



Department of  
**Primary Industries and  
Regional Development**

GOVERNMENT OF  
WESTERN AUSTRALIA

# HARVEST WEED SEED DESTRUCTION – DOES IT WORK FOR GREAT BROME AND BARLEY GRASS?

**Dr Catherine Borger**

**Department of Primary Industries and Regional Development**



**GRDC**

GRAINS RESEARCH  
& DEVELOPMENT  
CORPORATION

# HARVEST WEED SEED DESTRUCTION

- Best for annual ryegrass, because it doesn't usually shed seed.
- Brome grass and barley grass cost \$22.5 and \$1.7 million, nationally.

So it would be great if harvest weed seed destruction could be used to control these weeds.

**Harvest weed seed destruction depends on:**

- **Shedding times**
- **Plant height**
- **Lodging**



# ISSUE 1 – SHEDDING TIME

Percent seed loss at Wongan Hills in Mace wheat in 2016, 2017 and 2018, from Oct to harvest.

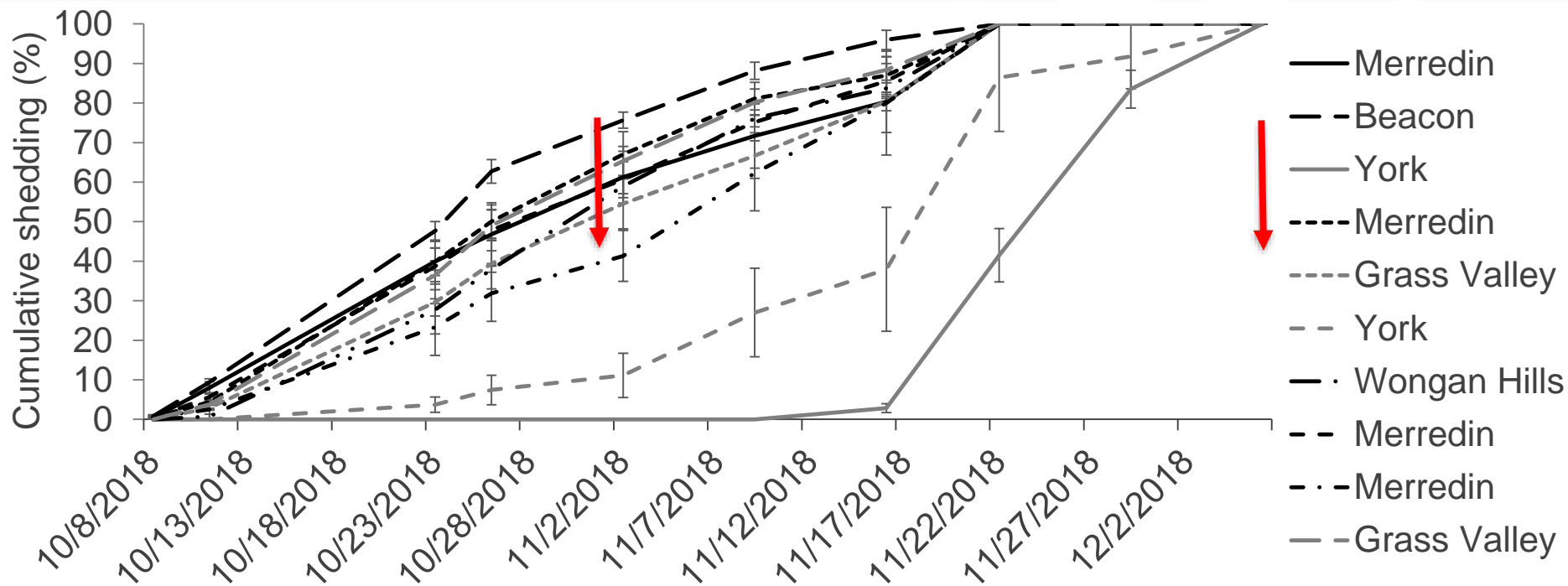
**Orange indicates date of crop maturity – earliest possible harvest date.**

Species	Year	7/10/2016	24/10/2016	7/11/2016	14/11/2016	25/11/2016	1/12/2016
Annual ryegrass	2016	0	1	3	9	24	100
Great brome		0	0	1	64	100	
Barley grass		0	8	13	38	100	
Species		9/10/2017	24/10/2017	9/11/2017	15/11/2017	23/11/2017	
Annual ryegrass	2017	0	1	3	13	100	
Great brome		0	6	28	70	100	
Barley grass		0	4	4	8	100	
Species		5/10/2018	19/10/2018	1/11/2018	12/11/2018	28/11/2018	
Annual ryegrass	2018	0	1	3	5	100	
Great brome		0	0	14	46	100	
Barley grass		0	0	0	1	5	



# ISSUE 1 – SHEDDING TIME

Barley grass shedding in controlled conditions



# ISSUE 1 – SHEDDING TIME

- Lots of variation in shedding times.
- No convenient relationships between rainfall/season length and seed shedding times.

## Key messages

- **Harvest as early as possible where great brome and barley grass are the priority.**
- **Early maturing crop may allow an earlier harvest?**
- **Swathing to improve weed seed retention?**



# ISSUE 2 – PLANT HEIGHT

At Wongan Hills:

- Wheat was 77 cm.
- Great brome was 65-84 cm.
- Annual ryegrass was 53-68 cm.
- Barley grass was 10-12 cm.



In the screen house:

- Great brome was 14-84 cm.
- Barley grass was 9-31 cm.



# ISSUE 2 – PLANT HEIGHT

## Key messages:

- **Know how tall your weeds are.**
- **A competitive crop (narrow row spacing, high density) may increase weed height?**
- **Very low harvest with flex front?**





# ISSUE 3 – LODGING

Barley grass did not lodge – it was too short.

Great brome lodged in the screen house, not in crop.

## Key messages:

- **Know your weeds.**
- **A competitive crop (narrow row spacing, high density) may support weed seed heads.**



# CONCLUSIONS

- Know your weeds!!!!
- Harvest as early as possible to target great brome and barley grass.
- A competitive crop may increase weed height and reduce lodging.
- We have lots of unanswered questions for great brome and barley grass HWSD.





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# Thank you

This work is a part of GRDC project 'Seedbank biology of emerging weeds' (UA00156).  
Thanks are due to Dr Abul Hashem, Nerys Wilkins and Peter Gray.

@borgercatherine

Department of Primary Industries and Regional Development

75 York Rd (PO Box 483), Northam WA 6401

+61 (0)8 9690 2220

+61 (0)467 816 082

[dpird.wa.gov.au](http://dpird.wa.gov.au)