

Tuesday, August 13, 2013

This edition includes:

1. Reduced sensitivity of Speckled Leaf Blotch (*Mycosphaerella gramincola*, commonly referred to as *Septoria tritici*) to triazole fungicides
2. International Herbage Seed Workshop, Methven 22 – 26 September
3. Aphid graphs
4. FAR Summer Student Scholarships

1 Reduced sensitivity of Speckled Leaf Blotch (*Mycosphaerella gramincola*, commonly referred to as *Septoria tritici*) to triazole fungicides

Key points

- 2012 trials show that New Zealand *Septoria* populations are becoming less sensitive to triazole fungicides.
- This reduction in sensitivity is also occurring in Europe.
- Current fungicide strategies may need to be revised in order to attain effective control of *Septoria*.

What has been found?

In 2012 there were a number of trials (some at the FAR Arable Site) and commercial crops where fungicide application against *Septoria tritici* in wheat appeared less effective than would have been expected based on previous experience. As a result, some of the key agrichemical manufacturers (Syngenta & BASF) have sent samples from these trials to Europe for sensitivity testing. These tests have revealed that some isolates of this disease are less sensitive to triazole fungicides than they were previously. Testing has revealed that New Zealand *Septoria* populations are trending towards the situation in Europe where there is a need to apply higher rates of triazole fungicide for control of this disease. However, there is a debate as to whether our *Septoria* populations are the same as Europe now (in terms of sensitivity to triazoles) or equivalent to where they were there four or five years ago. *Septoria* samples sent to Europe in 2005/06 had markedly greater sensitivity to epoxiconazole than samples sent last season, according to one of the manufacturers.

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Summary

- Triazole fungicides commonly used for Speckled Leaf Blotch (*Septoria*) control may not be as effective in the field at low rates as they were previously.
- The findings from limited surveying indicate it is not resistance (when products completely fail to work in the field), but a partial tolerance or shift in sensitivity, where controlling the pathogen in the field requires higher rates of fungicide.
- The mutations that lie behind this shift in sensitivity have been confirmed in samples sent from New Zealand last season (report from one manufacturer).

A brief reminder about the disease and how it spreads

Septoria is a wet weather disease that moves up the crop canopy under wet conditions in spring. Spores are rain splashed, or distributed up the canopy by wet crops moving inoculum from older leaves onto newer leaves in windy weather. Part of the difficulty combating this disease is that it has a long latent period (commonly cited at 21-28 days) which means that it can take 21-28 days for infection to become visible to the naked eye. *Septoria* has been particularly problematic over the last two seasons but before that was less prominent (2001 last major outbreak). The last two seasons and a trend to earlier sowing, mean that there is a high level of inoculum this spring, particularly in earlier sown susceptible cultivars (see FAR Cultivar Evaluation Book).

What should we do about it?

At this stage there is no suggestion of not using triazoles for control of this disease as it is a shift in sensitivity, not total field resistance of the fungus to these fungicides. If faced with high levels of *Septoria* in wheat crops at the start of stem elongation GS30-32, it is important to recognise the following points:

- Significantly increasing the rate of triazoles used at this earlier timing is likely to be more effective than the 50% dose rates that have worked well in the past.
- The disease will not be controlled adequately by 25-50% dose rates employed for stripe rust control. Experience with this disease does not transfer to *Septoria tritici*.
- Increasing the rate of triazole alone is not an anti-resistance strategy with regard to using these products in the future. In fact increasing the triazole rate will continue selection pressure and shift the fungal populations to be more insensitive to triazoles.

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- Therefore, in addition to revising triazole rates upwards (which is made easier with the cost of generic formulations in some cases), it is important to mix a non-triazole partner with the triazole for Septoria control particularly at the first spray timing (centred around GS31).

It is in industry interests to minimise the number of applications of all fungicides, particularly the potential partner chemistry such as the strobilurin and SDHI fungicides, which have a high risk of developing resistance because they have a single site of activity. But using the strobilurins and SDHI's with higher rates of triazole, will considerably increase the cost of the GS30-32 spray over the current standards, and potentially increase the number of SDHI's and strobilurins used in a season.

- It will be important to alternate between strobilurin and SDHI fungicides as a partner for the triazole, e.g. use triazole/strobilurin for the first spray followed by triazole/SDHI for the second spray or vice versa.
- The current New Zealand SDHI fungicide resistance prevention strategy states a maximum of two SDHI (e.g. Seguris flexi) applications per season to be applied in a mixture with a fungicide of a different group. The strategy to avoid resistance development to strobilurin and related fungicides in New Zealand allows a maximum of two applications of strobilurins (e.g. Amistar & Comet) in a season, and where disease risk is high, they should be applied in a mixture with a fungicide from a different cross resistance group. So this approach of alternating between strobilurin and SDHI fungicides as a partner for the triazole is in line with the resistance strategies.
- Further information on resistance strategies can be found at <http://resistance.nzpps.org/>

What strategies are used in Europe to combat this disease?

In Europe where the situation with reduced sensitivity is thought to be worse than New Zealand, growers have used the fungicide chlorothalonil (e.g. Bravo) to partner triazole chemistry in order to combat this disease.

However in New Zealand, there are two major downsides of using chlorothalonil:

1. Straw from treated crops cannot be used and the stubbles must not be grazed. The straw must remain in the paddock and either be incorporated or destroyed.
2. Chlorothalonil does not carry a recommendation for *Septoria tritici* control in New Zealand, so any application would be at the growers' risk.

Chlorothalonil is an effective protectant against Septoria and as it has multi-site activity, it is less prone to resistance development. Use of this active ingredient early in the season allows other chemistry, such as the SDHI's and strobilurins to be saved for mixtures and applications to the flag leaf and the head, where their properties of persistence can be better employed. It also reduces the number of applications of SDHI's and strobilurins through the course of the season, a key benefit for an anti-resistance strategy.

For growers who consider this option on the basis that chlorothalonil already carries a label recommendation in wheat for glume blotch (formerly *Septoria nodorum*) it is extremely important to observe the label restrictions. Ignoring such restrictions puts both the pastoral and cropping industries at risk, so the following precautions must be taken if you are considering this approach:

"All [chlorothalonil] products contain minute quantities of HCB, a compound which can be taken up by grazing livestock to give unacceptable residues in meat and milk...Do NOT graze treated crops. Do NOT feed any part of a treated crop to stock. Cultivate treated areas thoroughly before sowing pasture of any animal feed crop. Do not use direct drilling or other minimum tillage techniques. Do NOT use if stock are likely to graze the stubble. Do NOT remove the straw from treated fields. The withholding period for chlorothalonil in wheat is 56 days." (NZ Novachem Agrichemical Manual 2013).

Summary

- Cost effective anti-resistance strategies for Septoria control used in Europe are based on GS30-32 fungicide applications where triazoles are mixed with chlorothalonil.
- Any application of chlorothalonil is at the grower's risk, since whilst there is a recommendation for chlorothalonil in wheat, it is not specifically for *Septoria tritici*.
- Most importantly the straw cannot be used, and must be incorporated or burnt (the straw cannot leave the paddock – always consult the label before use) and the stubble cannot be grazed by livestock.

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2 International Herbage Seed Workshop, Methven 22 – 26 September 2013

This event follows on from the International Grasslands Conference (IGC) being held in Sydney, the week before and has attracted a number of top international speakers and researchers. The Workshop theme is: *"R&D adoption by seed growers-making good science work on farm"* and topics will include:

- Environmental impacts and optimization of N inputs;
- Integration of livestock into high yielding seed crops;
- Integration of vegetable seed cropping and arable crops into herbage seed crops
- Irrigation response and variable rate irrigation technology;
- Integration of remote sensing & GPS technologies into seed crops.

Abridged programme

Full details can be found on the IHSG website <http://www.ihsg.org/content/international-herbage-seed-workshop-new-zealand>

Pre-conference tour Friday 20 – Sunday 22 September, 2013.

Christchurch - Kaikoura – Hanmer – Greymouth – Christchurch

Sunday 22nd September

Registration in Christchurch between 5.00 – 7.00 pm at Hotel Commodore; followed by official welcome; local kapa haka group with traditional welcome and buffet meal.

Mon 23rd September

Bus trip from Christchurch to Methven with stops and talks at CRI, University and Industry research farms at Lincoln and mid-Canterbury.

Tue 24th September FAR Farmer Day

This day will include indoor sessions on nutrient and irrigation management of grass seed, clover and forage brassica crops; new technologies for increased seed production and a look at the future of herbage seed production in Canterbury. International and local speakers. The afternoon will comprise of visits to FAR trials in the Methven area and culminate in an on-farm dinner.

It is possible to register for this day only, see <http://www.ihsg.org/content/international-herbage-seed-workshop-new-zealand>

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Wednesday 25th September

Sessions this day include seed yield limitations in grasses, legumes, forage brassica and tropical species; research approaches in seed production; precision agriculture (including field trip). The IHSG AGM and dinner will be held at Terrace Downs that evening.

Thursday 26th September

Indoor sessions on plant protection and pollination, including weed management, disease management and insect pest and pollinator management in the morning. Afternoon farm visits in the Ashburton area then returning to Christchurch. End of event.

Workshop costs

Full workshop registration cost \$NZ 550 (incl GST) This includes meals and buse, but **not** accommodation. Registration for the FAR Farmer Day is \$50 for non-growers and \$30 for growers.

Accommodation at Methven is \$NZ 115/night for single rooms and a \$NZ 130 for a double/twin bed room (ie \$65/person). Accommodation in Christchurch at the Commodore is \$NZ180/night single or shared. You are free to make alternative accommodation arrangements.

Registration Process

Register on-line at <http://www.ihsg.org/content/international-herbage-seed-workshop-new-zealand>

Your local organizing committee have all attended some or all of our recent IHSG conferences in Australia, Norway and Texas. They are:

Phil Rolston (AgResearch)- phil.rolston@agresearch.co.nz

Jason Trethewey (AgResearch) jason.trethewey@agresearch.co.nz

Richard Chynoweth (FAR) chynowethr@far.org.nz

Murray Kelly (PGG Wrightson Seeds) mkelly@pggwrightsonseeds.co.nz

Bede McCloy (NZ Arable) NZArable@xtra.co.nz

Hugh Wigley (HSSFF- growers representative) handwigley@farmside.co.nz

Sponsorship

If you are interested in providing sponsorship for this Workshop please contact Richard Chynoweth prior to **August 16 2013**.

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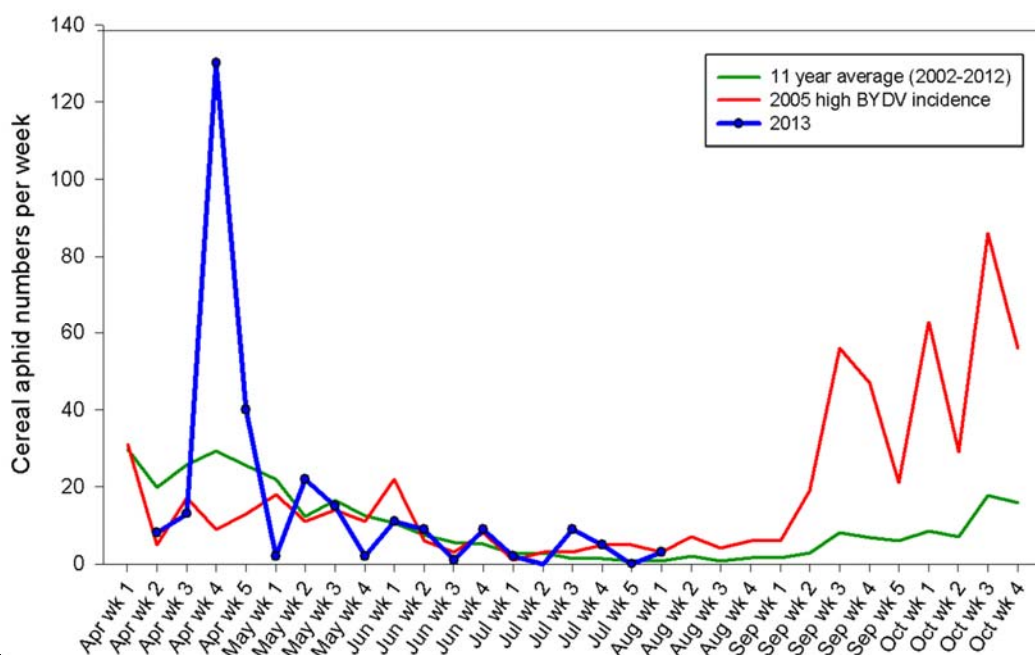
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3 Aphid and temperature graphs

Weekly suction trap capture of cereal aphids

- The number of cereal aphids caught in the Lincoln suction trap between the 5th and 11th Aug (Aug wk 1) 2013 was **3** and is shown in the graph below along with;
 - The weekly average number of cereal aphids caught in the Lincoln suction trap between 2002-2012 (green line), and
 - The weekly number of cereal aphids caught in the Lincoln suction trap in 2005, a year of high BYDV incidence (red line)
- The cereal aphids caught in the Lincoln suction trap do not represent secondary spread of BYDV within a crop.
- Directly searching your crop will provide the best information about the incidence of cereal aphids in your crop.
 - Searching is best done on sunny afternoons, looking at the underside of leaves.
- You can anticipate relatively high numbers of aphids until the end of May



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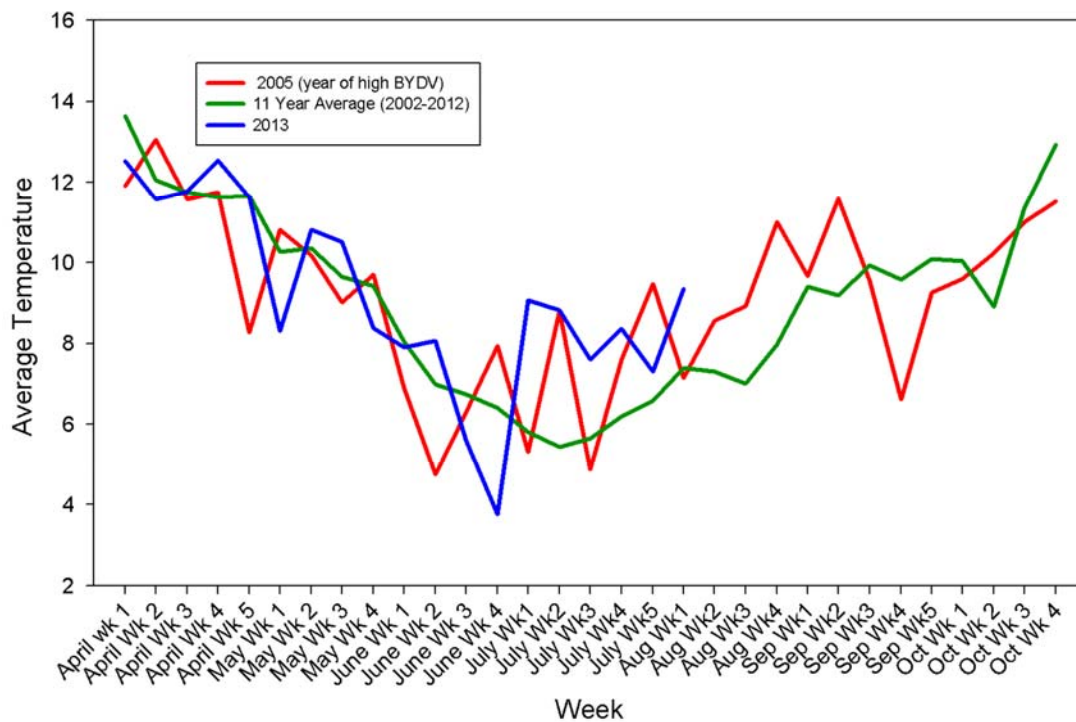
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Average weekly temperature

- The graph shows the average weekly temperature corresponding to the time aphids were caught in the Lincoln suction trap this year (blue line), calculated from average daily temperatures from NIWA CliFlo data for Lincoln (station no. 17603) and;
 - The average weekly temperature between 2002-2012 (green line), and
 - The average weekly temperature in 2005, a year of high BYDV incidence (red line)
- Generally the warmer the temperature, the faster an aphid will develop into an adult. However other factors, such as amount of rain, can affect aphid development and survival.

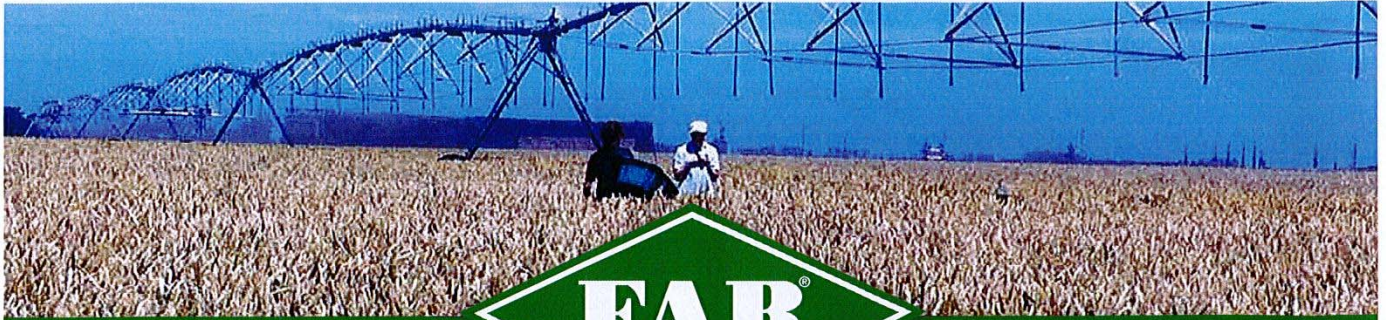
Average weekly temperatures



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SUMMER SCHOLARSHIPS

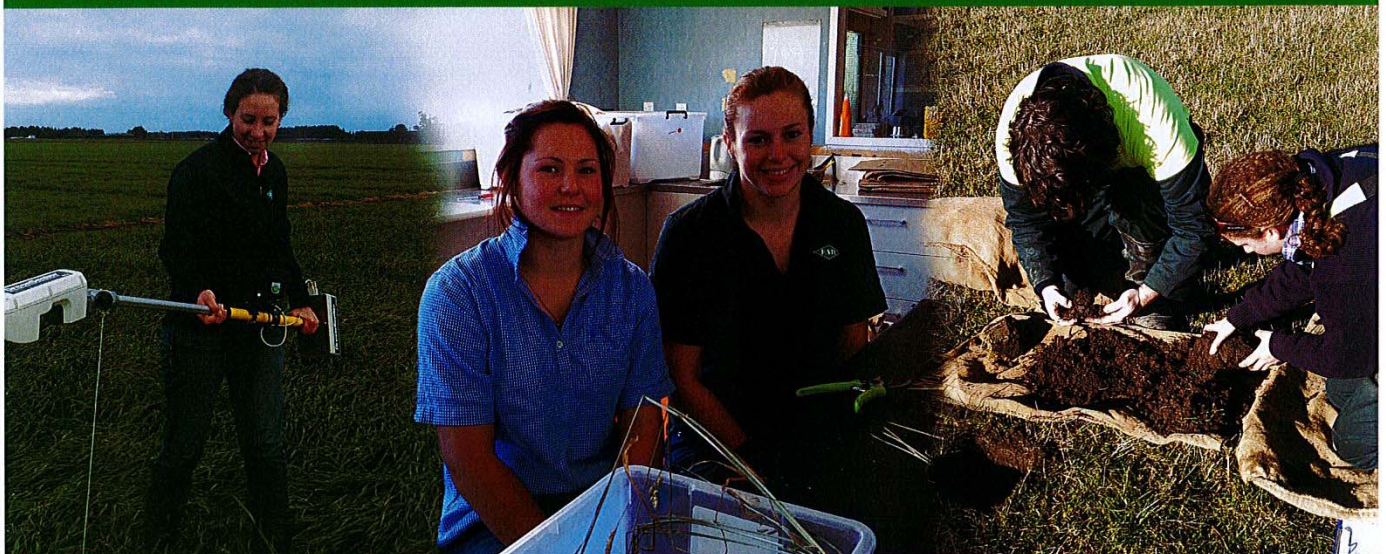
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Phone 03 345 5783 for further information.

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