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Cereal Seed Treatments 2017

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Observations from 2016 and lessons for 2017

Loose smut has been observed in many crops of Spartacus CL similar to Hindmarsh in previous years. These varieties, along with La Trobe, are closely related and all appear to be quite susceptible to loose smut such that many seed treatments are not as effective as they are with more resistant varieties. Seed treatment tests conducted by SARDI in 2015 have shown that products containing just triadimenol provide only about 50% control of loose smut in Hindmarsh. Products containing flutriafol and tebuconazole as well as the low rate of Rancona Dimension (80 mL) also allow some infection to persist in crops. Effective control is provided by products containing carboxin and the new SDHI fungicides, Evergol Prime and Vibrance although where seed is known to be infected then the higher rates set for rhizoctonia control should be used. The higher rates of Rancona Dimension should also provide effective control. Growers should be aware that use of seed treatments for the control of barley mildew should continue as a high priority for effective long term management of this disease. Where control of loose smut is a priority growers planning on using carboxin should consider mixing it with triadimenol or flutriafol for mildew control.

Powdery mildew has been under good control in barley in South Australia due to the widespread use of seed treatments that control this disease. It is also mostly well controlled in wheat with many crops receiving in-furrow or foliar fungicide treatments for stripe rust and/or mildew control. These treatments also successfully suppressed stripe rust and to a lesser extent leaf rust. The cold wet spring weather allowed mildew and stripe rust to infect heads of wheat in many crops and this is always hard to control. The best means for preventing this infection in wet years is to suppress the disease much earlier in the season with more resistant varieties and/or effective treatment at seeding.

Systiva provided very good control of the barley net blotches where it was used in 2016 although the cold winter and spring conditions will also have helped reduce development of the diseases. The effectiveness of Systiva against the net blotches is very apparent, but words of caution are required. The SDHI fungicides, like the strobilurins, are prone to loss of efficacy when used repeatedly against some pathogens. Already some NFNB isolates have been detected in northern Europe that show increased resistance to these compounds. It is important therefore that fungicides are used as part of a package of control measures that includes useful variety resistance and alternative active ingredients such as the triazoles. Do not use Systiva simply as a means to growing susceptible varieties or the use of this treatment will be lost for all.

New products

CropCare have registered a new product, Pontiac®, which is registered to provide broad spectrum control of seed and two soilborne fungi in cereals as well as control of aphids and other stored grain insect pests through the combination of flutriafol, metalaxyl-m and imidacloprid. The inclusion of rhizoctonia is only for suppression and indicates reduced effectiveness compared to the other registered products.

Choice of seed or in-furrow treatments

Wheat

There are three principal reasons for applying a fungicide treatment to wheat at sowing.

- For smut control alone: use a product from Table 1.
- For suppression of soil-borne diseases: use a product from Table 2.
- For control of foliar fungi as well as smuts: use a product from Table 3.
- For control of aphids and therefore BYDV: use a product from Table 4. These treatments also control some stored grain pests.

This factsheet does not include information on the control of stored grain pests. However many of the products listed in this sheet do provide some control of these pests.

It is most unlikely that a treatment applied at seeding will provide any control of white grain. The fungi that cause this condition survive on cereal stubbles and infect the head directly, providing little opportunity for a seed treatment to have any effect. Infected seed generally do not germinate or transmit the disease.

Wheat leaf rust was widespread in SA in 2016. Owing to the large areas sown to susceptible varieties there is a high level of risk of the rust surviving on summer volunteers. Fluquinconazole is the only active applied at seeding currently registered for the control of leaf rust in wheat although use of in furrow treatments for control of stripe rust will provide some protection against leaf rust.

Table 1: Seed-borne disease control

Product	Active ingredient		Company	Form	Rates per 100 kg	Smuts controlled at low/high rates					Net form net blotch
						Wheat & barley		Oats	Flag smut		
	Fungicide	Insecticide				Loose	Covered Φ		seed-borne	soil-borne	
Vitaflo C	carboxin	cypermethrin	Arysta	f	125/250mL	–/✓	✓	✓	✓	–	–
Vitavax 200FF	carboxin + thiram	–	Arysta	f	250/500 mL	–/✓	✓	✓	✓	–/✓	✓
Vibrance	difenoconazole + metalaxyl + sedaxane	–	Syngenta	f	90/180 mL	✓b/✓	✓b/✓	-/✓	-/✓	-/✓	-/✓
Vibrance Extreme	as above	thiamethoxam	Syngenta	f	325 mL	✓	✓	✓	✓	✓	✓
Pontiac	flutriafol + metalaxyl	imidacloprid	CropCare	f	400 mL	✓	✓	✓	✓	✓	–
Veteran C	flutriafol	cypermethrin	CropCare	p/f/l	100 g/mL	✓	✓	✓	✓	✓	–
Vibrant 25C	flutriafol	cypermethrin	Conquest	l	100 mL	✓	✓	✓	✓	✓	–
Apparent Flutriafol 25C	flutriafol	cypermethrin	Apparent	l	100 mL	✓	✓	✓	✓	✓	–
Vincit C	flutriafol	cypermethrin	FMC	p/f/l	100 g/mL	✓	✓	✓	✓	✓	–
Vincit Zinc	flutriafol	–	FMC	f	400mL	✓	✓	✓	✓	✓	–
Systiva	fluxapyroxad	–	BASF	f	150 mL	✓	-	-	-	-	✓
Rancona C	ipconazole	cypermethrin	Arysta	me	100 mL	✓	✓	✓	✓	✓	–
Rancona Dimension	ipconazole + metalaxyl	–	Arysta	me	80 mL	✓	✓	✓	✓	✓	–
EverGol Prime	penflufen	–	Bayer	f	40-80 mL	✓	✓	✓	✓	✓#	–
Apparent Tebuconazole 25C	tebuconazole	cypermethrin	Apparent	f	100 mL	✓	✓	✓	✓	✓	–
Veto C	tebuconazole	cypermethrin	Conquest	f	100 mL	✓	✓	✓	✓	✓	–
Apparent Tebuconazole 25T	tebuconazole	triflumuron	Apparent	f	100 mL	✓	✓	✓	✓	✓	–
Veto T	tebuconazole	triflumuron	Conquest	p	100 g	✓	✓	✓	✓	✓	–
Tebu T	tebuconazole	triflumuron	Genfarm	f	100 mL	✓	✓	✓	✓	✓	–
Raxil T	tebuconazole	triflumuron	Bayer	p/f	100 g/mL	✓	✓	✓	✓	✓	–
Tebuconazole 25T	tebuconazole	triflumuron	4 Farmers	f	100 mL	✓	✓	✓	✓	✓	–
Triticonazole 200C	triticonazole	cypermethrin	4 Farmers	f	75-150 mL	✓	✓	–	✓	✓	–
Premis Pro C	triticonazole	cypermethrin	BASF	f	100 mL	✓	✓	✓	✓	✓	–

p = powder l = liquid Φ Bunt in wheat b = barley only –/✓ = Only registered at the higher rate
f = flowable me = micro-emulsion * Suppression only in barley # = suppression only

Table 2: Suppression of soil-borne diseases

Product	Active ingredient		Company	Form	Rates per 100 kg or per ha	Pythium	Rhizoctonia	Take-all
	Fungicide	Insecticide						
Vibrance	difenoconazole + metalaxyl + sedaxane	–	Syngenta	f	180/360 mL	✓	✓b/✓	–
Vibrance Extreme	as above	thiamethoxam	Syngenta	f	325/650 mL	✓	✓b/✓	–
Jockey Stayer	fluquinconazole	–	Bayer	f	450 mL	–	–	✓
Quantum Pro	fluquinconazole	–	Arysta	f	450 mL	–	–	✓
Pontiac	flutriafol + metalaxyl	imidacloprid	CropCare	f	400 mL	✓	✓#	–
Systiva	fluxapyroxad	–	BASF	f	150 mL	–	✓	–
Rancona Dimension	ipconazole + metalaxyl	–	Arysta	me	200/320 mL	✓	-/✓	–
EverGol Prime	penflufen	–	Bayer	f	40-80 mL	–	✓	–
Uniform	azoxystrobin + metalaxyl	–	Syngenta	spray	200-400 mL	✓	✓	–
EverGol Prime	penflufen	–	Bayer	spray	60-120 mL	–	✓	–
Intake HiLoad Gold / Combi Sapphire	flutriafol 500 g/L	–	CropCare	spray	200/400 mL	–	–	✓
Various (See below) ∂	flutriafol 250 g/L	–	Various	spray	400 mL	–	–	✓
Various (see below) ♉	flutriafol 500 g/L	–	Various	spray	200 mL	–	–	✓

∂ = Impact (FMC), Bayonet (Conquest), Jubilee (Adama), Flutriafol 250 (Innova), Flutriafol 250 SC (4Farmers, Genfarm, Imtrade, Titan), Flufol 500SC (Farmalinx), Pollux (Kenso Agcare)
♉ = Impact Endure (FMC), Jubilee Loaded (Adama), Flufol (Farmalinx), Flutriafol 500SC (Imtrade, Crop Smart, Titan), Leda 500SC (Kenso Agcare)
= low level of suppression only b = barley only –/✓= Only registered at the higher rate

Table 3: Smut and foliar disease control

Product	Active ingredient		Company	Form	Rates per 100kg or per ha	Smuts controlled		Other diseases suppressed at low/high rates							
	Fungicide	Insecticide				Wheat/ barley	Oats	Stripe rust	Wheat leaf rust	Barley leaf rust	Yellow spot	Net blotches	Barley scald	Barley mildew	Septoria
Jockey Stayer	fluquinconazole	–	Bayer	f	300/450 mL	✓*	–	✓	✓	–	–	–	✓*	✓*	✓
Quantum Pro	fluquinconazole	–	Arysta	f	300/450 mL	✓*	–	✓	✓	–	–	–	✓**	✓**	✓
Armour C	flutriafol	cypermethrin	FMC	p/f	100 g/mL	✓	–	✓	–	–	–	–	✓	✓	✓
Arrow C	flutriafol	cypermethrin	CropCare	f		✓	–	✓	–	–	–	–	✓	✓	✓
Systiva	fluxapyroxad	–	BASF	f	150 mL	✓b	–	–	–	✓	–	✓	✓	✓	–
Foliarflo C	triadimenol	cypermethrin	Arysta	f	100/150 mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Triadimenol 150+/150C	triadimenol	cypermethrin	4 Farmers	p/f	100/150 g/mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Apparent Triadimenol 150C	triadimenol	cypermethrin	Apparent	f	100/150 g/mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Baytan T	triadimenol	triflumuron	Bayer	f	100/150 mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Triadimenol T	triadimenol	triflumuron	Genfarm	f	100/150 mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Vanguard C	triadimenol	triflumuron	Conquest	f	100/150 mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Proleaf T	triadimenol	triflumuron	Arysta	f	100/150 mL	✓	✓	✓	–	–	–	–	✓	✓	–/✓
Uniform	azoxystrobin + metalaxyl-m	–	Syngenta	spray	200-400 mL 300-400 mL	–	–	✓	–	✓	– ✓	– ✓	–	– ✓	–
Intake HiLoad Gold / Combi Sapphire	flutriafol 500 g/L	–	CropCare	spray	100/200/400 mL	–	–	✓§	–	–	–	–	✓§	✓§	– /✓/✓
Various ♉ (see Table 2)	flutriafol 500 g/L	–	Various	spray	100/200 mL	–	–	✓	–	–	–	–	✓	✓	– /✓
Various ♂ (see Table 2)	flutriafol 250 g/L	–	Various	spray	200/400 mL	–	–	✓	–	–	–	–	✓	✓	– /✓

p = powder
f = flowable
–/✓ = Only registered at the higher rate

* Barley disease control is only registered where Raxil/Proguard is added
b = barley loose smut only
§ = prolonged control is provided at the higher rates

Table 4: Aphid and therefore barley yellow dwarf virus control

Product	Active ingredient		Company	Form	Rates (per 100kg)	BYDV	Stored grain pests	Smuts	Foliar diseases †
	Fungicide	Insecticide							
Veteran Plus	flutriafol	imidacloprid	CropCare	f	400 mL	✓	✓	✓	–
Pontiac	flutriafol + metalaxyl	imidacloprid	CropCare	f	400 mL	✓	✓	✓	–
Hombre Ultra	tebuconazole	imidacloprid	Bayer	f	200 mL	✓	✓	✓	–
Imid-Triadimenol	triadimenol	imidacloprid	4 Farmers	f	400 mL	✓	–	✓	✓
Gaucho 600	–	imidacloprid	Bayer	f	120-240 mL	✓	✓	–	–
Senator 600	–	imidacloprid	CropCare	f	120-240 mL	✓	✓	–	–
Guardian	–	imidacloprid	Arysta	f	120-240 mL	✓	✓	–	–
Various (See below) ¤	–	imidacloprid	Various	f	120-240 mL	✓	–	–	–
Cruiser Opti	–	thiamethoxam + lambda-cyhalothrin	Syngenta	f	165-330 mL	✓	✓	–	–

¤ = Emerge (Syngenta), Expunge 600SC (Apparent), Imida 600 (Conquest), Imidacloprid 600 (4Farmers, Genfarm), Picus (FMC)

b = barley only

† See diseases controlled by triadimenol in Table 3

Barley

All barley crops should be treated with a product from Table 3 that controls powdery mildew. Where growers seek to suppress Rhizoctonia then a product from Table 2 may be used in addition to the mildew control.

Treatments, other than Systiva, registered for the suppression of net form net blotch are only effective for seed borne inoculum and not for stubble borne inoculum. Where growers think they may have a problem with seed borne infection, it is recommended that they use Systiva as this will provide better control.

Smut Control

Wheat, barley and oat seed should be treated to control bunt, flag and loose smut in wheat, covered and loose smut in barley and smut in oats. These diseases generally occur at low or trace levels but, in the absence of seed treatments, they have the potential to increase rapidly causing significant economic losses to growers. Where farmers decide not to treat seed for one year, they are advised to treat the following year.

Bunt and covered smut spores are spread from infected heads onto healthy seed during harvest. Loose smut spores spread in the wind at flowering time and infect developing embryos. Loose smut infection remains hidden inside the seed and so is more resistant to seed treatments than the surface borne bunt and covered smuts. Flag smut spores spread by wind from infected leaves and infect developing heads. They can also survive in soil for
several years infecting subsequent crops. Where smut infection is observed, growers are advised to buy new seed and use the full rate of registered seed treatments. Ensure that any machinery that has been in contact with the diseased seed is cleaned.

The accepted tolerance levels are nil for bunt and three infected pieces in half a litre of grain for loose smut. Any wheat exceeding these limits will not be accepted. There is a nil tolerance level for any smutted barley or oat grain.

Emergence problems

Caution should be taken in using seed treatment products in Table 3 on wheat as they may reduce coleoptile length and cause emergence problems under some conditions.

Factors other than seed treatments can cause poor seedling emergence: these include deep sowing, surface crusting, short coleoptile varieties, soil temperatures and trifluralin.

Sowing too deep is a common cause of emergence problems. The coleoptile, which surrounds the first leaf until the shoot emerges, protects and guides the shoot as it grows through the soil. If seed is sown deeper than the length of the coleoptile the plant can fail to emerge. Because coleoptile lengths vary from one variety to another some varieties can tolerate deeper sowing than others. Of the current wheat varieties most have intermediate length coleoptiles although Wyalkatchem has a shorter coleoptile. Coleoptile lengths vary greatly from one batch of seed to another. The source of seed is often more critical than the variety in determining coleoptile length. For this and other reasons farmers should seek to use the best seed possible.

Most emergence problems occur in heavy clay soils where surface sealing occurs. Extra care is required when treated seed and/or trifluralin is used in such soils.

Further advice:

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