



Cereal Seed Treatments 2012

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Observations from 2011 and lessons for 2012

Powdery mildew

Powdery mildew was widespread on wheat for the second year running. In 2010 it occurred principally on the lower Eyre Peninsula due largely to the extensive area sown to Wyalkatchem over several years combined with ideal conditions for infection. In 2011 the disease was distributed much further with severe infection observed in crops, principally Wyalkatchem, across much of the rest of the Eyre Peninsula and also in many crops on the Yorke Peninsula and in the Mid North. Gladius was the variety most commonly reported to be severely infected east of the Spencer Gulf. Because of the problems on the Lower Eyre Peninsula in 2010, flutriafol was added to fertiliser and used on most farms in the region. This proved very successful for the first 8-10 weeks of growth depending on inoculum pressure and thickness of crop. Growers in other regions should therefore consider using in-furrow treatments where powdery mildew was a problem in 2011. This will be especially important should summer rain allow powdery mildew to survive and/or develop on self-sown wheat.

Only low levels of powdery mildew were observed on barley despite ideal conditions for the disease and the cultivation of susceptible varieties. This good level of control was achieved by the very comprehensive use of seed treatments that control barley powdery mildew. Consequently when the effect of seed treatments wore off there was too little inoculum in crops for the epidemic to develop and cause significant damage.

Fungicide resistance

High levels of infection in wheat or barley are likely to lead to the development of new mildew strains with resistance to fungicides as is occurring in barley in Western Australia. For this reason it is strongly recommended that all growers continue treating barley seed for mildew protection.

New products

Bayer CropScience have released a new treatment Raxil PRO that combines tebuconazole with prothioconazole. The new treatment has the same range of fungicide efficacies as Raxil but does not contain an insecticidal grain protectant. The promoted advantages are:

- Low application rate resulting in less packaging
- Improved control of smut diseases
- Greener and healthier crops at early emergence

Choice of seed or in-furrow treatments

Wheat

The principal reason for using a fungicide at sowing for wheat crops has been for the control of smuts. To this end regular use of one of the products in Table 1 has been recommended as a minimum treatment.

With increased incidence of powdery mildew in wheat there is now a strong case for applying early protection against this disease. For this purpose a fertiliser-applied treatment from Table 2 or a seed treatment from Table 3 is needed.

Table 1: Products available that control smuts but not leaf diseases

| Product | Company | Fungicide | Active ingredient | Insecticide | Form | Rates (per 100kg) | Smuts controlled at low/high rates | | |
|-------------------------|-------------------|--------------------------------|-------------------|--------------|-------|----------------------|------------------------------------|-----------|-----------------------|
| | | | | | | | Wheat and barley | Oats | Flag smut |
| | | | | | | | Loose | Covered # | seed-borne soil-borne |
| Vitafo C | Chemtura | carboxin | | cypermethrin | f | 125/250 mL | -/✓ | ✓ | ✓ |
| Vitavax 750C | Chemtura | carboxin | | cypermethrin | p | 70/125 g | -/✓ | ✓ | ✓ |
| Vitavax 200FF | Chemtura | carboxin + thiram | | - | f | 250/500 mL | -/✓ | ✓ | -/✓ |
| Veteran C | Crop Care | flutriafol | | cypermethrin | p/f/l | 100 g/mL | ✓ | ✓ | ✓ |
| Vibrant 25C | Conquest | flutriafol | | cypermethrin | l | 100 mL | ✓ | ✓ | ✓ |
| Vincit C | Ospray | flutriafol | | cypermethrin | p/f/l | 100 g/mL | ✓ | ✓ | ✓ |
| Vincit Zinc | Ospray | flutriafol | | - | f | 400 mL | ✓ | ✓ | ✓ |
| Rancona C | Chemtura | ipconazole | | cypermethrin | me | 100 mL | ✓ | ✓ | ✓ |
| Raxil PRO | Bayer CropScience | prothioconazole + tebuconazole | - | | f | 15 mL | ✓ | ✓ | ✓ |
| Blaster 25C | Genfarm | tebuconazole | | cypermethrin | f | 100 mL | ✓ | ✓ | ✓ |
| Innova Tebuconazole 25C | Syngenta | tebuconazole | | cypermethrin | f | 100 mL | ✓ | ✓ | ✓ |
| Veto 25C | Conquest | tebuconazole | | cypermethrin | f | 100 mL | ✓ | ✓ | ✓ |
| Proguard T | Chemtura | tebuconazole | | triflumuron | f | 100 mL | ✓ | ✓ | ✓ |
| Raxil T | Bayer CropScience | tebuconazole | | triflumuron | p/f | 100 g/mL | ✓ | ✓ | ✓ |
| Tebuconazole 25 T | 4 Farmers | tebuconazole | | triflumuron | f | 100 mL | ✓ | ✓ | ✓ |
| Veto T | Conquest | tebuconazole | | triflumuron | p | 100 g | ✓ | ✓ | ✓ |
| Premis Pro C | Crop Care | triticonazole | | cypermethrin | f | 100 mL | ✓ | ✓ | ✓ |
| Dividend | Syngenta | difenoconazole + metalaxyl | | - | f | 100/130 mL | -/✓* | ✓ | ✓ |

p = powder

f = flowable

l = liquid

me = micro-emulsion

* only registered for

suppression in barley

bunt in wheat

-/✓ = only registered at the higher rate

Table 2: Fertiliser applied products

| Product | Company | Active ingredient | Form | Rates (per ha) | Smuts | Stripe rust | Scald | Barley Mildew | Net form net blotch | Septoria | Take-all |
|-------------------------------|-----------|-------------------|-------|-------------------|-------|----------------|-------|------------------|------------------------|----------|----------|
| Impact and others (see below) | Various | flutriafol | spray | 200/400 mL | - | ✓ | ✓ | ✓ | ✓ | -/✓ | -/✓ |
| Impact Endure | Ospray | flutriafol | spray | 100/200 mL | - | ✓ | ✓ | ✓ | ✓ | -/✓ | -/✓ |
| Intake Combi | Crop Care | flutriafol | spray | 200/400/800 mL | - | ✓/✓/✓ | ✓/✓/✓ | ✓/✓/✓ | -/✓/✓ | -/✓/✓ | -/✓/✓ |
| Intake Hload Gold | Crop Care | flutriafol | spray | 100/200/400 mL | - | ✓/✓/✓ | ✓/✓/✓ | ✓/✓/✓ | -/✓/✓ | -/✓/✓ | -/✓/✓ |

∅ = Impact (Ospray), F-Flow (Masmart), Flutriafol 250 (4 farmers, Innova (Syngenta)), Flutriafol 250 SC (Genfarm, Imtrade, Smart, Titan),

Bayonet (Conquest), Flufol 500 SC (Farmalinx), Furrowfol 250 (Choice), Jubilee (Farmoz), Pollux (Kenso Agcare)

-/✓ = only registered at the higher rate

Table 3: Products available that control smuts and foliar diseases

| Product | Company | Active ingredient | | Form | Rates (per 100kg) | Smuts controlled | | Other diseases suppressed at low/high rates | | | | | | |
|-------------------------|-------------------|-------------------|--------------|------|-------------------|------------------|------|---|-----------|--------------|---------------|-----------|-----------|-----|
| | | Fungicide | Insecticide | | | Wheat/ barley | Oats | Stripe rust | Leaf rust | Barley scald | Barley mildew | Septoria# | Take-all# | |
| Jockey Stayer | Bayer CropScience | fluquinconazole | - | f | 300/450 mL | ✓** | - | ✓ | ✓ | ✓** | ✓ | ✓ | ✓ | -/✓ |
| Maxiflo / Quantum Pro | Chemtura | fluquinconazole | - | f | 300/450 mL | ✓** | - | ✓ | ✓ | ✓** | ✓ | ✓ | ✓ | -/✓ |
| Armour C | Ospray | flutriafol | cipermethrin | p/f | 100 g/mL | ✓ | - | ✓ | - | ✓ | ✓ | ✓ | ✓ | - |
| Arrow C | Crop Care | flutriafol | cipermethrin | f | 100 mL | ✓ | - | ✓ | - | ✓ | ✓ | ✓ | ✓ | - |
| V-Flow | Masmart | flutriafol | cipermethrin | f | 100 mL | ✓ | - | ✓ | - | ✓ | ✓ | ✓ | ✓ | - |
| Battalion C | Crop Care | triadimenol | cipermethrin | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Foliarflo C | Chemtura | triadimenol | cipermethrin | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Phoenix C | Farmoz | triadimenol | cipermethrin | p/f | 100/150 g/mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Seedpik 150C | Genfarm | triadimenol | cipermethrin | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Triadimenol 150C | Innova (Syngenta) | triadimenol | cipermethrin | p/f | 100/150 g/mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Triadimenol 150C / 150+ | 4 Farmers | triadimenol | cipermethrin | p/f | 100/150 g/mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Tridim-C | Campbell | triadimenol | cipermethrin | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Vanguard 150C | Conquest | triadimenol | cipermethrin | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Baytan T | Bayer CropScience | triadimenol | triflumuron | p/f | 100/150 g/mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |
| Proleaf T | Chemtura | triadimenol | triflumuron | f | 100/150 mL | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | -/✓ | - |

p = powder
f = flowable

** These products need to be mixed with Raxil (Bayer) or Proguard (Chemtura) for barley disease control

suppression only

-/✓ = only registered at the higher rate

Table 4: Products available that control specific diseases

| Product | Company | Active ingredient | | Form | Rates (per 100kg) | Net-form net blotch | BYDV* | Pythium | Rhizoctonia | Smuts & foliar diseases# |
|-----------------------|-------------------|----------------------------|--------------|------|----------------------|---------------------|-------|---------|-------------|--------------------------|
| | | Fungicide | Insecticide | | | | | | | |
| Vitavax 200FF | Chemtura | carboxin / thiram | - | f | 250-375 mL | ✓ | - | - | - | - |
| Gaucht 350 | Bayer CropScience | - | imidacloprid | f | 200-400 mL | - | ✓ | - | - | - |
| Various (See below) ∅ | Various | - | imidacloprid | f | 120-240 mL | - | ✓ | - | - | - |
| Hombre | Bayer CropScience | tebuconazole | imidacloprid | f | 400mL | - | ✓ | - | - | - |
| Proguard Plus | Chemtura | tebuconazole | imidacloprid | f | 400mL | - | ✓ | - | - | - |
| Imid-Triadimenol | 4 Farmers | triadimenol | imidacloprid | f | 400mL | - | ✓ | - | - | ✓ |
| Proleaf Plus | Chemtura | triadimenol | imidacloprid | f | 400mL | - | ✓ | - | - | ✓ |
| Zorro | Bayer CropScience | triadimenol | imidacloprid | f | 400mL | - | ✓ | - | - | ✓ |
| Veteran Plus | Crop Care | flutriafol | imidacloprid | f | 400mL | - | ✓ | - | - | - |
| Arrow Plus | Crop Care | flutriafol | imidacloprid | f | 400mL | - | ✓ | - | - | ✓ |
| Dividend | Syngenta | difenoconazole + metalaxyl | - | f | 100/130 mL 260 mL | -/✓ | - | ✓ | - | ✓ ✓ _ξ |

∅ = Emerge (Syngenta), Genero 600 (Echem), Guardian (Chemtura), Imidacloprid 600 (Genfarm),

IMI-Flow 600 (Masmart), Nuprid 600 (Nufarm), Picus (Ospray), Savage 600 (Kenso Agcare),

Senator 600 Red (CropCare)

* reduces aphid feeding damage and hence Barley Yellow Dwarf Virus

-/✓ = only registered at the higher rate

- This refers to the diseases controlled by similar products in Table 2

With large areas being sown to the variety Mace in SA there is an increased risk that stripe rust will survive on self-sown wheat through summer. This will increase the risk of early infection of crops in 2012 and hence the value of seed or fertiliser applied fungicides to suppress stripe rust. This risk will be greater should summer rainfall result in large areas of self sown wheat. Should growers decide to apply early protection for stripe rust they can choose cheaper seed treatments containing flutriafol or triadimenol or longer acting treatments based on fluquinconazole or fertiliser- applied fungicides.

Barley

All barley should be treated with a product listed in Table 2 or Table 3 to keep powdery mildew under control. Where a treatment to suppress *Rhizoctonia* is sought then this should be applied in addition to the powdery mildew treatment.

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.

Smut spores spread on wheat seed and harvest machinery, and flag smut can survive in soil for several years infecting subsequent crops. Where infection is observed, growers are advised to buy new seed and use the full rate of 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 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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