

For one Staffordshire farm, reducing its reliance on chemicals has seen a change in mindset and the purchase of a super-sized comb harrow to combat weeds. Alex Heath finds out more.

Harrow helps hybrid plan

Reducing the input costs of growing cereal crops is the aim for Simon Bayliss, farm manager at Wincote Farms, based near Eccleshall, Staffordshire. The business operates across 667 hectares of owned, contract farmed and stubble to stubble rentals, farming medium to light soils.

Of particular interest to Mr Bayliss and operator Rhys Edwards is the farm's historic reliance on chemical means to control weeds, pests and diseases, an approach they believe can be to the detriment of the crop. As a result, for the last few seasons, they have been looking at ways to reduce reliance on chemicals by adopting a more natural means of crop protection and implementing a hybrid system.

The farm traditionally grew oilseed rape, but this year the cropping rotation revolves around wheat and spring and winter barley.

Mr Bayliss says: "We are still a conventional farm, but look to incorporate as many regenerative practices into our methods as

possible. One of our biggest expenses in the past has been chemicals, however, we have come to the realisation that often they do the crop more harm than good, with crops becoming reliant on sprays to fix small issues.

Intensive care

"Chemicals, especially fungicides, are like intensive care; the plant becomes reliant on them. They strip the protective layer of wax off the leaf to treat the initial problem, leaving the plant susceptible to other diseases that have an easy entry. I would rather give the plant all the nutrition it needs to fight the challenge itself, giving a more robust plant. We regularly take leaf samples that are analysed for deficiencies in trace elements.

"We are now taking a much more considered approach to our spray use, in particular herbicides and fungicides. Last year we trialled cutting our chemical use for two fields of wheat totalling 20ha. A pre-emergence herbicide was used and half-rate fungicide at T2, with



From left: Operator Rhys Edwards and farm manager Simon Bayliss are looking at ways to reduce reliance on chemicals.

two broad-leaved herbicides also used. The fields averaged 13 tonnes/ha with lower input costs. That made us think about the use of herbicides and I started looking for something that would match our tramlines, but eliminate the need to spray."

After research and seeing what other like-minded farmers were doing, Mr Bayliss purchased a Hatzebichler comb harrow from importers Opico. Arriving on the

farm earlier this year, the harrow is thought to be the largest in the UK at 24 metres. It was put straight to work with the first flush of spring weeds in March, showing immediate results, according to Mr Bayliss.

Mr Edwards, who is one of the operators to use the rake, says the farm is still learning to use the harrow optimally, including which conditions, weed burden and stage of the crop are best.

He says: "I will walk crops each ▶



At 24m, the Hatzebichler harrow matches the farm's tramlines with outputs of up to 113ha/day.



The harrow has tines spaced 30mm apart and is being used for weed control in cereal crops.



Not only does the harrow disturb weeds, but it breaks any capping on the surface and removes dead leaves from the crop.

week and look out for weeds as part of my checks and make a decision on the burden. We do not want to knock out everything as some can be beneficial, such as speedwell for pollinators. However, I have to balance the number of weeds and their size, ensuring the timing of each pass to maximise the amount

removed, while keeping them small enough to be vulnerable to the tines. "The harrow is designed to run in between the rows, but the odd tine does make contact with the crops. This is not an issue though as the harrow's aggressiveness can be altered relatively easily. What we have seen is the harrow will knock

off dead leaves that have been challenged by septoria, with the leaves getting put in the middle of the rows, further away from healthy leaves. The brushing action seems to stimulate the plant to grow more. "In addition, the surface of the soil is broken, removing any capping and letting it breathe. The rougher texture also allows for better water infiltration."

Work rates are impressive, reports Mr Edwards.

"The ideal speed to work at is about 12kph. This enables the 6mm tines plenty of momentum to oscillate, covering all the ground. We tend to pull the harrow with a 190hp tractor and the best day we have had saw 113ha covered.

Flexibility

"Compared to spraying, the harrow allows more flexibility to go on windy days, when spraying would not be possible, however, the soil needs to be dry enough to allow the tine to move. If it is too damp, they will not vibrate, rather they will just draw lines."

This change of approach is seen throughout the decision-making process on-farm, with a commitment to reducing input costs for the benefit of the crops and the farm's soil structure.

The plough is reserved only for the dirtiest of fields the farm takes on, but is likely to be used as a garden ornament in the future, says

“The path we have committed to is flexible and is working for us and other farms across the country

SIMON BAYLISS

Mr Bayliss. Likewise, glyphosate is rarely used and only as a last resort.

The drilling strategy employed on-farm has changed in recent years and is still being adapted. All straw is chopped, which acts as a weed-suppressing mat, while providing nutrition to soil dwelling organisms.

The cultivation method of choice is a He-Va nine leg subsoiler and 5.5m-wide short disc combination which works at about 15mm deep. Mr Bayliss says the structure of soils has improved sufficiently in recent years to the extent that subsoiling will be done in rotation going forward.

Drilling is carried out with a Pottinger Terrasem C8, fitted with wavy discs, that just cultivate and clean the strip being drilled. Mr Bayliss reports the drill offers flexibility in terms of how much cultivation is done and can be used when he wants as a direct drill, reducing soil disturbance.

He is also drilling crops earlier (wheat at the start of September and barley in the second half of the same month), enabling them to go into winter in a stronger position. As part of his philosophy, chemical seed treatments are not used, relying on biostimulants to offer protection and a kickstart.

Digestate is applied in April, with nitrogen requirements topped up with liquid fertiliser, one of the only jobs the sprayer is reserved for.

Both Mr Bayliss and Mr Edwards are convinced that applied ecology is the way forward.

Open minded

Mr Bayliss says: "Yields have stagnated in recent years, with more work and inputs put into the crop just to stay on the same tonnes per hectare. We need to be open minded and adaptable about what we are doing, finding ways to cut costs while enhancing soil health and crop viability. The path we have committed to is flexible and is working for us and other farms across the country that are using similar principles."

Mr Edwards adds: "There is a symbiotic relationship between the soil, microbes and the plants growing. Soil wants cover, hence weeds grow. The microbes within the soil feed off the carbon exudates given off by growing plants, enhancing the health of the soil. Getting the plants we want to grow

The harrow

»The harrow is manufactured by Austrian firm Hatzenbichler and imported by Opico. At 24m wide, it matches up to Wincote Farm's existing tramlines.

The trailed harrow is made up of four folding sections. Each section has four 1.5m-wide beds of tines, totalling 16. There are 10 aggressiveness settings for the 48 tines on each bed, which is done via a pin and quadrant assembly on each bed. Tines are spaced at 30mm centres.

Alterations

Mr Bayliss says the harrow has done a stellar job so far, however, being one of the first produced and used in the UK, he has some alterations he would like making for conditions in the UK.

Larger tyres underneath would be an advantage he says, with the 3,950kg weight at the limit of what the existing rubber can carry in the field.

He would also like to see some form of section control added, enabling gangs of beds to be lifted out of work, when approaching angled headlands.

However, so far he says the work rate and quality of the job done by the harrow is better than initially expected, with other benefits also seen in addition to the removal of weeds.

off to a good start reduces the amount of space for weeds."

Mr Bayliss concedes that in certain situations sprays are unavoidable, with pre-emergence herbicides still a vital tool. However, the hybrid approach taken has already seen savings and he reports crops are looking as healthy as ever.

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