

The DuPont logo, featuring the word "DUPONT" in a red, stylized font inside a red oval.The Pioneer logo, featuring a green tractor icon to the left of the word "PIONEER" in a bold, green, sans-serif font.

Comparison of herbicide-tolerant canola systems through five-year, on-farm Clearfield® Challenge program.

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1: DuPont Pioneer

2: BASF

Triazine tolerant canola

- Introduced in Canada in the early 1990s.
- In Canada, triazine tolerant varieties never took hold, reaching only 4% of the planted area and disappearing altogether by the mid-1990s.
- Introduced in Australia in 1993 and quickly became the dominant system largely because of cheaper control of brassica weeds.
- Still most popular herbicide-tolerant canola system in Australia.

BUT...

- TT canola varieties have a known yield and oil drag compared to conventional varieties*
 - Between 20-30 % for yield
 - Between 2-5 % for oil

*Australian and Canadian research



- Introduced in Australia by BASF in 1999 in OPVs.
- Low levels of adoption of technology until hybrids were introduced by Pioneer in 2006.
- Provides weed control of certain grasses and brassica weeds although more expensive than atrazine.
- Resistance concerns with group B herbicides.

BUT...

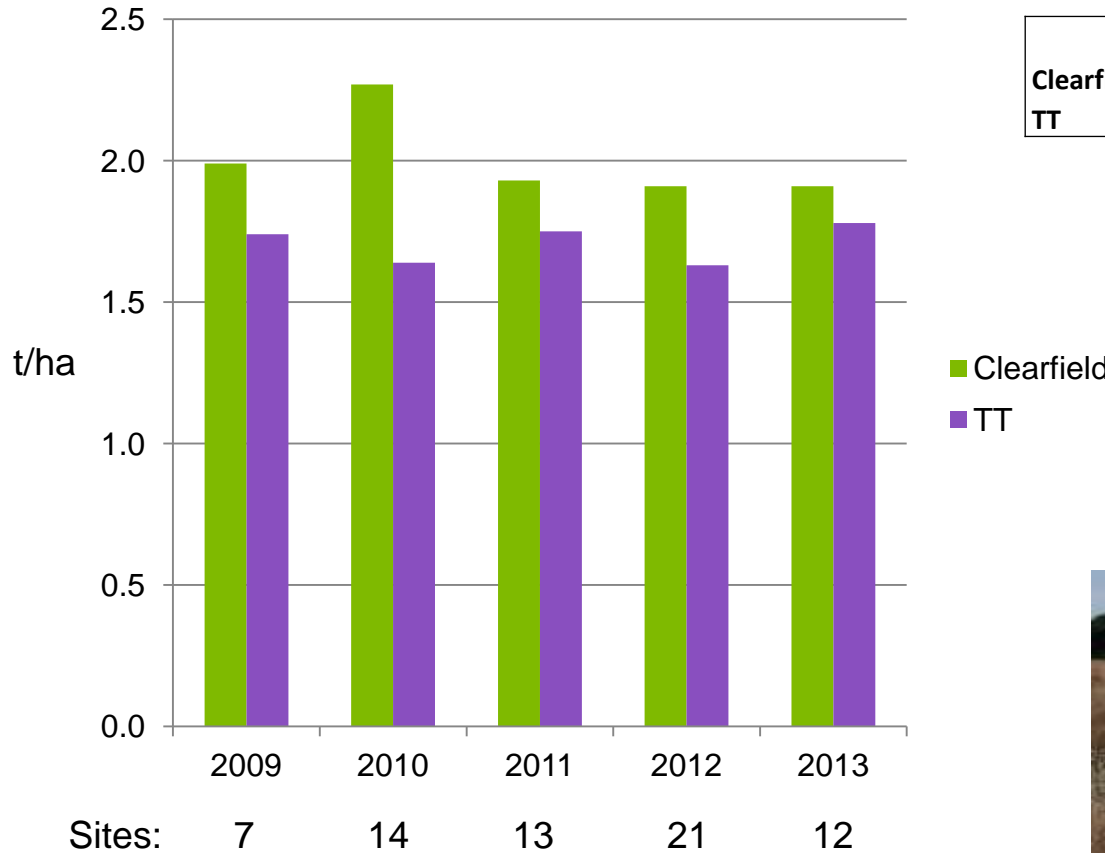
- No oil or yield drag from technology.
- Improvement in yield from hybridisation.
- Potential for higher gross margins.

Clearfield® Challenge

- Joint program between BASF, Pioneer, canola growers and Agricentre agronomists.
- Conducted from 2009-13 on 67 farms across the major canola areas.
- Directly compared on-farm yield, oil and gross margins of Clearfield and TT canola
- Minimum of 15 hectares of TT OPV or hybrid and Clearfield hybrid
 - Grown side-by-side in the same field.
 - Planted at the same time.
 - Treated with the appropriate herbicides for each system.
 - Weed control observations made.
 - Yield, oil and gross margin information collected by the grower.



Yield (t/ha)

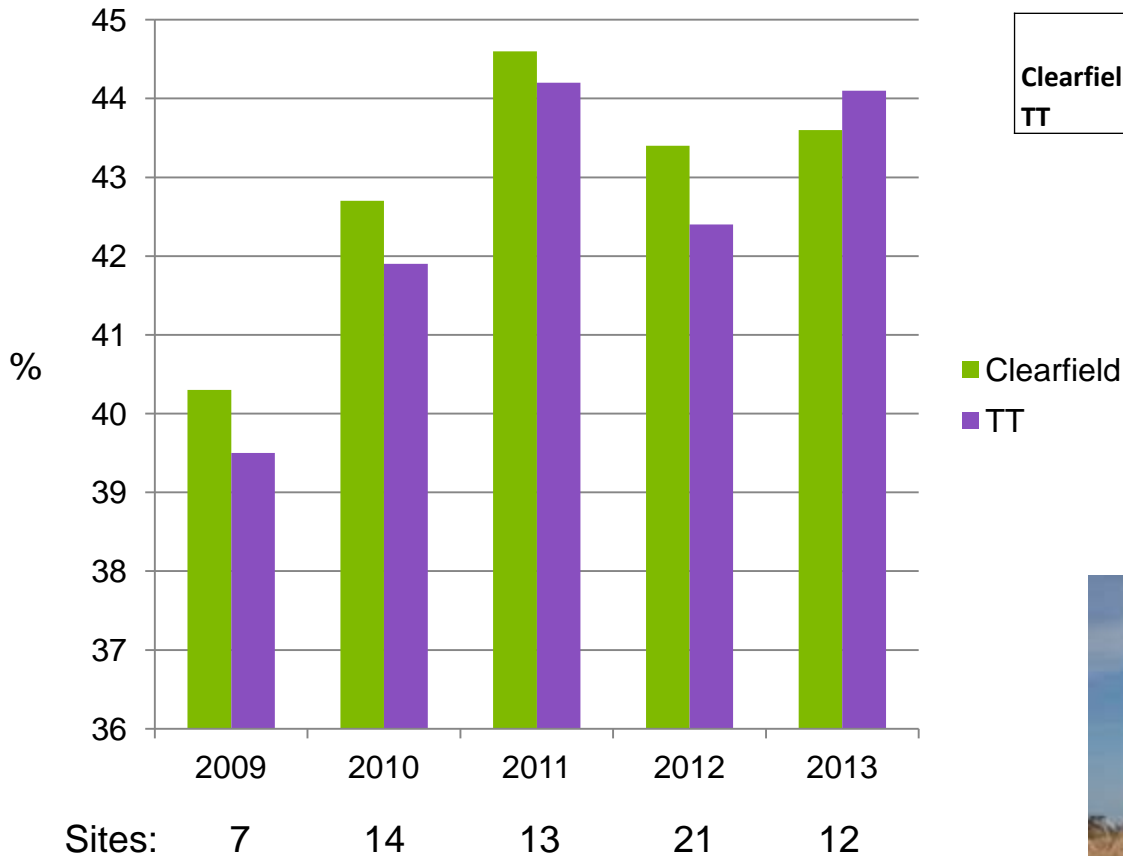


Five year average

	Yield (t/ha)	Yield adv (t/ha)	Wins (%)	SE (t/ha)
Clearfield	1.98	0.31	89.55	0.04
TT	1.67			



Oil (%)

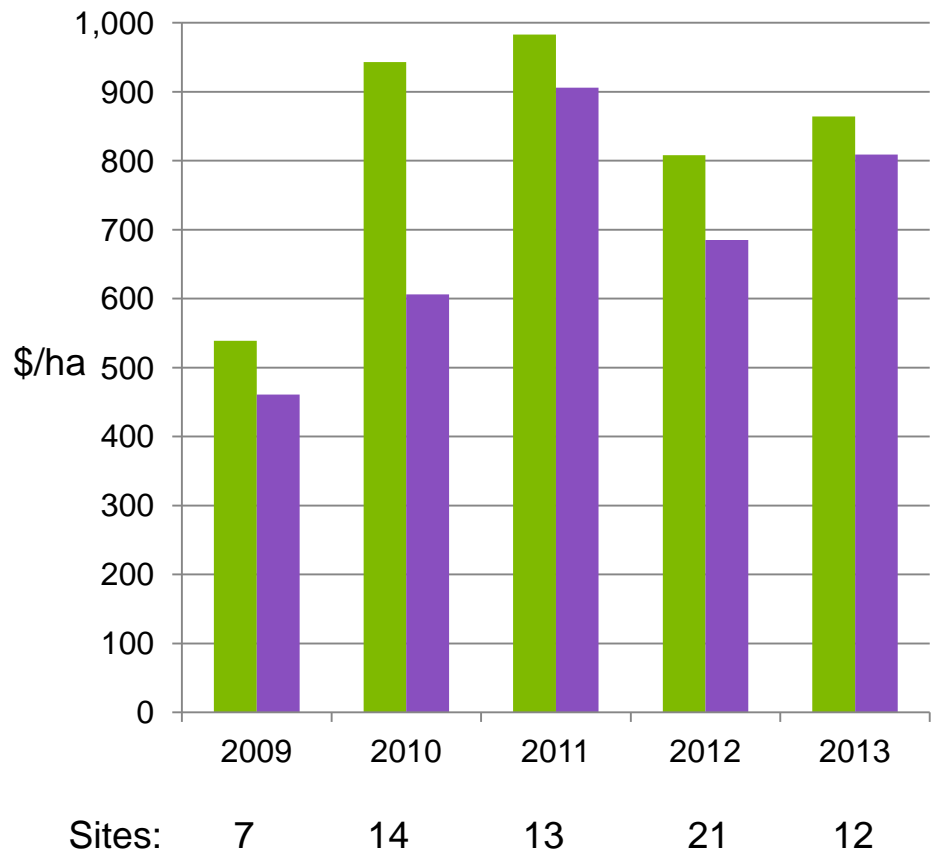


Five year average

	Oil (%)	Oil adv (%)	Wins (%)	SE (%)
Clearfield	43.2	0.50	68.66	0.26
TT	42.7			



Gross margin (\$)



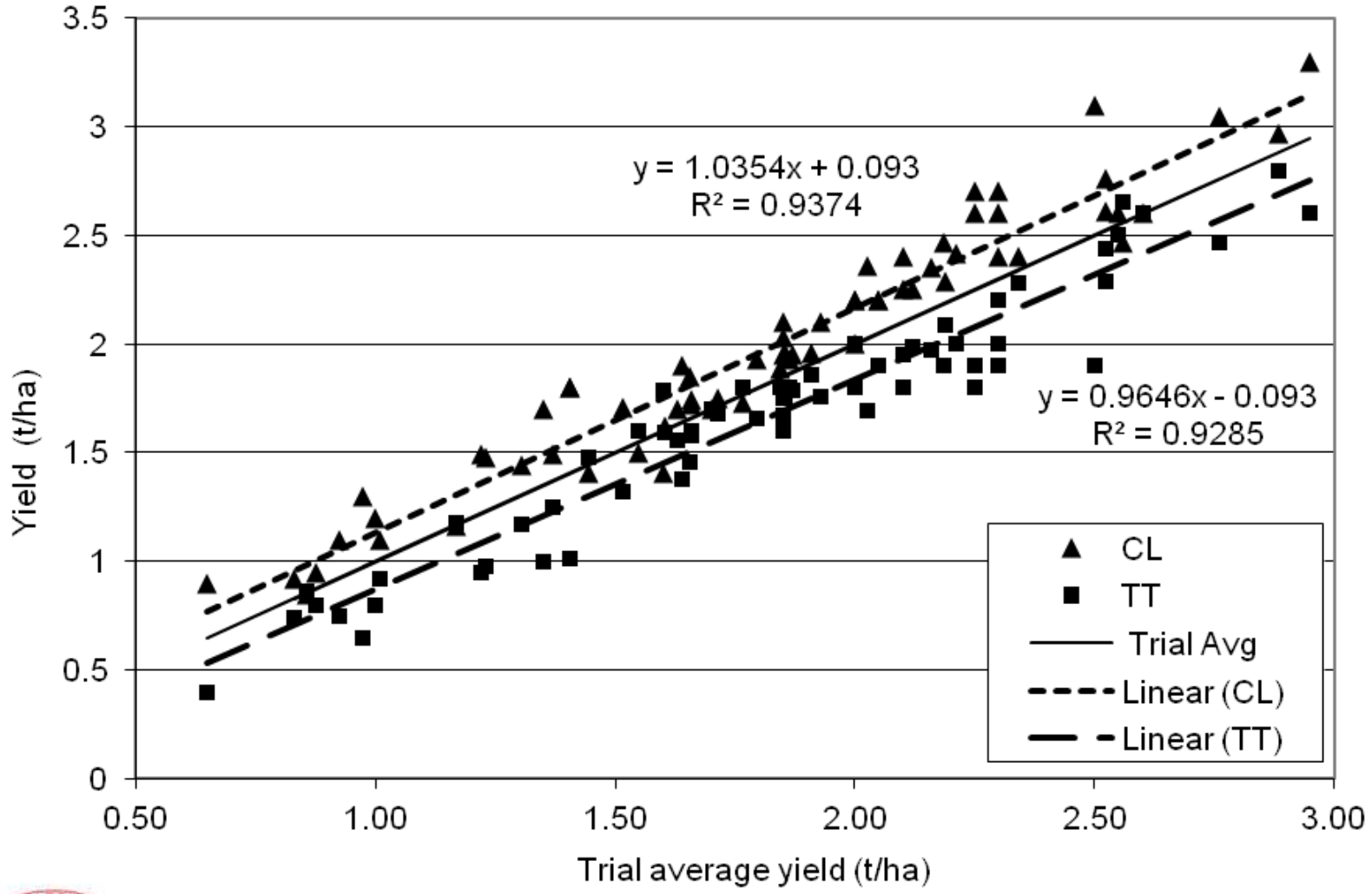
Five year average

	GM (\$/ha)	GM adv (\$/ha)	Wins (%)	SE (\$/ha)
Clearfield	901	147	82.76	23.30
TT	754			

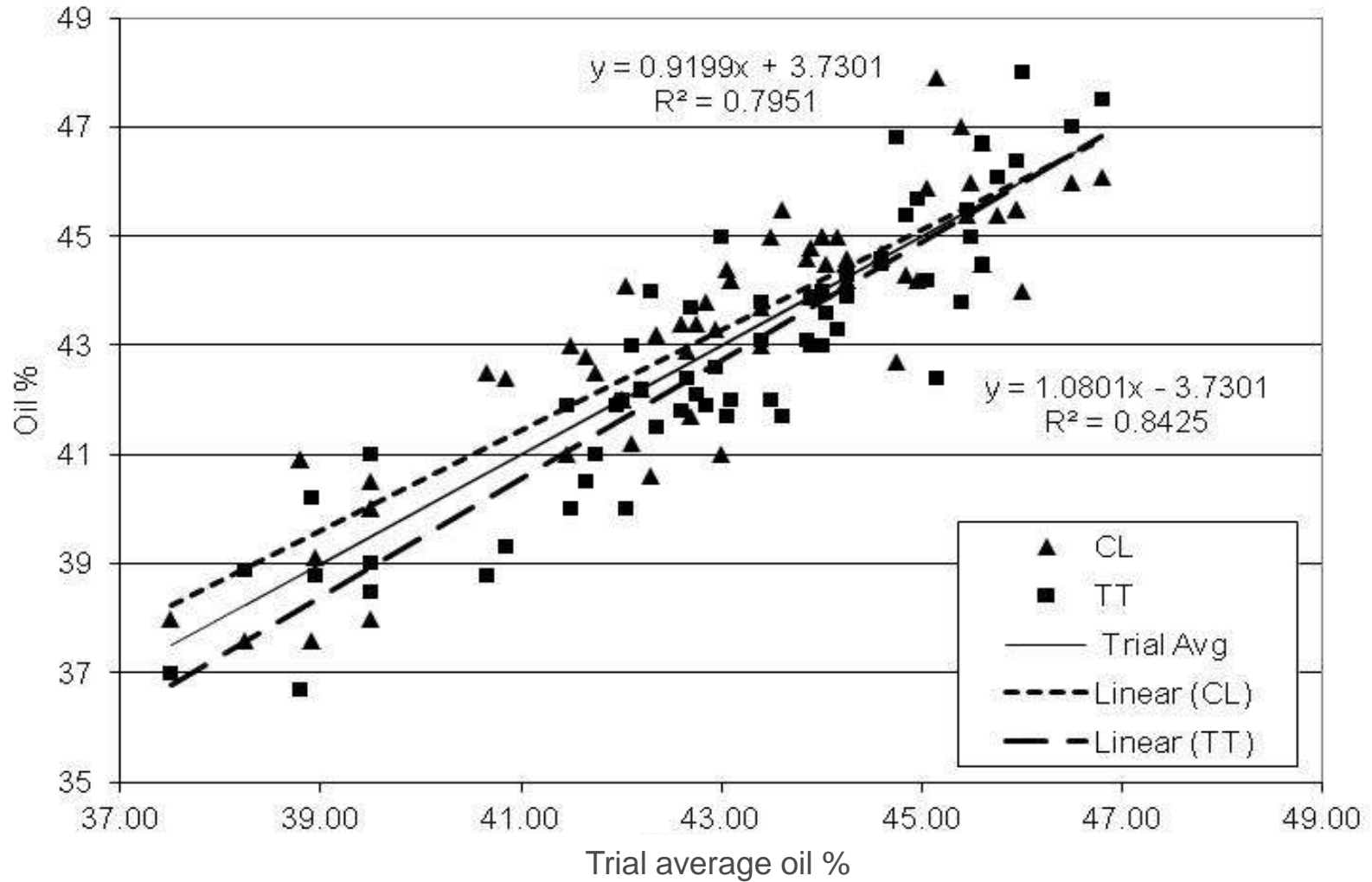
■ Clearfield
■ TT



Yield – 67 trials over five years



Oil percentage – 67 trials over five years



Summary of results

Yield

- Average of 15% yield advantage of Clearfield canola hybrids over TT varieties/hybrids (60/7).
- Yield advantage was 28% in 2010 (most favourable year).
- Very high percentage of wins by Clearfield hybrids over TT canola (close to 90%)
- Clearfield hybrids out-yielded TT canola at all yield levels.

Oil

- Clearfield hybrids generally gave better oil contents.
- Close to 70% wins and an average oil improvement of 0.5%.
- This was more evident in low yielding environments suggesting Clearfield hybrids are better able to deal with the stresses associated with these sites.



Gross margin

- Average of \$147 per hectare improvement in gross margin.
- Provided by growers so reflecting the 'real differences' between the systems.

Weed control and other observations

- Weed control by Intervix[®] generally noted by growers/agronomists as either good or better compared to atrazine.
- Clearfield hybrids had consistently better vigour than TT canola.
- Clearfield hybrids were better able to cope with adverse growing conditions such as a cold/wet start or lack of soil moisture.



Conclusions

The Clearfield Challenge was a valuable study because:

- Long term so covered a range of seasonal conditions.
- Conducted across the major canola growing areas so covered a wide-range of growing conditions.
- All trials were commercial in size and on-farm.
- Cooperative approach with farmers and agronomists.



Acknowledgements

- The participating growers and Agricentre agronomists
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