Pushing yields with nutrition

Jeremy Curry and Mark Seymour (DPIRD)

CSIRO: Jens Berger, Sam Flottman, Andrew Fletcher, Heping Zhang

FAR Australia: James Rollason, Nick Poole

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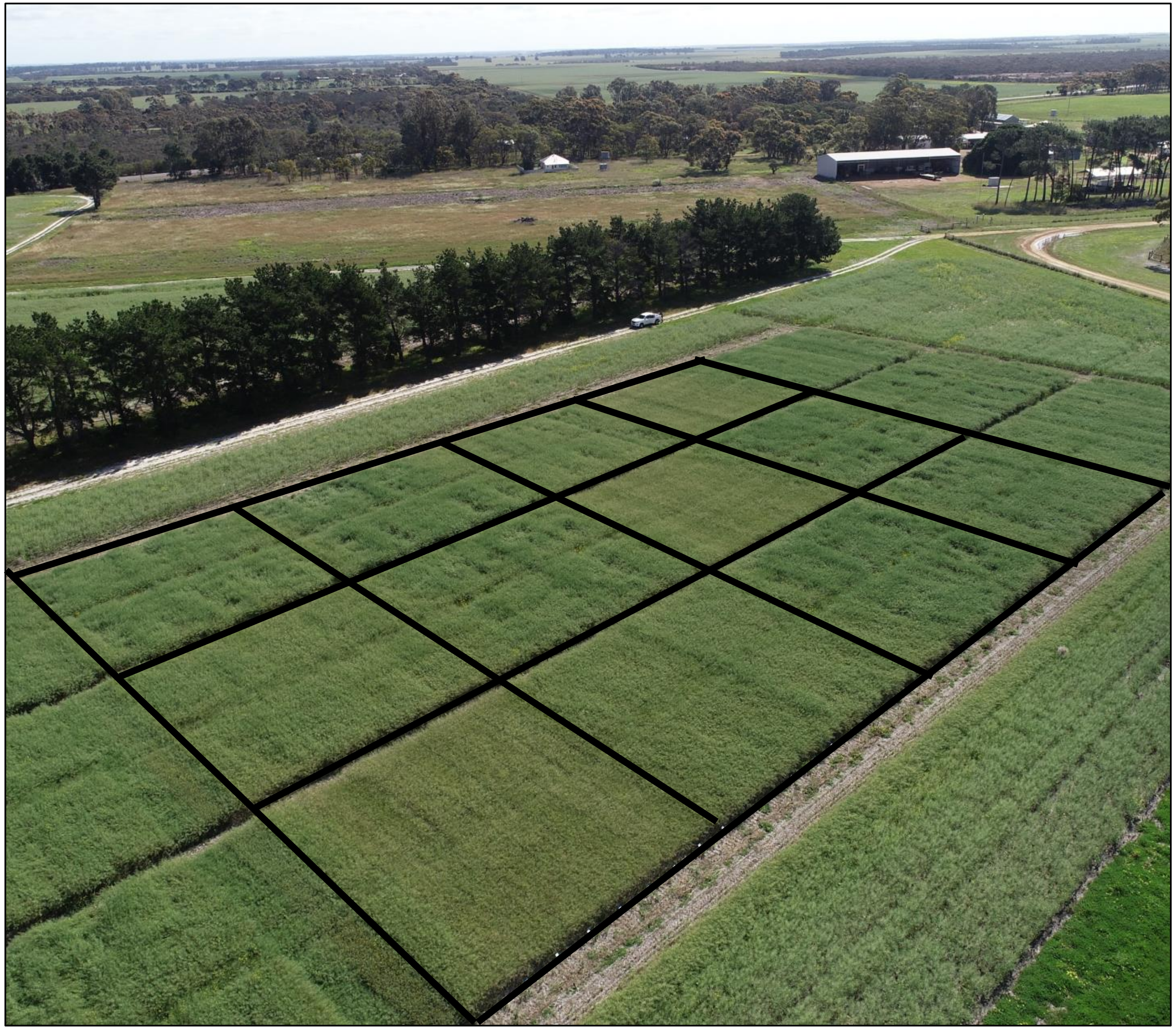
N rates up to 300N



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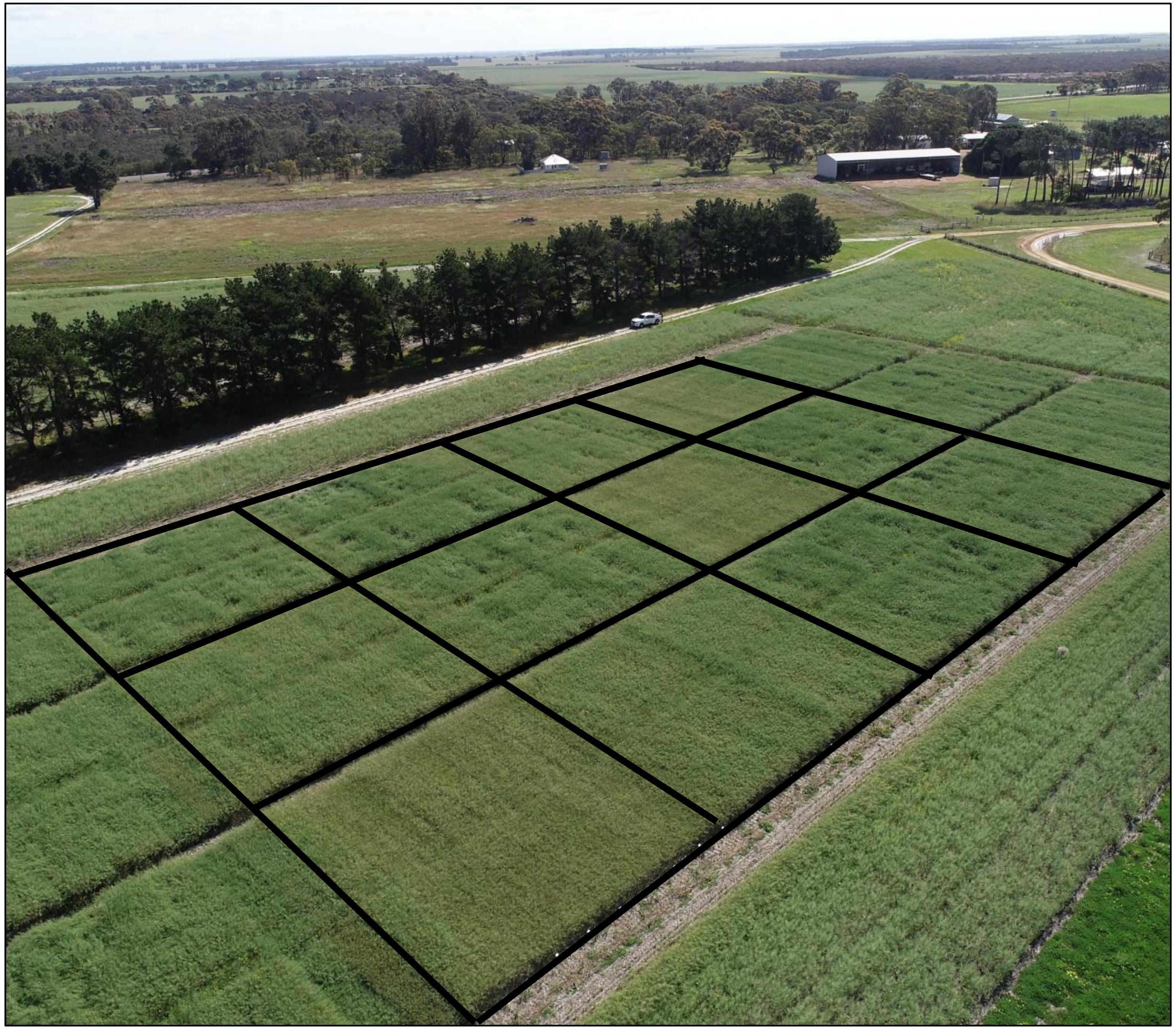
N rates up to 300N

	P	K	S
All	31	50	30
Med P	23	50	30
Low P	15	50	30
Minus K	31	0	30
Minus S	31	50	2
Base	15	0	2
Double All	62	100	60
Minus P	0	50	30
N only	0	0	0



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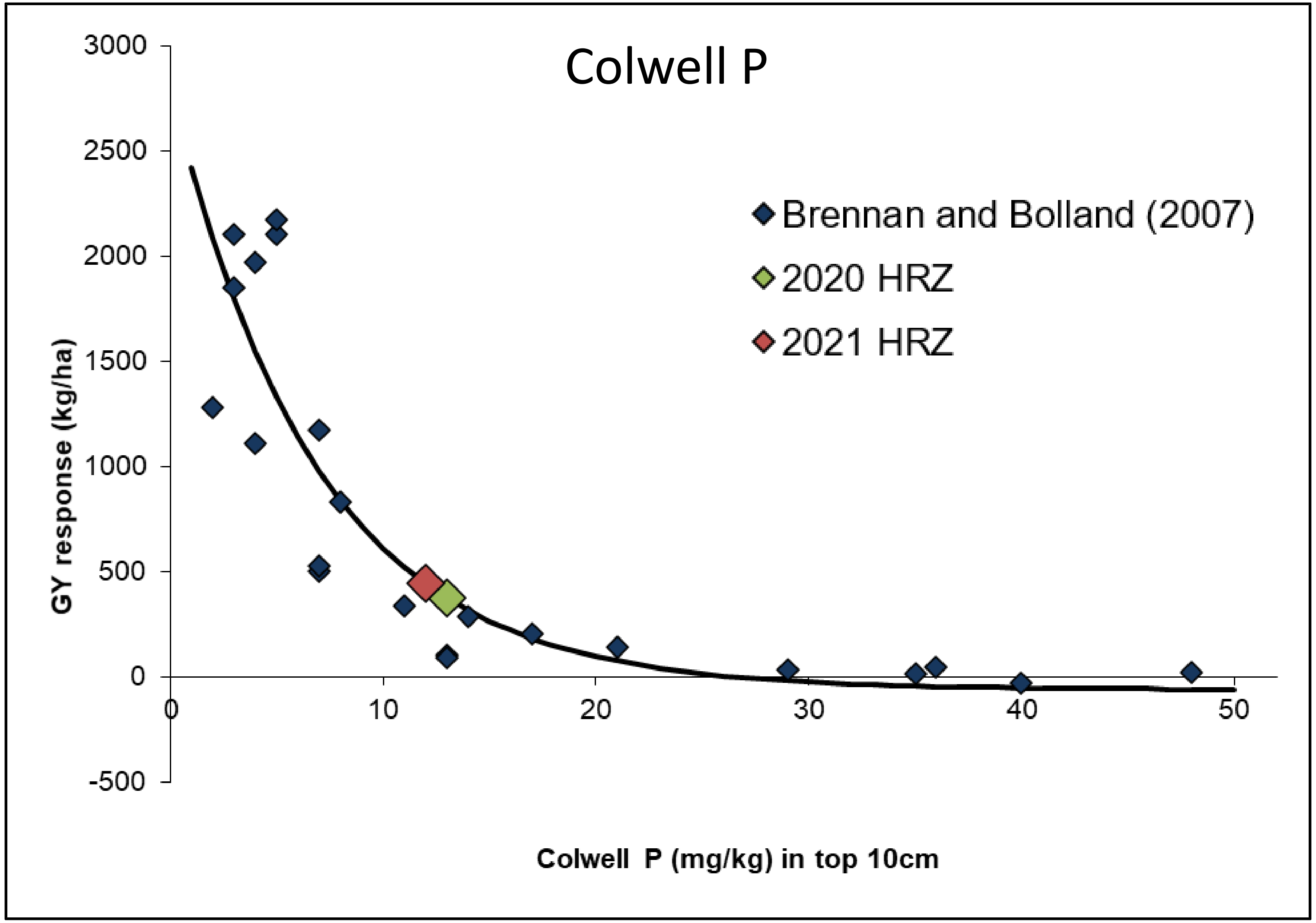
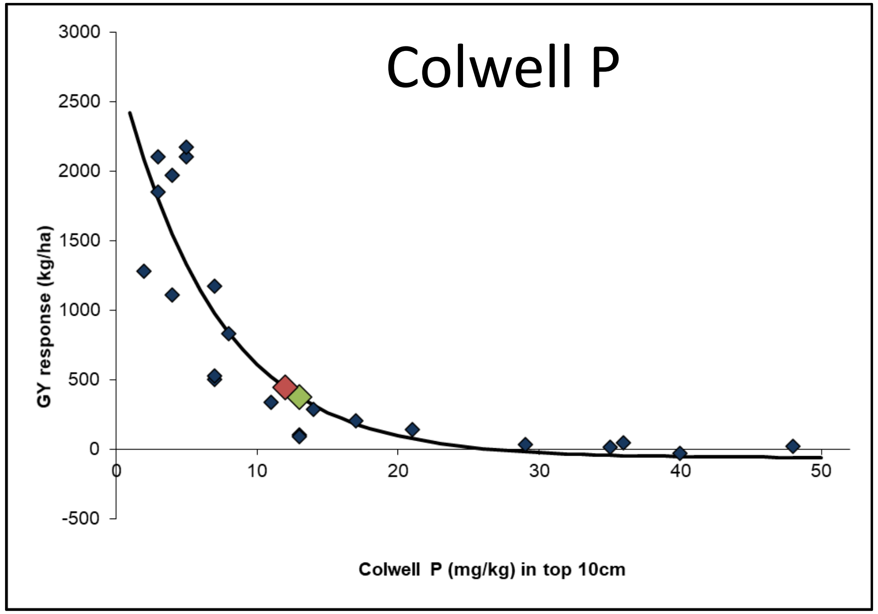
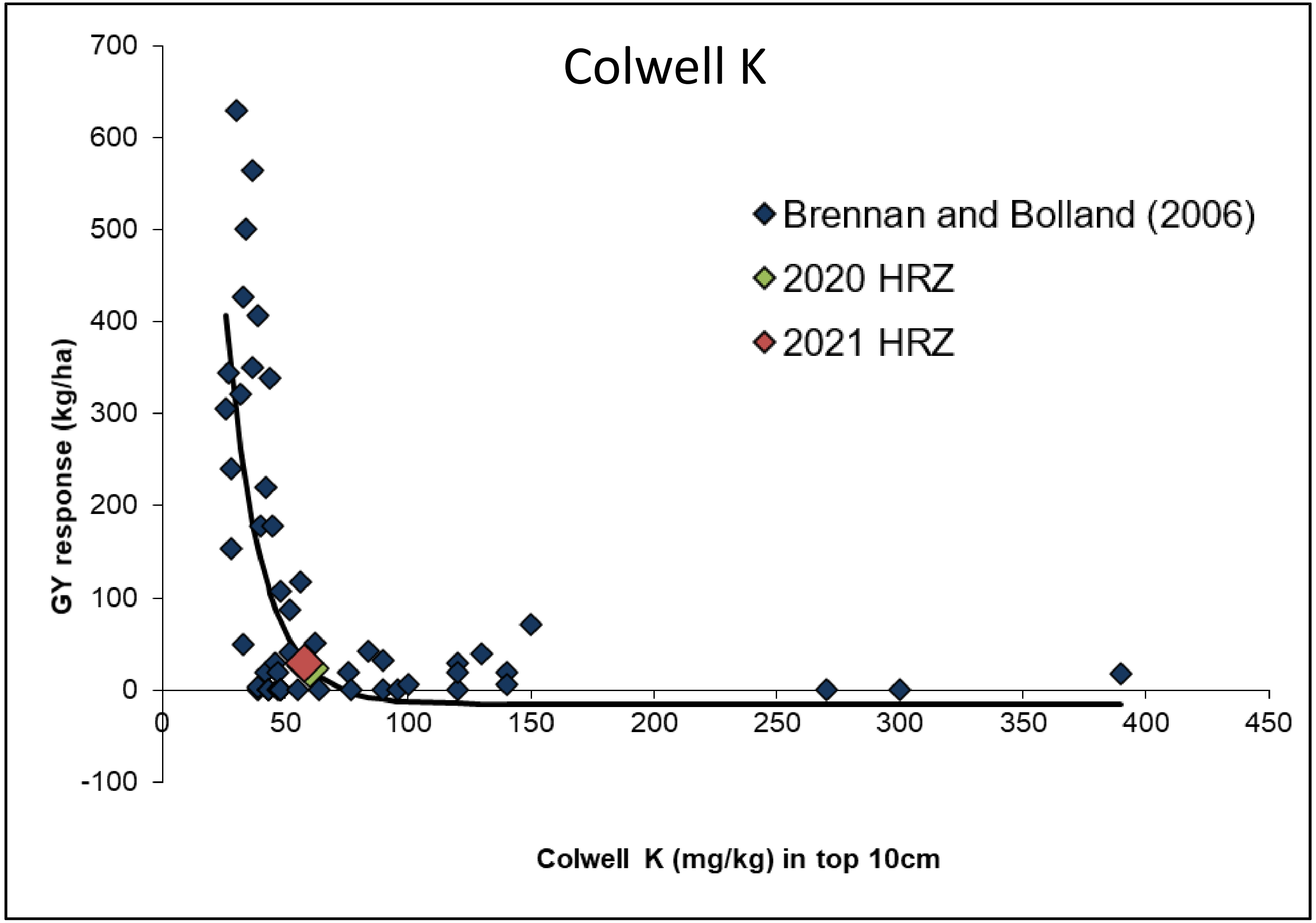
DGT-P
2020: 57 (0-10cm)
2021: 112 (0-10cm)

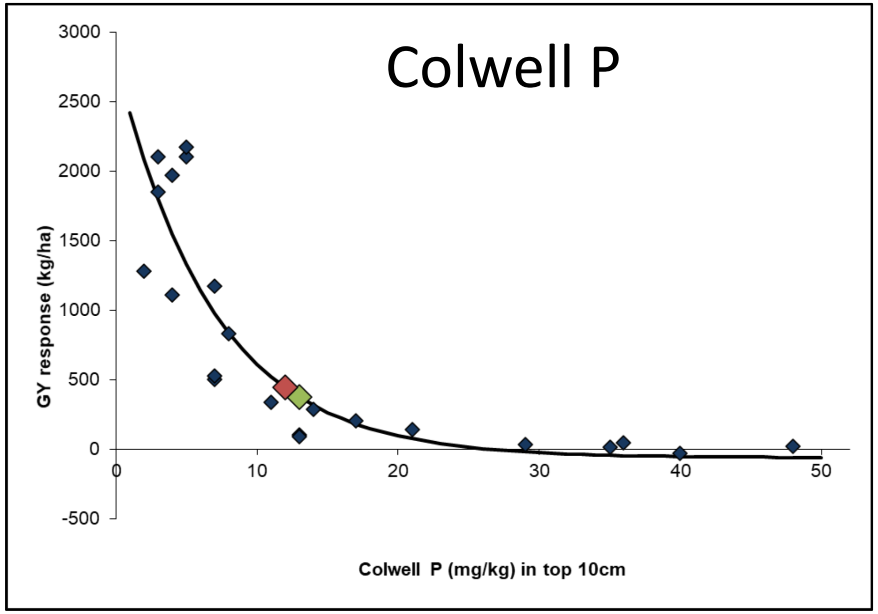


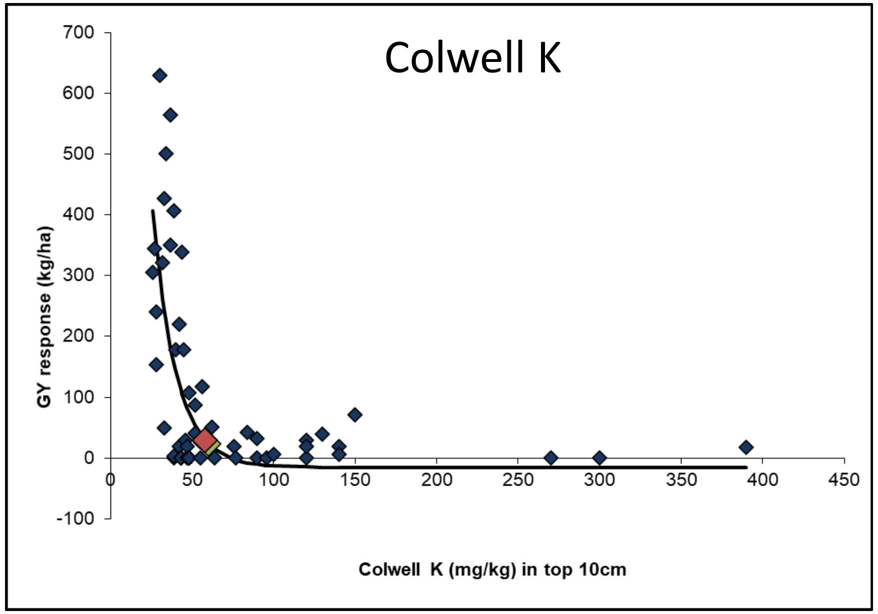
Source: Brennan, R. F. and Bolland, M. D. A. (2007) 'Soil and Tissue Tests to Predict the Phosphorus Requirements of Canola in Southwestern Australia', Journal of Plant Nutrition, 30:11, 1767 - 1777

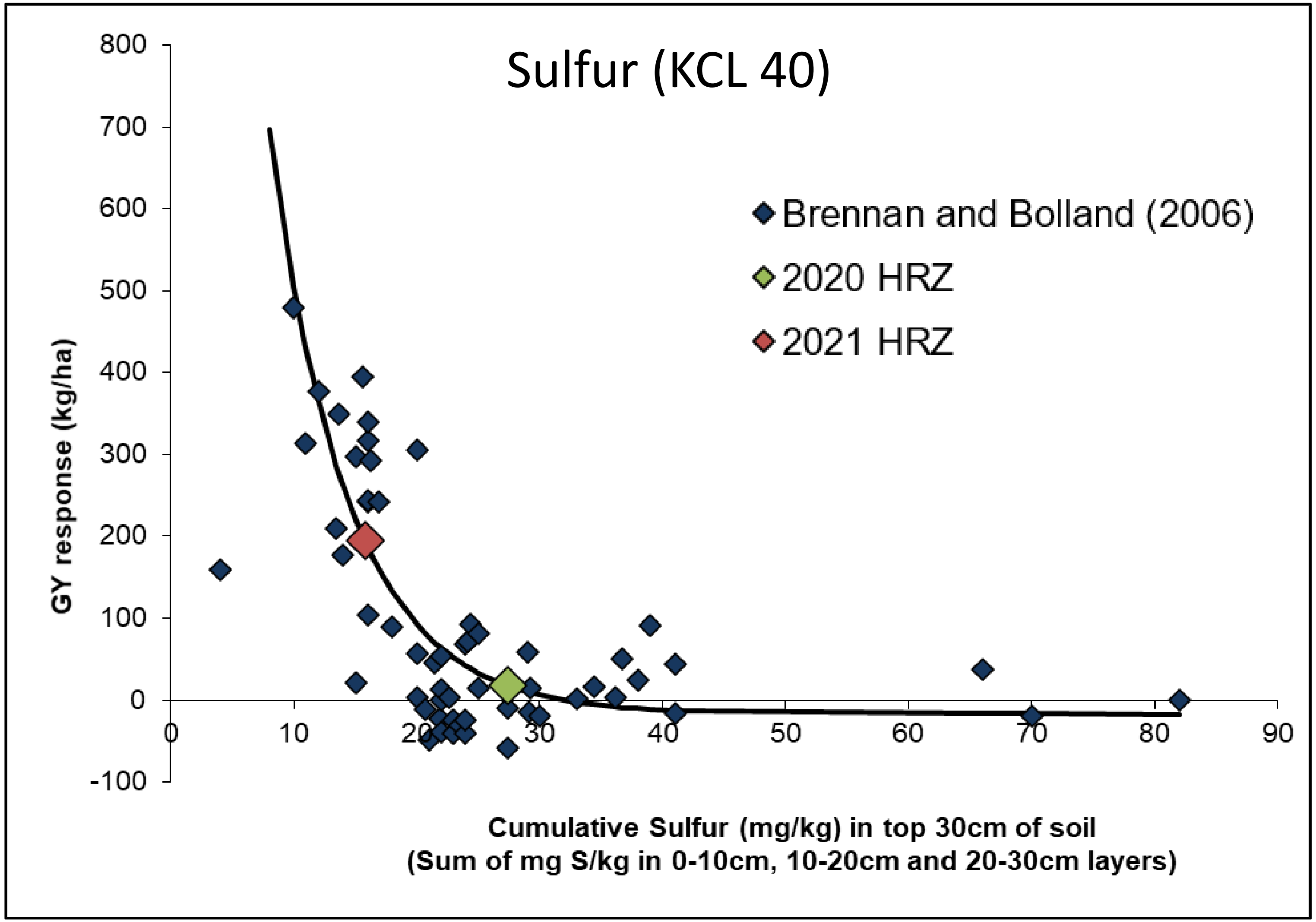




Source: Brennan, R. F. and Bolland, M. D. A. (2006) 'Soil and tissue tests to predict the potassium requirements of canola in south-western Australia', Aust. Journal of Experimental Agriculture, 46, 675-679.







Source: Brennan, R. F. and Bolland, M. D. A. (2006) 'Soil and tissue tests to predict the sulfur requirements of canola in south-western Australia', Aust. Journal of Experimental Agriculture, 46, 1061-1068.

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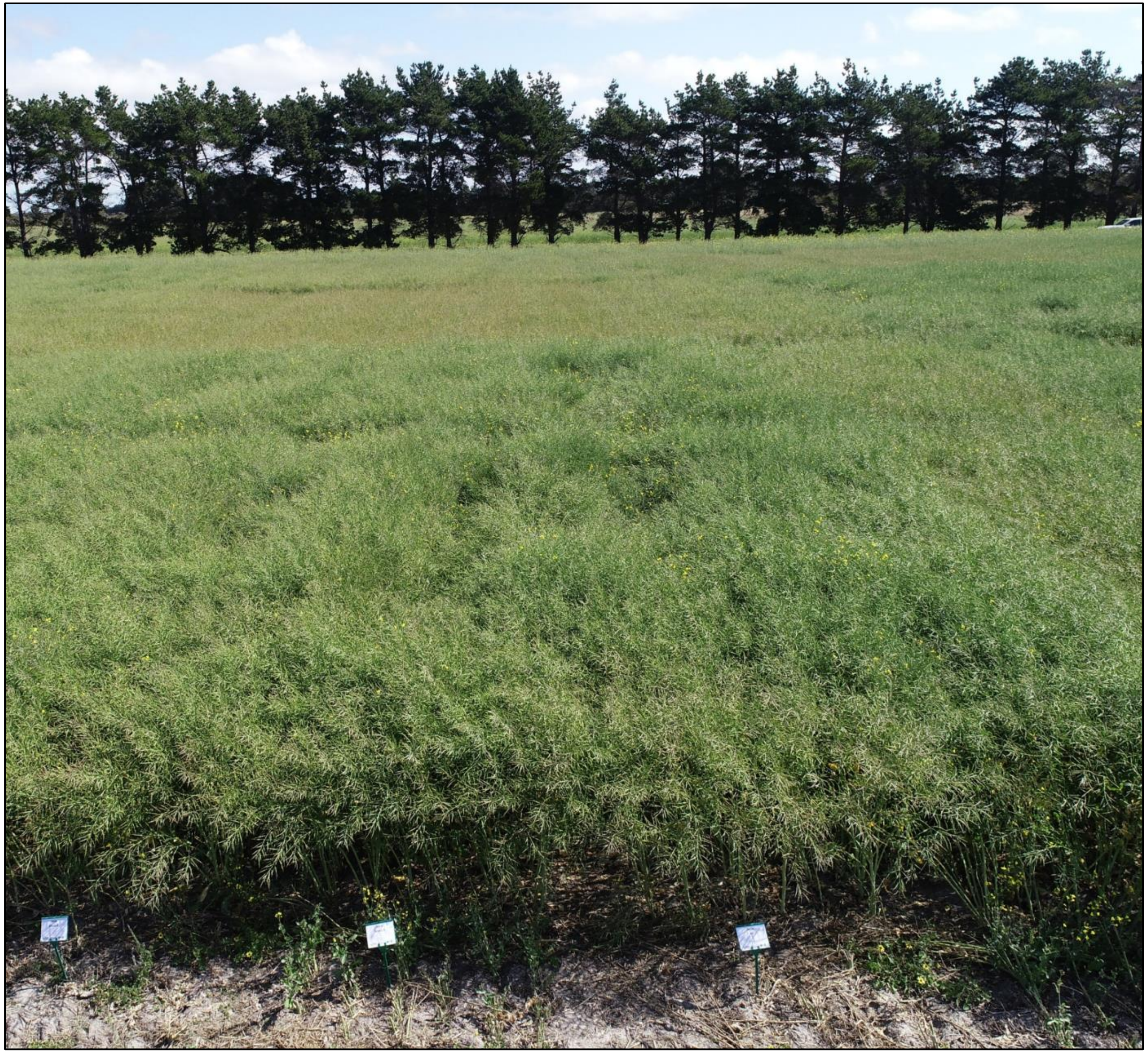
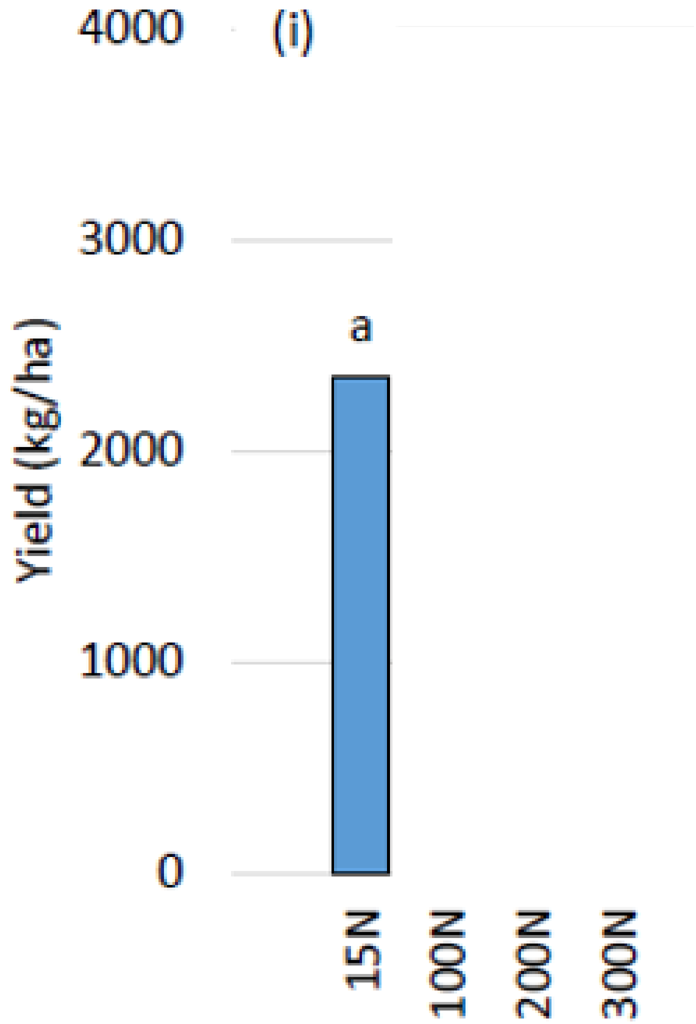


2020 Trial



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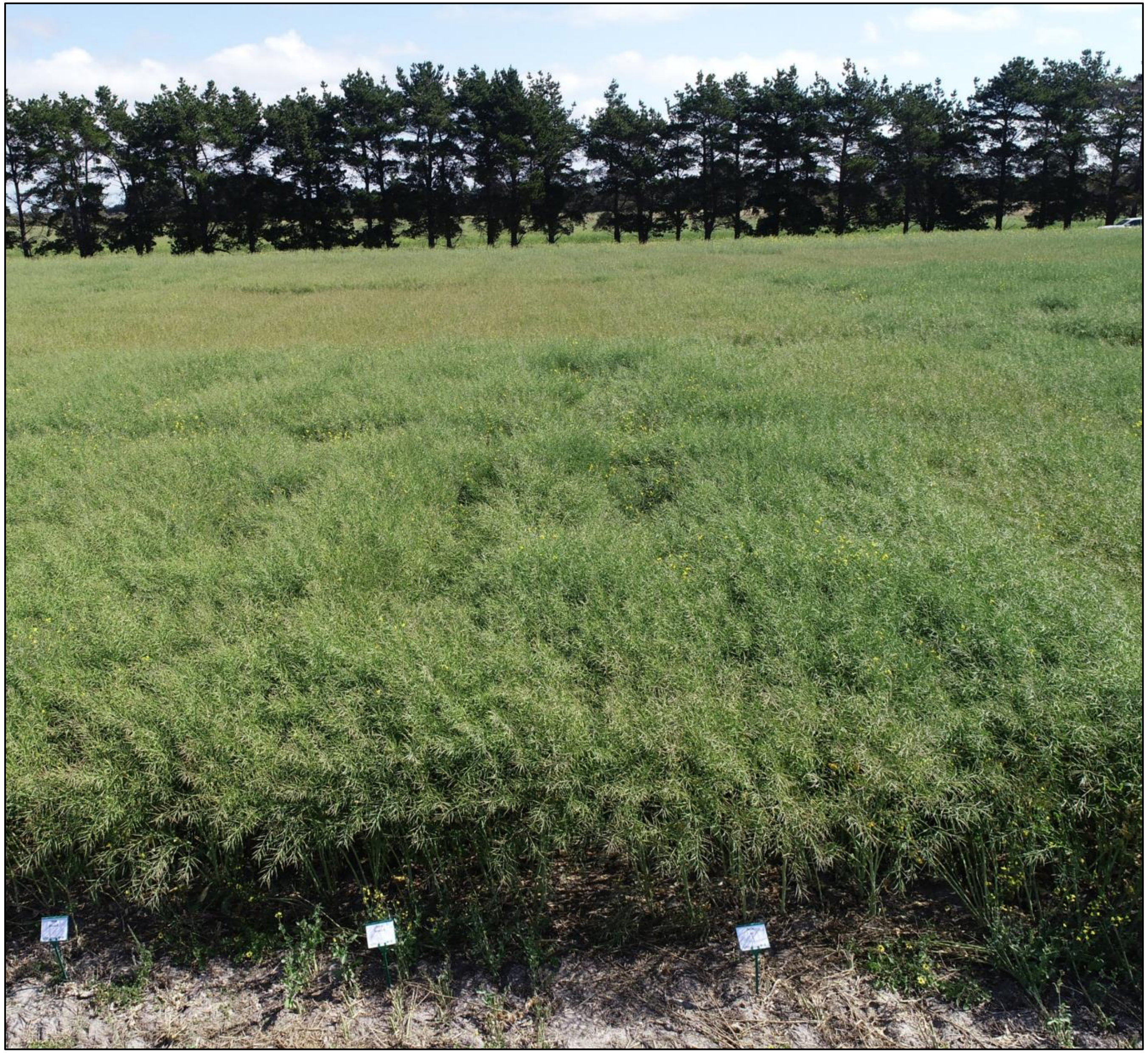
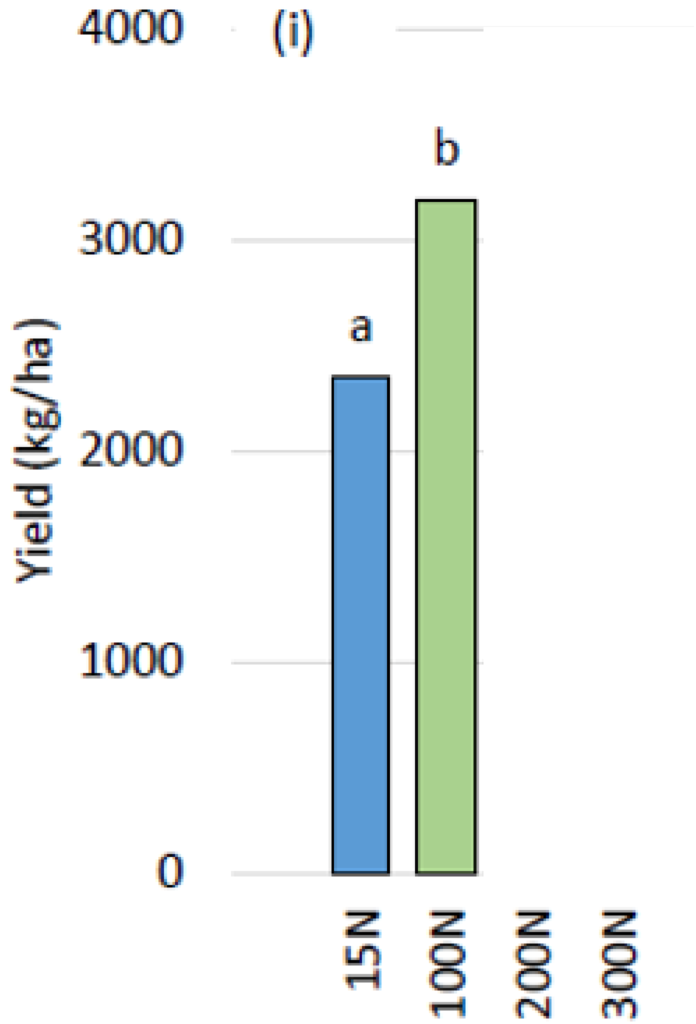
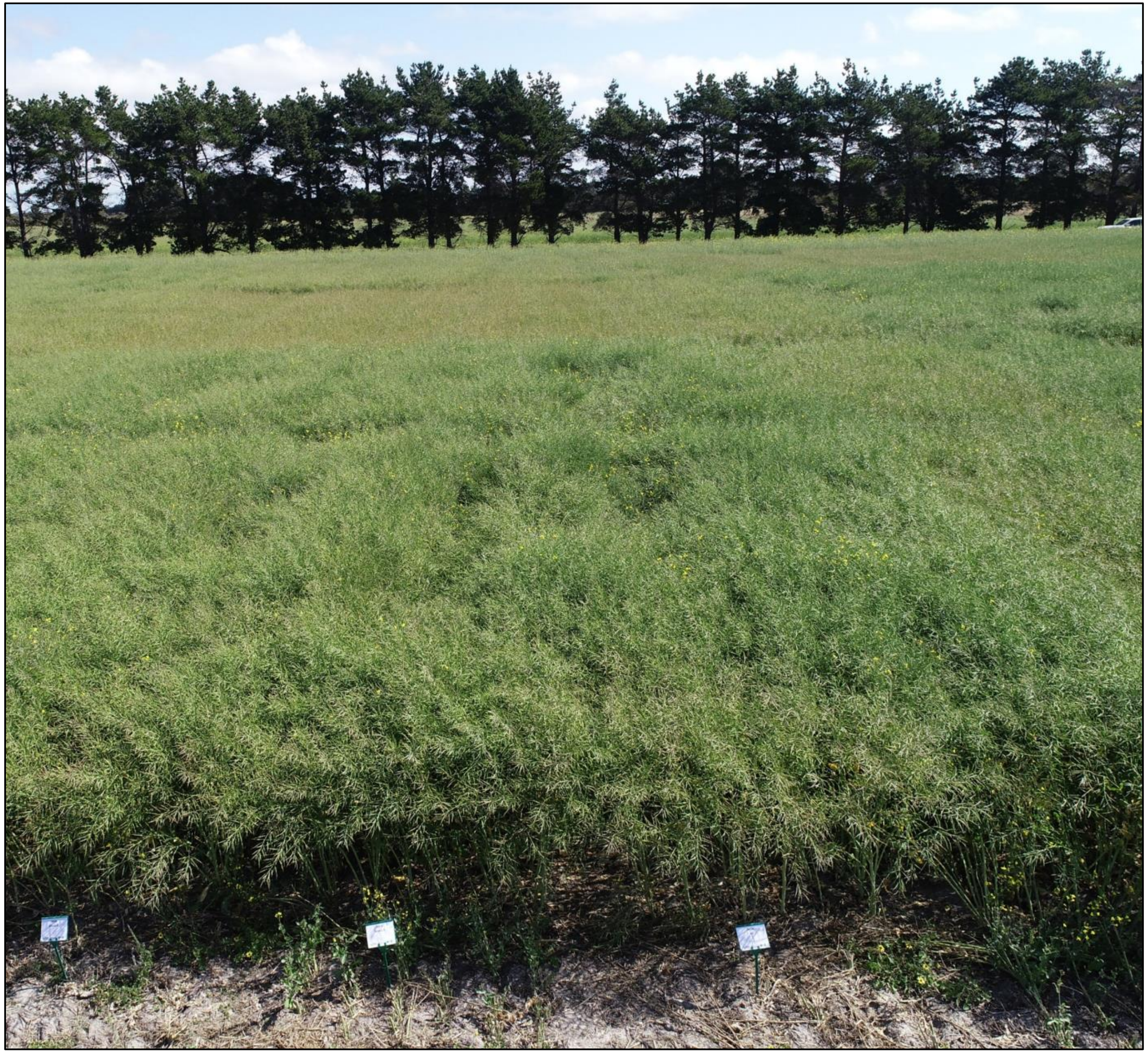
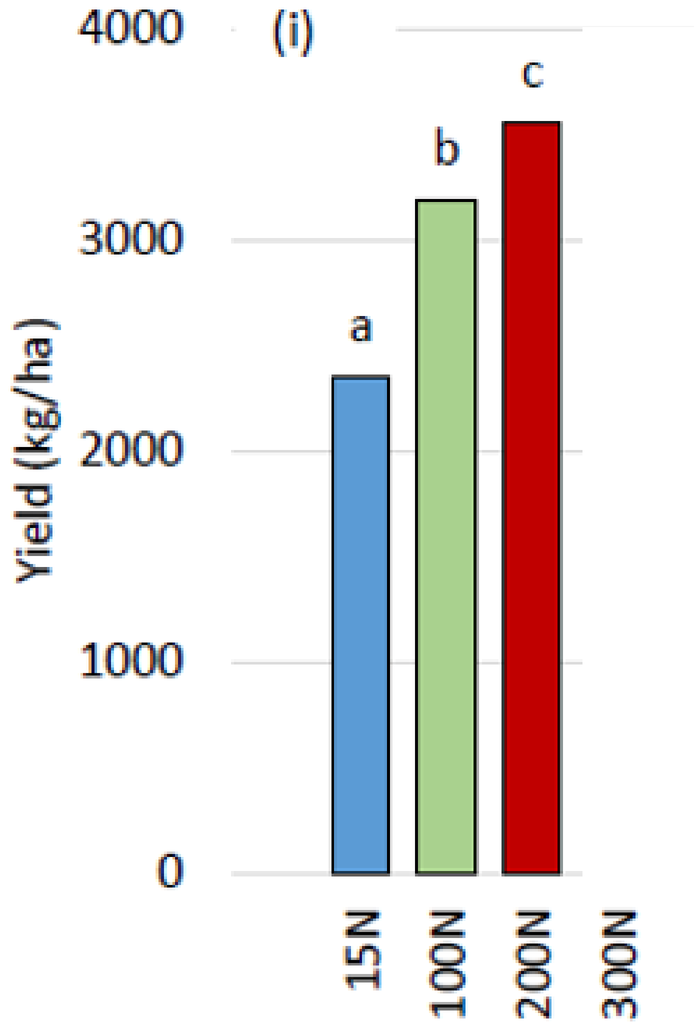


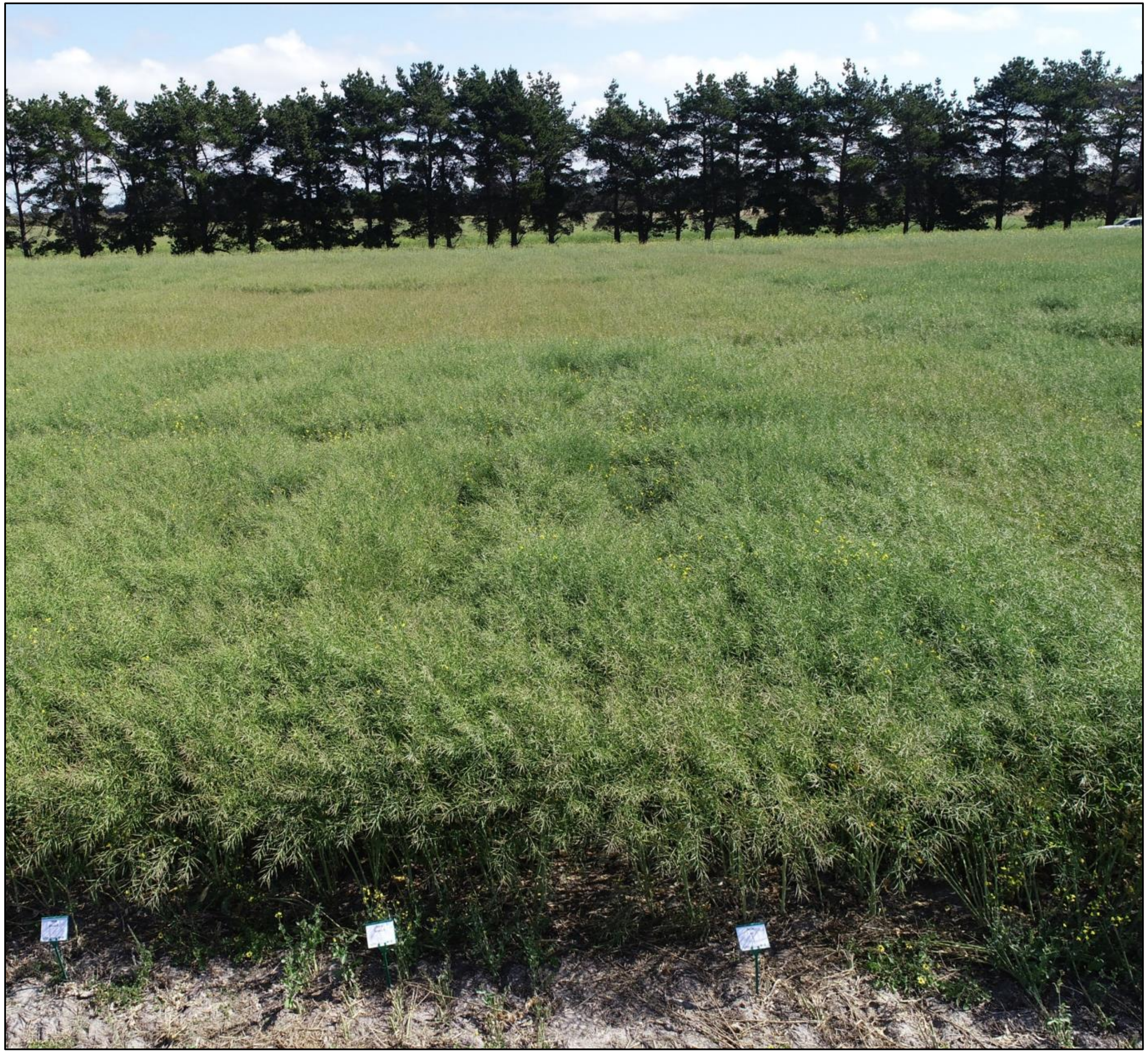
2020 Trial



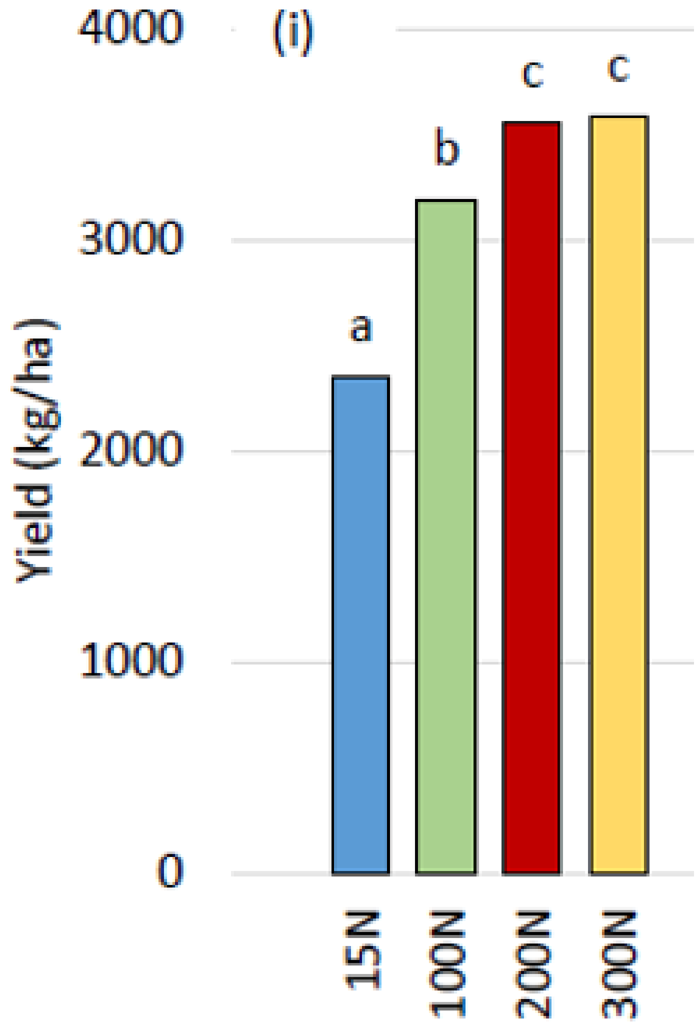


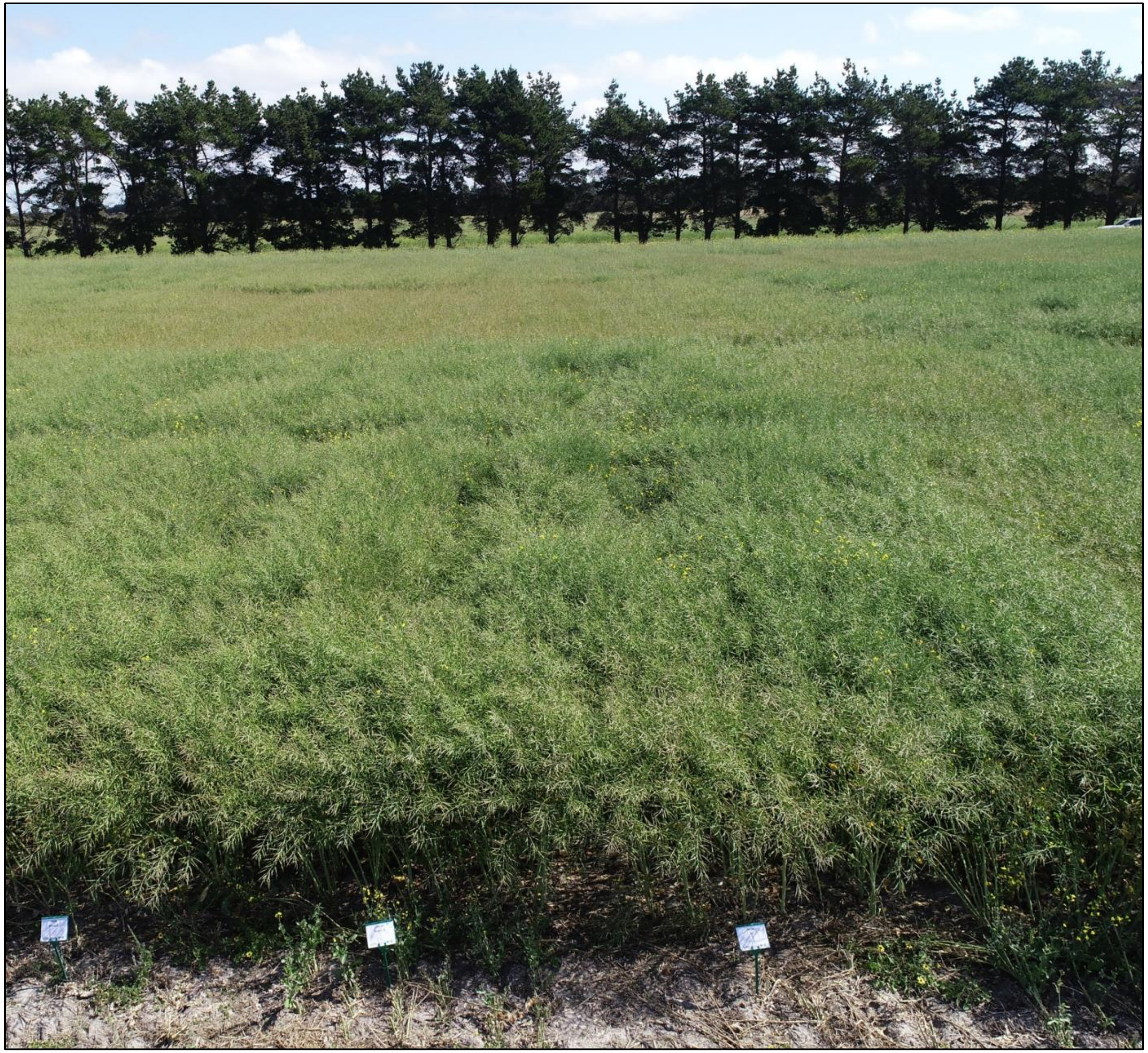
2020 Trial



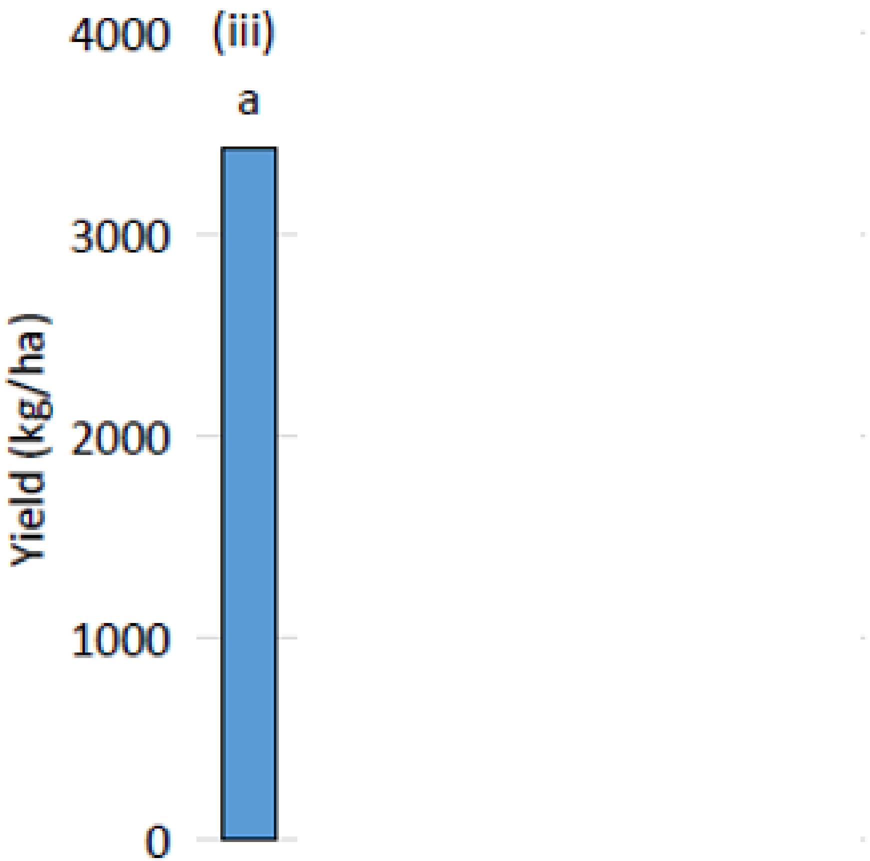


2020 Trial



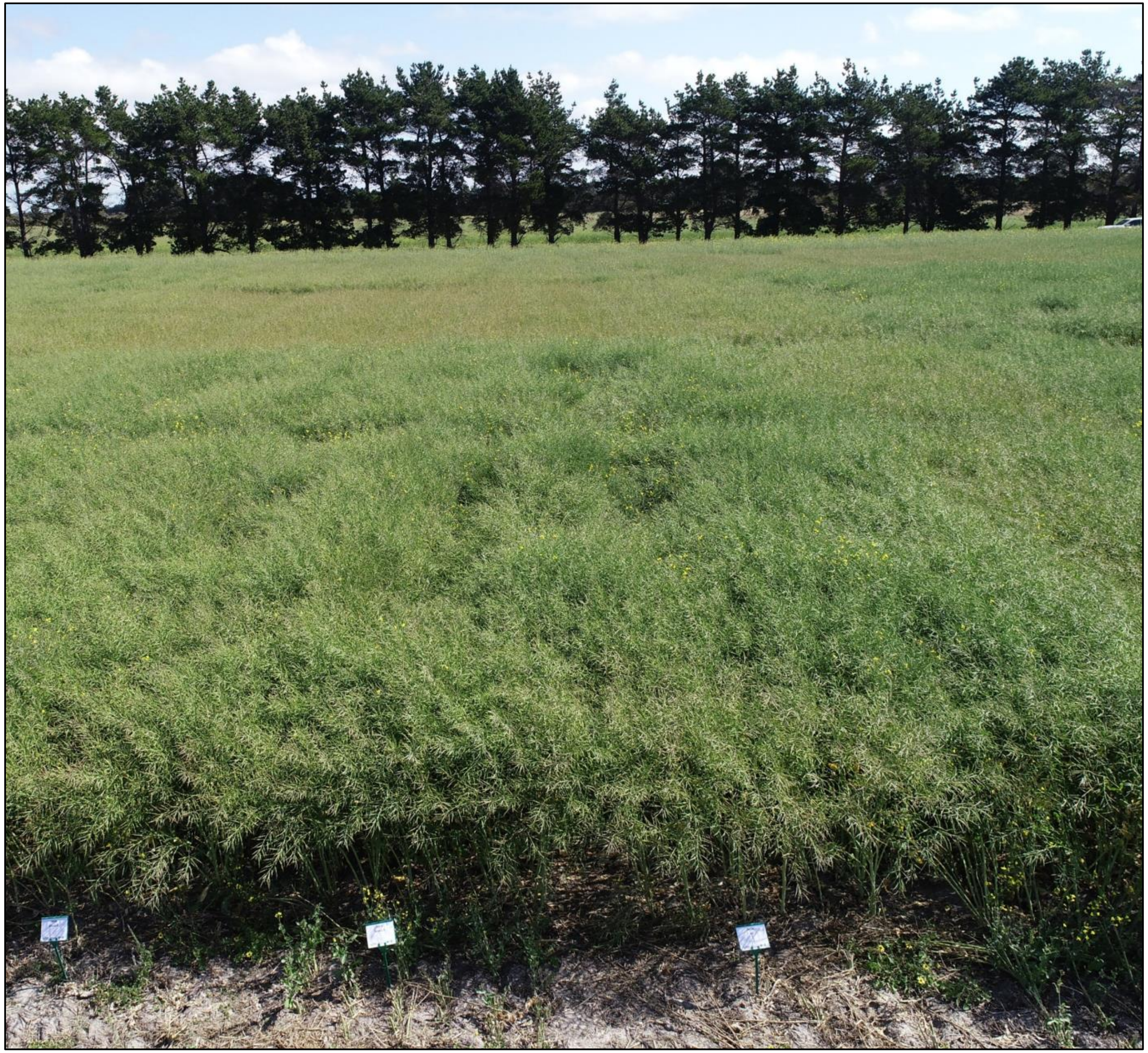


2020 Trial

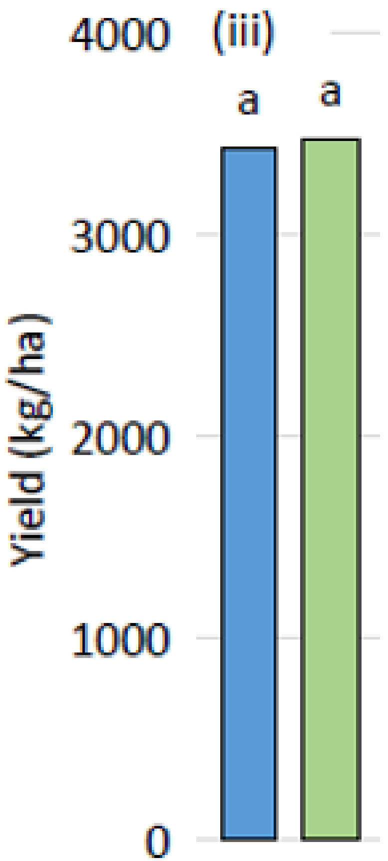


Phosphorus	31	15	31	0	31	15	62	93
Potassium	50	0	0	50	50	50	99	149
Sulphur	31	2	31	31	2	31	62	93
Cu, Zn, Mn	✓	×	✓	✓	✓	×	✓	✓

100-300N



2020 Trial



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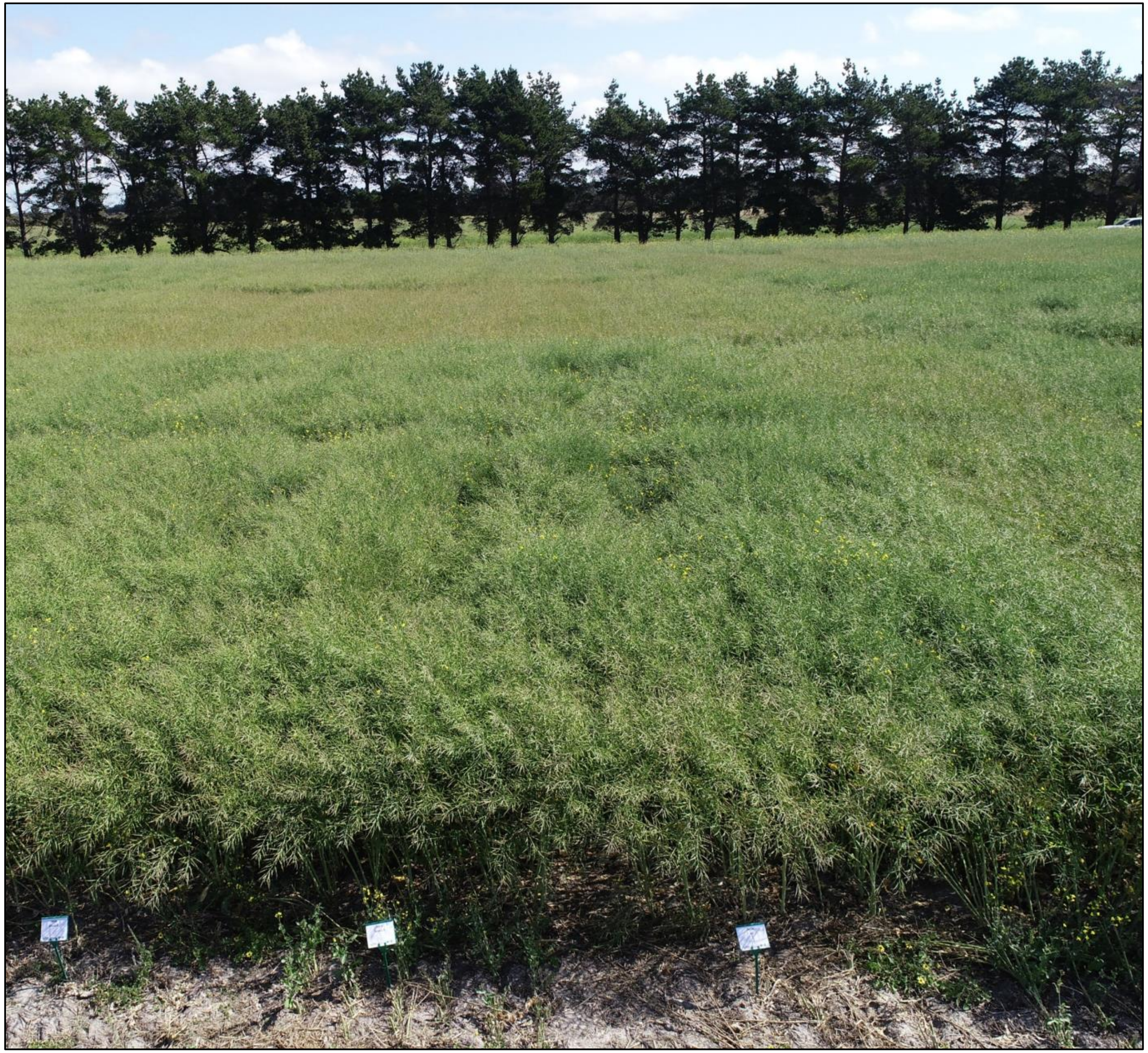
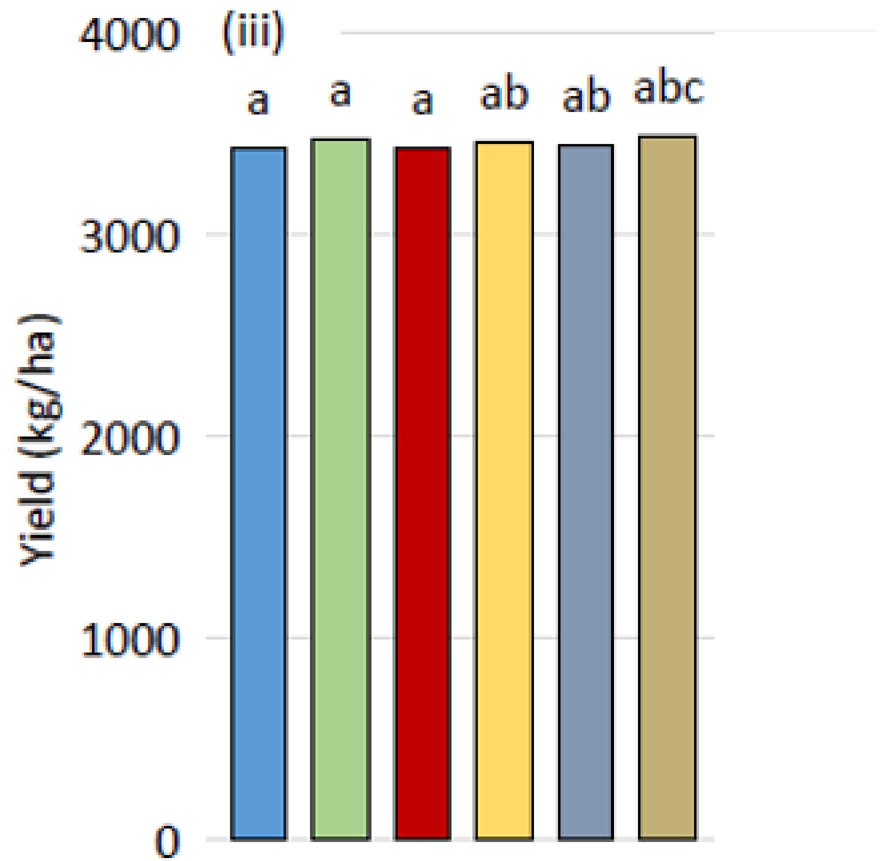
100-300N

2020 Trial





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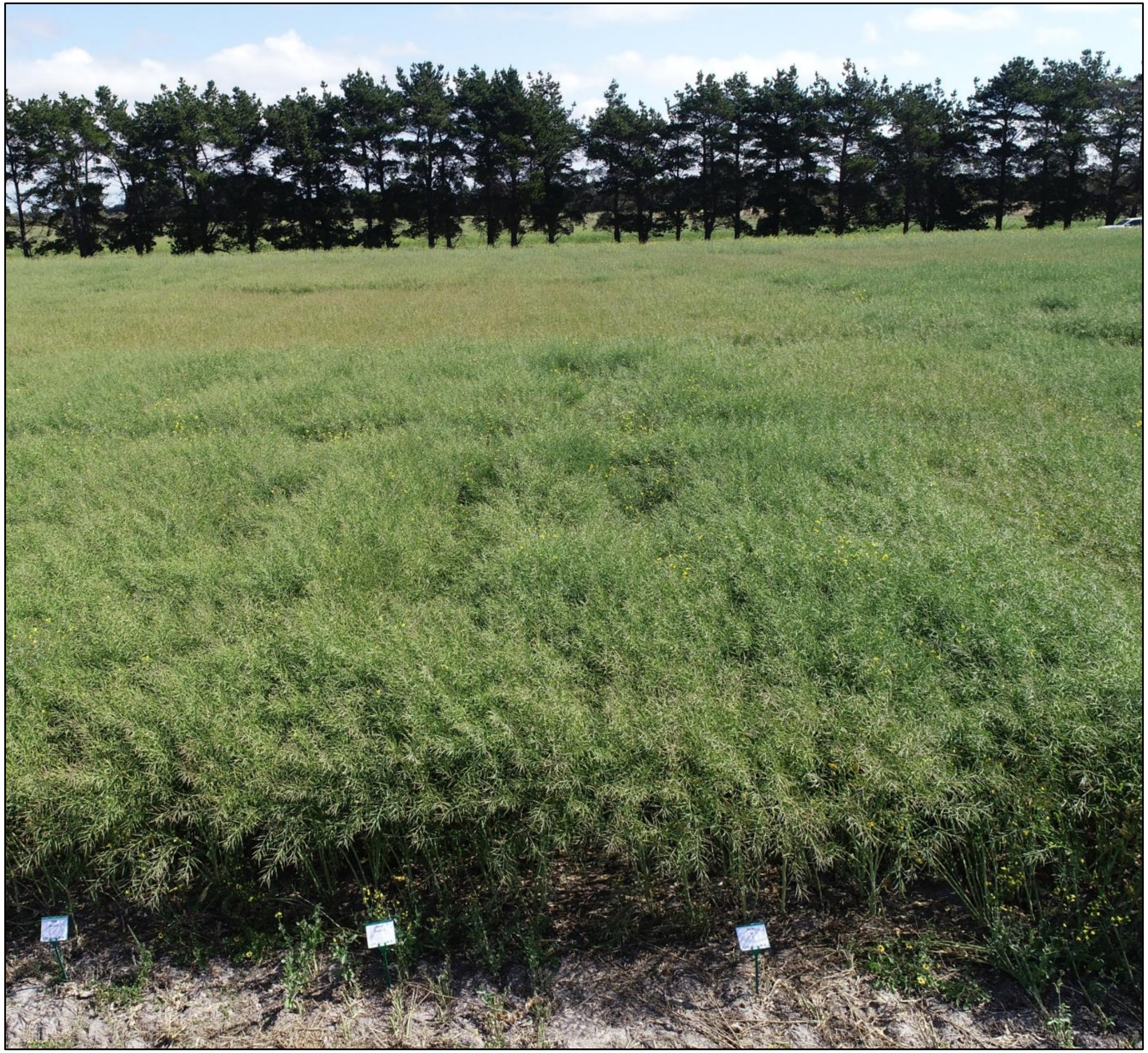
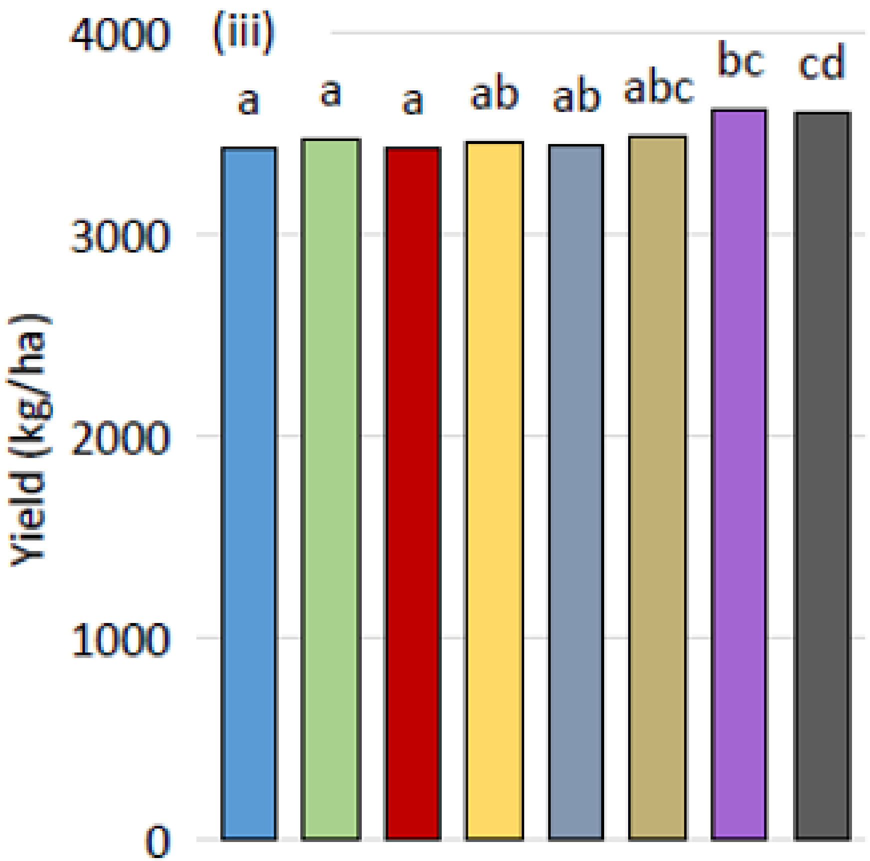
Cu, Zn, Mn	✓	×	✓	✓	✓	×	✓	✓

100-300N



2020 Trial



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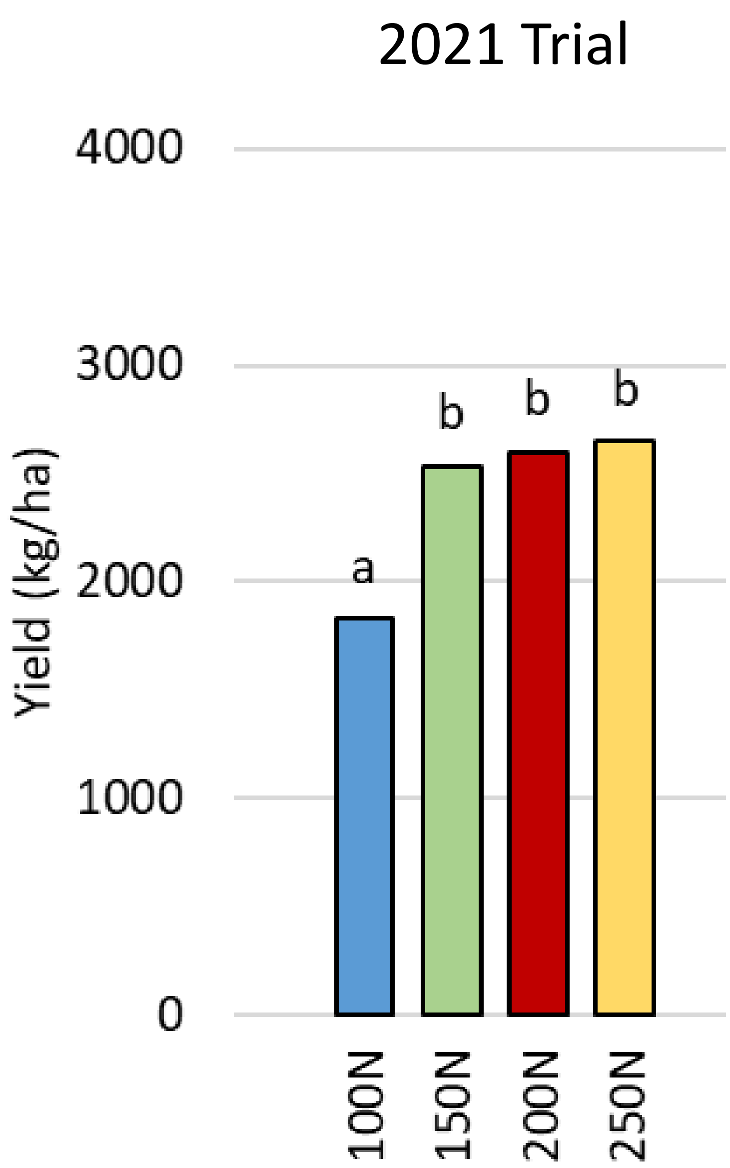
Sulphur	31	2	31	31	2	31	62	93
Cu, Zn, Mn	✓	×	✓	✓	✓	×	✓	✓

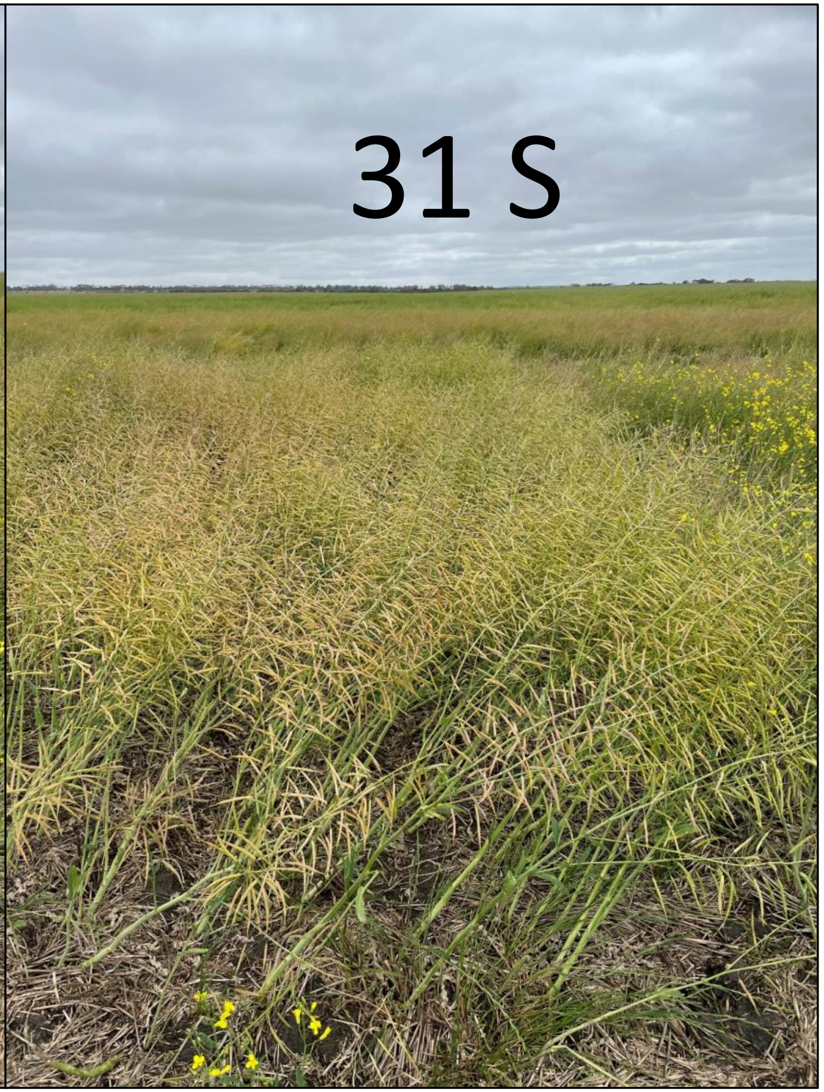
100-300N

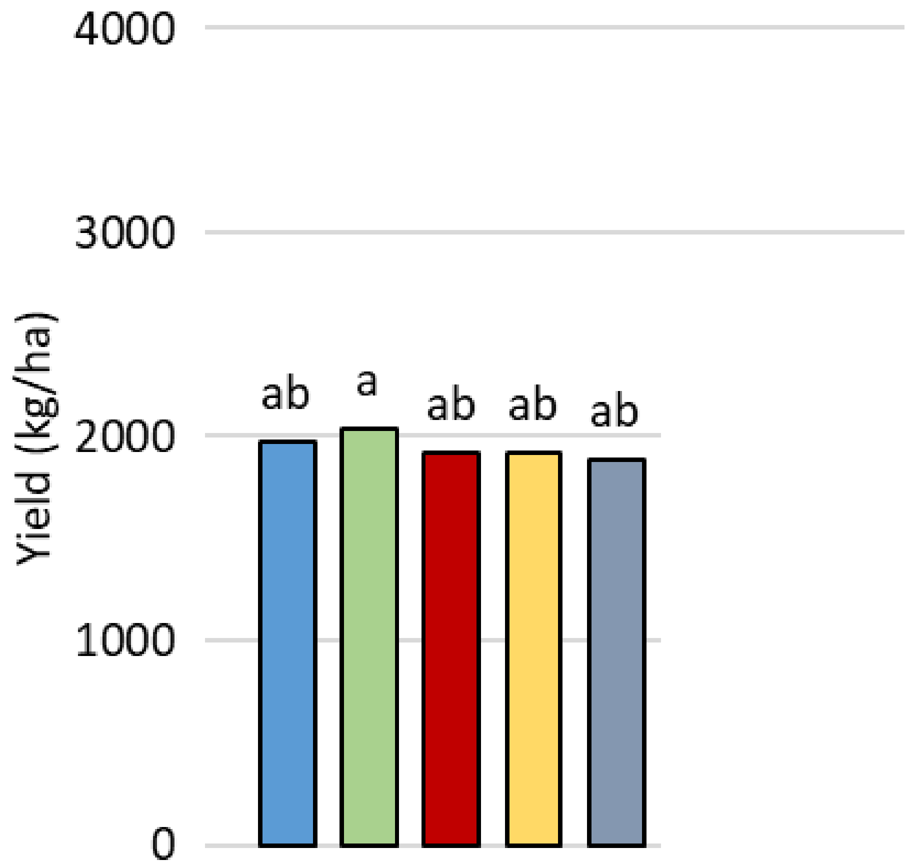

2021 Trial
4000
3000
2000
1000
0
Yield (kg/ha)
a
b
b
b
100N
150N
200N
250N


2 S


31 S

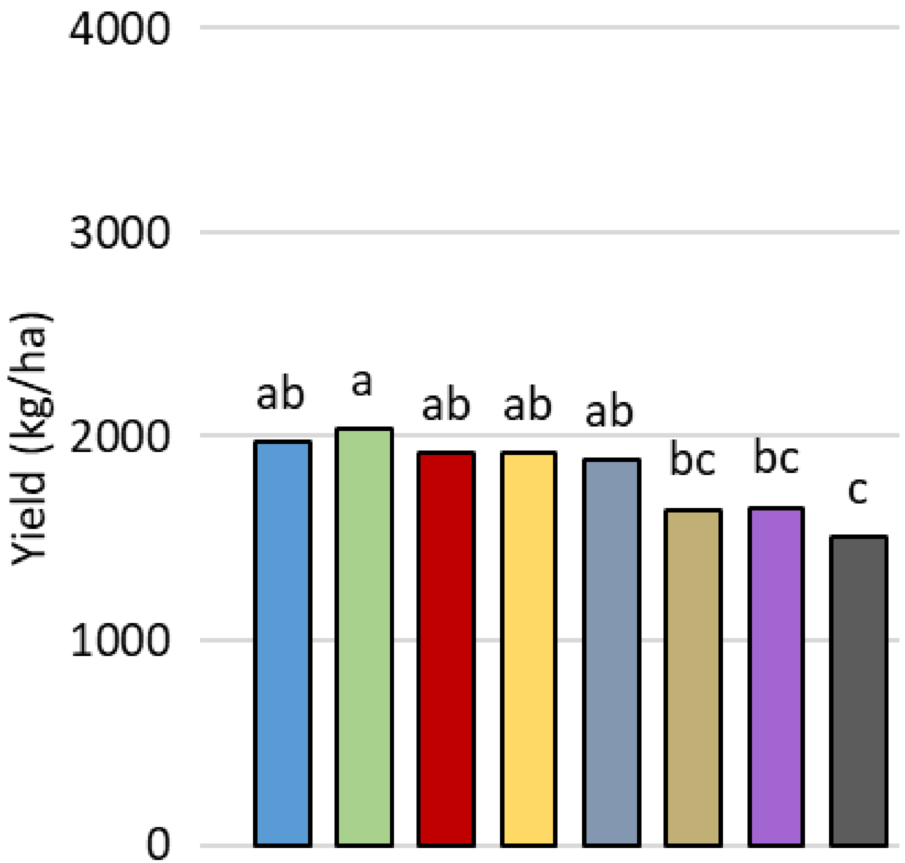

2 S


31 S



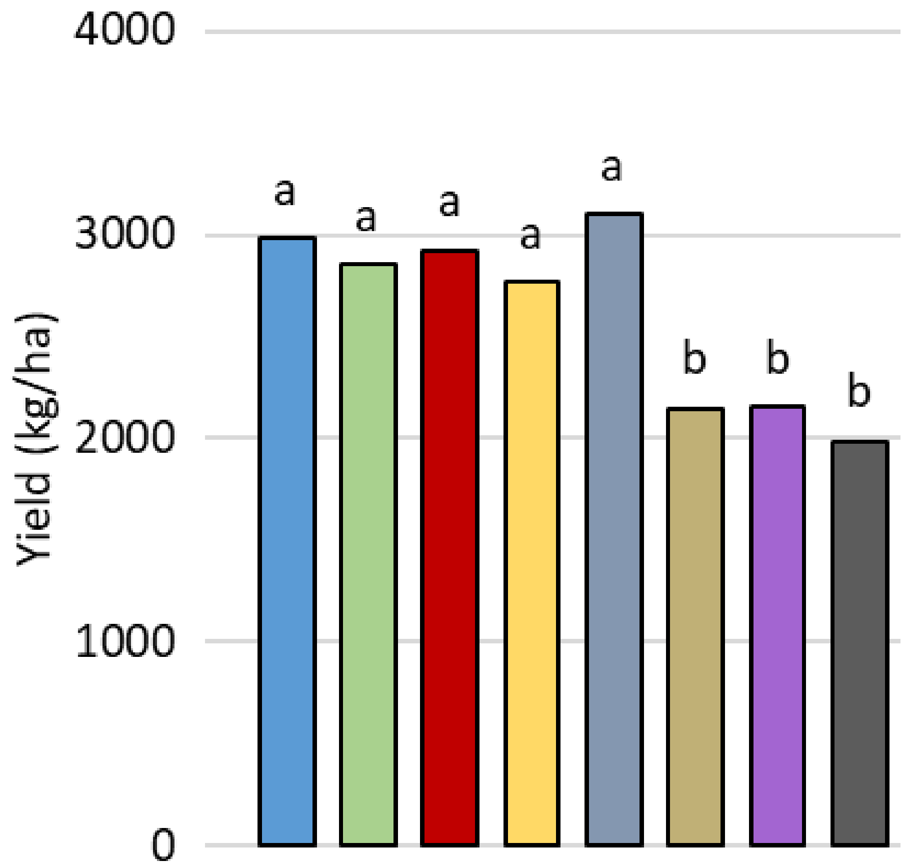
Phosphorus	31	31	15	0	62	31	15	0
Potassium	50	0	50	50	100	50	0	0
Sulphur	30	30	30	30	60	2	2	0
Cu, Zn, Mn	✓	✓	✓	✓	✓	✓	✓	✓

100N



Phosphorus	31	31	15	0	62	31	15	0
Potassium	50	0	50	50	100	50	0	0
Sulphur	30	30	30	30	60	2	2	0
Cu, Zn, Mn	✓	✓	✓	✓	✓	✓	✓	✓

100N



Phosphorus	31	31	15	0	62	31	15	0
Potassium	50	0	50	50	100	50	0	0
Sulphur	30	30	30	30	60	2	2	0
Cu, Zn, Mn	✓	✓	✓	✓	✓	✓	✓	✓

250N

Summary

Trial sites were not highly deficient based on soil tests.

Both sites were highly responsive to N.

In 2020 there were minimal responses to other nutrition (P, K, S, Cu, Zn, Mn).

In 2021, there was a large sulfur response.

In light of high fertiliser prices, soil test results can indicate areas of best return.

Thank you!

Jeremy Curry
Jeremy.curry@dpird.wa.gov.au
DPIRD Esperance

Mark Seymour
Mark.seymour@dpird.wa.gov.au
DPIRD Esperance

Thanks to the Whiting family for hosting the 2021 site,
Thanks Chris Matthews and Helen Cooper for trial management and technical assistance.

FAR Australia: James Rollason, Nick Poole
CSIRO: Jens Berger, Sam Flottman, Andrew Fletcher, Heping Zhang