

**Precision placement of canola
seed: can we get the same or
better yield from less seed?**

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Canola seed cost is too high!

- Can we reduce seed rates?
 - Improve percentage establishment
 - Improve crop performance at a given (low) density



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What is precision seeding?

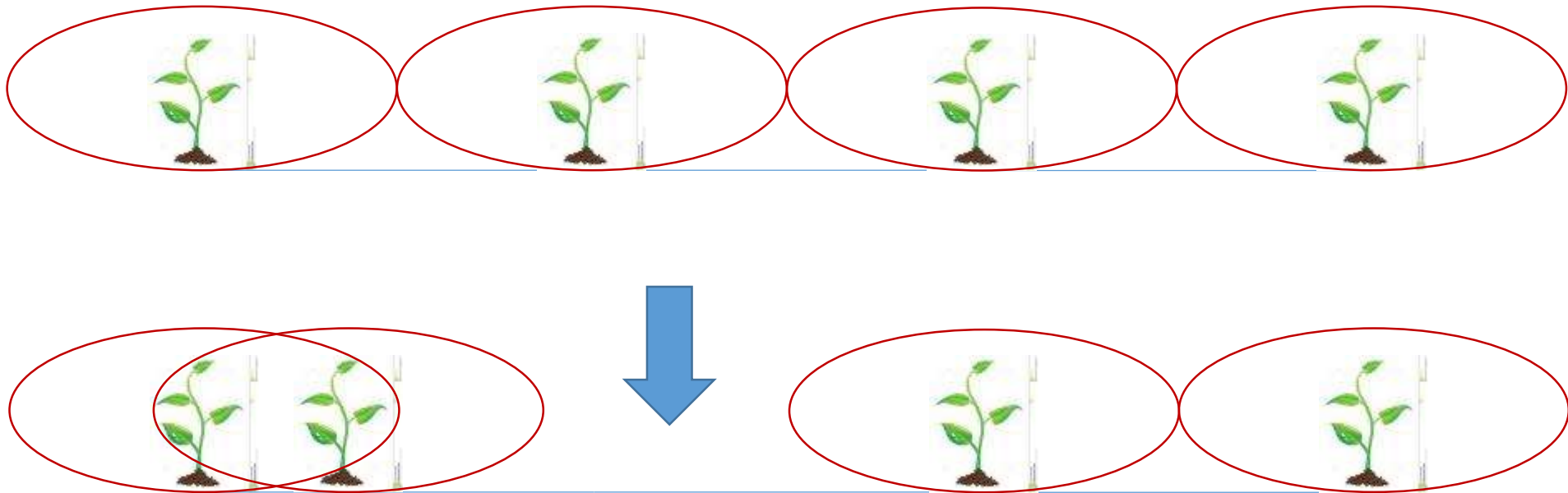
- Precision seeding places seeds in rows at a uniform spacing
 - Reduced interplant competition
 - More efficient use of environmental resources
 - Higher yield from fewer plants



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How precise seed placement works

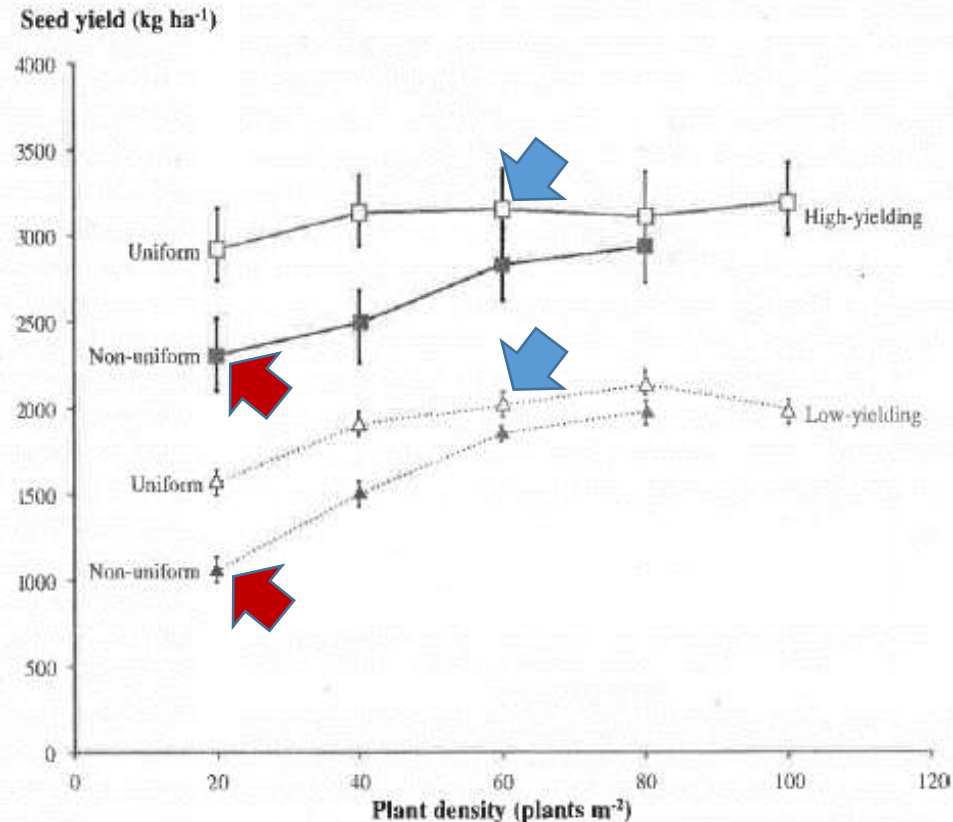


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Precision seeding can have benefits

Fig. 3 Seed yield of canola grown at different densities in uniform versus non-uniform stands at low-yielding and high-yielding sites in western Canada. At high-yielding sites (*solid line*), seed yield under uniform and non-uniform stands are represented by *white square* and *black square*, respectively. At low-yielding sites (*dotted line*), seed yield under uniform and non-uniform stands are represented by *white up-pointing triangle* and *black up-pointing triangle*, respectively. Bars are standard error ($n=9$) of the mean. Significant differences were detected between uniform and non-uniform stands at both high-yielding ($P=0.0128$) and low-yielding ($P<0.0001$) sites when plant density is lower than 60 plants m^{-2} .



Reproduced from Yang et al. (2014) *Agronomy for Sustainable Development* 34:793





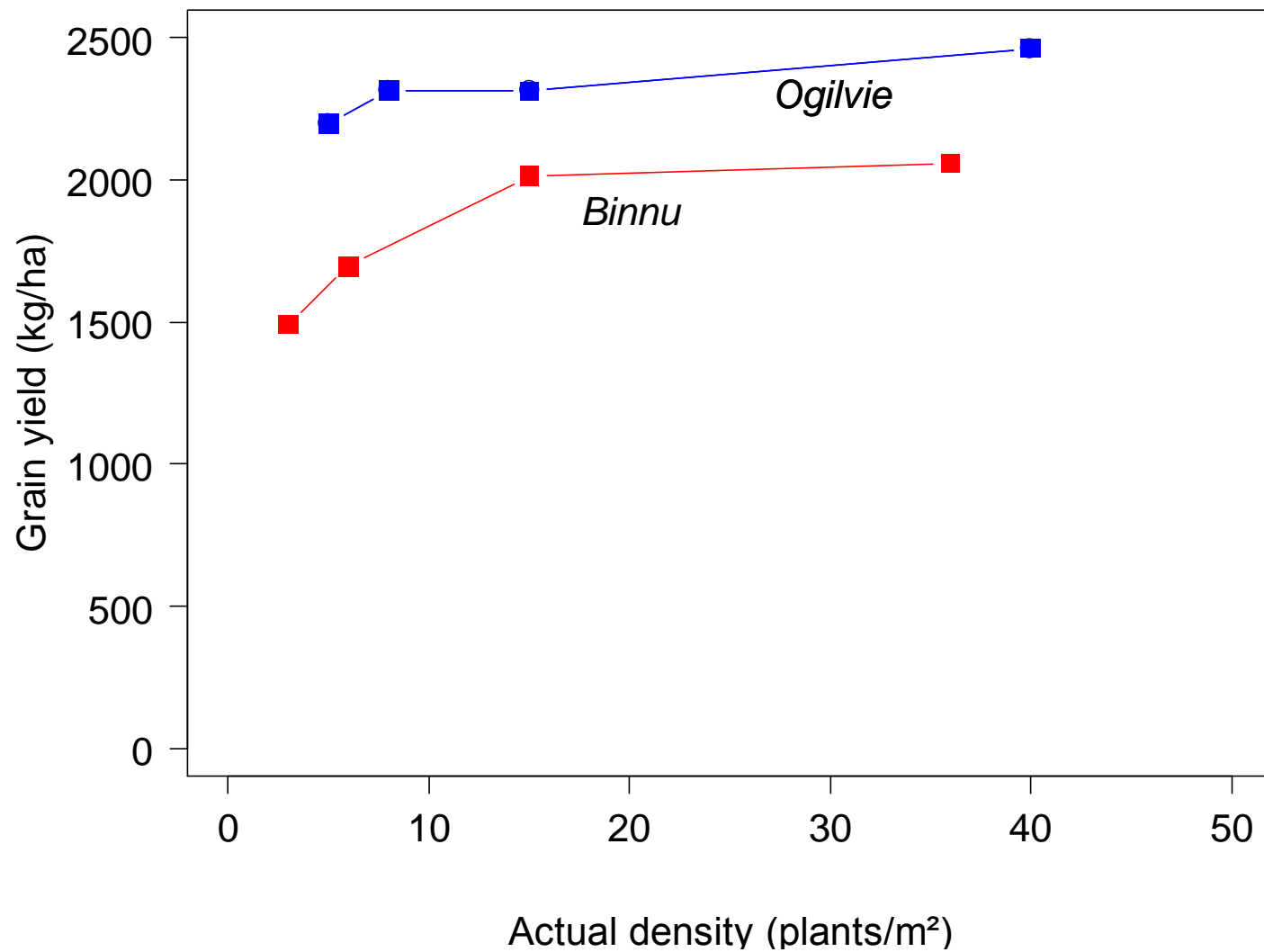
Establishment

Seed rate (kg/ha)	Target plant spacing (cm)	Target density (plants/m ²)	Actual density Binnu	Actual density Ogilvie
0.31	37	6	3	5
0.54	22	10	6	8
1.01	11	20	15	15
2.50	4	45	36	40
5% lsd			9	5



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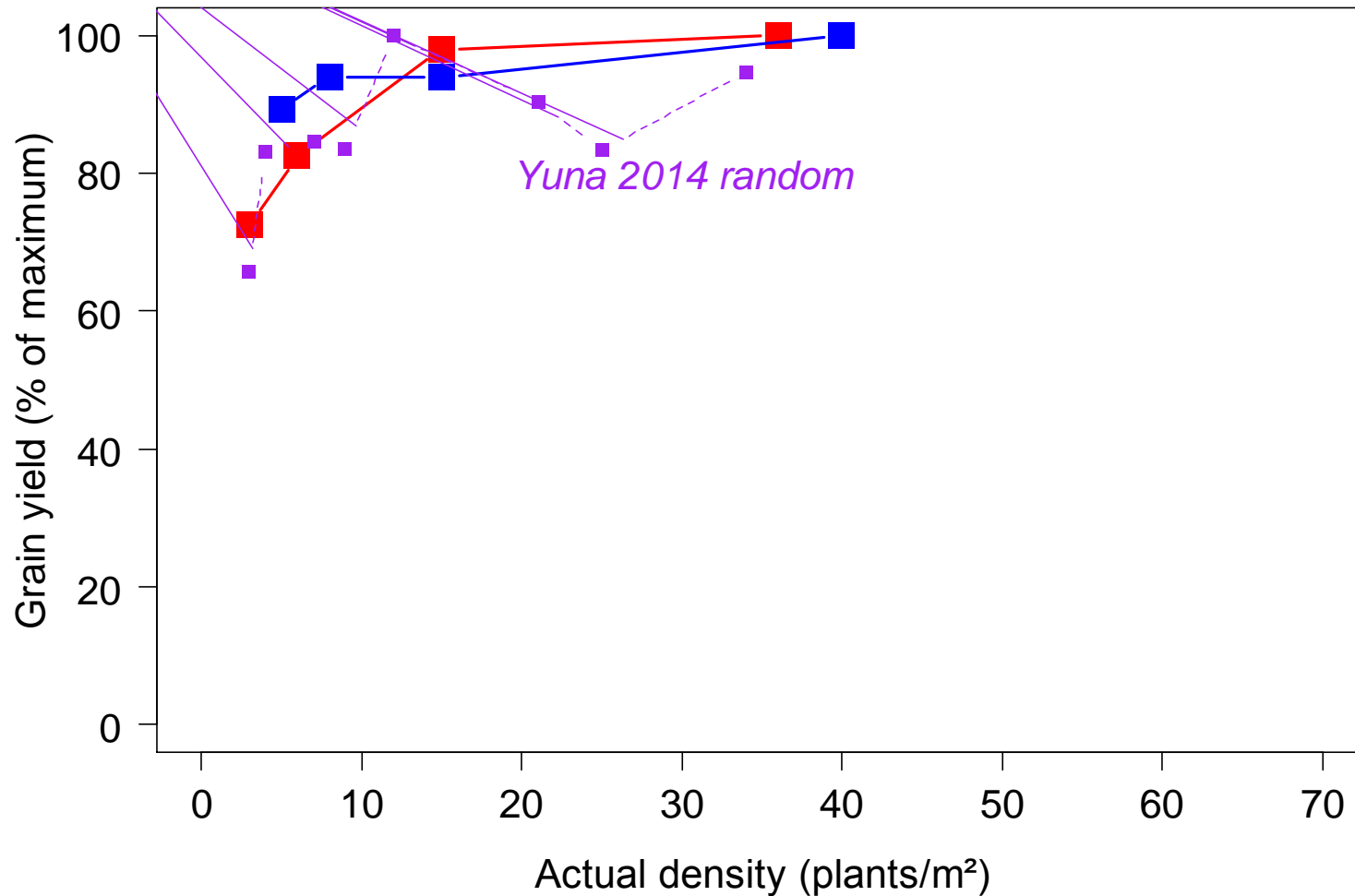
Gross margins

Seed rate (kg/ha)	Actual density Binnu	Gross margin Binnu (\$/ha)	Actual density Ogilvie	Gross margin Ogilvie (\$/ha)
0.31	3	451	5	820
0.54	6	550	8	875
1.01	15	703	15	860
2.50	36	669	40	883



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Conclusions

- Good yields achieved at very low densities with precision seeder
- Optimum density was 8 to 15 plants/m², or seed rate of 0.5 -1.0 kg/ha
- Whether low optima are due to precision seeder is unclear



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GRDC Grains Research Update

Questions?