



Brampton and black grass management

(A review of the 2016 season in the light of 5 years work and experience)

As Dick Neale (Hutchinsons Technical Manager) explains – for really successful black grass control the devil is in the detail. In harvest year 2012 our untreated small plot trials at Brampton recorded 762 heads/m² of black grass. In 2016, in the same location, the untreated plots have recorded 790 heads/m². From observing the data alone it would appear that we have failed in our attempts to contain the population...or have we?

In 2012 those 762 heads in the untreated plots were atop 762 plants/m² (i.e. one plant could only produce one ear). In that year

even our treatment programme with 6 and 7-way active ingredient herbicide-stacks failed to deliver more than 30% control. However, in 2016 our pre-drilling population in the untreated plots had shrunk to 60 plants/m², allowing the herbicide applications (which we had restricted to 5 actives to ensure crop safety) to deliver from 88-99.6% control of black grass heads.

Manage the seed bank

This demonstrates that our cultural control approach to manage the seed bank using a range of techniques was working, which included:-

- 'Surface Tillage' restricted to working in the top 50mm of soil

- Delayed autumn crop sowing and using stale seedbeds
- Targeted use of spring cropping in the rotation (and using stale seedbeds)
- 'Micro-Wing' establishment of winter OSR.

Taken together this strategy has successfully reduced the overall 'active' seed bank in the soil.

This was achieved either by reduced replenishment from shed seed or from very few old seeds being brought back to the soil surface. During this 5 year period we have reduced the seedbank by 93% within the top 50mm of soil.

[Continue overleaf >>>](#)

Extension of Glyphosate approval

At the beginning of April, Hutchinsons wrote to a large number of growers asking for their help in lobbying their local MEPs to aid the industry campaign supporting the re-approval of glyphosate.

We believe that the wider farming community has played an extremely important role in raising the profile of glyphosate in UK agriculture and the significant concerns for the viability of agriculture should glyphosate be lost.

Following the announcement on 24th June that the approval for glyphosate has been extended, we would just like to thank you for your efforts in lobbying your respective MEPs. As a family business, Hutchinsons is committed to the long term sustainable future of agriculture and we are pleased that this important agronomic tool will remain for at least a further 18 months.

Andrew McShane / MANAGING DIRECTOR



>>> Logarithmic expansion

For many the current question is “Why have we seen such an explosion in black grass infested fields during 2016?” The answer is largely explained via a logarithmic graphing of resistance over time (see Chart below).

Logarithmic expansion of resistance

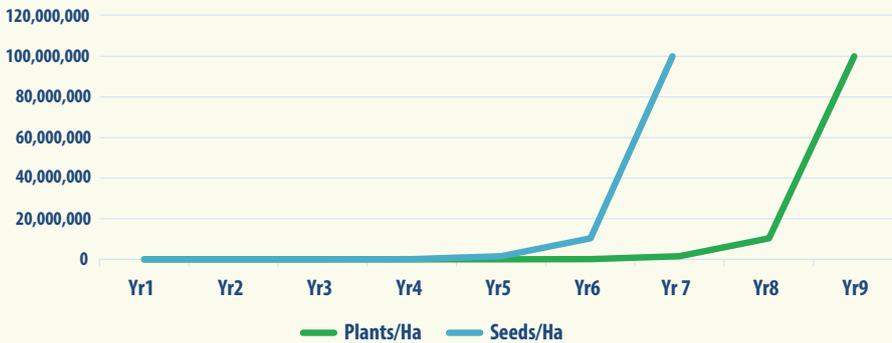


Chart 1: Logarithmic expansion of resistance development

This graphing of resistance development highlights that the period over which the problem is noticeable is only 3 years, with the last year in that period seeing a massive increase in numbers. For black grass that year has been 2016 across a large area of the UK. The graph also highlights that many farms (showing less black grass in fields but clearly having the weed population visible) will currently be at years 4, 5 or 6, and that the same actions are required to prevent the year 9 ‘explosion’ (see the actions section below).

Time to Assess

Therefore 2016 is an ideal year to assess where you are and identify your position on the black grass development chart to identify what challenges you are facing in the coming seasons. Do you currently have/can you see:-

- Severe levels of black grass across fields? (Year 9)
- Severe localised areas with a noticeable general population? (Year 8)
- Noticeable general population? (Year 7)
- The odd patch? (Year 6)
- Some heads can be seen across field when crouched at crop height? (Year 5).

Regardless of your position on the line, the need to **take action** is the same. Obviously the reaction to spring cropping from a year 6 position will be far more effective than from a year

9 position, and the options are more forgiving. Spring beans or spring wheat for instance may be perfectly successful from a year 6 position, but from the position of year 8 or 9, only spring barley will be successful (as it is the most competitive of the spring crop options).

Crop Rotation and Appropriate Seed Rates

As well as the competitive nature of the crop chosen, our work at Brampton has highlighted the vital component of appropriate seed rates to ensure the established population is sufficient to combat black grass. While our initial work demonstrated that only 65% establishment could be expected in slow draining clays with high black grass and slug populations, in 2016 we have increased our establishment percentage to 89% in the same soil zone from utilising surface tillage and conditioning crops overwinter to improve soil structure and dry the soil.

Sown from mid-October, after the initial black grass flushes, the use of a conditioning crop has reduced black grass heads in spring barley by 70% at Brampton in 2016. However, in a year 8 or 9 situation, cover or conditioning crops should not be used. At these seedbank levels, flushing of black grass throughout the winter and spring is far more valuable.

Whatever route is chosen, spring seedbeds should be prepared in the autumn so the only spring soil movement is with the drill ...and that movement must be minimal.

Seed rates for late autumn or spring sown cereals should be in the region of >450 seeds/m².

Herbicide programmes

The key to successful chemical control is presenting the pre-emergence herbicide with

populations of black grass of less than 100 plants/m², and this can only be done via delayed sowings i.e. after the 15th October....or into the spring. The reason for such a specific date is that blackgrass normally produces two key flushes in the autumn. The first occurs around mid-September (if moisture is available), but the second, and major flush, occurs around the end of the first week in October. However, high seedbank numbers will see flushes of black grass germination run and run.

While leaving seed on the stubble undisturbed can achieve the highest levels of germination and seed loss, there is no doubt that the second best is a 50mm tillage followed by a roll - significantly, that is exactly what we do with a seed drill and rolled seedbed and it is why drilling must occur outside the major flush period for the weed. That is post 15th October in most years.

To sum up, here are a set of principles that should become part of your black grass control mantra.

Key points for best black grass control

- Drainage, drainage, drainage - clean ditches and mole-drain as required
- Spring cropping with spring barley as the key crop for black grass control
- Shallow or ‘surface’, 50mm tillage works both for autumn and spring seedbeds
- Optimising propyzamide performance in Winter OSR via surface only cultivation
- Variable seed rate sowing according to key seedbed variables
- Delayed drilling past 15th October (maximise the benefit of stale seed-bed technique)
- Pre-em application of residuals with 4-5 active ingredients
- Optimise application via speed, boom height, nozzles and adjuvant
- Improve soil structures via tillage and ‘conditioning crops’ overwinter
- Put in to action a plan where black grass control is the top priority ...**always**.

A collection of supporting videos filmed at Brampton, explaining the benefits of the above techniques, are available on the website: www.hlhltd.co.uk/cultivationvideos.html

International Year of Pulses - UK perspective

Roger Vickers, Chief Executive of PGRO, explains that every year the United Nations declares 'The Year of Somethingorther'.

2016 was chosen as the **'International Year of Pulses'**, stimulating a huge surge of activity within the global pulse industry, with a firm determination to seize the chance to raise the profile of pulses. It is a wonderful, one-off opportunity to increase awareness amongst the general population of the benefits of pulses for health and the environment.

For the environment, pulses require significantly less water and fertiliser than most crops, have a zero requirement for nitrogen fertiliser (fixing their own from the rhizosphere) and significantly improve soil structure and fertility for succeeding crops.

For consumers, pulses are a low-fat source of protein, fibre, vitamins and minerals, and iron; they count towards your recommended five daily portions of fruit and vegetables; and are associated with a reduced risk of heart disease and type 2 diabetes. In short, they are one of the cheapest and most nutritious and healthy forms of food available!

These reasons are surely the main drivers for the UN giving pulses the accolade of bearing their brand for a year. They are promoted as 'the food of the future' for an ever-growing world population facing increasingly difficult resource challenges.

In the UK, the British Edible Pulse Association (BEPA) has been working hard at promoting pulses to both farming community and consumers. Events in leading restaurants - aimed at food writers - and the sold-out Falafel Festival held in London have received substantial coverage, raising the profile of pulses generally, and highlighting British-produced pulses and their increasing use in a diverse

range of delicious prepared foods, snacks ... and even some fantastic Scottish beer brewed from beans!

Cereals Challenge 2016

So, when Hutchinsons approached PGRO (Processors and Growers Research Organisation) at the back end of 2015 with the concept of including peas in their 'Cereals Challenge 2016' they seemed highly appropriate for student focus and PGRO were pleased to be able to lend support and to provide input to the judging process.



Staff at PGRO fielded enquiries from students during the challenge and were impressed by the level of understanding and detail to which the teams went in planning their crops. PGRO firmly believe that success in pulse cropping lies in close attention to detail - not only in planning, but also in execution, whilst maintaining flexibility according to challenges thrown down during the growing season.

On paper, the team that best portrayed this - and importantly delivered the clearest understanding for their actions - was Bishop Burton College (above). Outside and viewing the crops, there was a clear winner and it was no surprise to

Order your copy of our 2016 Seed & Varieties Information book

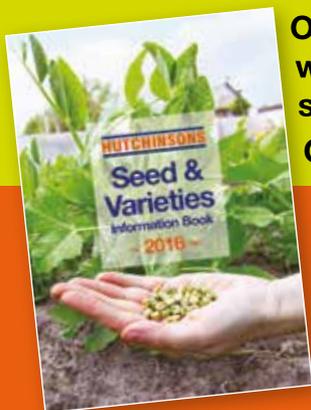


Order online:
[www.hlhtd.co.uk/
seedbrochurerequest.html](http://www.hlhtd.co.uk/seedbrochurerequest.html)

Or ask your agronomist for details

Comprehensive notes on a wide range of cereal and oilseed rape varieties

- An important aid to your 2016-2017 variety selection
- Also includes: a selection of key cover crops, maize, energy crops, pulses, plus grass and forage crops



see that it too was Bishop Burton. Congratulations to the team: a great effort, a great result and surely a lesson for future success.

Current Pulse cropping

The UK is producing more pulses than it has for over half a decade (see Chart 1), spurred on by the increasing realisation that balanced rotations are important for the sustainability of farming and changes in farming support policy and greening requirements. Sustained production and increased availability is driving the market for new and innovative uses, exports of high quality produce are increasingly in demand and encouraged by a more reliable supply, traditional markets are returning to support the UK producer.

Reliability challenges remain in pulse cropping, but some old perceptions have been addressed to a large degree. As one example, the work of plant breeders means combining peas lying flat to the floor are, whilst not an impossibility, now a rare prospect - newer varieties are more likely to simply lean at maturity. Other challenges in the form of pesticide restrictions, increased disease pressures, insect pests and even trends in farm machinery are presented, but will be addressed and overcome.

Trying to solve reliability is a key strategy objective for the PGRO and its extensive research programme (see <http://www.pgro.org/index.php/applied-research-development>).

In 2016 we are pleased to be participating in a pilot study involving pioneering growers, ADAS and commercial sponsors - a Yield Enhancement Network (YEN) for peas. The aim through the study of commercial crops, is to establish the yield influencing factors in UK pea production, to quantify them and to ultimately understand how best to manipulate them for reliable economic yield. In this pilot year a great deal will be learned about the establishment of a YEN Pea study and it is hoped it will gain momentum in subsequent years fuelled by crowdsourced data from participating growers.

Soon we will all be looking ahead to 2017. As the calendar turns in December the 'International Year of Pulses' will be over. We should all hope it leaves a legacy, driving continued enthusiasm for pulses with producers, processors and consumers alike and that it will gain a momentum all of its own. This surely is the very point of the UN's support in the first place.

Crop area '000 ha - (source DEFRA)

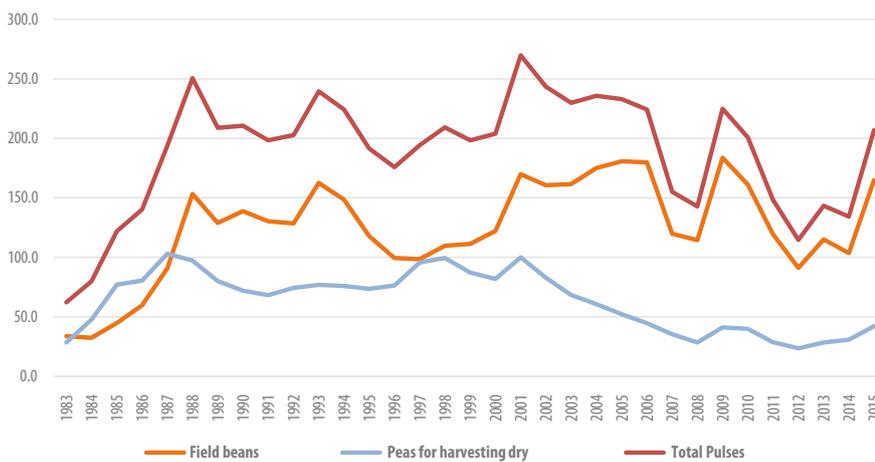


Chart 1: Pulse Crop Area – DEFRA

Hutchinsons Pulses Note

The demand for UK produced pulses has been reflected in demand for quality seed. Sales of winter bean seed doubled at Hutchinsons in 2015, while spring pea and bean seed sales also grew steadily.

In recent years, there have been very few new varieties for growers to try as breeders have sought to optimise their sales of tried and tested varieties. However, for 2016/17 the PGRO Recommended List sees 3 new spring pea varieties and there is a new variety for both spring and winter beans.

David Bouch, Hutchinsons Seed Manager designate, recommends spring pea varieties **Campus** and **Prophet** as the top yielding varieties, with good ratings for standing ability.

Of the new winter bean varieties, **Bumble** will have limited supply of certified seed, although **Tundra** and **Wizard** are likely to remain the highest selling varieties. **Vertigo** and **Fanfare** both out-yield the current top selling spring Bean variety **Fuego** and will be in high demand for planting in the 2016/17 season.

The all new nutrient management and precision farming service



- Ease of use
- Greater productivity
- Higher efficiency
- Increased profitability
- Improved sustainability



Speak to your agronomist
www.omniaprecision.co.uk

Fieldwise Nutrition

– N and P for Oilseed Rape Establishment



In the last few years it has become increasingly apparent that the concept of placing the autumn N and P fertiliser alongside the seed is being widely adopted and generally accepted as best practice for the establishment of winter oilseed rape. As **Tim Kerr** (Hutchinsons Fertiliser Manager) explains, this might be in the form of a conventional granular fertiliser, a micro-granular fertiliser or a liquid fertiliser – all valid options, and all often referred to, irrespective of type, as OSR starter fertilisers.

Firstly let us consider why placing fertiliser in this scenario is an agronomically sound judgement and secondly, we can briefly review some of the options available to growers today.

Phosphate is considered a very important nutrient for crop establishment. Indeed this is true – as phosphate helps to fuel all the major processes in the plant that require energy. In the first 60 days from emergence oilseed rape will require around 15% of its total P requirement. The amount may not sound so significant; however the mechanics of P uptake are why we lend so much importance to P as a starter fertiliser.

Enriching the rooting zone

Firstly and most importantly to recognise is that Phosphate is an immobile nutrient in the soil. The plant relies on extracting that 15% of P requirement from a small fraction of the total soil. During the first 60 days the roots will only reach around 5% of the topsoil, and P absorption relies on direct root contact with the soil for it to be taken up by the plant. Therefore enriching the soil in the immediate rooting zone with water soluble phosphate (plant available P) will help to maintain critical P levels in the aforementioned rooting zone over this period.

The benefits from placing nitrogen close to the seed may appear less obvious, yet still there are advantages to the system. Most starter fertilisers that contain nitrogen and phosphate are based on ammonium phosphate. There is a proven synergistic effect on plant uptake of phosphate where nitrogen is present in the ammonium form. This may be partly down to a localised decrease in pH where NH_3 and P are applied together.

This effect is most pronounced in soils with a high pH. Increased P absorption, when it is applied in conjunction with nitrogen fertiliser, will be partly due to an enhanced physiological capacity of roots to absorb P, brought about by greater root development in the soil with a concentrated area of nutrients from an NP starter fertiliser.

Better root establishment will improve a plant's ability to forage for nutrients

Starter fertiliser options

and water by giving it access to a greater proportion of the soil – and in turn this will ensure yield potential is maintained from the outset.

Conversely, in a phosphate shortfall scenario, the yield potential of the crop will be reduced irreparably. Remembering that phosphate is effectively immobile in the soil and recognising the dual benefits of placing N and P together – there is a compelling case to opt for one of the starter fertiliser options available to growers.

Granular fertilisers –

DAP (18-46-0) is probably the most commonly used product for this purpose. This is an ammonium phosphate and therefore will offer the benefits discussed earlier, however the ratio is only really appropriate for soils at index 1 or below. At index 2 or above, consider alternatives that offer an analysis that will supply less P without compromising on the amount of N applied. If it is not possible to place the fertiliser, then incorporation into the seedbed will be the next best approach.

Micro-granular fertilisers –

These are (e.g. Primary P) normally based on ammonium phosphate, but it is worth the buyer checking that they are getting what they want. The main advantage of micro-granular products is the increased availability of nutrients through a much greater surface area. Applying the same weight of a conventional granular fertiliser provides up to 400% less surface area of fertiliser. Consequently microgranular products can buffer the soil's capacity to supply P much quicker than a standard 2-4mm sized granular fertiliser.

5 years ago it was not that easy to find seed drills with an option to apply fertiliser along with the seed. It is now very noticeable that the opposite is true – and the choice of application equipment is both wide and relatively low-cost.

Liquid fertilisers –

When it comes to additional application equipment, the investment required to place liquid fertilisers can be the most significant.

However, this is not always the case – and those used to handling liquid fertilisers may already have some of the necessary components. Liquid fertiliser in solution is by definition 100% soluble and therefore rapidly available. Phosphate is again normally supplied in the ammonium phosphate form, offering the combined benefits already mentioned. Solutions are also available in different ratios, offering the flexibility to apply appropriate quantities of P along with the N. Liquid fertiliser is normally applied in bands – delivering concentrated doses of N and P in and around the rooting zone.

The above are some of the options available – and this is by no means an exhaustive list.

What is clear though is that the benefits of fertiliser application techniques based on a sound, science based understanding of nutrient availability are sufficiently well understood for the farming industry to invest in and adopt.

There may well be a number of growers, who have never strayed from their combine drill, perhaps surprised to be so ahead of 'the curve'...

Planning for a high pressure BYDV season



Monitor aphid numbers in cereals during grain filling as this will help indicate the potential for early influx of aphids and BYDV in the next-planted cereal crop.

Destruction of the “green bridge” to prevent aphids being harboured in volunteers is a very valuable tool. It is important that this is done correctly using glyphosate before being buried, and allowing time where possible for the volunteers to be dead before cultivation. Cultivations alone will only bury the aphids with a food source, which then allows them to survive and infect the new crops through feeding on the roots.

Chemical Control

Chemical management of the virus will depend largely on whether the seed has received an insecticidal seed treatment or not. Treated crops will have approximately 8 weeks of protection, which can then be followed up by pyrethroid applications to keep aphid populations low until cold weather reduces the risk of further aphid influx. Non Deter treated crops will be at risk from 1 leaf emerged and aphid numbers should be monitored and treatment should take place accordingly.

Applications will be required until the seasonal risk has passed. Remember that longevity of protection will be affected by the size of the crop, product chosen and rate used (a larger crop plus higher dose rate will provide a larger reserve in the plant to extend protection).

It is important to remember to treat according to the risk and conditions and not over react with multiple blanket treatments, as this will deplete the natural population of predators.

It is essential that we plan for what could be a very high pressure BYDV season and limit the risk of infection with as many of the tools available to us as possible.

Barley Yellow Dwarf Virus (BYDV) has been a significant problem in cereal crops this year. Aside from its very noticeable symptoms, its true cost will only be determined as combines begin to roll over the coming weeks.

David Howard (Regional Technical Manager) provides an overview of the problems that have been experienced in crop this year and how to approach keeping infection out of the next crop.

BYDV can be a significantly damaging virus - depending on how much of the crop is affected and how early the infection occurs. Typical symptoms of infection are yellowing and dwarfing of the plants often seen in characteristic circular patches across fields. This is caused by infected aphids flying in to the crop and giving birth to numerous non-winged individuals who then move out from that landing point, spreading the virus as they go.

As the virus is transmitted via aphid vectors and, due to the mild winter of 2016/17 with few deep frosts, aphids continued to fly into crops and to multiply leading to widespread infection across the country. In many cases there was no opportunity to treat because of rain and/or poor traveling conditions, despite virus alert warnings to do so. The earliest infections of the virus are the most damaging due to severe dwarfing of the adult plant - 30-50% losses in yield can be expected in these situations. Where late infections occur - December through to March - the effect is generally far less severe with only occasional leaves affected and less dwarfing.

Plan ahead for the next season

With decisions now being made about the next cropping year, it is essential that we begin to plan ahead for BYDV control. Pressure will likely be high because there are now multiple sources of inoculum in crops. It would therefore be prudent to ensure that crops are effectively protected through as much of the risk period as possible.

Use of an insecticidal seed treatment is essential to protect the crop from aphid attack through the early stages, particularly any early drilled wheat, barley or oats. Deter is the only treatment that offers up to eight weeks control of BYDV vectors in cereal crops. Crucially, Deter offers control right from emergence of the crop. Other treatments such as Austral Plus, commonly used for wheat bulb fly control, do not control BYDV vectors. Austral Plus is used much later in the season to cover attack from wheat bulb fly in January.

Cultural control methods

There are also a number of cultural control measures we can take to help limit exposure to the virus. **Delaying drilling** is one of the most important options, as this will significantly reduce the period of time the crop is at risk. It also increases the likelihood that other measures (e.g. foliar aphicide sprays) will be successful.

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

HUTCHINSONS

H L Hutchinson Limited • Weasenham Lane
Wisbech • Cambridgeshire PE13 2RN

Tel: 01945 461177

Fax: 01945 474837
Email: information@hlhlttd.co.uk

www.hlhlttd.co.uk