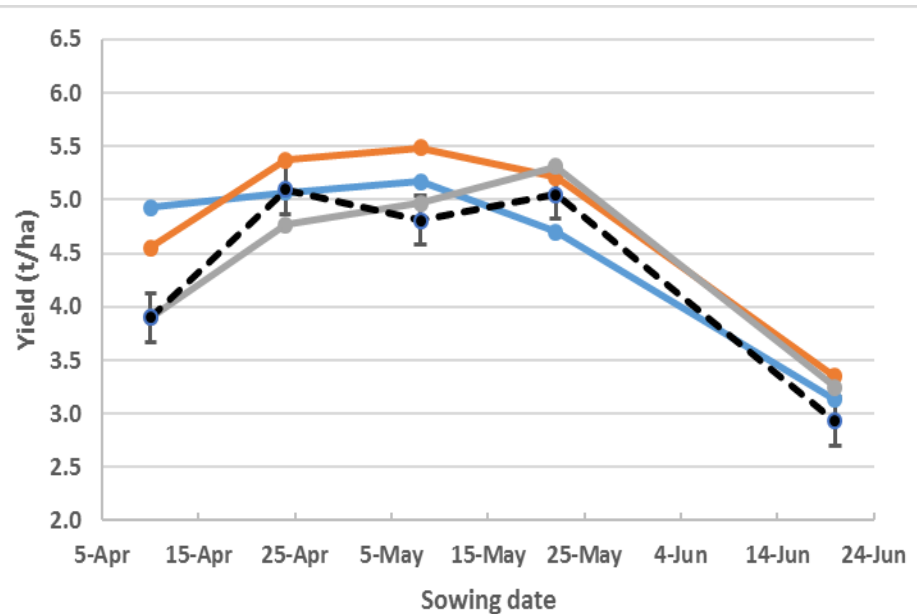
Kinsei similar response to Cutlass

● Scepter 
 ● Cutlass 
 ● LRPB Trojan 
 ● Longsword

2017

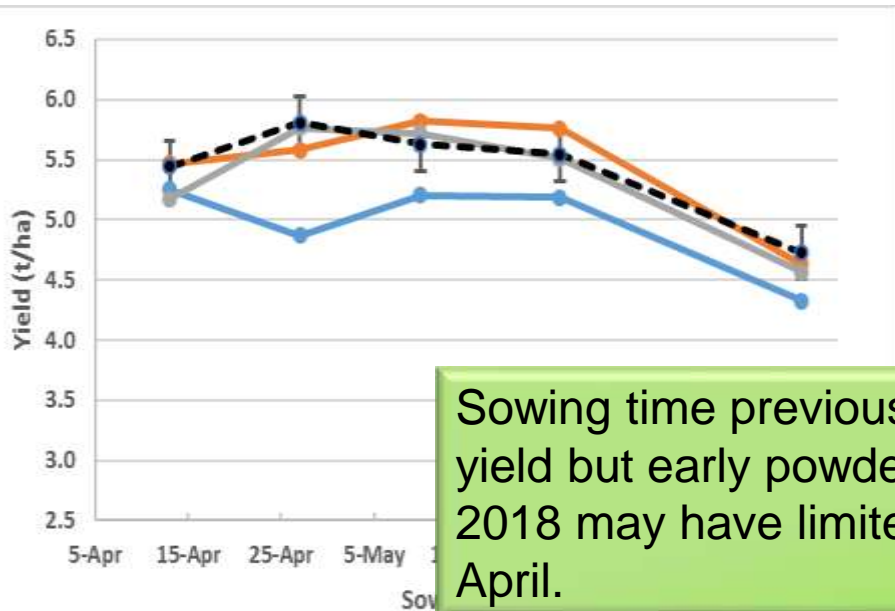


2018

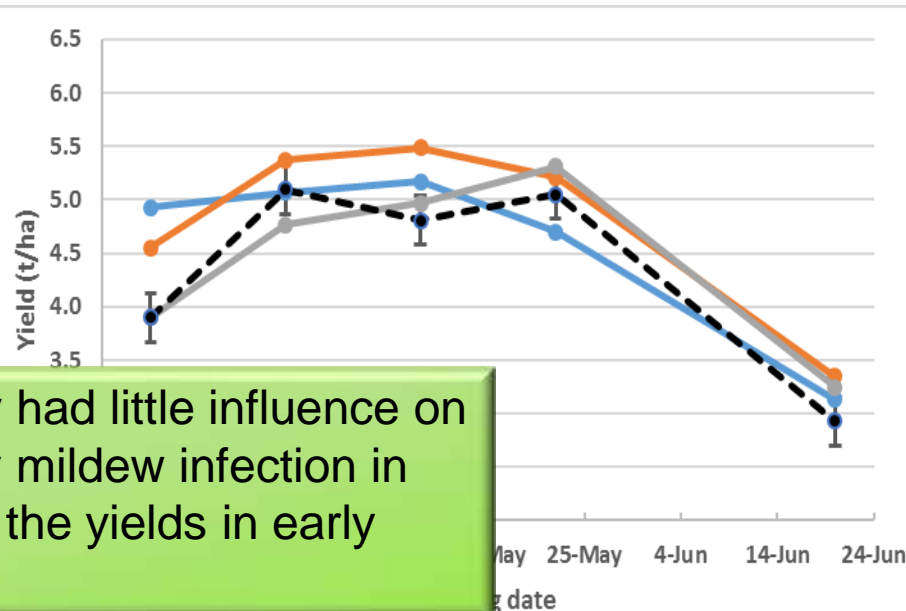


●— Scepter
 ●— Cutlass
 ●— LRPB Trojan
 ●— Longsword

2017



2018

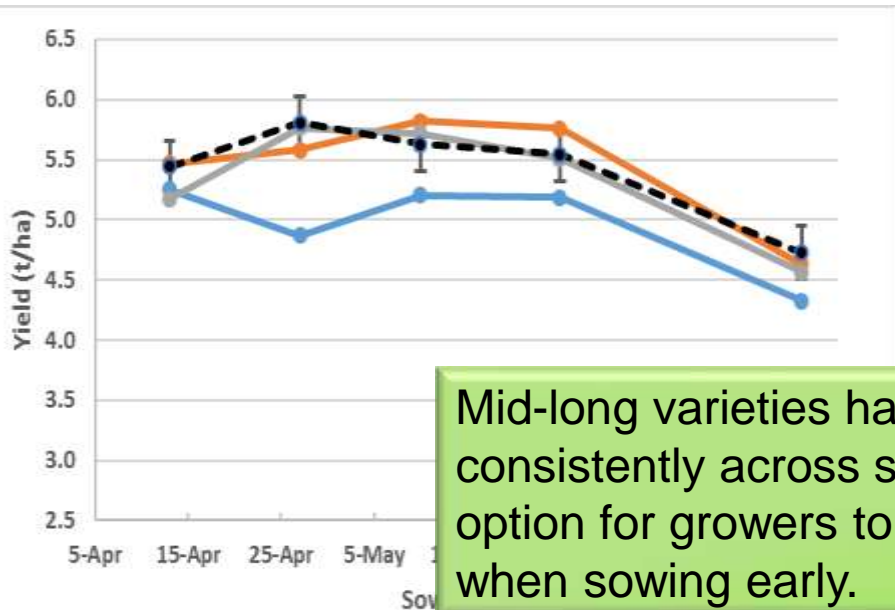


Sowing time previously had little influence on yield but early powdery mildew infection in 2018 may have limited the yields in early April.

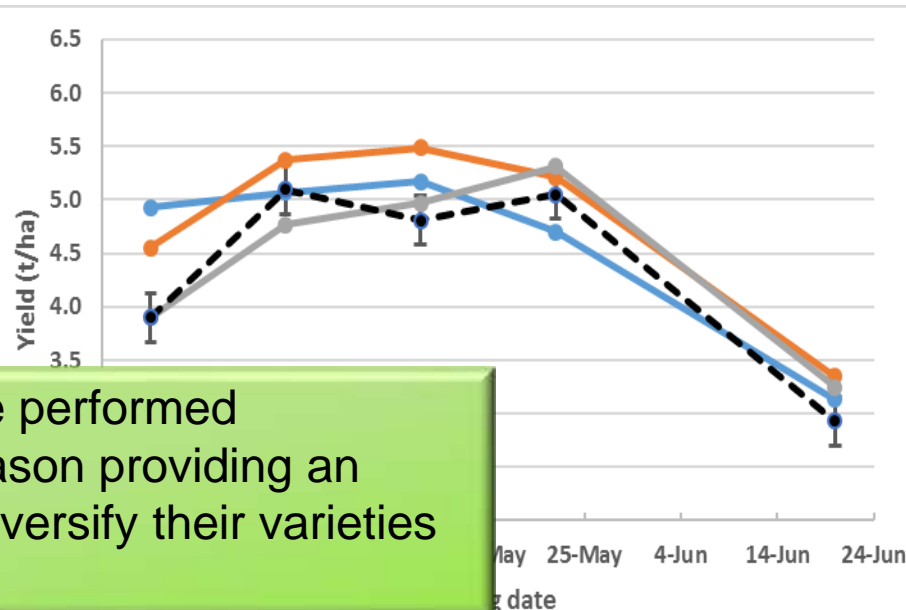


●— Scepter    
 ●— Cutlass    
 ●— LRPB Trojan    
 ●— Longsword

2017



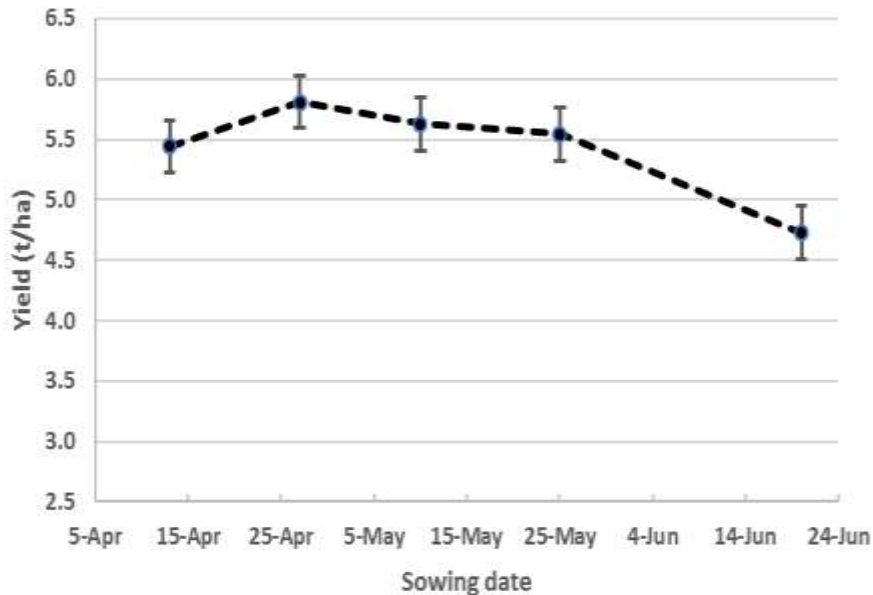
2018



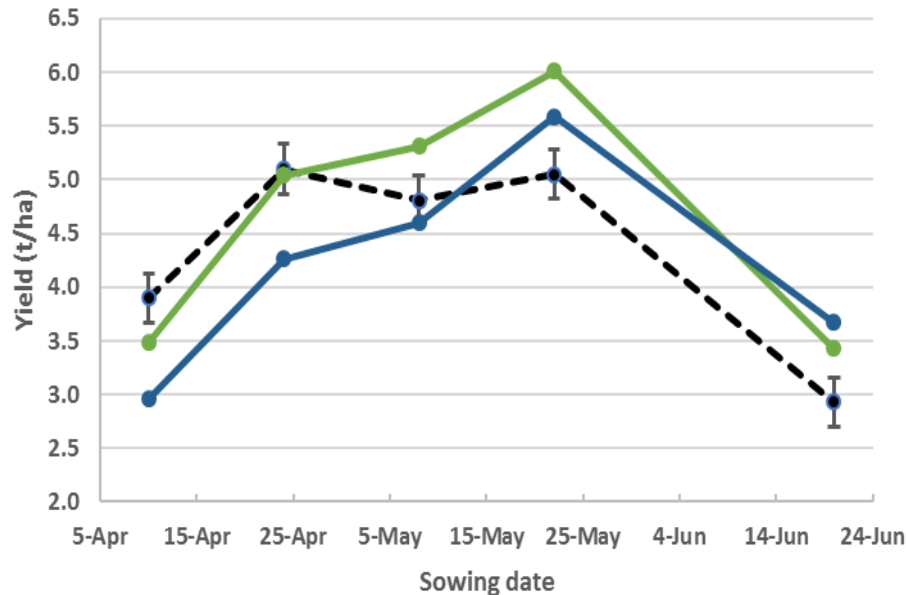
Mid-long varieties have performed consistently across season providing an option for growers to diversify their varieties when sowing early.

● --- Scepter
 ● --- Devil
 ● --- Vixen

2017



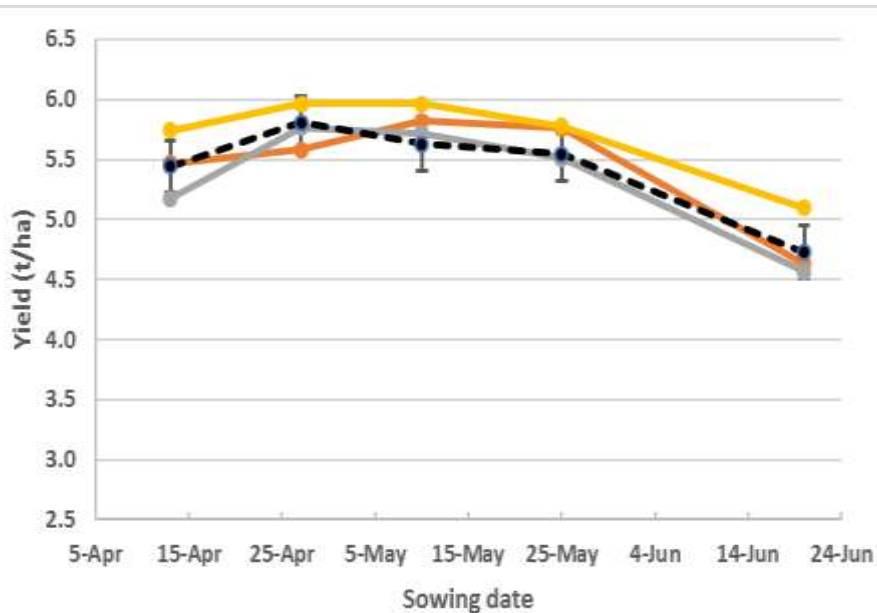
2018



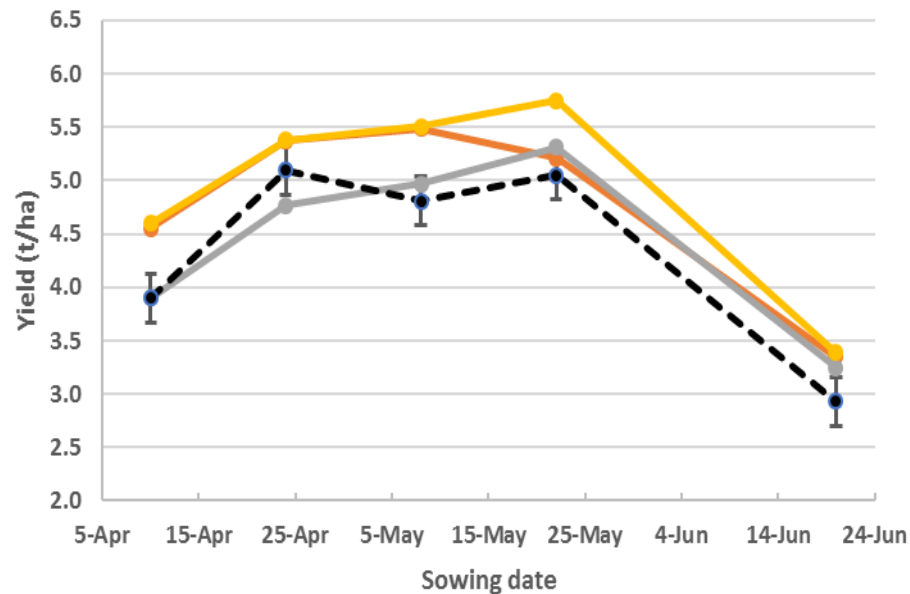
Devil and Vixen achieved higher yield sown late.

—●— Scepter    
 —●— Cutlass    
 —●— LRPB Trojan    
 —●— Kinsei

2017

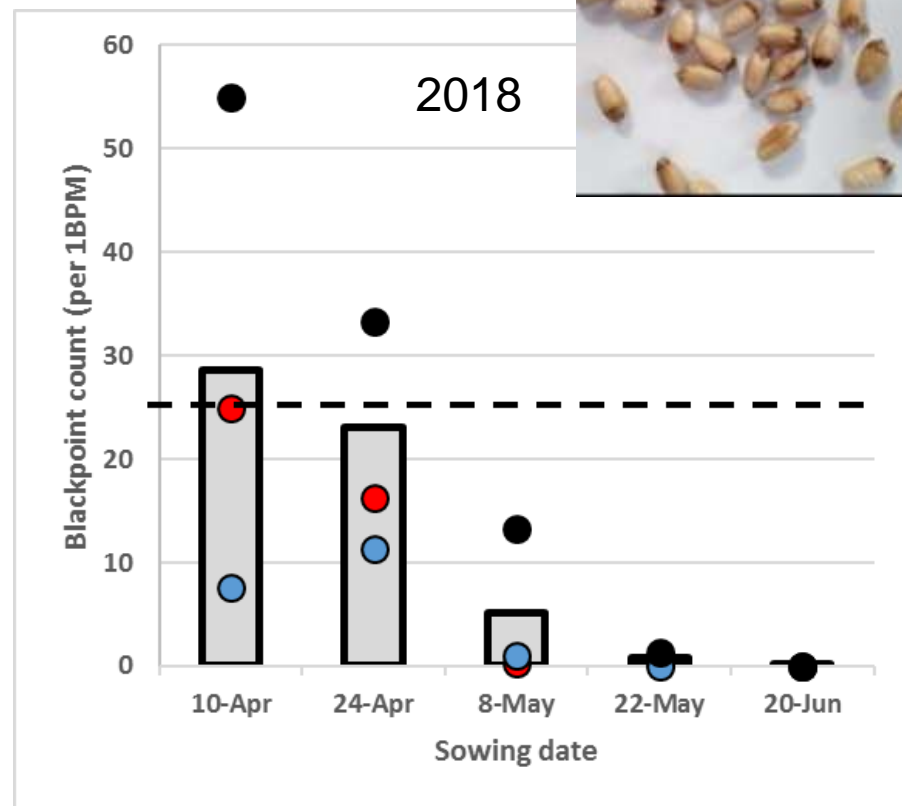
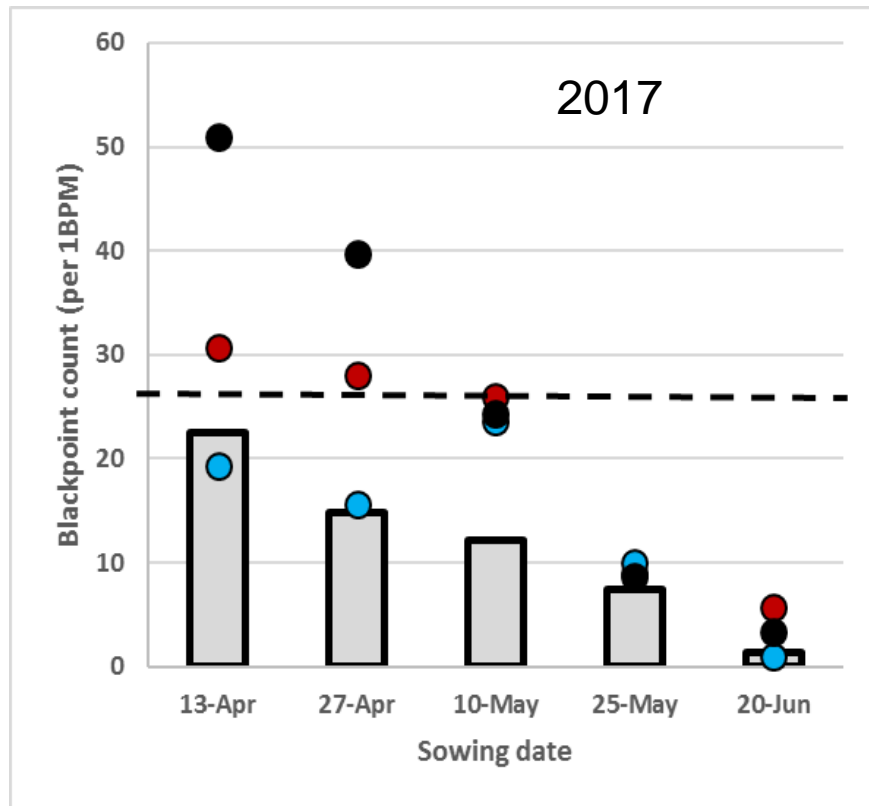


2018



Kinsei similar response to Cutlass

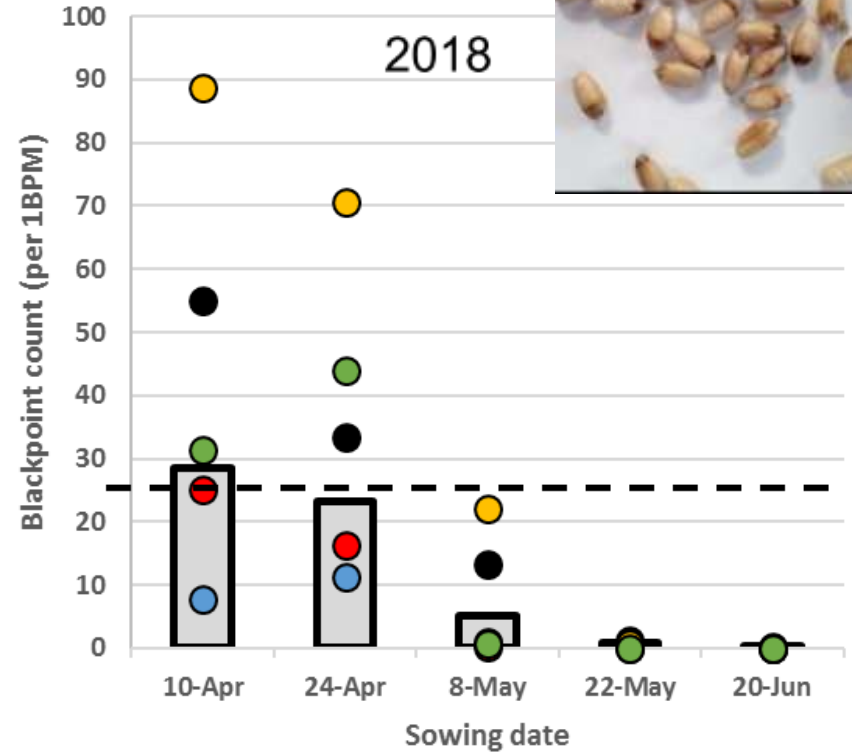
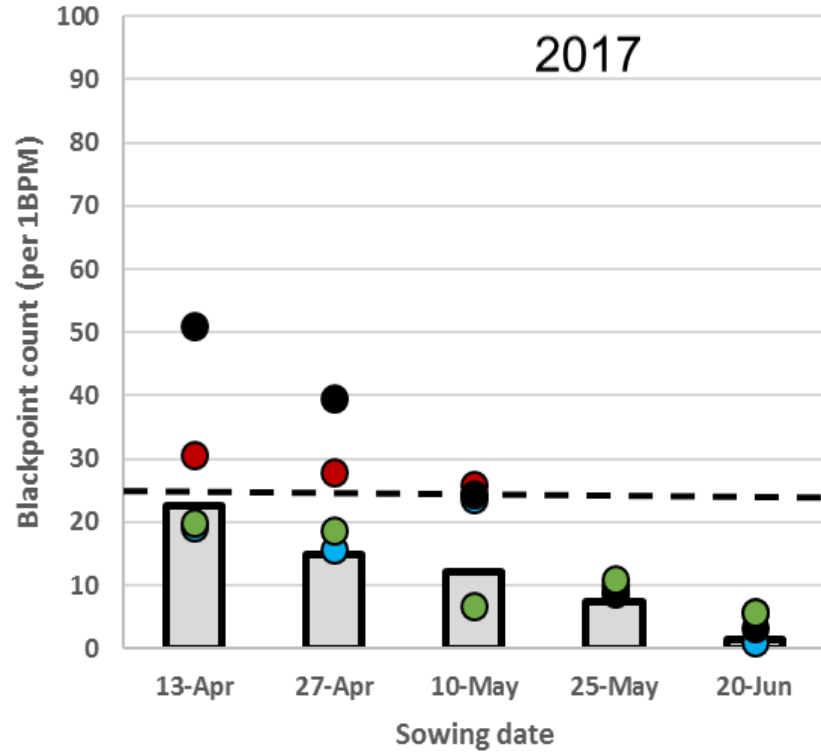
# Blackpoint at Gibson



● Cutlass ● Trojan ● Yitpi



# Blackpoint at Gibson




● Cutlass ● Trojan ● Yitpi ● Devil ● Kinsei



## Which wheat when?

Location	Major Constraint	April sowing	Early May sowing	Mid to late May sowing
Mullewa	Bolting/Grain filling drought/ Blackpoint	Mid-long eg Cutlass, Trojan	Mid long or short-mid	Short-mid eg Scepter or Devil
Merredin	Frost/grain filling drought	Mid long eg Cutlass, Trojan Winter/long for frost prone areas	Mid long or short-mid	Short-mid eg Scepter or Devil
Katanning	Frost	Winter/long eg Wedgetail or Forrest Other crops	Mid long eg Cutlass, Kinsei	Short-mid eg Scepter or Devil
Gibson	Quality (PHS, BP)	Mid-long eg Trojan, DS Pascal or Cutlass	Mid-long or short-mid	Short-mid eg Scepter, Devil (PHS?)

An aerial photograph of a rural landscape. In the foreground, there is a large, rectangular field divided into a grid of smaller, rectangular paddocks. The paddocks are filled with green and yellowish-brown vegetation, likely crops. A dirt road runs along the right side of the field. In the background, there are more fields, some with curved patterns, and a line of trees. A small white car is visible on a dirt path in the middle ground. A text box is overlaid on the image, containing the following text:

With early sowing it is highly recommended to use paddocks that have a low weed burden

## EARLY APRIL SEEDING FOUND

- Different winter/long wheats are required for different locations.
- Trials found no yield difference with a lower establishment of 50plants/m<sup>2</sup> when sown early April.
- Deferring N until stem elongation appears a safe option for early sown wheat.



- Sowing early can be risky – how can you maximise yield?

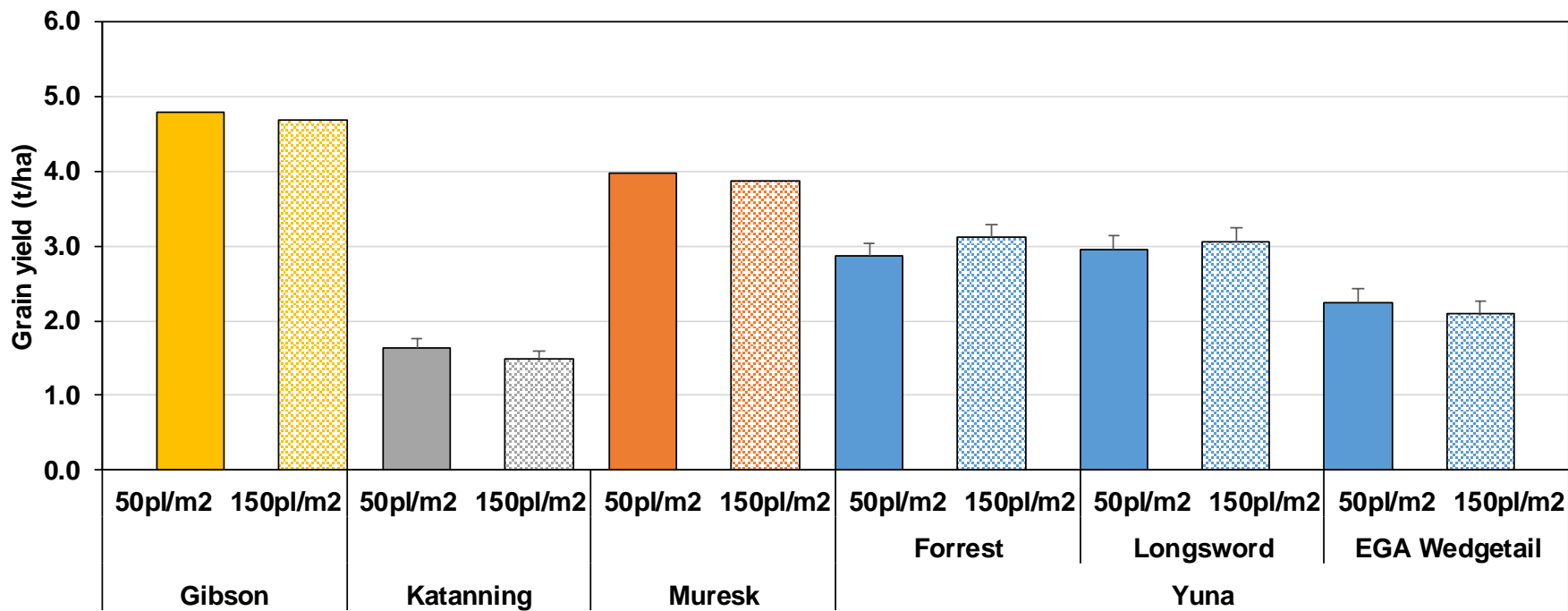
- Do you need to worry about low establishment?
- Can you defer N to lower your initial costs
- Grazing is an option - what is the effect of grazing on yield?

- Compared EGA Wedgetail, Longsword and Forrest
- *50 vs 150 plants/m<sup>2</sup>*
- *N timing at seeding or stem elongation*
- *Plus or minus “grazing”*



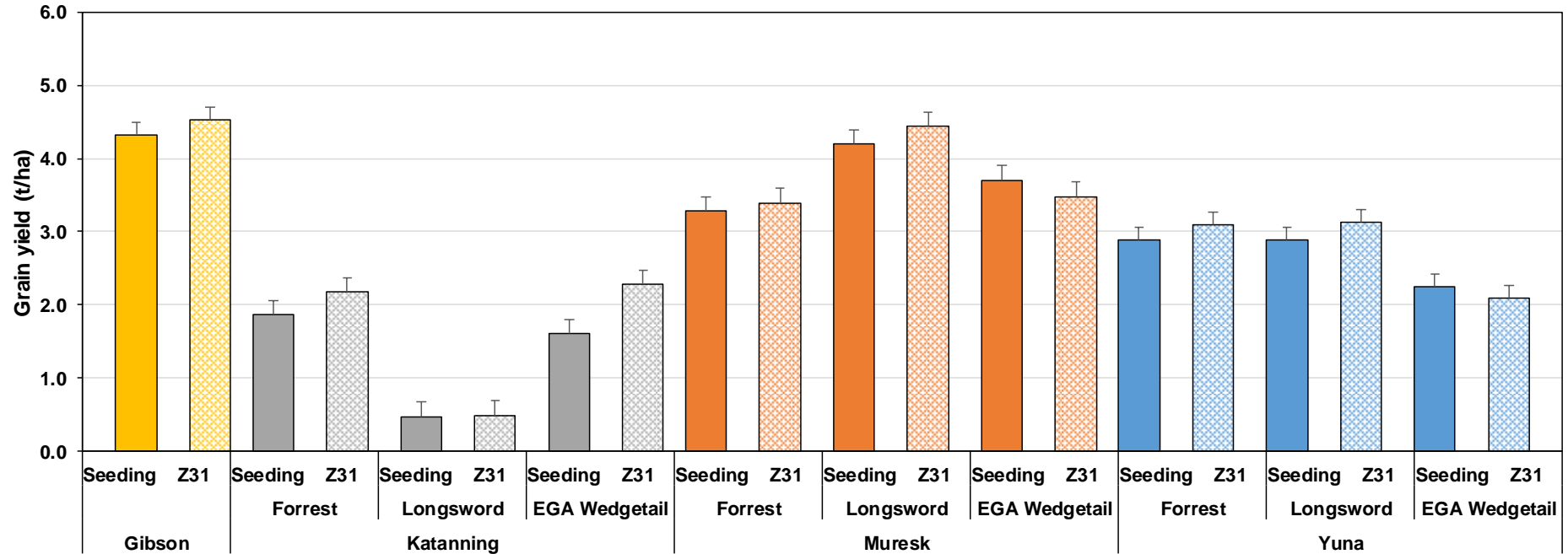


## Plant density not a big issue affecting production for early sowing.

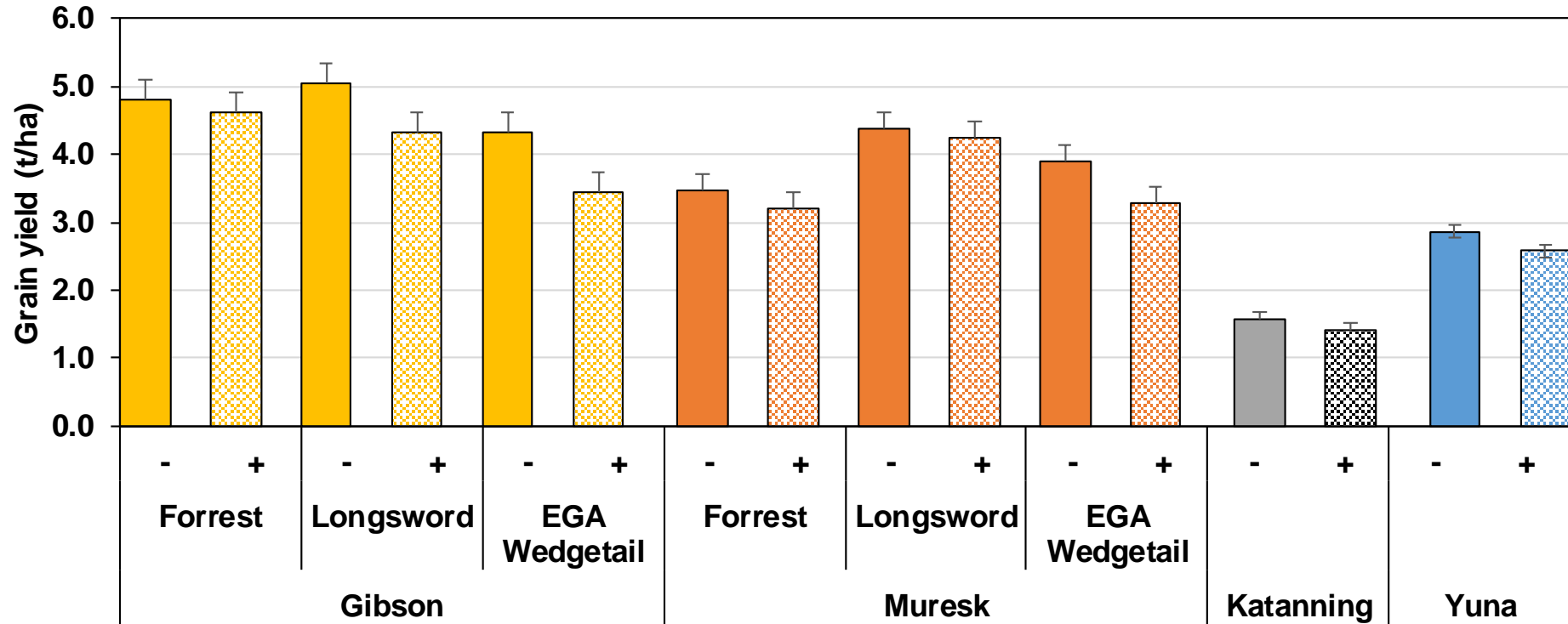




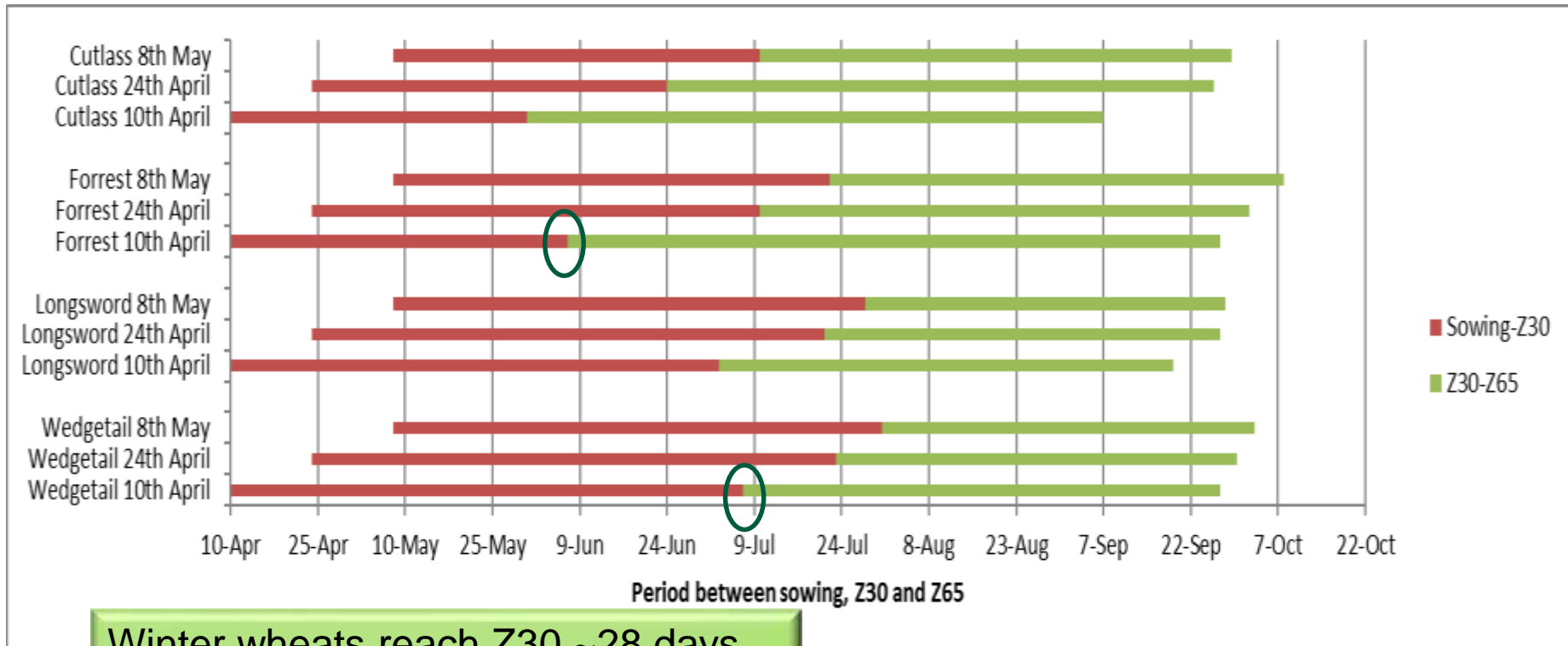
# Deferred N an opportunity to manage yield



## Grazing is opportunistic with some yield penalty



## Grazing length varies with variety and sowing time (Katanning 2018)



Winter wheats reach Z30 ~28 days later than spring wheats in early April

## Which wheat when.....

- A yield penalty can occur if sowing a short-mid variety too early (April) in the central and southern areas.
- Mid–long varieties have either out yielded or are equivalent in yield to Scepter in the pre mid May sowings.
- In frost risk areas, use winter/long varieties to minimise frost damage or don't sow wheat in April. ***Remember there are other crop options.***

## With early April sowing.....

- Trials found no yield differences with a lower establishment of 50plants/m<sup>2</sup>.
- Deferring N until stem elongation appears a safe option for early sown wheat.

# Thank you

DPIRD/GRDC co funded project

DAW00249 - Tactical wheat agronomy for the west

## Acknowledgements:

DPIRD's Technical Support Units – Esperance, Geraldton, Katanning, Merredin

Technical officers – Melanie Kupsch, Bruce Haig, Ashleigh Donnison, Rod Bowey, Helen Cooper

### **Important disclaimer**

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