Aventis CropScience barley seed dressing trial

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SUMMARY

Seed disinfection with seed treatments is essential for smut and bunt control. There was no significant effect of seed treatment on the yield of barley. Significant differences where found in growth measurements such as emergence and coleoptile length, between seed treatments. Little disease was observed with some net blotch and a minor infection of leaf scald.

Aventis CS (previously known as Rhone Poulenc) has developed two new fungicide seed dressings for cereals (based on Triticonazole). Premis seed dressing is for the control of smuts and bunts. Real is for the control of certain foliar diseases and is due for registration in 2000. These products have been developed because in trials they have displayed less effect on growth when compare to some conventional seed dressings and give similar disease control. This trial enables growth and trifluralin safety comparisons.

METHOD

Nine seed treatments, including an untreated control (UTC) were sown in replicated blocks with and without trifluralin at two separate sites.

Table 3.2 Sowing management:

	Sea Lake	***Birchip***
Triflur480	800ml/ha – 27 May	800ml/ha – 24 April
Pre-drill urea	40kg – 27 May	50kg – 21 April
Sowing	2 June	11 June
Sowing rate	50kg/ha Sloop	50kg/ha Sloop
Fertiliser	80kg/ha MM1 with seed	80kg/ha MM1 with seed

The areas not treated with trifluralin were treated with Hoegrass and broadleaf weeds were controlled in both. Emergence (plants per meter), growth (coleoptile length), yield and disease control in each treatment were measured.

RESULTS

Table 3.3 Sloop emergence, height and yield for various seed dressings *with no trifluralin* at Sea Lake

Treatments	**Emergence 19 DAS[1]**		**Height 19 DAS[1]**		**Emergence 34 DAS[1]**		**Yield**	
	pl/m^2	% UTC[2]	cm	% UTC[2]	pl/m^2	% UTC[2]	t/ha	% UTC[2]
Seed Disinfectants								
UTC	25.2a	100	92.8a	100	22.3a	100	3.58	100
Premis	23.5ab	93	77.3bcd	83	22.3a	100	3.30	92
Vincit	25.8a	103	83.3abc	90	23.8a	107	3.59	100
Raxil	21.3abc	84	73.3cde	79	24.4a	110	3.33	93
Vitaflo	23.1ab	92	89.8ab	97	22.4a	101	3.27	91
Early Foliar Disease Control								
Real 75	26.1a	104	82.0abcd	89	23.8a	107	3.33	93
Baytan 150	18.1c	72	61.0e	66	21.6a	97	3.56	100
Armour	20.1bc	80	68.8de	74	16.3b	73	3.14	88

Real 150	24.8ab	98	77.8bcd	84	23.4a	105	3.22	90
P Value	**0.032**		**0.002**		**0.032**		**0.45**	
LSD	**2.48**		**13.9**		**2.18**		**NS**	

(Different letters next to the value are significantly different P<0.05)
[1] DAS = Days after sowing ; [2] UTC = untreated control is taken to be 100

Table 3.4 Sloop emergence, height and yield for various seed dressings *with trifluralin* at Sea Lake

Treatments	**Emergence 19DAS**		**Height 19DAS**		**Emergence 34DAS**		**Yield**	
	pl/m^2	% UTC	(cm)	% UTC	pl/m^2	% UTC	t/ha	% UTC
Seed Disinfectants								
UTC	20.3abc	100	76.0ab	100	19.9	100	3.04	100
Premis	23.9a	118	76.5ab	101	19.6	99	3.64	120
Vincit	20.3abc	101	69.3b	91	20.3	102	3.65	120
Raxil	17.3cd	85	70.5ab	93	19.3	97	3.59	118
Vitaflo	24.9a	123	80.5a	106	20.0	101	3.43	113
Early Foliar Disease Control								
Real 75	22.3ab	110	66.75a	88	19.6	99	3.41	112
Baytan 150	13.5d	67	46.5c	61	18.3	92	2.98	98
Armour	14.5d	72	53.5c	70	18.8	95	3.26	107
Real 150	18.0bcd	89	72.0ab	95	21.9	110	3.36	110
P Value	**0.0002**		**0.000**		**0.75**		**0.22**	
LSD	**2.33**		**10.27**		**NS**		**NS**	

Table 3.5 Trifluralin comparison (+ in favour of no trifluralin)

	Emergence 19 DAS	**Height 19 DAS**	**Emergence 34 DAS**	**Yield**
Birchip	+ 17%	+ 17%	+ 13%	+ 6%
Sea Lake	- 30%	- 4%	+ 9%	- 6%

There was no significant effect of seed treatment on the yield of Sloop at Sea Lake or Birchip. Significant differences were found in growth measurements such as emergence and coleoptile length between seed treatments at Sea Lake.

INTERPRETATION

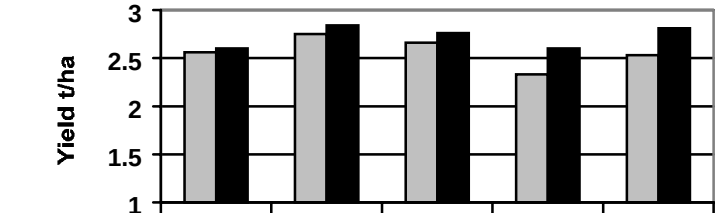
Even though there was an 18% difference between yields (the same as last year) of some seed treatments there was no significant differences in yield between seed treatments due to variation between replicates. Crab holes across the trial at Birchip trial created too much variation between the results. Thus we have few significant differences in this trial as would be expected. The uneven surface does extenuate the differences between seed dressings. A crust forms on the surface where the water sits hardening the surface and hinders seedling emergence. Seed coated with dressings that shorten coleoptile length would be severely disadvantaged.

Significant differences were found in height measurements, emergence and coleoptile length between seed treatments. For example, Amour treated seed had significantly less emergence and coleoptile height at the 19 days after sowing when compared to Real at Sea Lake. Conditions where ideal for seedling establishment.

Leaf disease levels were low with about a 10% infection (leaf area) of net blotch, which no seed dressing controls, and a minor variable infection (<5%) of leaf scald. No assessments were carried out for disease control as there was none present.

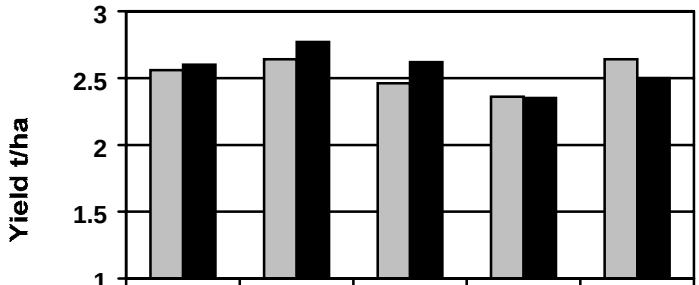
At the Sea Lake site, the trifluralin slowed the emergence and growth down, similar way to what was observed with wheat last year. The opposite seems to be the case at Birchip, but the untreated area had some very crusty soils that made early growth difficult further explaining some of the variable results. Barley's vigour and shorter season is generally less affected by trifluralin.

Figure 3.4. The effect of various seed disinfection products on Sloop yield at Birchip



	UTC	Premis	Vincit	Raxil	Vitaflo
No Trifluralin	2.56	2.75	2.66	2.33	2.53
Trifluralin	2.6	2.84	2.76	2.6	2.81

Figure 3.5 The effect of various foliar protection products on Sloop yield at Birchip



	UTC	Real 0.75L/T	Baytan 1L/T	Armour 1L/T	Real 1.5L/T
No Trifluralin	2.56	2.64	2.46	2.36	2.64
Trifluralin	2.6	2.77	2.62	2.35	2.5

COMMERCIAL PRACTICE

Seed treatments are essential for smut and bunt control. Foliar disease control can increase yields in some areas in certain years. Some seed treatments can delay crop emergence and reduce growth but in these trials it did not significantly ($P<0.05$) affect yield. There is an increasing number of seed treatments on the market, some are safer to use than others. Variety selection (long coleoptile) and pre-sowing herbicide control needs to be considered when selecting a seed treatment.

Real will not be registered in the eastern states until the 2000 season at the earliest.