Waterlogging tolerance in lentil

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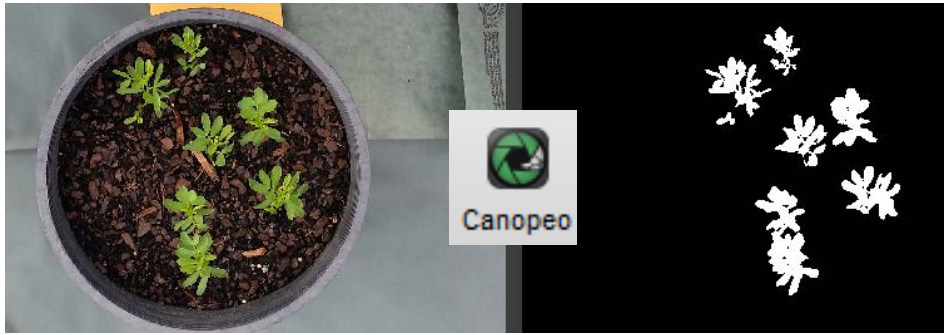
Designing the best screening method

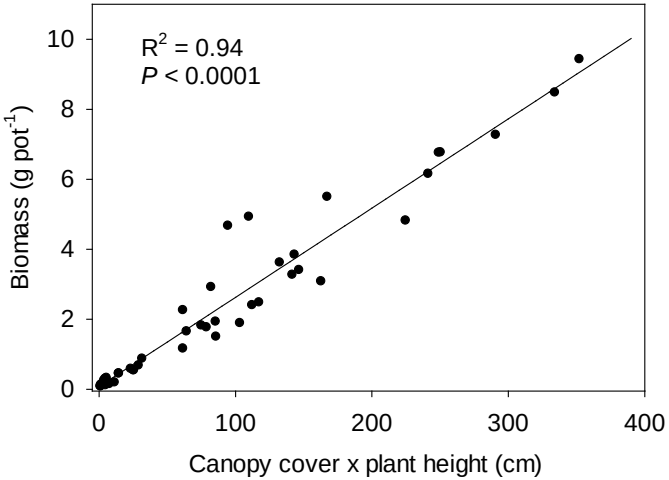
- 10 lines
- Two durations of waterlogging (7 and 14 d)
- Two growth stages (24 and 41 d post emergence)
- 3 replicates
- Measure crop growth rate and harvest biomass (3 weeks after waterlogging)

Non destructive biomass measurement



Want to measure differences in biomass and growth rate

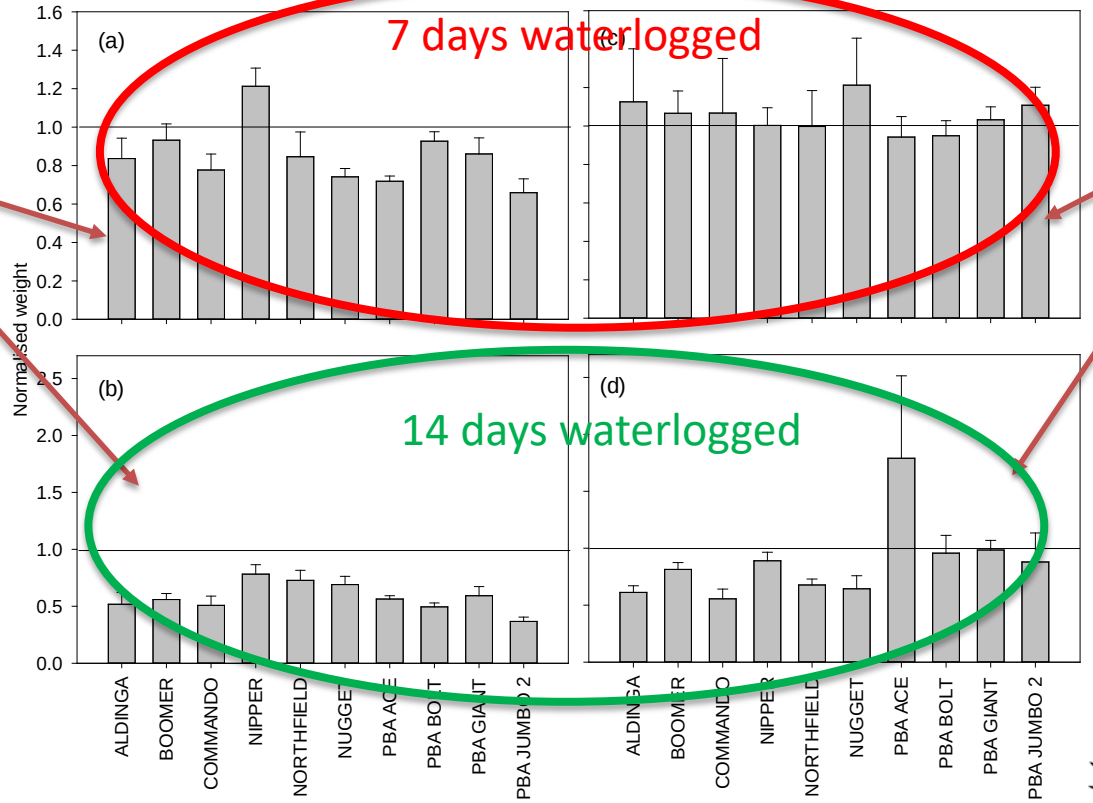
Linear relationship between biomass and canopy cover x plant height (cm). Varieties are PBA HallmarkXT, PBA Blitz and PBA Giant.



Differences in Biomass (harvest)

Waterlogging began 24 d after emergence

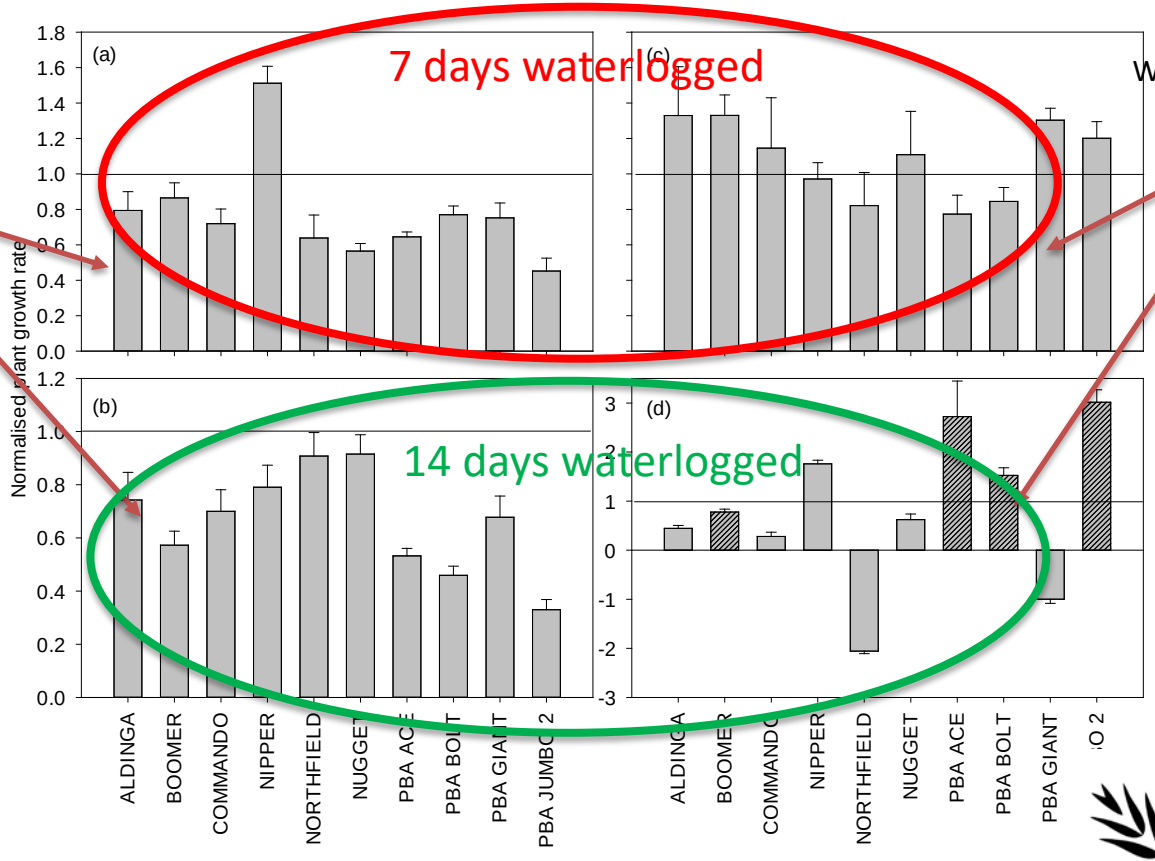
Waterlogging began 41 d after emergence



Differences in growth rate (post waterlogging)

Waterlogging began 24 d after emergence

Waterlogging began 41 d after emergence



Conclusions

Variety, waterlogging duration and growth stage when waterlogging was applied all had significant effect on biomass and plant growth rate ($P < 0.0001$).

A waterlogging treatment of 14 days duration at around 24 days (330 $^{o}Cd^{-1}$) after emergence was found to be most suitable for screening.

Using this method we aim to probe for genetic variation in a larger collection of lentil germplasm.

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