School of Agriculture, Food and Wine

THE UNIVERSITY of ADELAIDE

Sensitivity of canola yield:
stress at different growth stages

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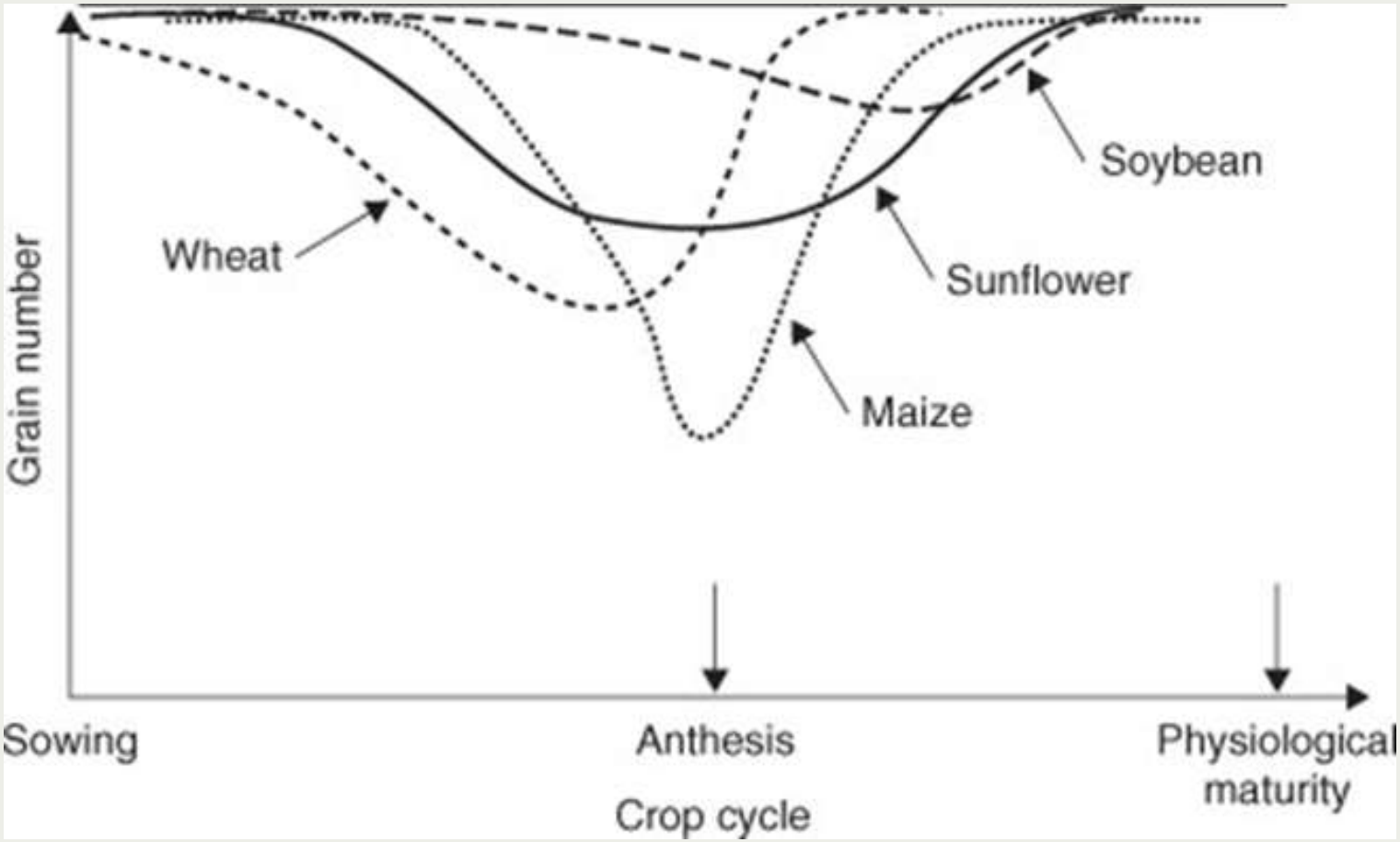
Background

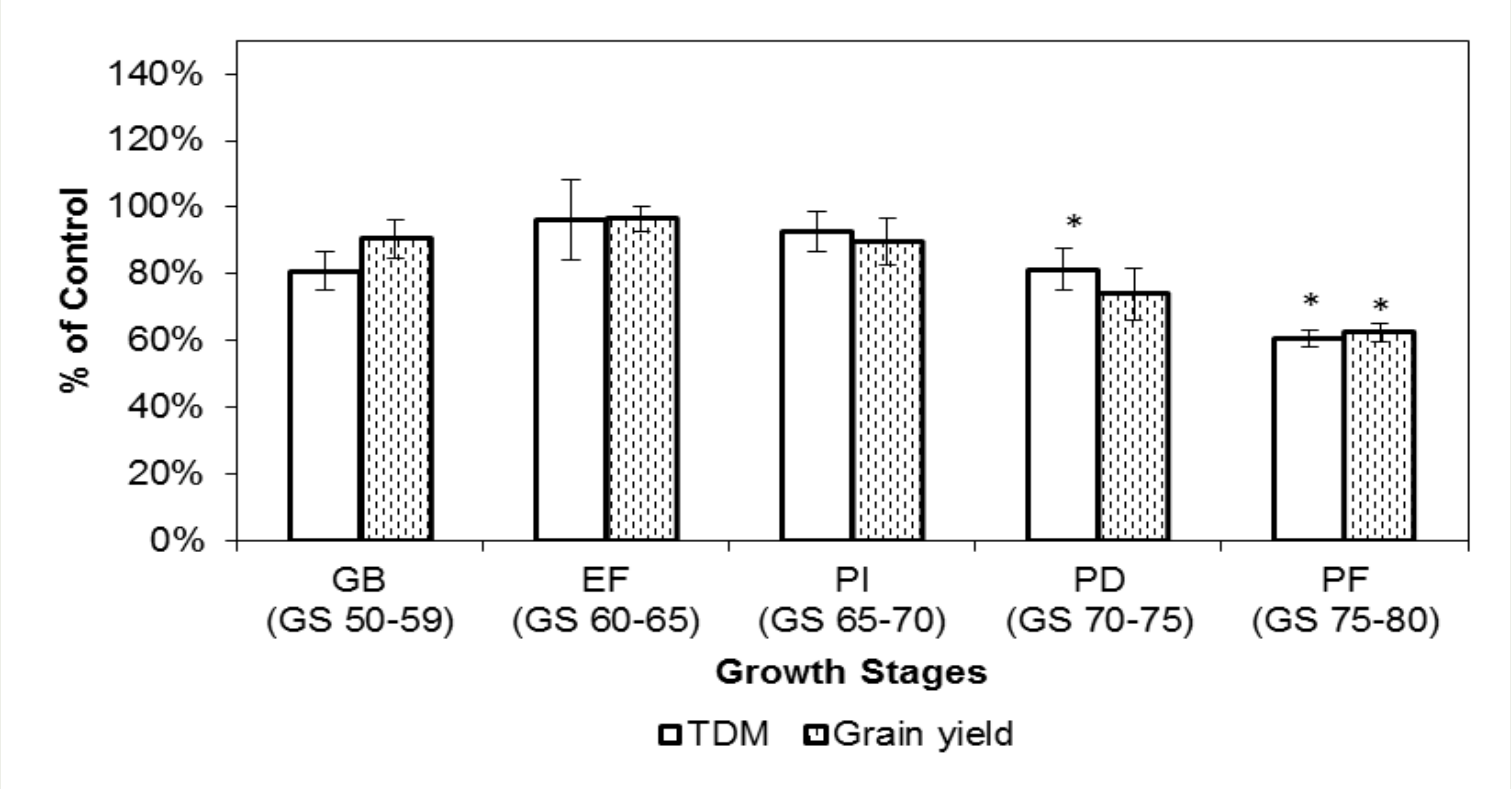


Calviño P, Monzon J (2009) Chapter 3 - Farming Systems of Argentina: Yield Constraints and Risk Management. In 'Crop Physiology.' (Eds V Sadras and D Calderini) pp. 55-70. (Academic Press: San Diego)

Materials and Method

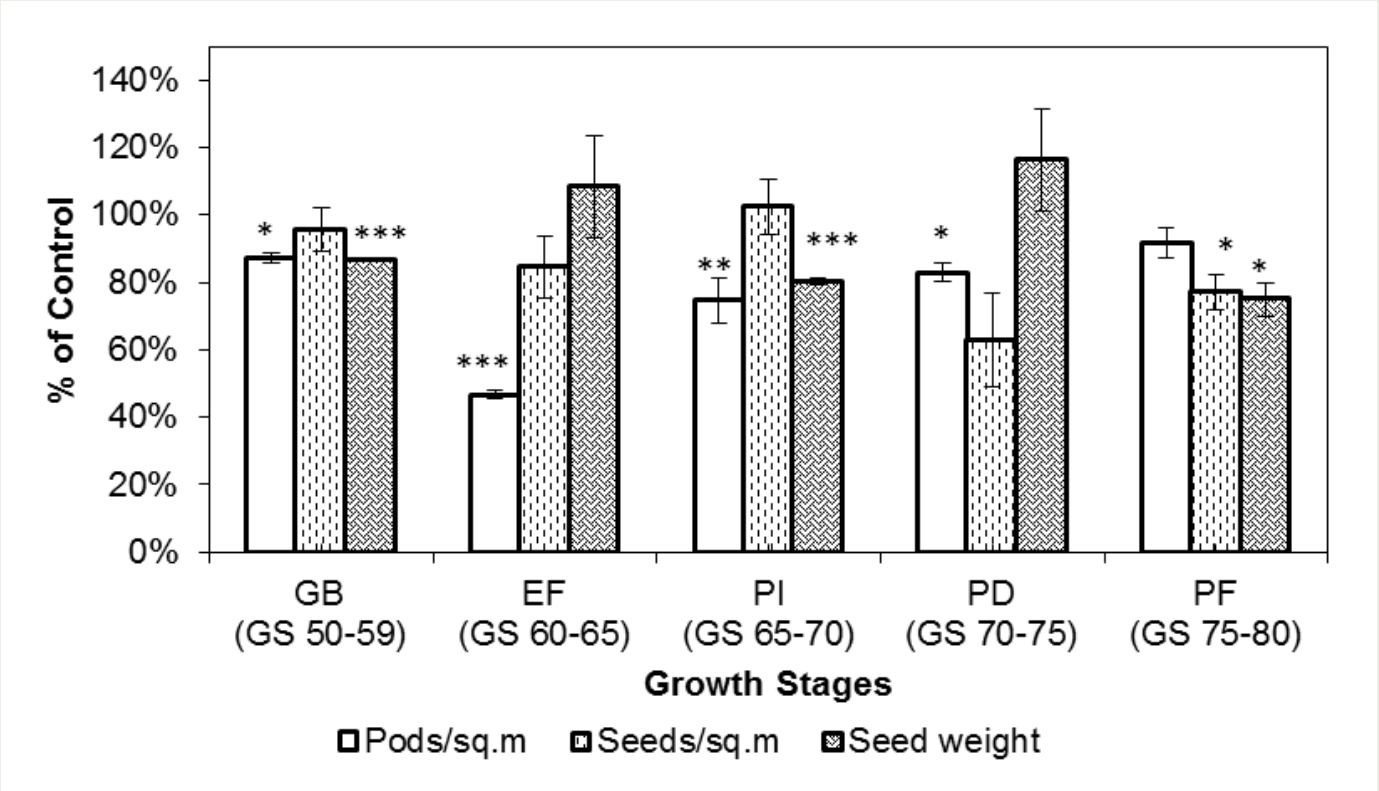
- Cultivar: Hyola 575CL
- Growing season rainfall=284mm
- White shade cloth (Premium Hortshade Light) reduced PAR by 33%
- green-bud (GS 50-59),
- early-flowering (GS 60-65),
- mid-flowering/pod-initiation (GS 65-70),
- late-flowering/pod-development (GS 70-75),
- pod-filling (GS 75-80).

Total dry matter accumulation (TDM) and Grain yield



* = 0.05, ** = 0.001, *** = <0.001

Yield Components



* = 0.05, ** = 0.001, *** = <0.001

Crop stressed at early flowering

Non-stressed crop

Crop stressed at Pod-development

Non-stressed crop

Harvest index (HI), Oil content and N uptake in seeds

Shade Treatments	HI	Oil content (%)	N uptake(Seeds) kg ha^{-1}
Green-bud	0.21	44.7	32.3
Early Flowering	0.19	44.5	33.8
Pod Initiation	0.18	44.3	36.5
Pod development	0.17	44.8	28.1
Pod filling	0.20	44.8	22.0
Unshaded	0.20	44.6	37.5
Lsd	0.07	0.6	8.2
Prob	NS	NS	0.017

Summary

Sensitivity of canola yield to stress increased as the crop developed.

A grain yield reduction of 38% was observed with the shading at pod filling due to low seed number and seed weight.

Stress at pod-filling reduced seed m^{-2} by 23% and seed weight by 25%.

There was no grain yield reduction with the stress at early-flowering. Stress at early flowering reduced the pod m^{-2} but did not affect the seed m^{-2}.

In contrast to yield, oil concentration was unaffected by the timing of stress.

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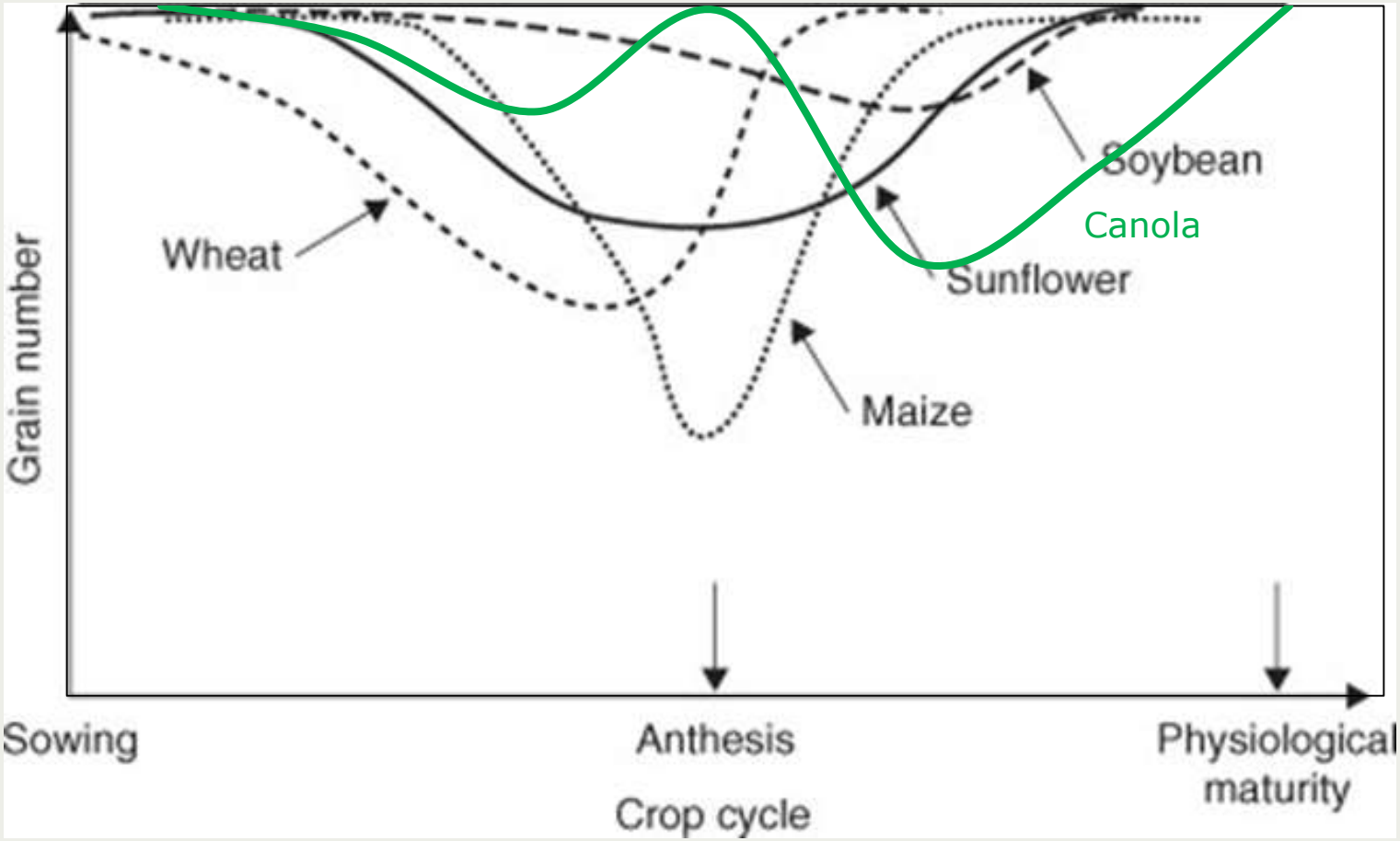
- Trent Potter

Thank You



(Calviño and Monzon 2009)