CEREAL SEED DRESSING TRIAL

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BACKGROUND

The use of seed applied fungicide to control smuts of cereal is a widespread and effective practice. In the absence of control, covered smut (bunt in wheat), in particular, can build up rapidly, to result in devastating losses of quality and yield. There is nil tolerance of bunted wheat at receival points. Although severe outbreaks of smut are now rare, trace levels of spores throughout the southern cropping belt require that all seed should be treated with a registered seed dressing each year. Certain commercial seed dressings are also used in the suppression and control of both foliar diseases and smuts (eg the active *triadimenol*, as contained in Baytan®; the active *flutriafol*, in Armour®). Seed dressings should be applied uniformly to all seed, at the recommended rate to maximise efficacy. Although highly effective, seed dressings offer 95%, or greater (not total) control.

Seed applied fungicides fall into two activity groups: *oxathiins* (fungicide group G) and triazoles (fungicide group C). Due to their mode of action, triazones retard the rate of coleoptile growth, which may affect the crop's emergence. Currently registered smuticides are represented by the triazole group, except the active *carboxin* (contained in Vitaflo®), which is in the oxathiin group of fungicides.

AIM

To investigate the effects of a range of fungicidal seed treatments on the emergence and yield of wheat and oats. (To assess the efficiency of foliar disease suppression of those treatments registered for this purpose.)

TREATMENTS

Table 1 : Seed Treatments and Rate of Application

Treatment	Rate (litres per tonne seed)		Treatment	Rate (litres per tonne seed)	
	Oats	**Wheat**		**Oats**	**Wheat**
Control	No seed treatment		Premis C®	100 ml	100 ml
Armour®	100 ml	100 ml	Raxil C®	100 ml	100 ml
Baytan®	100 gm	150 gm	Vincit C®	100 ml	100 ml
Real	125 ml	125 ml	Vitaflo C®	125 ml	250 ml

ASSESSMENTS

Plots were assessed during establishment, and plant population was measured on July 10th and August 3rd, 1998. A 50cm rod was placed randomly within each plot four times, and aligned between two sown rows of plot. Plants on both sides of the rod were counted, and the number recorded. The four counts were averaged for each plot (representing plants per metre of row) and used as the basis for comparison of plant establishment.

Table 2 : Plant Establishment Scores

Cereal	*Assess*	*Average*			*No. plants per metre row*				
	date	*Control*	*PremisC*	*RaxilC*	*VincitC*	*VitafloC*	*Armour*	*Baytan*	*Real*
Echidna	10 July	25.8	24.5	25.7	25.2	26.8	24.2	25.6	21.4
Oats	3 August	26.6	23.0	26.0	29.3	27.6	25.8	23.5	24.1
Kallalac	10 July	20.9	20.1	16.6	19.1	16.3	19.1	16.9	19.6
Wheat	3 August	21.4	21.2	18.4	19.7	24.7	20.3	27.8	20.5
Declic	10 July	26.0	25.0	24.0	31.6	28.8	26.2	34.8	25.6
Wheat	3 August	25.3	28.2	29.5	30.1	29.5	27.8	29.5	25.0

Table 3 : Yield (tonnes/hectare), average of 3 replicates

	Echidna Oats	*Kellalac Wheat*	*Declic Wheat*
Vitaflo C	5.11	4.75	4.63
Premis	5.05	4.49	4.36
Real	5.05	4.55	4.24
Vincit C	5.10	4.18	4.40
Baytan	5.21	4.52	4.51
Armour	5.13	4.53	4.23
Raxil C	4.74	4.40	4.32
Control	4.88	4.34	4.38

DISCUSSION

Plant counts for each treatment were averaged over three replicates and compared. (No statistical analyses have been used in the following interpretation.)

Echidna Oats : At the first assessment, Vitaflo treated seed produced the highest number of plants per row across all treatments, and in the second assessment, the Vincit treatment yielded the best plant establishment.

Kellalac Wheat : The Baytan treatment yielded the best plant establishment at both assessments. This is unusual, because Baytan and Armour generally retard crop emergence to a greater extent (they retard the coleoptile to a greater extent), than smuticide only seed treatments and would be expected to produce low early crop establishment scores. The second best plant establishment scores were found in the Vitaflo treatments at both assessments.

Declic Wheat : Plant establishment in Baytan treated plots was highest at the first assessment, and highest in the Vincit treatments at the second assessment.

Differences between most treatments in plat establishment are small and unlikely to be of statistical significance.

Results from other seed treatment trials in Victoria this season have indicated that fungicidal seed treatments can affect the rate of emergence and early crop establishment, particularly in trifluralin-treated soils. This may have implications for crop production.

Table 3 indicates highest yields in Echidna Oats observed in the Baytan® treated plots.

Kellalac and Declic wheat produced the highest yields from the Vitaflow® treated plots.

Yield differences between the seed treatments within each cereal are unlikely to be significant.

Note that Baytan and Armour® offer suppression of certain foliar diseases of wheat and barley for up to eight weeks after sowing. Vitaflow and all other seed treatments investigated (including Baytan and Armour) are registered for the control of smuts in cereals (see product labels for details).

During spring 1998, plots were visually appraised for foliar disease.
No differences in foliar disease levels between seed treatments were noted.

Smuticides offer highly cost-effective control of smuts in cereals. Although we seldom see large scale outbreaks of smut, the causative fungi are present at low levels throughout our cropping areas. In the absence of control, covered smut (known as bunt in wheat), in particular, can increase rapidly to reduce both crop quality and yield. Covered smut in wheat and oats is not tolerated in the receival system. Barley affected by covered smut is not accepted for malting. It is important that all cereal seed be uniformly treated with a registered smuticide at the recommended label rate to ensure effective protection.