

# Aspects of onion storage potential

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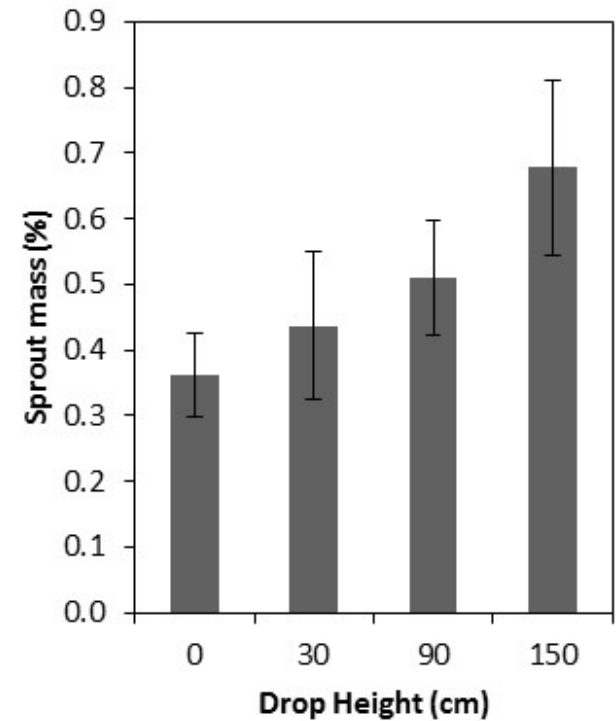
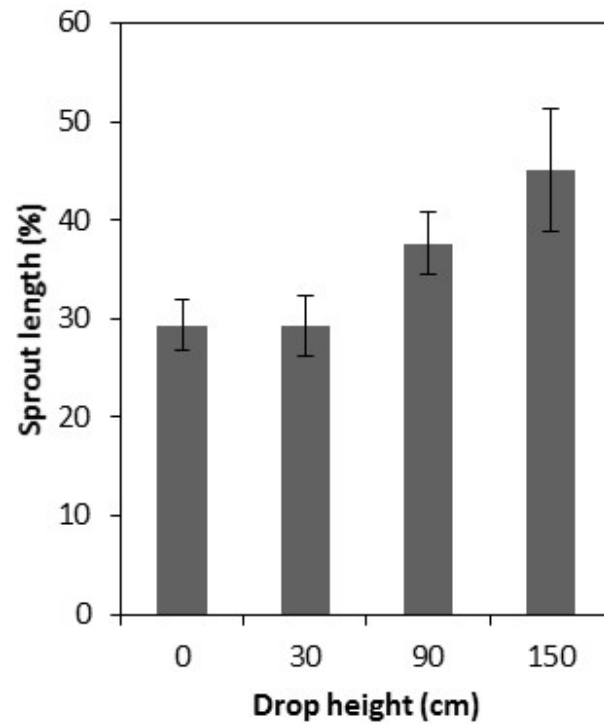
*VN12000 Physiology of onion bulbs destined for export markets*



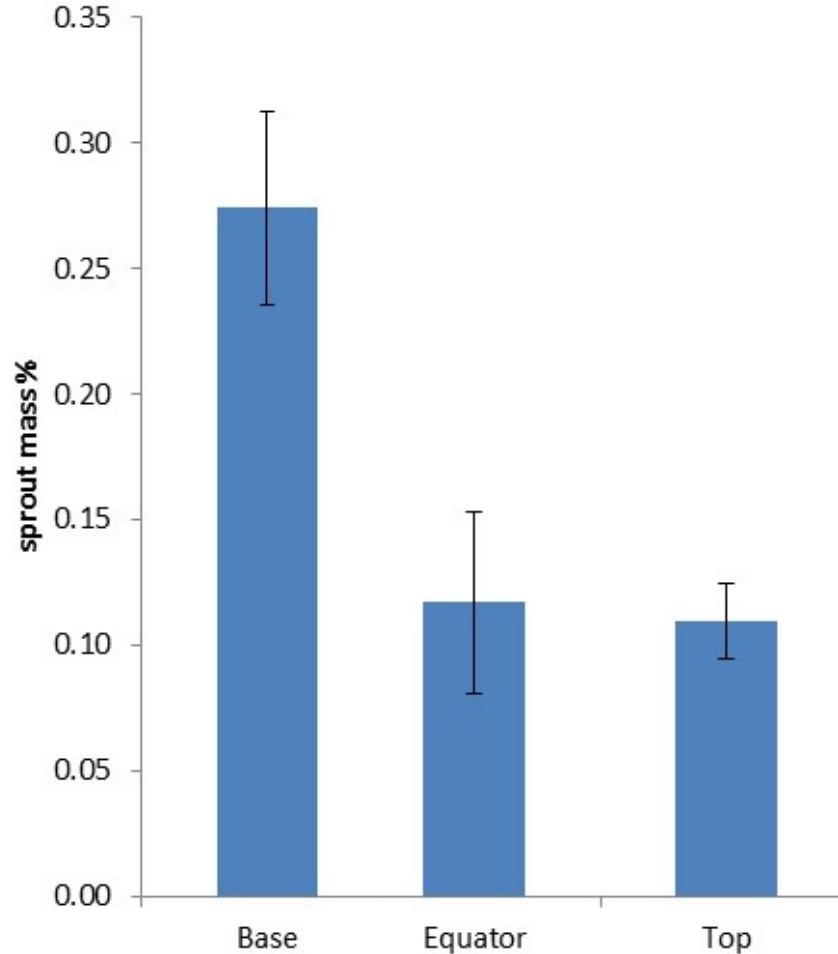
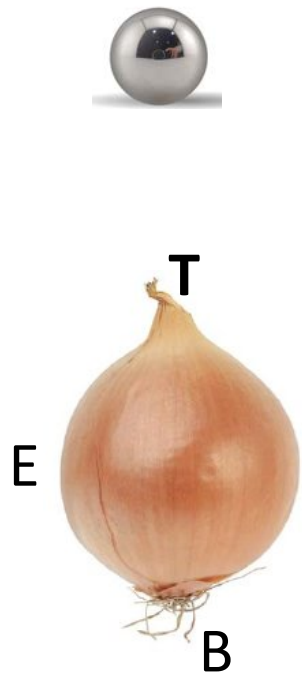
# Context

- Bulbs stored at ambient conditions
- Counter-season export or year-round domestic supply
- Few published studies linking pre- and post-harvest practices to bulb storage potential
- Storage potential primarily government by sprout development/appearance
- This study was undertaken in Tasmania:
  - Predominately export focused
  - Bulbs are lifted and cured in-field

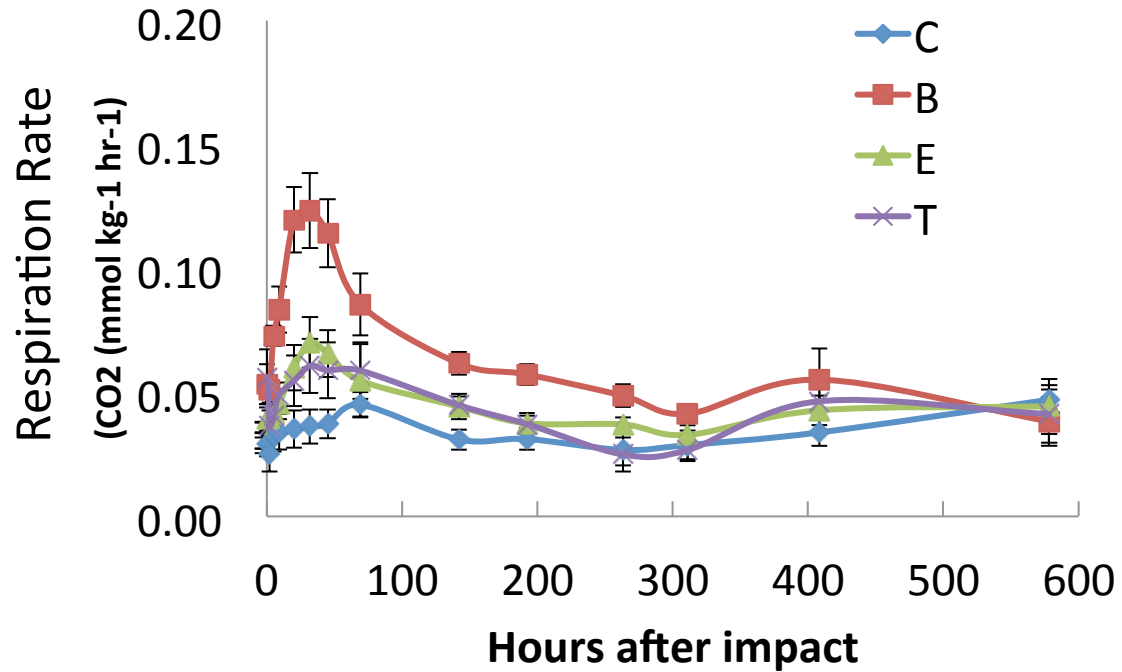
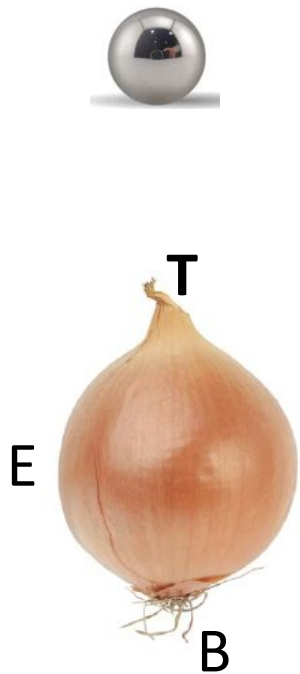
# Do physical impacts influence bulb storage potential?



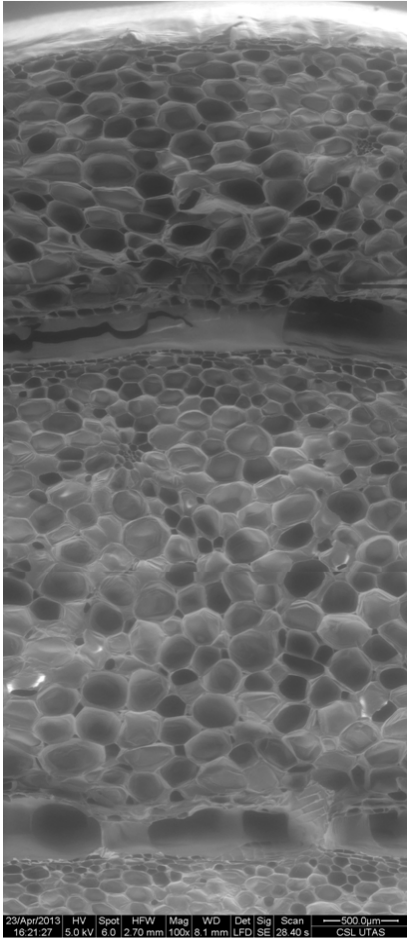
# Does the location of impact influence storage potential?



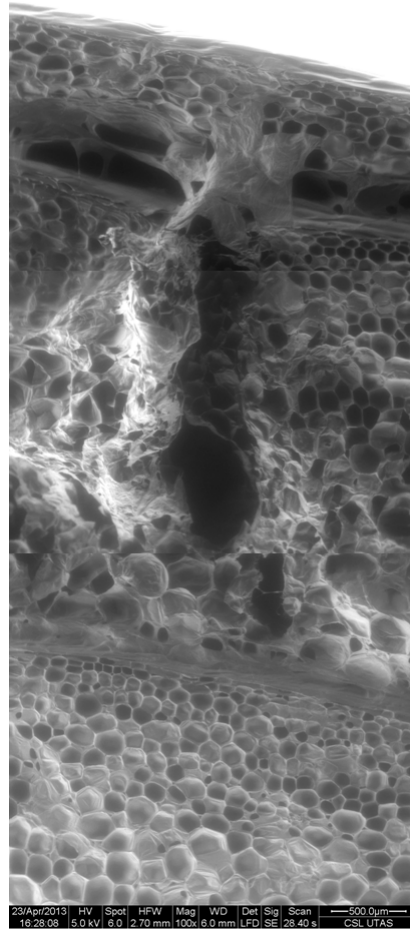
# Does the location of impact influence storage potential?



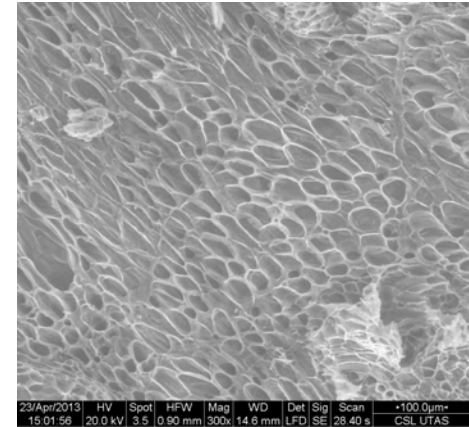
# Damage is not always externally visible



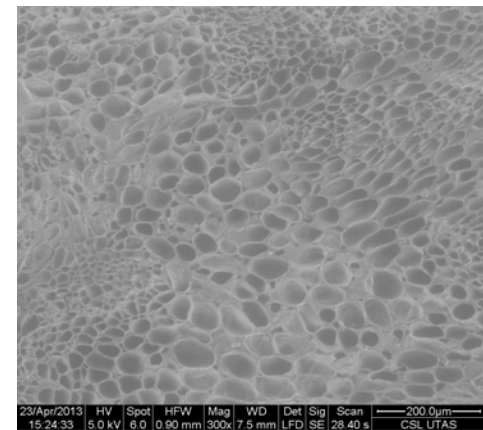
Control



Impacted

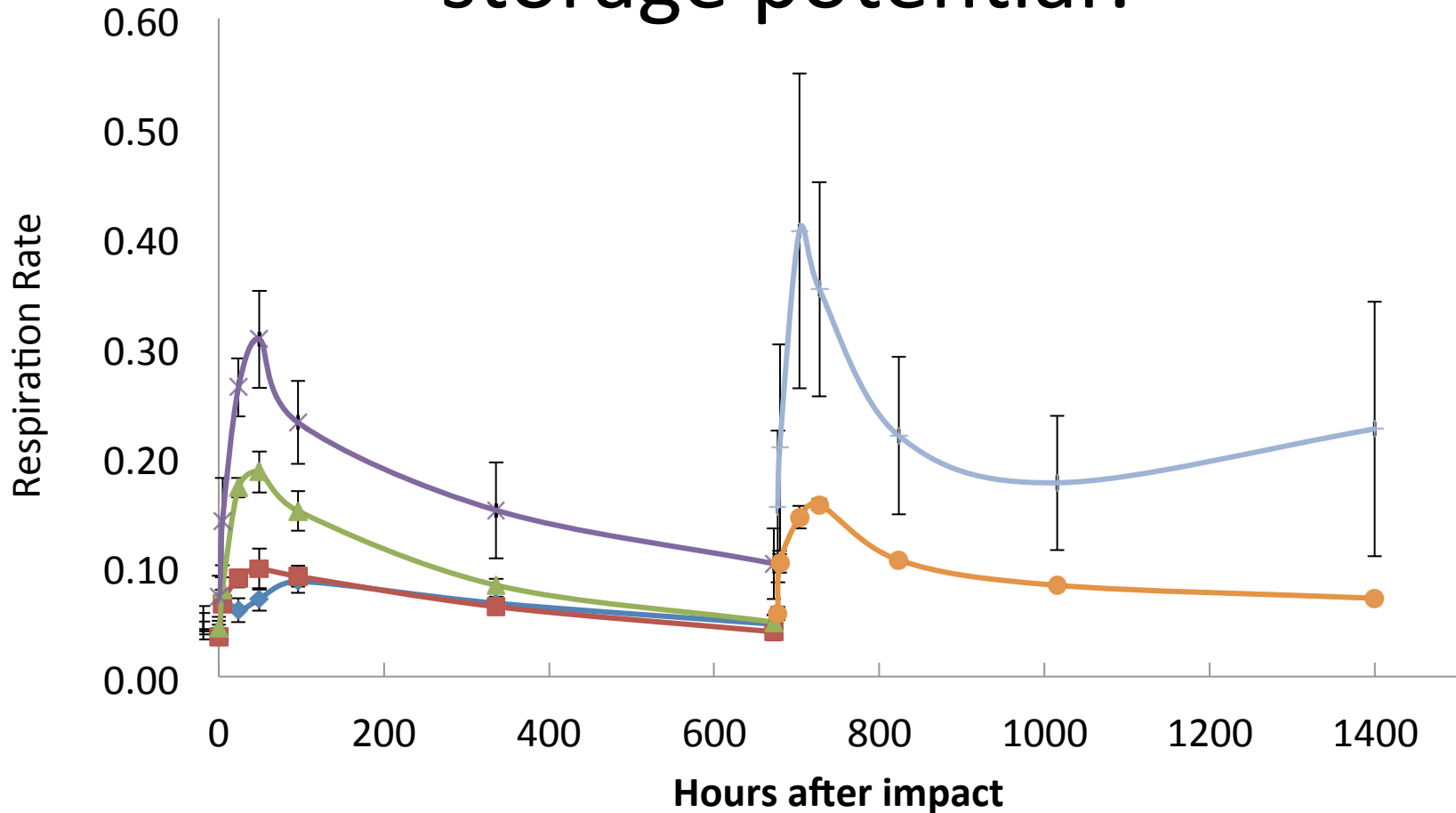


Control



Impacted

# What happens with repeat impacts on storage potential?



◆ Impact 0

■ Impact 30

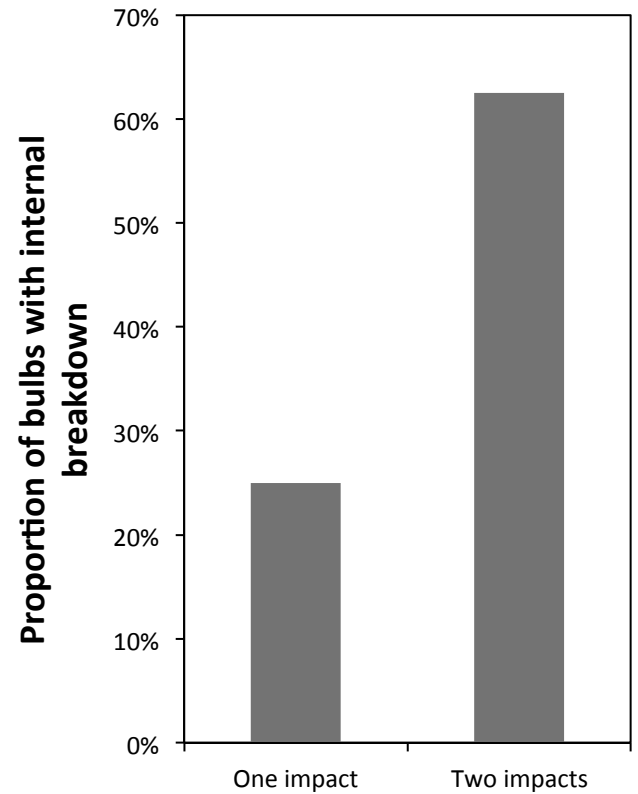
▲ Impact 90

✕ Impact 150

● Second Impact 90

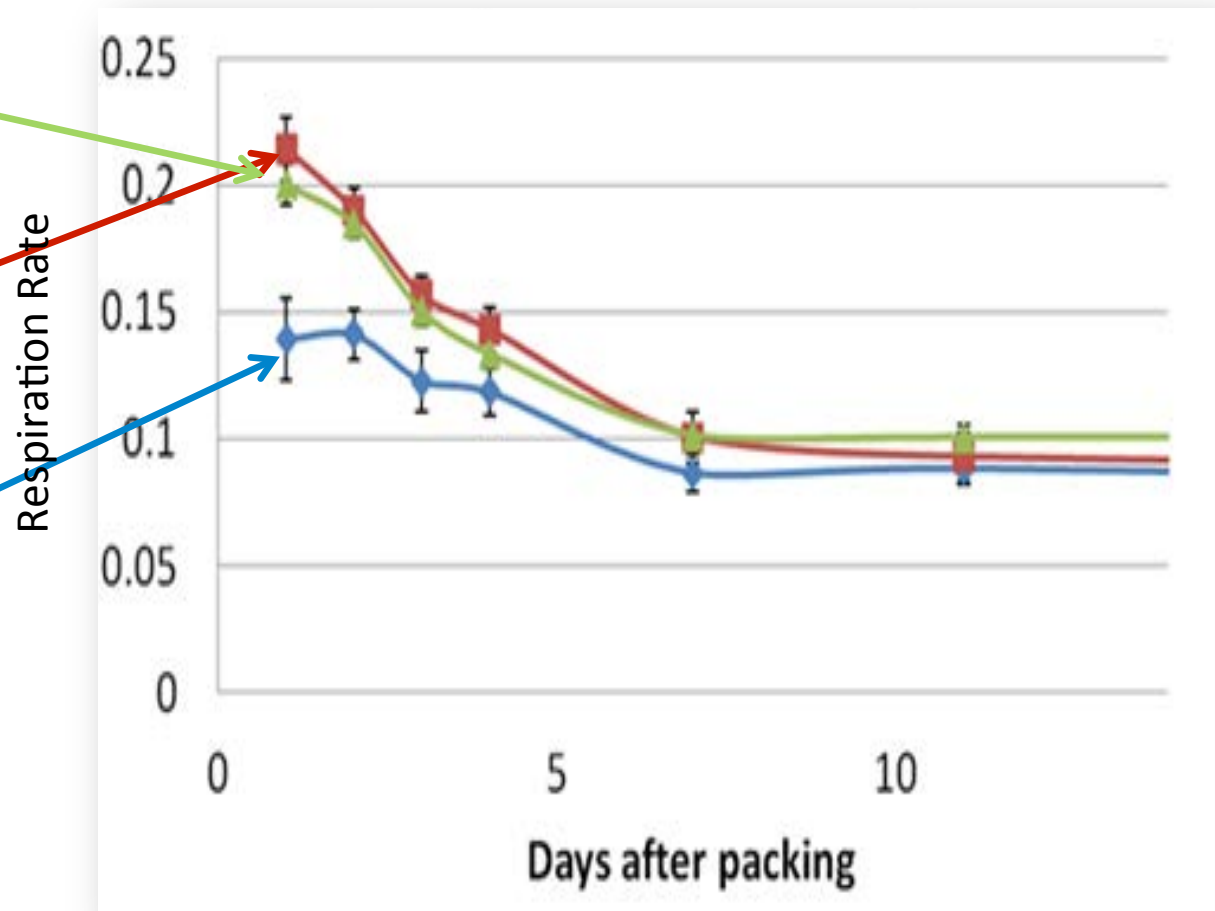
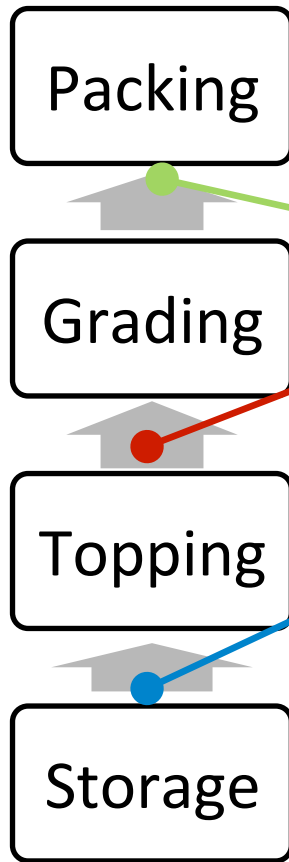
+ Second Impact 150

# What happens with repeat impacts on storage potential?

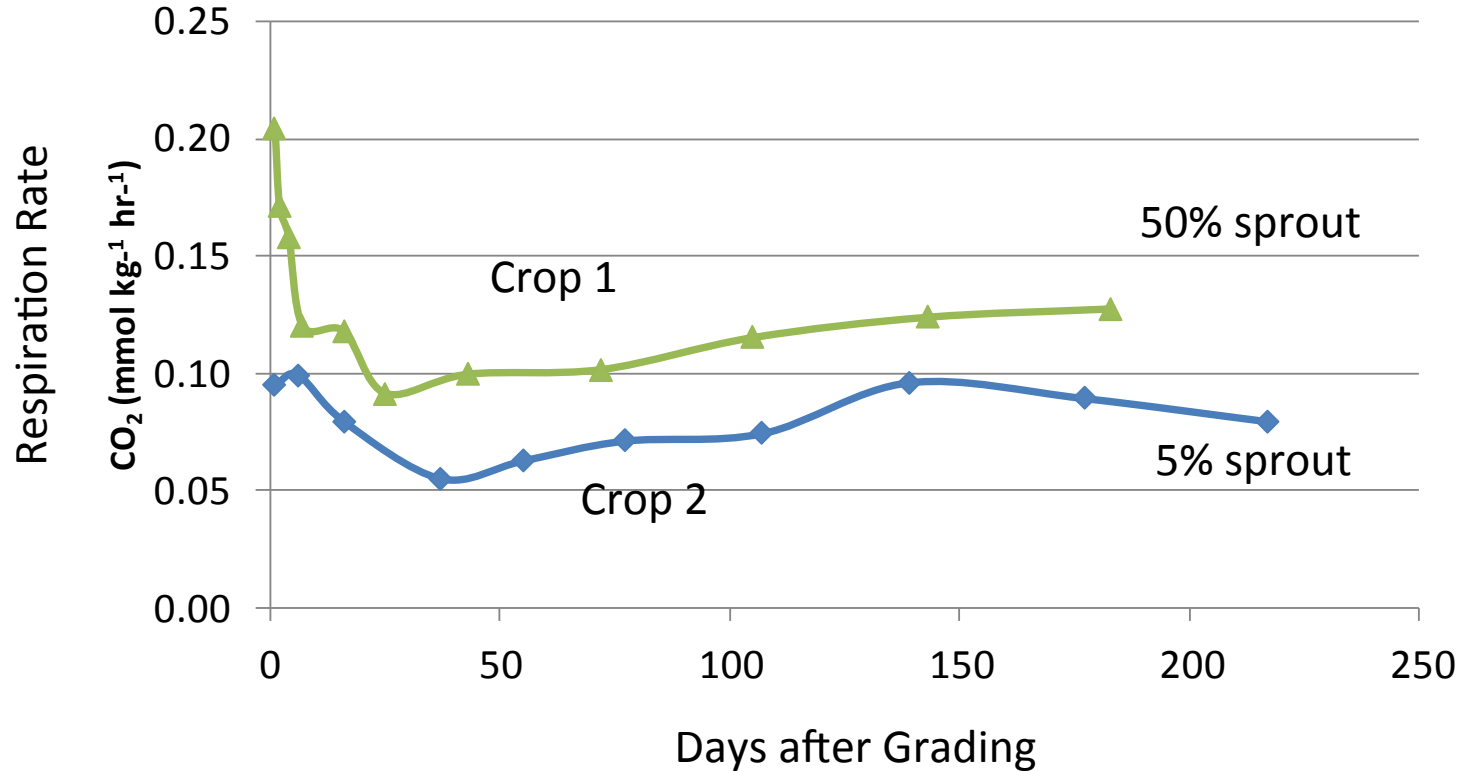




# Is there evidence of effects from grading process?



# Are there differences among crops?



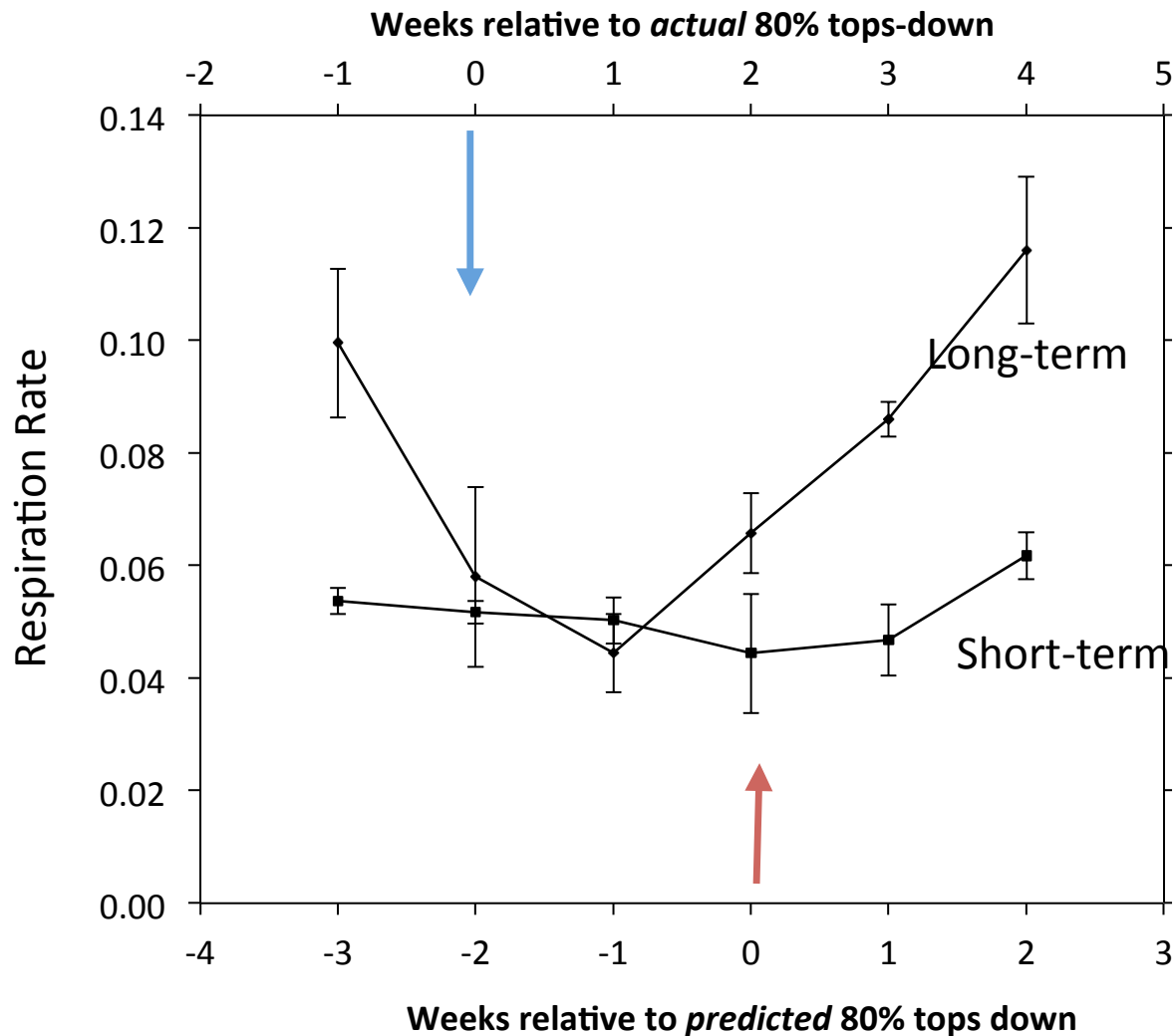
# Postharvest and handling

- Physical impacts can reduce storage potential
- Bulbs are more sensitive to impact to the base plate
  - Implications for grading and packing lines
- Crops of the same cultivar vary in storage potential

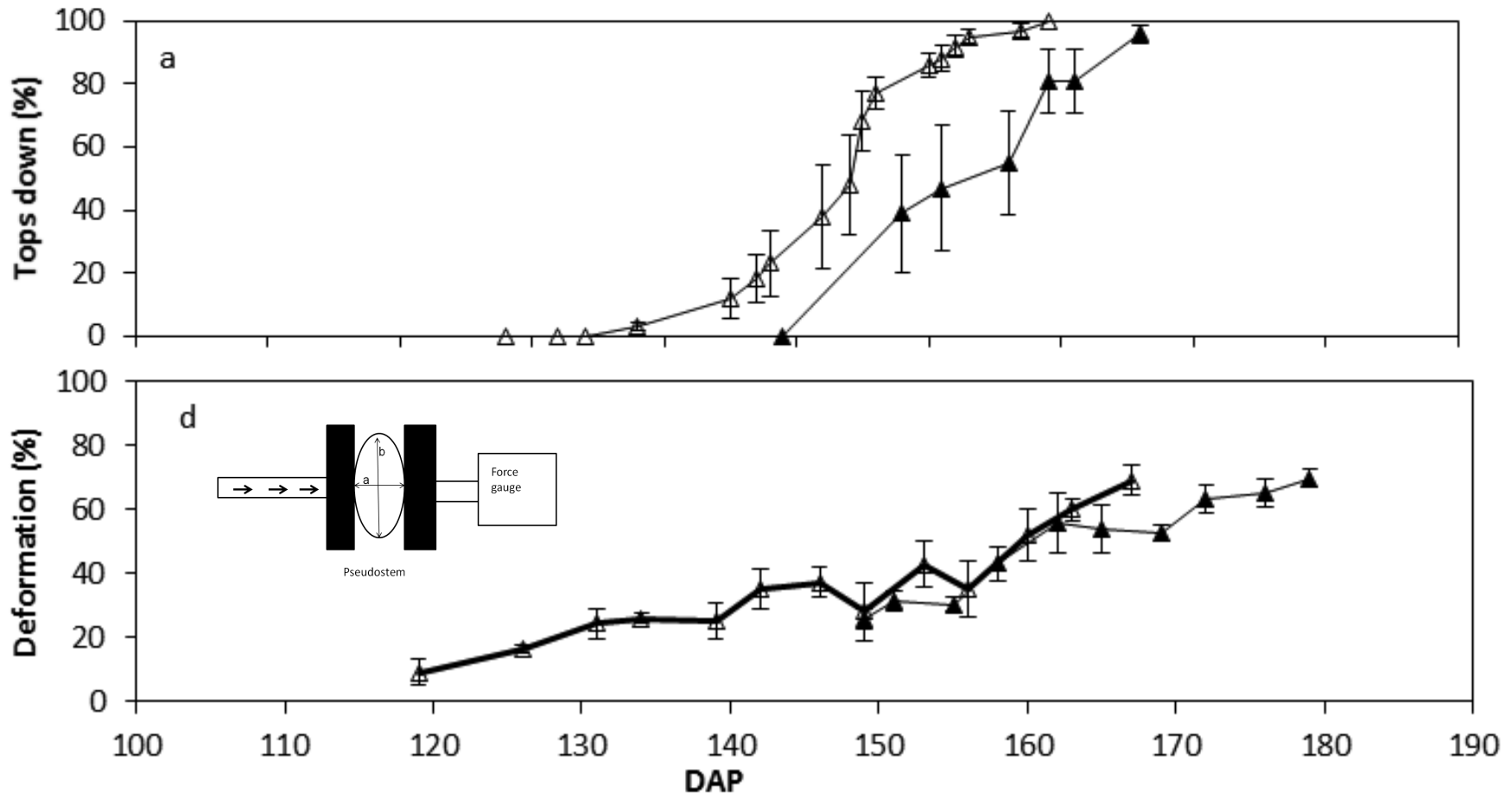
# Does crop growth rate influence storage life?

<b>Crop</b>	<b>Treatment</b>	<b>Sprout length (%)</b>
<b>CGa12</b>	<b>Control</b>	51.2 ± 3.2
	<b>High N</b>	51.2 ± 5.6
	<b>Defoliation</b>	49.1 ± 2.8
<b>CGb12</b>	<b>Control</b>	44.9 ± 3.5
	<b>High N</b>	43.9 ± 2.6
	<b>Defoliation</b>	44.2 ± 2.4

# Does lifting time influence storage potential?



# Does lifting time influence storage potential?



# Conclusions

- Few long-term storage studies in onions
- Physical impacts reduce storage potential of bulbs
- Bulbs are more sensitive to impacts to the base plate
  - Implications for grading and packing lines
- Onions from crops of the same cultivar vary in storage potential
  - Respiration rate is a good proxy for storage potential
- Storage potential is influenced by time of lifting
  - Transition toward dormancy
  - Time of harvest (90% TD)

**Adrian Hunt (2016) Optimising onion (*Allium cepa* L.) bulb quality for counter-seasonal export markets. PhD Thesis, University of Tasmania**