



Dr David Ellerton

HUTCHINSONS TECHNICAL DEVELOPMENT DIRECTOR



## Tougher stewardship rules require integrated slug control

**Growers applying metaldehyde-based slug pellets must follow tighter stewardship rules to protect future availability of this important molluscicide.**

The Metaldehyde Stewardship Group (MSG) recently unveiled enhanced guidelines for the protection of water, birds and small mammals as part of on-going efforts to address regulatory and environmental concerns.

Products containing metaldehyde are undergoing re-registration and stewardship has been made a CRD-agreed condition of metaldehyde product availability.

Regulators are closely monitoring the campaign's effectiveness and even though labels on packs of pellets remain unchanged for 2017, the measures are effective immediately and must be followed, Hutchinsons technical development director Dr David Ellerton says.

The MSG's nine Integrated Pest Management principles are illustrated above [see infographic] and the main guidelines governing metaldehyde pellet use include:

- Ensure no pellets fall within 10 metres of any field boundary or watercourse (previously a 6m buffer just around watercourses applied)
- Use minimum rates of active per hectare to avoid drainage and run-off losses
- Do not apply when heavy rain is forecast
- If drains are flowing, do not apply metaldehyde based slug pellets
- Do not exceed the maximum dose of 700g ai/ha/year
- Do not apply more than 210g ai/ha from August 1 to December 31.

### Assess the need for treatment

Growers must demonstrate a genuine need for any pellet application, so trapping and crop monitoring before and after drilling is essential, says Dr Ellerton.

Traps must be baited with non-toxic bait, such as chicken layers mash, and left overnight. "Never use slug pellets as this is a risk to wildlife and pets and is illegal."

Product labels specifically prohibit using pellets in traps and surface run-off or leaching could make such use of pellets a significant point source of contamination.

Treatment thresholds remain unchanged, so a pellet application is justified where traps contain more

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>>> than four slugs before oilseed rape (one in cereal stubble) or a winter cereal, or more than one in potatoes.

“It is best to assess risk before drilling and apply pellets accordingly because once you have seen damage it is often too late,” he continues.

“Where slug numbers do not exceed the threshold, keep an eye on leaf shredding in cereals up to the emergence of leaf four. Once the plant starts tillering it tends to cope ok with slugs.”

Oilseed rape is most vulnerable to leaf shredding up until leaf four has emerged, he adds.

Pellet quality varies, so Dr Ellerton says to always choose a high quality, durable pellet that spreads accurately and does not breakdown as soon as it rains.

Disintegrating pellets are ineffective for slug control and release active ingredient into the soil, increasing the chances of it reaching drains and ditches.

Soil and stubble management is central to the cultural controls of any IPM strategy and will support, or even remove the need for pellet applications:

- Use cultivations (ploughing or min-till) to disturb slug habitats. Avoid direct drilling in high-risk situations
- Consolidate seedbeds well
- Beware of increased slug risk where there is a lot of surface trash (crop residues, cover crops, weeds)
- Drill seed deeper (4-5cm) rather than close to surface in high-risk fields
- Sow early into moisture to let crops grow away from pest damage
- Ensure fields are well drained, fertile and free from compaction
- Consider using beetle banks to encourage beneficial predators such as carabid beetles.

Pellets based on ferric phosphate are a good alternative to metaldehyde

with comparable efficacy, and are the only type that can be used within the 10m buffer zone, Dr Ellerton says.

Ferric phosphate immediately stops slugs feeding and causes them to go underground to die, so farmers will not see the long slime trails or dead slugs on the surface associated with metaldehyde pellets, he notes.

**For further advice on effective slug control strategies and stewardship of metaldehyde, please contact us: [information@hlhld.co.uk](mailto:information@hlhld.co.uk)**

# BEATING THE DRUMS for long-term black grass control



**Looking at fields as we head towards harvest, it is clear where the battle against black grass has been won or lost based on the sea of black grass seed heads waving above the top of some winter cereal crops.**

Farmer and Hutchinsons agronomist, **Alex Wilcox**, believes that adopting a simple but consistent formula to use when growing crops in fields infested with black grass will give growers a fighting chance to come out on top (see infographic opposite). It's all about working together to come up with a plan that really hits black grass hard, tailored to the specific circumstances of each client's farming system, soils and crop rotation.

## **D = Drilling Dates**

Never sow a winter cereal on low-to-moderate population black grass fields before the 15th October. On higher populations grow only spring drilled cereals **until** these numbers are significantly reduced.

## **R = Rotation**

Employ an extended and varied rotation incorporating spring beans, winter wheat, winter oilseed rape, spring barley, spring oats. Ensure you have a rotation

in which cultivation techniques are accurate, with a properly set up plough pass restricted to (at most) 1 year in 6.

## **U = Utilising Herbicides**

Utilise the right types of herbicides, a robust residual pre-em (mixed with glyphosate) and an early post-em herbicide stack is essential. Only use contact herbicides where they are known to be effective and as part of a full programme (get to know your black grass resistance history by weed seed testing).

## **M = Minimise Soil Movement when Drilling**

Establish seedbeds early and minimise the soil movement at drilling time to an absolute minimum to allow the crop to establish vigorously before the black grass is stimulated to grow - the use of a disc drill or cross-slot drill is best to achieve this. Keep seed rates up – between 450-600 seeds/m<sup>2</sup> (225-300kg/ha) to give a thick, competitive crop.

## **S = Soil Fertility and Structure**

A well-structured and fertile soil encourages full, rapid and vigorous crop



establishment which is a huge aid to grass weed suppression. This also minimises the compacted, anaerobic and waterlogged areas in the field which black grass loves to flourish in. Correct any drainage problems that have been identified (e.g. collapsed drains, old tile drains or by cleaning out ditches to allow drains to work more efficiently).

## **For the longer term**

Remember that adopting this system is only the first line of attack against black grass - once any system is employed black grass will try to adapt to survive - through its own genetic modification over time, says Mr Wilcox.

**If you feel that you are losing the battle against black grass, contact us; [information@hlhld.co.uk](mailto:information@hlhld.co.uk)**



# Fine-tune barley agronomy to beat black grass

**Spring barley has a clear edge over spring wheat when trying to control black grass, but only if agronomy is carefully tailored to this aim rather than to malting quality.**

**That is a key message from Farmacy's Millthorpe demonstration site in Lincolnshire where spring barley has been instrumental in achieving a dramatic reduction in black grass in just two years.**

The population in one field has fallen from over 1,400 black grass plants/m<sup>2</sup> in autumn 2015 after oilseed rape to less than 400/m<sup>2</sup> last autumn after spring barley, according to Farmacy agronomist Alex Richardson, who helps run the 400ha (1,000-acre) family farm with his father Chris.

The same field has been split between spring wheat and barley this season to examine how the crops compare and all indications suggest a further improvement in control from both crops, although there are more black grass seed heads in the spring wheat than the spring barley.

Fellow Farmacy agronomist Charles Wright says successful black grass control is about tailoring cultivations, crop choice and agronomy to individual situations and keeping weed control as the number one priority.

At Millthorpe, the dramatic fall in black grass was helped by achieving three flushes of black grass that received further cultivation or were sprayed off with glyphosate with a final glyphosate before drilling in early April. Seed rates were kept high at 475 seeds/m<sup>2</sup>, while cultivation depth was restricted to 50mm to avoid bringing up old seed. Soil was cultivated after harvest and again in late September to stimulate weed germination, but not touched again until drilling the following spring, notes Mr Richardson.

While delayed autumn drilling or spring cropping is a valuable tool in the black grass armoury, Mr Wright says it cannot be used as a "one-off" and multiple years of spring cropping are needed to bring populations under control.

A number of other trials are underway at Millthorpe where the principles from the Brampton Black grass Centre of Excellence are being applied and tested on a local scale. Below is a summary of some key findings so far:

## Crop and variety selection

The tillering ability and vigour of spring barley gives it an edge over spring wheat for black grass control, although both still allow the wider benefits associated with delayed drilling.

Variety choice should be tailored to field conditions, weed pressure and drilling slot. For black grass control, Matt Ward (Farmacy Services Leader) recommends selecting varieties with more prostrate and rapid growth habits to out-compete weeds. New spring barley varieties such as Laureate and RGT Planet combine good agronomics with yield potential and offer end market options. KWS Willow is a good wheat option suited to late autumn drilling. Newly added to the AHDB Recommended list this year, KWS Cochise looks to be an exciting new option in the spring wheat sector offering high yield potential in both late autumn and spring sowings and has tillered very well in the Millthorpe trials demonstrating its potential to compete against blackgrass.

## Increase seed rates

Whether sowing in late autumn or spring, higher seed rates are essential for wheat and barley. Spring wheat is less competitive than spring barley, so higher rates are even more important.

Growers should aim to establish 350 plants/m<sup>2</sup> and adjust seed rates according to field conditions and a realistic estimation of establishment, which in clay based soils can be as low as 60%.

## Drill spring crops early

Spring cereals should be drilled as soon as conditions allow in March to outcompete black grass and improve resilience to dry weather later in spring. Late drilling risks crops not putting down enough roots before soils dry out, resulting in poorer extraction of water and nutrients and weaker growth.

## Maximise early nutrition

Spring cereals race through growth stages far quicker than winter crops and will not tolerate being short of nutrition, says regional technical manager David Howard, who recommends boosting early growth and tiller retention with nitrogen, phosphate, potash and sulphur at planting.

Trials show a clear benefit to establishment and tiller numbers from placing diammonium phosphate (DAP) fertiliser with seed at sowing this spring, which is predicted to give a 0.5t/ha yield benefit. Phosphate is relatively immobile, so the benefits are more pronounced in dry seasons, he notes.

## Improve soil

Addressing any underlying issues with soil structure, quality and fertility is paramount to black grass control. Agronomist and Healthy Soils specialist Andrew Buckberry says a soil audit is a cost-effective way of accurately identifying any issues and can be used with the knowledge and experience of the grower and agronomist to form a plan for remedial works.

**Follow further progress at this site on Twitter (@Farmacy\_Plc) and Facebook (Farmacy.plc.uk).**



**Alex Richardson**  
FARMACY AGRONOMIST



***How will seed dormancy in grass weeds, particularly black grass, effect the performance of my stale seedbeds this autumn?***

**Dick Neale** (Technical Manager) **gives his thoughts...**

**In contrast to recent seasons, soils have had moisture through the latter half of July and into early August. This is coupled with the fact that most combinable crops stopped extracting moisture at that time, but offered shading of the soil, so that moisture has penetrated well to provide good potential for stale seedbed success.**

Black grass bolted during the dry weather of April and May, headed early and seed matured in warm dry conditions. It is generally expected that seed dormancy in black grass will be short this season.

What does short dormancy in black grass actually mean? Short dormancy does not fundamentally change the fact that the majority of seed will germinate during September and October, with the early October flush still being

dominant. However, with moisture in the soil and short seed dormancy, it is highly likely we will see a greater proportion germinating from late August than seen in recent seasons and that a very significant proportion of the shed population will have emerged prior to mid-October.

Don't forget that stale seedbed success relies to a very large extent on keeping seeds and moisture together ...til to 50mm only and roll to conserve moisture. Deeper tillage will lose moisture and mix seeds from this and previous seasons, a reliance on short dormancy would therefore be inappropriate. Don't allow significant 'lawn like' populations of black grass get past 3 leaves before spraying off or re-cultivating to prevent allelopathic prevention of further seed emergence.

Don't forget that soft and meadow brome require a period of post-harvest ripening on the soil surface

## Fieldwise Answers

prior to cultivation of any sort. This is not the same as dormancy and a period of around 30 days post-harvest should be allowed.

In respect of all grass weeds, a simple Cambridge rolling post-harvest without any initial cultivation could be the most cost-effective treatment during August and September this autumn.



***There has been a lot of emphasis placed on feeding damage caused by cabbage stem flea beetle in oilseed rape. How important is another main autumn pest of the crop, peach potato aphid, and is there anything that can be done to reduce its impact on yield through its transmission of Turnip Yellow Virus?***

**Dr David Ellerton** (Technical Development Director) **offers his thoughts...**

**Not surprisingly, due to the recent huge increase in damage to oilseed rape crops in certain areas of the country by cabbage stem flea beetle, another major threat to oilseed rape yields, the peach potato aphid, vector of turnip yellows virus (TuYV), has often been overlooked.**

Symptoms of TuYV include a yellowing and purpling of the leaf margins, stunting of plants and reduced primary branching and leaf area in addition to fewer seeds per pod and reduced oil content. Back in 2008, a research review carried out on behalf of the then HGCA by staff at Brooms Barn identified TuYV as one of the principal reasons why commercial crops of oilseed rape fail to reach their yield potential and reports have suggested that it may reduce yields by up to 46%.

A unique nationwide survey of UK oilseed rape crops carried out recently by Hutchinsons agronomists, in conjunction with Bayer Crop Science, showed how widespread the disease was, finding that crops in England on average had 63% leaf infection with TuYV, while the figure for Scotland was 32%.

Until recently control has been based mainly around neonicotinoid seed dressings, since the aphid has shown resistance to most commonly used insecticides such as pyrethroids and pirimicarb.

However, as these are no longer available for use in oilseed rape, a change in strategy for aphid control is required.

Application of products such as pymetrozine or thiacloprid in the autumn will give good control of

resistant aphids and Hutchinsons trials have also shown that the addition of an adjuvant based on orange oil considerably improved aphid control and reduced TuYV infection.

As far as cultural control is concerned, the most effective method is to grow a variety resistant to TuYV. Until now the only variety which offered this resistance was Amalie. This season there are two higher yielding alternatives available from Limagrain, the hybrid variety Architect and the conventional variety Annalise, which could become vital in our fight against this debilitating disease.

**If you have a question or challenge about crop production issues you are facing on your own farm, please email us: [information@hlhlt.co.uk](mailto:information@hlhlt.co.uk) and put 'Fieldwise Answers' in the title.**

Your farm  
Your data  
Your knowledge



Brian Barker and Matt Ward

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# Small changes bring bigger rewards

Map **your** costs  
Improve  
**your** profit

Brian Barker of E J Barker & Sons farming is very clear in his mind that it is the small changes that he will need to make to his farm practices that will enhance and protect his business, as he heads into the unknown climate of the next few years.

"We had made several changes to the rotation and cultivations in the past couple of years, but I felt I needed to fine tune exactly what we were doing, so that any necessary changes could be made to improve overall productivity," he says.

"We know that that tiller numbers coming into the spring are critical in establishing fit and healthy crops and then assessing these later in the season in order to make the correct management decisions. It is this link between crop biomass and yield that we felt needed closer attention."

## ROTATIONAL CHANGES MADE

- Dropped oilseed rape
- Introduced cover crops
- Using direct and strip till drills
- Keep plough for 'reset' button

"However, you can't manage something unless you can record it, and following on from this we needed a way of comparing figures and correlating them to other field data – and for us this is either against local yields in the Stowmarket Yield Club or nationally through the YEN project."

"In line with this, I felt it was important to examine crop performance and costs on a field by field basis and this threw up some interesting results. We were getting a 4.2t/ha difference between our best and worst wheat yields!"

**"There was variation across individual fields and it was these that needed closer scrutiny so that we could manage inputs better through more targeted use on areas with the higher potential; investing where the returns are most rewarding.**

We already had data on yields, pH, and nutrients but we did not have a way of bringing all this data together to make sense of it in order to translate this into the variable inputs approach that we were taking."

With this in mind Mr Barker looked at how he could use Omnia's multi-dimensional analysis to overlay the various layers of information – as this would allow him to take into contact all the factors that would normally be considered together when approaching the agronomy of a field.



Using advanced algorithms based on multiple years of trials, Omnia has the ability to calculate the optimum seed, nutrient or crop protection input for individual field areas, irrespective for the number of map layers, or different zone shapes.

Autumn 2016 saw Omnia being used for the first time by Mr Barker to generate plans for pre-emergence herbicide applications to difficult areas. "We have been able to concentrate on areas with high populations of black-grass within the fields and treat them appropriately.

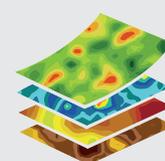
"Some of the biggest savings have come from being able to apply fertiliser according to yield potential. We are now set up for variable rate application, and over the spring some fields have received higher amounts than others."

"We have also recently invested in a GPS receiver for each drill, and have the technology necessary to sow at variable rates according to the information we have from this spring's plant counts and our soil maps, which will allow us to lower the rate on the sandy loams and raise it on heavier clays."

"Eventually I would like to variably manage all my inputs through the season, depending on yield potential, soil type and moisture levels," he says.

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# To plough or not to plough?

**Dick Neale** (Hutchinsons Technical Manager) points out that one of the recurring questions from growers at our open days across the country in June was the question of **'should I be ploughing or not?'** In itself this demonstrates a step change in attitudes towards black grass control, as in the past it was not a practice that was ever questioned.

Whereas traditionally growers would always revert to ploughing as it was familiar and they had confidence in it, many are now starting to see the benefits to black grass control of surface cultivation, so are less likely to revert back to the plough.

"This is because black grass control this year has been good, as growers have made the necessary changes to target control and have seen the positive impact that these changes have brought," he says.

**It is important that any cultivation strategy should be planned at an individual field level and there are three key questions that should be asked when deciding to plough or not**

> **What am I ploughing for?**

> **Will I be able to achieve what I'm setting out to achieve by ploughing?**

> **Will my soils accommodate the plough?**

However, if there is horrendous black grass for the first time, and I mean really high levels, and herbicides are no longer effective, then in this case there is a good reason for using the plough, says Mr Neale.

But remember, he points out, that the average figure for the reduction in black grass from using the plough is around 67% (AHDB), however this is only the average, so you could be getting 100% control or none at all.

"Where ploughing has been successful in black grass control, in some of the older trial work carried out by Rothamsted, this may have been achieved with 10 - 12 inch furrows that are 8 inches deep, not with furrows of 16-20 inches when powered by a 400hp tractor."



"As furrow width increases along with the horsepower pulling it, the plough whizzes through the soil at speed, and what actually happens to the black grass seed is that it is thrown into the next furrow and is not buried at all."

**Be clear about what the plough can deliver in terms of seed bed quality and black grass control. Ask yourself:**

- > **Do I know where the seed bank is in my soil profile?**
- > **Is the plough set correctly to give the best possible inversion of black grass seed?**
- > **Is it physically possible to plough my soil to bury seeds properly?**

## Pay attention to soil conditions

"After a dry winter in 2016/17 and severe drought for 8 weeks during April and May, recent heavy rains have helped to re-establish the natural, weathered and biologically active seedbed in the top 3-4 inches of soil. However, moisture levels in the soil at depth should be checked as they are still surprisingly dry and ploughing may be counterproductive, losing friable moist soil to depth while bringing up dryer, harder clods."

## Cultivation options to optimise reduction of black grass seed bank

Black grass population SURFACE	Black grass population DEEP	CULTIVATION TYPE
High	Low	Plough
Low	High	Shallow (50mm)
Low	Low	Shallow or plough
High	High	Shallow

Questions on black grass control for your own situation? Speak to your Hutchinsons agronomist or contact us: [information@hlh ltd.co.uk](mailto:information@hlh ltd.co.uk)

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

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