

Late Autumn Weed and Disease Control Options in Oilseed Rape

Despite recent reductions in the price of oilseed rape the crop remains one of the most useful and profitable combinable break crops available to UK growers, so it makes economic sense to optimise yield and profitability. Weed control plays a crucial part in maintaining yield potential, but with limited herbicide options in the spring, late autumn offers the best opportunity to get on top of problem grasses and broad leaved weeds. In addition, October is often the best time to control two key diseases in oilseed rape - Phoma and Light Leaf Spot.

Dr David Ellerton (Technical Development Director) explains late autumn weed and disease control strategies in oilseed rape and discusses the best ways to minimise the environmental impact of herbicide applications.

Late Autumn Herbicide Options

Most late autumn options for weed control in oilseed rape revolve around two key active ingredients, propyzamide and carbetamide. Although each active offers the potential of good grass weed control (including those resistant to ALS and ACCase products), both are very sensitive to environmental conditions, which influence how they achieve optimum efficacy. Both products give best control when applied to small weeds with roots close to the surface. Propyzamide should be applied from 1st October providing the crop has 3 leaves although it works best when soil temperatures are low (8°C) and declining and soils are moist. These conditions normally occur from November onwards.

In contrast carbetamide, being more water soluble than propyzamide, can be applied at a reduced rate in drier conditions from the 3 leaf stage of the crop in mid-September. Trials work on adjuvants has also indicated that the addition of a silicon wetter with the

straight products gives a more even distribution through the soil profile, leading to improved efficacy in many cases.

Another consideration when applying both these products is that they are frequently detected in water above the limits set under the Drinking Water Directive (DWD). Under the Voluntary Initiative, guidelines are available to minimise the risk of these actives finding their way into water.

These guidelines show the importance of balancing the need for spraying in the right conditions for maximum efficacy, with minimising the risk of the products entering water. The key guidelines for the latter are respecting a 5m no spray zone next to water courses, not applying if heavy rainfall is expected within 48 hours and preferably avoiding use if the drains are flowing, or are likely to flow in the near future. Recent work by Dow Agrosiences has shown that the use of grass buffer strips (12m better than 6m) and min till techniques will reduce the amount of propyzamide lost by surface run off, or drain flow.

Further information on water issues may be found at www.voluntaryinitiative.org.uk

To optimise grass weed control, the addition of a suitable graminicide to residual products has also been shown to increase consistency.

Last autumn saw the arrival of another new active ingredient to the graminicide market, clethodim. This product showed good activity on a wide range of grass weeds, including annual meadow grass, wild oats, ryegrass, bromes and difficult to control black grass. However, concerns over crop safety have led to a number of new guidelines on the use of this product this autumn in order to minimise any risk to the crop. These include a reduction in the window of application up to the end of October, sequence restrictions with other crop protection products and the removal of any tank mixes. Ensure you contact your Hutchinsons group agronomist in order to use the product most effectively whilst optimising crop safety.

While carbetamide and propyzamide can give excellent grass weed control, they both have limited efficacy on most broad leaved weeds, except for a few weeds such as chickweed and speedwells. To increase its spectrum on broad leaved weeds propyzamide is also available co-formulated with aminopyralid. The addition of this active will not impact on grass weed control but will add additional broad leaved weeds such as mayweed, common poppy and sowthistle and will

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>>> also improve control of groundsel, field pansy and forget me not.

Unlike straight propyzamide, this product is not cleared for use on winter beans and key restrictions are that only cereals can be sown as a following crop and rape straw must not be removed from the field after harvest. Other actives available for broad leaved weed control later in the autumn include bifenox and also clopyralid plus picloram. The latter formulation is being re-registered and labels with the new MAPP number can only be applied from 1st March, 2015 in line with straight clopyralid.

The potential impact of the DWD has increased the need for alternative active ingredients in oilseed rape and Hutchinsons are actively involved in trialling these materials this season, as well as amending the use of current actives. We will keep our customers informed of developments as they occur, to ensure we continue to maintain the level of weed control needed in this important crop in the future. In the meantime, our current range of products should be used with care to maintain efficacy and ensure they remain available. Consult your Hutchinsons agronomist for best advice.

OSR Disease Control Plans

As for disease control, once again high levels of Phoma Leaf Spot and Light Leaf Spot were detected in the HGCA Crop Monitor Survey last spring (see Figure 1 – courtesy of HGCA) and many crops are likely to be infected by both diseases this autumn. Autumn Phoma risk forecasts, available from Rothamsted Research Station, are based on region / incidence of Phoma canker last season and rainfall in September and October. Phoma spores need 20 days or more rain from August 1st in order to mature on stubble. More rainfall than this then causes release of mature spores, which are then able to infect the crop – if there is a minimum of 4 hours leaf wetness.

From infection, it takes an accumulated mean temperature of 120 day degrees (i.e. 6 days at 20°C, or 10 days at 12°C) for a mature spore to produce the characteristic leaf spot, from which the mycelium will migrate down the petiole of the leaf and into the central stem. At low temperatures, this migration may be only 1mm per day. It is essential to control the disease before it reaches the stem, as control then becomes almost impossible and stem cankers will result later in the season.

All rape crops should be monitored and fungicides applied once crops have reached a threshold of 10-20% of plants infected with Phoma leaf spot. Priority should be given to spraying small plants with high susceptibility to Phoma, where there is a shorter distance for the mycelium to travel before reaching the stem.

Phoma or Light Leaf Spot?

Sprays applied for Phoma control will also inhibit the other key autumn disease, Light Leaf Spot. If no spray has been applied for Phoma, then a routine protectant fungicide should be applied for Light Leaf Spot in late October, or early November - although symptoms are often not found in crops until late November, or December. Risk forecasts for Light Leaf Spot in the autumn (again available on the Rothamsted website) are based on region, amount of pod disease the previous summer and deviation from the 30 year mean summer temperature and all indications are that the risk is high this autumn.

Symptoms shown are large, mealy blotches on the leaves, with a pinkish white centre and white spore droplets around the edge of the lesion. It may be necessary to incubate them for a couple days in a plastic bag for these droplets to develop. Although traditionally Light Leaf Spot was a disease of Scotland and the North of England, more recently the disease is frequently being found in the south of the country.

Where disease control is the main issue fungicides should be based around active ingredients such as prothioconazole, tebuconazole, prochloraz/propiconazole or difenoconazole. However if growth manipulation is needed in more forward/ thicker crops then metconazole or tebuconazole based products will be more appropriate.

Unfortunately flusilazole has now been withdrawn from the market and growers should ensure that they have used up stocks of this product by 12th October, 2014. However on a positive note, this autumn sees the launch of a new fungicide for oilseed rape called 'Refinzar', based on penthiopyrad and picoxystrobin. Trials have shown excellent control of both Phoma and Light Leaf Spot combined with a unique effect on roots, considerably increasing root mass enabling better uptake of nutrients and potentially better growth in a dry spring through increased water scavenging.



The other disease that can establish in the autumn is Turnip Yellow Virus (TuYV) which is spread by the peach-potato aphid (*Myzus persicae*). TuYV shows up as a yellowing and purpling of the leaves and it is believed that this disease can reduce yield by up to 30%. Control in recent years has been based mainly around insecticidal seed dressings, since the aphid has shown resistance to most commonly used insecticides such as pyrethroids and pirimicarb.

Since neonicotinoid seed dressings are no longer available in oilseed rape, this autumn requires a change in strategy for aphid control. Last season clearance was granted for the use of pymetrozine in the autumn for the control of aphids in oilseed rape. This active will give good control of resistant aphids, applied either alone, or at a reduced rate with oil. Furthermore, this autumn an emergency 120 day clearance has been granted for flonicamid which is also effective on resistant *Myzus persicae*. There is also the possibility of other insecticides effective on aphids gaining clearance for autumn application to oilseed rape. Your Hutchinsons agronomist will be able to keep you updated on changes to product clearances and advise you on the correct choice of pest and disease control options for your crop this autumn.

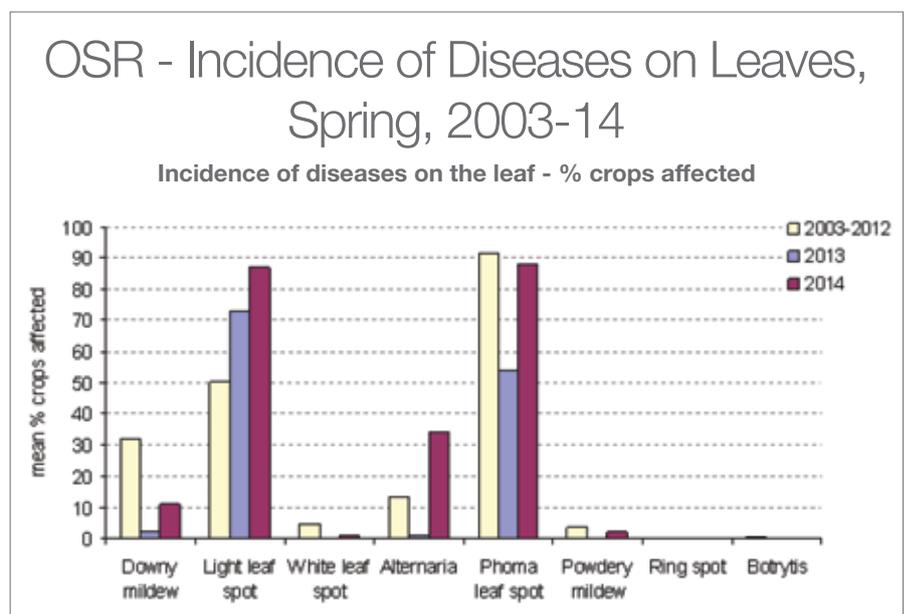


Figure 1

Source: Crop Monitor

Breaking through Crop Yield Plateaus



This is the second year that Hutchinsons have been involved in a project called the Yield Enhancement Network (YEN). Dr Bob Bulmer (Hutchinsons Trials and Research Manager) explains the aims of the project and provides an update on progress.

Albeit crop yields in this current year have generally been very good, the goal of the YEN project is to break through the yield plateau trend that we have been experiencing in winter crops over the last fifteen years. The average yield of wheat has not exceeded 8t/ha over this time period and the objective of the project is to examine the critical factors that contribute towards high yields.

Two prizes are awarded to growers as part of the YEN competition, one for the highest yield and one for the crop that is closest to theoretical yield. The second award encourages farmers and agronomists to maximise the potential of their site, even though they may not be in a high yielding situation.

Computer modelling

A computer growth model is used to predict the theoretical yield of each site. The model uses light and water as the main factors affecting wheat yield. The predicted yields over the last two seasons have been rather mind boggling with average predicted yields of 21t/ha. The current UK record for wheat is 14.31t/ha and the world record is 15.63t/ha, there is a big gap between theoretical yield and these record breaking crops and also a large gap between record crops and the national average. It has been fascinating to observe the change in the mind-set of farmers and advisors, once they take part in the YEN competition - there have been a number of apologetic phone conversations this year where a yield of **only** 12.5t/ha (5t/acre) have been achieved, obviously farmers are aiming high when they take part in the competition.



Generally cereal yields have been very good this year and it will be interesting to see which yield wins the competition when the results are announced in November. The most interesting area this year has been light land crops, where water is usually the factor limiting yield. There has been sufficient rainfall this year to remove water as a limiting factor. The theoretical yields for light soils in the 2012 to 2013 season were predicted to be 15 to 16t/ha, this year with regular bouts of rain during the growing season, the theoretical yields were predicted to be 21t/ha. This has been mirrored by actual farm yield being unusually good on sandy soils, with 11t/ha crops not uncommon.

Hutchinsons philosophy

The Hutchinsons philosophy on yield enhancement mirrors the 'Team Sky' cycling approach to road racing - one of small, incremental gains. We are finding every farm to be unique in this respect, with various factors needing attention, including variety choice, soil management, crop nutrition and fungicide, depending on the individual farmer's circumstances. As one example of this, it has been surprising how few farmers are routinely using sulphur on their wheat crops.

Efficient use of nutrients

In addition to sulphur, high yielding crops are also thought to have a very high demand for the other major elements: nitrogen, potash, phosphate and magnesium. According to the HGCA nitrogen guidelines for winter wheat, a 15t/ha crop needs 375kg/ha of nitrogen; in practice we are finding that farmers who produce high yielding crops are only using average levels of nitrogen, around 200kg/ha.

Plot trials have also demonstrated no advantage in using 300kg/ha of nitrogen compared to 200kg/ha. It could be that these farmers are utilising nitrogen more efficiently and it is an area that we need to investigate in more detail. We have also found that the situation with phosphate and potash is similar, with top yielding growers producing good crops with only modest inputs of these elements.

UK wheat record example

We are all searching for a 'magic bullet' when it comes to yield improvement and I have been very impressed with the consistent production of high yielding crops by the current holder of the UK wheat yield record, in Lincolnshire. Typically, if you were looking for soil to produce high yields, you would not start with the thin chalk soils and blowing sands found on that farm.

Hutchinsons was recently involved with the attempt to set a record for spring barley. What was most noticeable was how regular the crop was across the field, even though the depth of topsoil varied dramatically. The spring barley yielded 10.4t/ha, which is the highest weighed and measured spring barley crop that I am aware of. The grower is a strong advocate of the 'Delta' nutrient range and we are investigating this area in some detail, in replicated trials in a range of crops.

Precision crop monitoring

There is also scope for precision farming to lend a hand when it comes to crop monitoring. Measuring crop development over the course of a season will enable advisors and growers to detect problems earlier and take remedial action. The 'Omnia' system from Hutchinsons has been developed to bring together historic data on crop yield and soil fertility along with in-season monitoring of crops and we are very excited by the opportunities that this will present.

If you would like to take part in the 2015 harvest YEN competition contact your Hutchinsons agronomist, or Bob Bulmer mobile 07810 515892, e-mail bob.bulmer@hlhlt.co.uk



Your Invitation

to Hutchinsons 'Winter Technical Farmer Conferences - 2014-15'

'Using Science to break through the yield plateau'

Wednesday 26th November - Perth Racecourse, Perth PH2 6BB

Wednesday 3rd December - Cheltenham Racecourse, Gloucs GL50 4SH

Wednesday 14th January - Newmarket Racecourse, Suffolk CB8 0TF

Hutchinsons firmly believes in the value of science helping to solve farming problems. Our on-going aim is to find solutions for many of the agronomic challenges which limit UK yields. We hope to achieve this by working closely with a range of science partners and R & D organisations, to turn scientific initiatives into practical solutions that make a real difference in the field. The continuing development work at our Regional Technology Centres and National Black Grass Centre of Excellence are prime example of this, where practical and positive results are already being achieved. The aim of our Winter 2014/15 conferences – through practical ideas and engaging with other industry experts, is to identify where science is challenging current crop yield plateaus and outline areas for future development to both enhance yields and boost the profitability of your arable crops.

WHAT WILL YOU LEARN?

- Identifying the yield plateaus in key UK crops
- Changes in disease profiles, fungicide programmes and plant resistance
- Cultivation techniques for optimum establishment and weed control
- Soil fertility and nutrient management for sustainable crop production
- Growing hybrids and selecting the best varieties for your farm.

To apply for Winter Technical Farmer Conference tickets online, please visit the 'Latest Events' section on our website <http://www.hlhtd.co.uk>

Conference Agenda:

(Perth speakers shown in italics)

10.00am Registration and coffee, plus opportunity to visit stands and demonstrations

Welcome and Introduction from the Chairman

Current Yield Plateaus and Yield Enhancement Networks

Andrew Gilchrist

(Scottish Agronomy)

David Gouache (ARVALIS)

Christian Huyghe (INRA)

Key Fungicide Issues

Dr David Ellerton (Hutchinsons)

Jonathan Blake (ADAS)

Dr Fiona Burnett (SRUC)

11.30am Questions and Coffee Break

Crop Establishment and Nutrition

Dick Neale (Hutchinsons)

Keith Goulding (Rothamsted)

Cam Murray (Hutchinsons)

Jim Wilson (Soil Essentials)

Seed and Variety Considerations

Colin Button (Hutchinsons)

and Robert Hiles (Syngenta)

(Perth event) Provenance of Agrochemicals

Mark Corrigan (Hutchinsons)

Questions and closing remarks

1.30pm ALL CONFERENCES WILL CONCLUDE WITH LUNCH

There will be a range of technical stands located in the refreshments area for delegates to visit.

BASIS & NR0SO CPD points will be available.

Winter Technical Farmer Conferences

Please book online or use this tear-off reply card to apply for your tickets - please return either by fax (01945 583942) or by post. Simply tick your preferred venue and complete your details below:

- Wednesday 26th November – Perth Racecourse – Perth PH2 6BB
- Wednesday 3rd December – Cheltenham Racecourse – Gloucestershire GL50 4SH
- Wednesday 14th January – Newmarket Racecourse – Suffolk CB8 0TF

Tickets will be despatched after **1st November** to the address details that you provide.

(N.B Due to the popularity of our previous events, for 2014 we can only offer tickets to farmers.)

Farm Business Name: _____

Address Details: _____

Postcode: _____

Delegates applying for tickets (please list all): _____

Mobile: _____

Telephone: _____

Email: _____

Please tick if you would **NOT** like to receive further information from Hutchinsons by post or email, in future.

REGISTER NOW!



Advance notice - NRoSO Spray Operator training 2014/15:

“Water, Insects and Topical Update” - WIT

In recent years UK farmers, growers and their sprayer operators have been increasing their awareness of best practice regarding pesticide application. NRoSO (National Register of Spray Operators) annual training events are a major source of professional update training for operators and this year members are invited to participate again in an interactive training workshop roadshow which covers ‘protecting water quality’, ‘insecticides - a closer look’, and the popular ‘topical update’ session.

The title of the NRoSO road show for sprayer operators this autumn and winter is ‘Water, Insects and Topical Update’ (WIT) and **the course will be worth 10 CPD points for NRoSO members (plus 6 CPD points for BASIS members).**

This latest course will cover the following three main topics:

- **Topical Update**
 - Basic requirements of the Sustainable Use Directive
 - Key dates affecting mandatory requirements for sprayer testing and operator qualification
 - Key features that may require rectification prior to a sprayer passing the National Sprayer Testing Scheme
 - Regulatory changes affecting a number of common products.
- **Protecting Water Quality**
 - The reasons that we need clean water and the difficulties faced by the water companies in removing pesticides from drinking water

- How to find out if your farm is within a ‘Safeguard Zone’ and which pesticides are posing a risk in your area
- The pathways by which pesticides get into water both from the field and the farmyard and how to prevent this type of pollution
- How to deal with an agrochemical spill, who to contact in an emergency and how to clean it up
- How to complete a LERAP assessment, as well as record buffer zones required by other aquatic schemes.
- **Insecticides – A Closer Look**
 - An explanation of the term ‘Pesticide’
 - The most important factors affecting insecticide activity and the relevance of different modes of action of insecticides to different pest groups
 - The major invertebrate pest groups and the type of damage done by each
 - The principles of Integrated Pest Management and recognition of some of the naturally occurring beneficial invertebrates
 - ‘Best Practice’ measures when applying insecticides.

Hutchinsons will be running NRoSO training workshops on arable crops and fruit. Operators will have the opportunity to share tips and solutions that work for them and learn best practice techniques from their colleagues and others attending the event, which they can adopt for the future.

Our autumn and winter spray operator training programme, of over 60 road show events nationwide, is currently being finalised. If you attended one of our courses last time, please look out for your invitation, or ask your agronomist for further details. A schedule of events and an opportunity to book places online will appear on the Hutchinsons website in due course.

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Focus on Energy Crops

Crops grown for Anaerobic Digestion (AD) were under the spotlight at a recent event for Hutchinsons' agronomists, on the historic Euston Estate which is hosting a comprehensive set of maize variety trials. Dominic Bovis reports on the topics discussed:

Following an explanation of why anaerobic digestion plants have become an attractive form of business diversification, the agronomists were given a tour of a plant which has been operational for a number of years. An experienced AD plant manager explained the process and how important agronomy is in determining how the final crop will perform as a feedstock.

AD technology and expertise is improving all the time and operators are growing in their understanding of how to utilise by-product and waste sources in conjunction with a wide range of crops to improve energy output.

Alternative Energy Crops

The hybrid Rye acreage has increased after many growers experienced good results and a wider choice of varieties now becoming available from different breeders: KWS, Elsoms / Saaten Union and Monsanto. Hutchinsons are actively looking for better varieties for maturity, disease resistance and standing power. Some growers are considering using sugar beet land to grow energy beet in response to a reduction in crop values. However, it is well recognised that there are issues to be overcome, such as removing soil tare to prevent too much grit from entering the digester. Breeding is improving all the time and several breeders are entering the energy beet market with new material, producing better dry matter content and a root shape that is less likely to hold on to soil.

Another alternative to maize discussed was hybrid barley. Similar to hybrid rye, hybrid barley offers good suppression of black grass by competition, with hybrids performing better than conventional varieties in ADAS Boxworth trials this year. The crop

is foraged along with any remaining black grass, before the weed seed matures. Hybrid barley has the edge in autumn vigour and gas yield, while the cost of production is comparable. This led to the question of whether black grass seed is viable having gone through the AD process and if there is a risk of spreading black grass in digestate which is returned back to land. Experience suggests that the ensiling process alone could render seed unviable. In collaboration with research partners, Hutchinsons is gathering more information on this subject.

Herbicide considerations

Duncan Connabeer, Hutchinsons Technical Support Manager, emphasised the importance of understanding the implications of herbicide choice on following crops. There is also a concern that certain clopyralid based herbicides not only affect following crop choice, but will also pass through the digester, subsequently causing problems to particular crops on land where the digestate is applied.

Pests and diseases of maize were also discussed including Eyespot – a disease that should be treated preventatively, as it can have major yield implications. Eyespot will now appear as a disease rating in the new Descriptive Lists of varieties, helping growers in high risk areas. Ed Stevens, Hutchinsons agronomist, discussed the optimum timing of herbicide applications and stated that there are good opportunities at early emergence. The crop is highly waxed at this point, which offers good crop safety whilst hitting weeds when they are vulnerable at an early stage, thus removing competition for the maize to then grow away.

Placement fertiliser

Tim Kerr, Hutchinsons Fertiliser Manager demonstrated the benefits of placing nutrients next to the seed to aid establishment of the

crop. Trials showed an increased root mass when using 'Primary P', which allows the plant to utilise moisture at an early stage of its establishment – particularly key in lighter soils.

Variety performance

In what has been an ideal maize growing year, Colin Button, Hutchinsons Seed Manager, demonstrated a wide range of plant maturity in the variety plots. New and established varieties were compared in the field; these are being analysed after harvesting to compare dry matter and subsequent theoretical gas yield, providing agronomists with vital information upon which to make variety choices.

The dry matter and fresh weights achieved from the trial already, give a clear indication that the maturity variations on early sites, like this one in Norfolk, can produce high yields - but this still needs balancing against the required harvest dates across the wider farm business.

The range already found was from the top variety giving 68t/ha fresh weight, 21.6t/ha Dry Matter (DM) at 31.8% DM, to the lowest, 49t/ha fresh weight, 13.82t/ha DM at 28.2% DM.

This is definitely an area where good advice on variety choice is vital in achieving best performance.

Good husbandry

To ensure a focus on good land husbandry, Kiryon Skippen of Hutchinsons warned of soil structure damage in fields left bare over winter. A grass and vetch cover crop was established in the base of the plots at the 6-leaf stage (see picture above). The cover crop established well and will provide good protection from surface erosion after harvest, also providing good cover for partridges and other bird species.

Where land is being rented out for maize production, it pays to spend time sharing local knowledge such as cultivation approaches and agronomic issues, for example particularly bad weed areas, to ensure that the land is returned in good order.

For further information on growing Energy crops, please consult your Hutchinsons agronomist.

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

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