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New competition aims to maximise wheat crop potential

Fed up with flat-lining wheat yields? Agrovista's Yield Max competition could be just the ticket to help ramp up production, says technical manager Chris Martin.

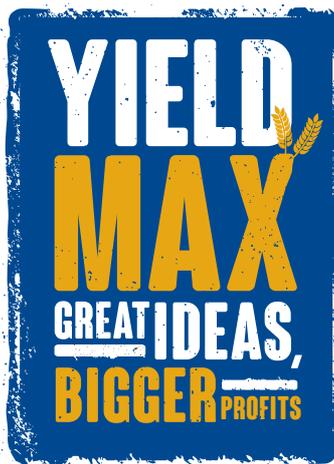
Yield Max is a new national wheat yield competition which aims to unearth the best agronomic practices and innovative ideas to help growers maximise the potential of their crops.

The theoretical yield potential of wheat across the UK over the past five years has been around 20t/ha. But the average farm yield over this period is only about 40% of that figure.

I believe we need a better insight on what is happening at farm level to help reduce that yield gap. Yield Max will encourage entrants and their agronomists to push their crops harder than current farm practice, examining key areas such as establishment, nutrition, disease control and bioscience, and adopting appropriate agronomy.

I hope, among other things, the competition will highlight if and where changes to established benchmarks need to be made. Nutrition, growth regulation and fungicide programmes are all likely to come under scrutiny, as well as physical factors such as soil health and crop rooting.

Judges will evaluate the economic and practical viability of the systems and pull the findings together to highlight best practices that can be readily implemented on farm to drive crop output.



“I hope the competition will highlight if and where changes to established benchmarks need to be made”

The competition will be a friendly affair, aimed at capturing real farm information to help produce new guidelines to get the most out of today's high-yielding varieties across a range of growing scenarios.

High ear numbers

The national competition follows a very successful pilot launched in Yorkshire in spring 2018. It attracted over 40 entries and the initial results have produced some very interesting observations.

Yields ranged from 6.6t/ha to 13.63t/ha. The higher yields were strongly associated with more fertile land or from mixed farms with higher organic matter levels.

The top yielding varieties ended up with just over 600 ears/m², significantly higher than the AHDB benchmark figure of 460 for an 11t/ha crop.

In the competition, the higher ear numbers were determined mainly by higher seed rates, as the 'beast from the east' prevented early nitrogen applications to encourage tiller survival.

The dry conditions helped alleviate disease and lodging concerns normally associated with these thicker crops. In another year more robust fungicide and growth regulation programmes may be required to maximise potential.

The top-yielding fields were consistently drilled around the last week of September. Quite a drop-off in yield was seen where drilling was delayed until the second half of October to aid grassweed control.

Several yield promoters were used during the competition. The most consistent results came from regular applications of amino acid products such as Terra-Sorb, which in some cases gave well over 1t/ha more yield.

There are some great prizes on offer in the Yield Max competition.

The grower with the biggest yield will receive a trophy and a two-night hotel break. Four regional winners and the grower achieving the biggest percentage yield uplift over the farm's five-year average will receive a one-night break. Their agronomists will receive a similar prize.

The competition is open to all commercial wheat growers in the UK. For full competition details and to enter, please go to www.agrovista.co.uk/yieldmax

Closing date for entries is 30 November 2018

Grassweed control

Hitting low dormancy blackgrass hard

Freshly shed blackgrass seed is reported to be of low dormancy this season, so hitting it early and hard will be key to optimising control, says technical manager Mark Hemmant.

Blackgrass that emerges with autumn-sown cereals is 10 times more competitive than that which appears later in the season. There is likely to be a significant early flush this autumn, so we need to employ all the tools in the armoury to achieve the best result.

Pre-drilling

With lots of low dormancy blackgrass near the surface, stale seedbeds should be particularly effective this year in getting a chit.

Spray off with a good formulation of glyphosate before drilling; in bad situations an earlier application might also be beneficial. Adding Companion Gold to minimise drift and condition hard water will optimise efficacy.

Pre-em product choice

Applying flufenacet at 240g/ha is crucial. Many years of Agrovista trials and field observations have shown it is best partnered with pendimethalin and diflufenican.

Pre-emergence herbicides formulated by the R&D manufacturers have consistently outclassed generic products. Trooper (flufenacet + pendimethalin) at 2 litres/ha plus Herold (diflufenican + flufenacet) at 0.3 litres/ha with Avadex Excel (tri-allate) at 15kg/ha have performed very well.

This was re-confirmed in a two-site trial carried out last season (see graph 1).

Application aids

A good application aid can improve the efficacy of pre-em herbicides. We recommend Remix, a long chain paraffinic oil, in all cases.

It decreases the production of very fine and very coarse droplets, reducing spray drift and improving spray deposition.



“ Pre-emergence herbicides formulated by the R&D manufacturers have consistently outclassed generic products ”

Remix's molecules are also positively charged, binding the herbicide active to clay and organic matter in the surface layer for longer, optimising weed control and reducing seedling damage.

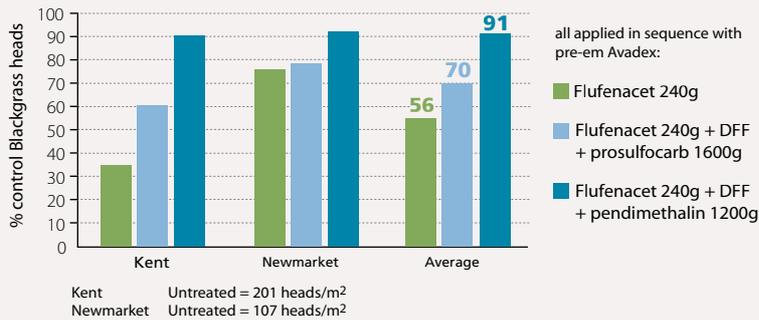
Extensive trials over 10 years have shown Remix increases blackgrass control from a typical pre-em stack by 11%, for a few pounds per hectare.

Remix consistently outperforms competitor products. In a pre-em only trial last season, for example, it gave an average 7% uplift in blackgrass control over a product that claims to be the same. It also maintained a 2% lead overall under four different post-emergence follow-up treatments (see graph 2).

That could make the difference between achieving the 98% control we need to reduce the blackgrass burden, or not.

Pre-em herbicide comparison

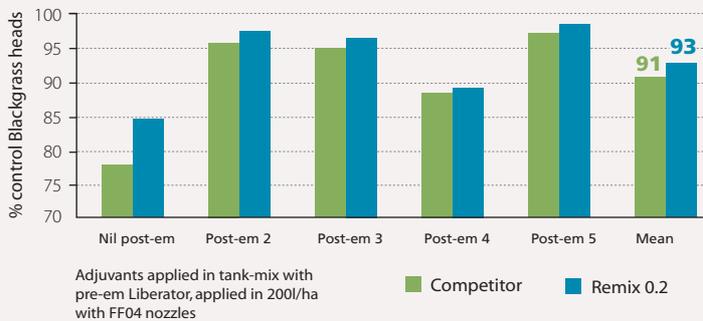
2 trials (Kent & Newmarket)



Graph 1

Pre-em adjuvant

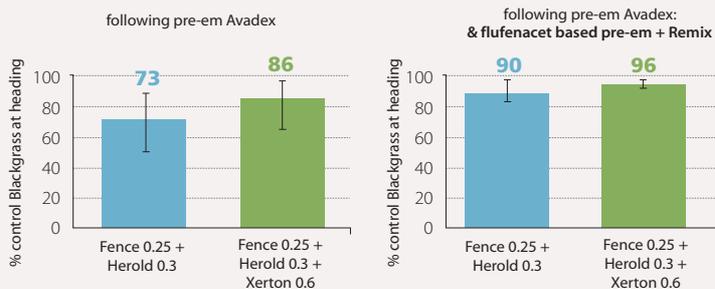
2017-2018 - mean of 3 sites (Draughton, Kent & Newmarket)



Graph 2

Post-emergence herbicide performance

2017-2018 – mean of 3 sites (Draughton, Kent & Newmarket)



Addition of Xerton 0.6 to post-em flufenacet very beneficial

Graph 3

“ Using twin caps fitted to a single spray line doubles the number of droplets... ”

Application

Achieving an even coverage of the seed-bed is vital. We need to paint the soil and, within reason, the more droplets we can apply, the better.

Using twin caps fitted to a single spray line doubles the number of nozzles, and therefore droplets, for the same water volume. Using alternate forward-facing (30 degree) and vertical flat-fan nozzles optimises coverage of the soil.

This mimics a twin-line set up that gave excellent results in trials on heavily infested blackgrass land in Northamptonshire, producing a 10% uplift in control over a single line set-up when applying full-rate diflufenican and flufenacet.

Water volume also has a direct effect on droplet number. We recommend a minimum of 200 litres/ha, increasing to 300 litres/ha for severe infestations.

Timing

To ensure pre-em work as effectively as possible, the aim should be to drill, roll and spray within 48 hours, especially when using Avadex. This produces a gas, and rolling extends the time it remains in the soil.

Follow-up treatments

An early post-em is often required to control blackgrass that has emerged after the pre-em and to top up residual control.

Adding 250g/ha of ethofumesate (Xerton @ 0.6 litres/ha) to 240g/ha of flufenacet has proved very beneficial (see graph 3). The combination has also outperformed other contact/residual mixtures.

It also means a top-up treatment of iodosulfuron + mesosulfuron can be applied in the spring – this is not permitted if these actives have been used in the autumn.

Forage management

Maximising current and future resources



Some maize crops have been hit hard by common smut

With forage in tight supply this autumn, Agrovista's national seeds manager Nigel Walley looks at what can be done on farm to help alleviate the situation.

Nationwide, forage supplies are believed to be 20-30% below normal, and up to 40% in certain areas, following the exceptionally dry summer.

In the short term, eking out forage supplies will be the order of the day. Looking to the longer term, there may still be time to establish new grass leys this autumn to help boost supplies early next season and beyond.

Making best use of forage

It is worth taking some extra time this year to work out exactly how much forage is in the clamp, and how that compares with livestock requirements.

As part of that, it is crucial that representative samples of forage are analysed accurately. For example, grass and

“ The value of planned re-seeding has been obvious this season ”

silage dry matters are higher than usual this year, which might mean supplies can be stretched a bit further without affecting performance.

As well as suffering drought stress some maize crops have also been affected by common smut this year. We've not seen this amount since 2006 – in one field in Cheshire all the cobs had been replaced by the characteristic tumour-like white or grey galls. Hard-hit crops will have much lower starch and protein levels, leaving ME as the primary feed value.

The best forage should be fed to milkers or finishing cattle. Young stock will do

well enough on a straw and concentrate diet – in fact straw is no bad thing, as it helps condition the rumen, raising feed intakes in later life when it really matters.

Many people have sown stubble turnips, forage rape or kale this autumn to provide extra feed. To minimise waste, introduce cattle or sheep slowly via strip grazing.

This will avoid excessive trampling and, provided there is an alternative grass source, will give stock time to get used to the bitter taste of these brassica crops, rather than being put off by it.

Establishing leys

The early maize harvest and relatively warm soils means we still have a drilling window for hardier ryegrasses.

Italian ryegrass, or hybrid ryegrasses where a longer ley of four to five years is the aim, would be my choice. The latter should preferably have a high degree of Italian characteristics (faster germination and establishment).

There has been a lot of talk about using Westerwolds as a catch crop after maize, for very early spring growth, but these are less winter hardy so might be best avoided at this stage, or at least limited to 30% of a blend.

The wider drilling window could be doubly useful where maize crops were hit by common smut. The disease is soil-borne, but needs certain climatic conditions (dry/cool) that put crops under stress to trigger it, so it may not recur in a following maize crop. However, where it has been evident I would advise introducing a break such as grass for a couple of years at least.

Italian/hybrid ryegrass seed will germinate and establish where soil temperatures are as low as 6°C, although a few degrees more is preferable. At this time of year I'd prefer to see stubbles lightly cultivated rather than direct drilled, to encourage faster early growth.

The value of planned reseeded and rotation has been obvious this season. Leys less than five years old have survived the drought better than older swards as they kept growing for longer and recovered faster, resulting a really marked increase in production. In difficult times, reseed really pay for themselves.

Soil compaction trials

Cracking research at Project Lampport

Soil compaction trials at Project Lampport should deliver some fascinating findings next year, explains independent cultivations expert Philip Wright of Wright Resolutions.

When it comes to soil health, the current season demonstrates clearly why we need to continually assess conditions rather than follow a prescription, however tempting the latter may be.

Many soils are showing very significant levels of cracking due to the prolonged dry weather, to depths we've not seen since 1976. This deep cracking is potentially very good news and will be at the forefront of the compaction trials on the heavy clay loams at Lampport.

The primary aim of Project Lampport is to investigate the benefits of various rotational cultural methods to control blackgrass. Well-structured soils that drain freely and encourage vigorous crop root growth are the cornerstone of any blackgrass control programme, so this season presents a great opportunity to find out which techniques, if any, will optimise the benefits of nature's own subsoiling operation.

The first thing to consider is cultivations. In many cases, substantial savings will be possible when it comes to establishing crops this year, and the Project Lampport compaction trials will reflect this.

On well-cracked soils, deep loosening is, generally speaking, unnecessary. It disrupts nature's jigsaw, breaking subsoiler legs in the process. A shallow loosening pass is a better option, creating a mix of tith and small clods.

Some clods will fall down the cracks, acting as spacers. Although they will eventually be crushed as soils moisten and expand, they will help maintain a network of fissures that could last several years.

At Project Lampport, some plots were shallow cultivated to a few cm, while others were loosened to either 15cm or 25cm, both with low disturbance legs and with/without discs. A further plot was left undisturbed and fallow.



“Roots are the ultimate soil-conditioning solution, so we shouldn't pass up the opportunity to use them”

Two different cover crops are being tested on the cultivated plots; a combined drilled black oats/phacelia mix and a combination of black oats sown behind the loosening legs followed by broadcasted phacelia.

We want to see if the latter approach helps black oat roots blast down the cracks and fissures, to hold them open for longer. The phacelia provides a shallow, fibrous root system to condition the soil nearer the surface.

Roots are the ultimate soil-conditioning solution, so we shouldn't pass up the opportunity to use them. Other cultivated plots that were left bare will provide an interesting comparison.

Cover crops also play a vital role in blackgrass control on heavy soils, allowing the weed to germinate and establish before being sprayed off with the cover crop in early winter. The cover crop also helps "pump out" moisture, especially important when delaying drilling to late autumn or spring.

All three areas will be planted with spring wheat, where establishment, growth and yield will be judged and blackgrass levels assessed.

It will be fascinating to see if we can get away with doing less cultivation or even none to reap the full benefits of nature's own subsoiling technique.

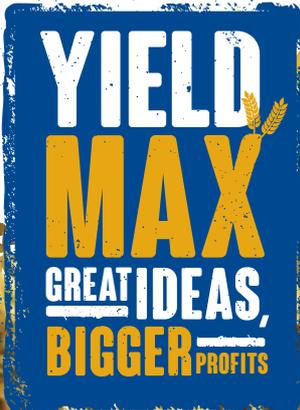
More fresh thinking at Project Lampport

Project Lampport has clearly demonstrated that profitable crops of spring wheat can be reliably drilled on heavy land in combination with a black oat-based cover crop to reduce the blackgrass burden.

However, the trials continue to throw up lots of questions that we need to address to maximise the potential of this and other aspects we are investigating.

New work for 2018/19 includes:

- Soil compaction trials (roots and steel) – new trials with fully replicated plots
- New cover crop combination – black oat and phacelia
- BYDV – managing cereal volunteers in autumn cover crops
- Autumn cover crop establishment – reduced cultivations
- Biologicals – mycorrhizal inoculants
- Flea beetle – OSR stubble length comparison



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