

Late Season Pest and Disease Control in Wheat



Dr David Ellerton

Since the discovery of high levels of mycotoxins in grain from the 2008 harvest and the setting of legal limits for certain mycotoxins in cereal and cereal products intended for human consumption, much emphasis has been placed on control of the main fungi responsible for production of the Deoxynivalenol (DON) and Zearalenone (ZON) toxins i.e. *Fusarium graminearum* and *Fusarium culmorum*.

However, as Dr David Ellerton (Hutchinsons Technical Development Director) points out, mycotoxins are not the only threat that growers need to take into account when considering strategies for ear emergence (T3) treatments.

Disease Control

Mycotoxin Risk

In order to complete Section 5 of the Combinable Crops Passport for wheat, growers will be required to carry out the AHDB mycotoxin risk assessment for DON in Information Sheet 40 - which may be accessed from the AHDB website at www.ahdb.org.uk

This assessment takes into account a number of factors such as region, previous cropping, cultivations, varietal susceptibility, rainfall at flowering and pre-harvest, as well as choice of fungicide product and dose applied at ear emergence.

Warm wet weather during flowering will favour development of *Fusarium* species and should lead to application of products containing active ingredients such as prothioconazole, tebuconazole, metconazole or thiophanate-methyl, which can give good control of *Fusarium* leading to reductions in DON. Cool wet weather at ear emergence, as experienced in June and July 2012, will promote *Microdochium nivale* which, while not producing mycotoxins, can cause serious yield loss. In this situation the ear emergence spray should always include prothioconazole. Addition of adjuvants may also improve control. Whatever the product chosen, timing and dose are critical and a minimum of 50% of the recommended dose of fungicide should be applied **as soon as the ears reach complete emergence**. Delaying the application will result in poor control, particularly once flowering has started.

Continue overleaf >>>

cereals

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>>> General Disease Control at T3

Although Fusarium and mycotoxins can be a major issue at T3, it is important that growers take into account other ear diseases such as sooty moulds, mildew, yellow and brown rust and Septoria nodorum.

There is also the need to consider possible topping-up of the T2 flag leaf emergence fungicide spray for extended foliar disease control, particularly for Septoria tritici.

Product choice should be built around triazole-based products with specific activity on ear diseases, as well as offering broad spectrum control of foliar disease such as Septoria tritici and yellow rust. Where Septoria tritici has not been fully controlled at T2, ear sprays should concentrate on the use of products containing epoxiconazole or prothioconazole. Yellow rust, which can seriously infect many popular susceptible varieties of winter wheat such as Gallant, Solstice and KWS Kielder, may also influence choice of products at T3. Continuing development of new races of yellow rust means that all varieties should be monitored for the disease.

Where growers have applied a well-timed application of one of the newer SDHI containing products such as fluxapyroxad or bixafen at flag leaf emergence, the extra persistence of disease control on the upper leaves against Septoria may enable growers to concentrate specifically on ear diseases.

Strobilurins, such as azoxystrobin or fluoxastrobin, could also be considered for inclusion in the ear spray for improved control of rusts, Septoria nodorum and sooty moulds. There is also the benefit of yield increases through green leaf retention. However, as with SDHIs, it should be remembered that strobilurins can only be used twice in any crop fungicide programme.

Optimum T3 fungicide strategies will vary between crops and should be discussed with your Hutchinsons agronomist, to ensure the most effective and productive use of fungicide inputs.

Pest Control

Orange Wheat Blossom Midge

At the same time as considering control of ear diseases, growers should also be aware of the risk of late pest attacks.



Of these, perhaps the most potentially damaging is orange wheat blossom midge (OWBM). The severity of damage will vary considerably from one season to the next, the pest requiring specific conditions if attacks are to be severe. Larvae from previous infestations can survive in protective cocoons in the soil for up to 10 years and if the soil is warm (over 13°C) and moist, these larvae may pupate and become adult midges. Adults normally fly if air temperature exceeds 15°C and there is a lack of wind. Male midges then mate with females on the first evening after hatching, which then fly on the next five suitable evenings - as they prefer to fly in low light conditions.

Eggs are laid inside the florets of emerging wheat ears, crops being vulnerable from mid ear emergence until flowering. After hatching, the larvae feed on developing grain, causing significant yield loss and reduction in grain quality. Larvae hatching after flowering do not develop properly and consequently cause little damage.

Certain varieties such as Skyfall, KWS Barrel, KWS Basset, Zulu, Leeds, Myriad, Viscount, Horatio, Reflection, KWS Santiago, KWS Kielder, KWS Crispin and KWS Gator are resistant to serious attacks and do not need protection. However, other varieties should be monitored for potential infestations during the stage when the crop is most vulnerable, from GS 53-59.

Ideally growers should place a minimum of two pheromone traps (available from your Hutchinsons agronomist) within fields damaged by OWBM within the last two years. They should be positioned at crop height a week before the first ears emerge and monitored until the crop flowers.

If 30 or more midges per trap per day are recorded the crops should be visually monitored for flights of female

midges on mild still evenings just before dusk. Susceptible feed crops should then be treated if levels exceed one midge per 3 ears, or one midge per 6 ears in milling and seed crops.

If pheromone trap catches exceed 120 midges per trap per day, then this represents a very high risk and surrounding wheat crops should be sprayed as soon as possible.

Since the removal of cereals from the chlorpyrifos label, insecticide sprays are limited to thiacloprid, or certain pyrethroids such as lambda-cyhalothrin, which should be applied when adult midges are present - since it only controls the adult stage.

Correct timing is crucial and care should be taken to avoid damage to beneficial insects.

Summer Aphids

Another pest problem which can arise in some seasons is summer aphids, such as the Grain Aphid. The mild autumn and winter weather has led to a high risk of aphids this spring and summer and grain aphids were recorded in the Rothamsted suction trap over 5 weeks earlier than the 10 year mean.

During grain filling, grain aphids move from the leaves to the ear and feed from the phloem supply to the grain. Numbers tend to be highest during dry, settled weather, particularly in drought affected crops and yield losses may reach up to 4 t/ha.

Since the removal of cereals from the pirimicarb label, treatment is limited to pyrethroids such as lambda-cyhalothrin or esfenvalerate, when crops reach threshold levels of 50% tillers infested pre GS61, or 66% infested post GS 61, up to late milk, or two weeks before the end of grain filling. However, there are increasing levels of resistance of grain aphid populations to pyrethroids in the UK and if used, doses should be kept at or close to full rate. Where resistance is suspected, consideration should be given to using an active ingredient with another mode of action - such as flonicamid.

Your Hutchinsons agronomist will be able to provide best advice on the most appropriate strategy to adopt for pest and/or disease control in your own situation.

Maize & Energy crop trials update



Dominic Bovis
Hutchinsons Sales Development Manager

HUTCHINSONS
ENERGY

In a period of financial uncertainty for the Anaerobic Digestion (AD) energy sector, Dominic Bovis (Hutchinsons Sales Development Manager) reviews insights from our 2015 maize trials and reveals plans for the Energy trials programme this year.

The farm based Anaerobic Digestion (AD) sector continues to attract its fair share of turbulence. On the positive front, the UK government has recently re-introduced pre-accreditation for AD in the Feed In Tariff (FIT) scheme which is an essential element to securing financing for many AD plants. However, on the negative front, the tariff cap was reached within 15 minutes after the scheme was re-opened on 8th February – that is the amount of energy production allowed under the current block of tariff funding. This means that farm businesses that wish to apply for FIT will have to do so in the next round and at a reduced rate.

Hutchinsons Energy trials

Meanwhile, despite this policy and financial flux, the Hutchinsons Energy team is making plans to conduct more field-scale trials in 2016 that we hope will provide valuable data to assist growers of feedstock crops for AD.

Our maize trials at Great Livermere (kindly hosted by Strutt & Parker Farms Ltd) in Suffolk in 2015 have provided some very useful insights around varieties, cultivation techniques - including row spacing, nitrogen and fungicide applications and also the potential for growing under plastic – a common technique used for forage maize crops in the West of the country but not yet widely adopted in the East.

The varieties that performed well in these trials tended to be the

earlier varieties with ultra-early **P7326**, a new hybrid from Pioneer demonstrating an ability to lay down starch in a cool season.

Other early varieties of note were **Sergio** from KWS and **Agiraxx** from RAGT.

In the 2015 trials the best performing later maturing varieties were **Movanna** from DSV which gave good dry matter and starch yields, with early vigour. Another was **Indexx** from RAGT, which produced a good number of cobs and matching high fresh weight and dry matter yields.

The trials at Great Livermere will be expanded in 2016, when we will again look at a range of maize varieties and also delve deeper in to cultivation techniques, with a focus on understanding the cost of production per tonne of dry matter. Knowing that growers favour a range of maturity dates in order to spread the harvest workload we will again include mid to late varieties. The aim being to help growers navigate through the large array of varieties that are available in the market, bearing in mind that there are nine maturity groups, lists for favourable and less-favourable sites and a separate NIAB list for biogas varieties.

Whole crop cereals

The Hutchinsons Energy trials programme will also be looking at a range of whole crop cereal options. We have seen a large increase in the area of both hybrid and conventional rye in 2015, so we want to assess a range of

varieties that have very recently come to the market. Alongside this, we will include barley and an almost forgotten crop in the form of triticale, which has grown in favour for the German AD sector and we wish to assess its suitability here in the UK.

Save the Date
Great Livermere,
Suffolk maize trials
4th Oct. 2016

Courtesy of Strutt & Parker Farms Ltd.

Dry Matter Challenge

In conjunction with the trials work, we will have the results of the first year's Dry Matter Challenge, where we are encouraging growers to lift biogas yield from crops grown for use in AD through sharing knowledge and expertise, while at the same time generating some friendly competition.

The 2015 Dry Matter Challenge will finish this autumn, after growers have harvested their second crop where, for example, they have followed maize with rye.

The results gathered so far, for the first crop harvested, show up to 25%

difference in gas yield per tonne between the entries – highlighting just how important it is to develop and share knowledge, in order to achieve the best from maize and other energy crops.



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Potato Blight Control Update

With Dr John Keer
(Richard Austin Agriculture)

If you want a blueprint for potato blight control in 2016don't read this article!

I am frequently asked for a potato late blight control blueprint at this time of year, based on forecast disease risk for the coming season. Such a request often results in a disrespectful rebuttal!

The essence of successful blight control is the correct fungicide choice and spray interval based on disease pressure and weather conditions around the time of spraying. Therefore, instead of a blueprint, I will outline some of the control principles required to compile a robust fungicide programme as the season develops.

Aggressive blight genotypes

Potato late blight is intrinsically difficult to control due to the very short life cycle which allows rapid development of epidemics. The number of life cycles per season also provides the scope for much genetic mutation and natural selection of blight genotypes. Selection pressure has caused the emergence of two genotypes, termed Blue 13 A2 and Pink 6 A1, which have dominated UK blight populations in recent years. The dominance of these two genotypes has huge agronomic implications because they are more virulent and better adapted to a wider range of climatic conditions, compared to genotypes which had previously occurred. Smith period criteria have been made less useful by these more aggressive genotypes. Fortunately, we are currently blessed with a very diverse range of fungicides, with over a dozen different modes of action available. Such diversity greatly reduces the likelihood of resistance developing in potato blight, provided fungicides are selected to confront the disease with varying modes of action from successive sprays.

Continue overleaf >>>

Please complete your contact details and then nominate the day and time you wish to visit below:-

Wed. 22nd June

.....places for tour

10am	12noon	2pm	4pm
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Thurs. 23rd June

.....places for tour

10am	12noon	2pm	4pm
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Regional Technology Centres Summer Demonstration Events

Hutchinsons have a series of open day events at our National Black Grass Centre of Excellence – Brampton and our regional crop demonstration sites. **For further details, including preview videos, and to book your place(s) – please visit our website www.hlhld.co.uk**

Summer Programme 2016

- 1 Agrivice, Beccles
- 2 National Black Grass Centre
- 3 Balgonie with Scottish Agronomy (NEW)
- 4 Alnwick
- 5 Great Tew
- 6 Morton-on-Swale
- 7 Adisham with NIAB
- 8 Little Ponton
- 9 Warden Farming, Grayingham
- 10 Stow Bridge
- 11 St Mabyrn, Bodmin
- 12 Ludlow
- 13 Millthorpe (NEW)



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>>> Help to avoid repeat application of fungicides with the same mode of action is available in the excellent FRAG-UK “Potato late blight guidelines” publication.

Minimise unprotected foliage

Blight programmes should aim to minimise the amount of unprotected foliage in the potato crop at all times during the growing season. This is a very simple concept but is often not appreciated, nor easy to achieve. Since the failure of metalaxyl products to control Blue 13 A2, we have no truly systemic fungicides available in the armoury. Consequently, haulm growth occurring after a fungicide application remains unprotected until the next application. Curative products (cymoxanil, dimethomorph and propamocarb) are only effective for about one day post-infection. Therefore, even when spray intervals are less than seven days and mixtures of fungicides with both protectant and curative properties applied, foliage is left unprotected during periods of rapid growth. The combination of rapid new growth and high blight pressure results in the most challenging conditions for effective control. Classic examples of this toxic mix were seen in 2012, when delayed planting and perfect blight weather conditions meant new foliage appearing daily, which was immediately infected by germinating blight spores. This immediate infection of new growth led to almost uncontrollable blight development, despite exceptionally close spray intervals. A similar set of conditions occurs most years in second potato crops, where June planted crops make rapid new growth during the most “blightly” months of August and September.

Leaving foliage unprotected by fungicide could be a problem in 2016, because delayed planting will lead to rapid growth under warmer conditions. This situation calls for front-loading blight programmes with effective products. Although blight programmes should be kept tight for as long as there is green tissue present, early-season control is particularly important and will make subsequent control later in the season, less difficult and less costly.

Weather – the determining factor

The dominance of new blight genotypes has led to less onerous requirements for disease infection. Inoculum and leaf wetness are the essential requirements. I have already found foliar blight alive and well and residing in early polytunnel crops around south Lincolnshire! The source was volunteer potatoes thriving during the warm winter months of January and February. I do not expect blight infection this year to be limited by lack of inoculum, as was the case in 2015. **The scene is set for potential high initial blight pressure in 2016 but the weather after crop emergence will be the main determinant, as always. A prolonged period of dry weather will reduce disease pressure and impact on fungicide choice.**



Brassica

Brassica planting is well under way and with crops starting to emerge from under poly, we should start to consider early season pest and disease control.

With the cabbage root fly forecast showing egg laying reaching 10% in Cornwall on the 1st of May, 4th of May in Boston and in Blairgowrie on the 20th of May, all crops should have been treated for cabbage root fly. These timings are around 5 days behind last season, but this is as expected, considering the particularly cold spring we have experienced around the country.

With ringspot evident in untreated overwintered crops, there is no doubt that the inoculum is there. Crop residues should be incorporated post-harvest to avoid the green bridge onto crops emerging from under poly and new plantings. White Blister is visible in some crops, but only at very low levels. However, because of a lack of curative control in broccoli in particular, a preventative approach is essential when weather patterns are conducive to the disease. Light Leaf Spot is found very easily in Oilseed Rape Crops, definitely at higher levels than last year. Whether this will in turn mark the start of another high pressure Light leaf spot year in Brussels Sprouts, and White Cabbage in particular, is yet to be seen, but we must be prepared for that possibility and be vigilant taking note of Disease and weather forecasts and look out for early signs in susceptible varieties.

Onions and Leeks

Spring drilled onion crops are now at 2-3 true leaves and weed control is generally looking good as early season moisture, followed by some dry spells, has appeared to give higher efficacy than normal with residual and contact herbicides alike. Both overwintered and spring planted sets are again weed free and should be well into their fungicide programmes.

Fieldwise Vegetable update – Early season pest and disease control

We review the current pest and disease issues in the main areas of vegetable cropping

The only slight concern with some overwintered crops are the levels of bolting which could happen due to forward crops coinciding with late season frosts. With the earliest overwintered crops looking on target for a late June harvest, these crops should be on their fourth or fifth fungicide, looking to apply the last fungicide in early June. Programmes should generally be applied every 7 days, and only be stretched to 10 days in very dry periods. If active lesions are found, then slotting an additional fungicide between the 7 day programme can provide effective control. Fungicides are best applied in 200 L/Ha, using either a standard flat fan, or an angled flat fan nozzle alternated forward and back.

Carrots and Parsnips

With the Carrot fly reaching 10% egg laying 1 day earlier than last year in Cornwall and Norwich on the 6th of May, and on the 13th of May in Blairgowrie, then foliar insecticides should now be considered. Crops which received an insecticidal seed treatment should have around 6 week's protection from the date of sowing.

Crops out of this window, and which did not receive a seed treatment, should be monitored

with sticky traps and once thresholds are reached, then insecticide applications should be started.

Willow Carrot Aphid migration on the whole was slightly later than last year, with the exception of a few aphids which were captured early and assumed to have overwintered as active individuals on wild or cultivated umbellifers. Crops treated with Cruiser seed treatment will give early control of Willow Carrot aphid and will lower the risk of Virus transmission. Protection of the crop is the key to the prevention of viruses.

Hutchinsons specialist vegetable agronomists will be happy to guide you on the optimum strategy to control pests and diseases in your crops.

For more information on any of our products or services please contact your local Hutchinsons agronomist or contact us at:

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