

Drill to fit the forward-thinking farm



Machinery On Farm Opinion

Cover crops established using direct strip seeding provide significant agronomic, economic and ecological benefits on one N Yorks arable farm where they've been grown since 2014

By Julian Cooksley

“Cover crops are doing one hell of a job here,” enthuses N Yorks grower **Graham Potter**. **“We began growing them in 2014 and they’ve become an established part of our system. The results have been unbelievable.”**

Low organic matter was traditionally an issue across the 20 types of soil, from blowing sand to heavy clay, farmed by W Potter and Sons, based at Topcliffe Grange near Thirsk. But in just four years, the index has increased from 1-1.5 to between 4-4.5. “That’s amazing in such a short time,” remarks Graham.

“The cover crop mix includes vetch, oil

radish, phacelia, clover, buckwheat and oats which work very well together and with chopped straw to provide a deep mulch which is very beneficial for earthworms and other insects,” he explains.

Pilot study

Topcliffe Grange is one of three farms in the area that are taking part in a pilot study for Yorkshire Water, which is encouraging farmers to grow cover crops to reduce environmental issues such as soil run-off during very wet weather. This is the first year of the study, which is designed to improve the structure of soils in the River Swale catchment and get them to act like a sponge so that rainfall is absorbed, held in the ground and released slowly.

“Run-off has been a problem on some farms which use conventional cultivations and leave land bare over winter because soil, nutrients and chemical residues, including metaldehyde, wash down into rivers. We were keen to participate in the project and work closely with Catchment Sensitive Farming to achieve the best results,” Graham states.

Graham’s the third generation to farm

Topcliffe Grange. Bordering the River Swale, the farm once employed 11 staff, with sheep, pigs and cattle which returned nutrients and humus back to the land. But those all went many years ago and



Graham Potter has achieved good results from the combination of cover crops and direct strip seeding at Topcliffe Grange.

“The number of tractor and man hours fell dramatically because it was a quick job to get crops in the ground, in one pass.”



Drilling is carried out using RTK guidance to an accuracy of 2.5cm, allowing him to put spring barley between cover crop rows, while second and third wheats are also inter-row sown.

cropping now includes 38ha of cover crops, 42ha of first wheat, 61ha of second and third wheat, 46ha of high-erucic oilseed rape, 8ha of fodder beet and 6ha of grass.

“The Government is set on moving away from direct area-based payments in favour of schemes which deliver more environmental benefits, so we’ve been progressively changing how we farm for several years. There’s no point in farming land unless it can be done profitably, because that’s a waste of expensive inputs and reduces average yields and profitability,” notes Graham.

He uses Gatekeeper crop-recording software to produce margin maps which highlight areas where this is the case. “If we can’t fix whatever issues are causing it that area goes into a mid-tier scheme, such as cover mixes for birds,” he explains.

“For three years we’ve used a drone to map our crops for issues such as weeds and slugs, then that data generates variable-rate maps which are used for everything, from seed rates to agrochemicals and fertilisers. If we can save inputs we will do, because all the savings mount up and become very ▶

Tempo

Unmatched precision at very high speed

Corn Sugar beet OSR Beans Sunflower Cotton Sorghum Pumpkin

Väderstad Tempo is a new generation high-speed planter, delivering an unmatched precision at double the speed of traditional planters. No-till, min-till or conventional tillage – Tempo performs exceptionally in all conditions. The crops gets the best start possible which results in an even emergence.

Tempo T 6-7 rows
Tempo V 6-12 rows
Tempo F 6-8 rows
Tempo L 12-18 rows

Learn more at vaderstad.com

VÄDERSTAD



The 215hp John Deere 6125R is used to pull the 4.8m Claydon Hybrid drill at 10-11 km/h, covering the farm comfortably in just four days.

► significant. Attention to detail has allowed us to reduce our production costs to well under £100/t for wheat: we believe it's important to do that because of all the political uncertainties currently surrounding the farming sector."

A key factor in achieving that was the

move from traditional methods of crop establishment to strip seeding in 2013. "I first saw the benefits in Western Australia, where I worked my first harvest in 2001 and went back every year for the next ten years," he says.

"The most progressive farmers there

The new 4.8m Claydon Hybrid trailed drill features front shouldered discs, which allow it to work effectively directly into cover crops.



always use the latest technology and most switched from discing and drilling to direct seeding. Many of the drills in Australia use angled discs or low-disturbance tines and work well in dry soils, but that configuration is totally unsuitable for UK conditions."

Improve timeliness

Working in Australia highlighted for Graham the need to move away from plough-based crop establishment — his aim was to reduce the time and cost of establishing crops, improve timeliness and benefit the farm's ecology. "Also, I wanted to operate the farm myself so that in addition to any savings in establishment costs I didn't have to pay someone else to do a lot of work which was unnecessary from an agronomic point of view.

"My uncle bought a Claydon Hybrid drill in 2012 and despite the exceptionally wet autumn and spring he achieved very good results, so I thought that if it would work then it would cope with anything."

After visiting the Claydon farm in Suffolk the following year he bought a 4.8m Claydon Hybrid drill to fit in with his 24m system. "It was simple, well made, cost very little to maintain and made a big difference to farm profitability through savings in establishment costs. I hadn't expected higher yields, but they were a pleasant surprise," comments Graham.

Previously, half the farm was ploughed and on the other half he used a Sumo Trio followed by a KRM disc-type combination drill. "But this was expensive, labour intensive and time consuming. I and a part-time employee clocked up hundreds of tractor hours every autumn just turning



KRM

Choose KRM for a spreader that works!



12 - 42m Spread Widths

For Flexible Finance - contact your KRM Dealer

- For "in-spinning" discs giving double, double overlap precision and accurate headlands, with no striping . . **It works!**
- For weigh cell absolute accuracy and with automatic tilt sensing to control actual rate and hopper contents . . **It works!**
- For easy to use and reliable electronic control with Calibrator, ISObus or Tablet . . **It works!**
- For automatic on/off point at headlands for any material, at any width and at any forward speed . . **It works!**
- For stepless Section Control giving continuous spread adjustment across the full width to match angled headlands and field borders, saving fertiliser costs . . **It works!**
- For fast and thorough cleaning from easy access pivoting guards, less trap points and 18 special wash ports in the frame . . **It works!**

Ask any user . . . for a spreader that works, choose KRM!

Tel: 01423 324221
E mail: info @krm-ltd.co.uk
Latest Charts on www. krm-ltd.co.uk

the soil over. We spent three weeks ploughing the farm and it took two weeks to drill it.

Graham's cost of establishing wheat was £116/ha, which included £47/ha for ploughing, £57/ha for drilling, plus £12/ha for rolling. Using the Claydon System, however, he was able to establish all the crops himself for just £76/ha — £14/ha for the Claydon Straw Harrow, £50/ha for drilling and £12/ha for rolling.

"The number of tractor and man hours fell dramatically because it was a quick job to get crops in the ground, in one pass, behind a 205hp John Deere 7830, which



Deep-rooting cover crops help to drain and aerate the heavy soils, making them much easier to work and more resilient.

handled it comfortably at 11-12 km/h."

Two or three passes with the 7.5m Claydon Straw Harrow after harvest are followed with the Claydon Hybrid drill — a system that takes just four days. "The condition of the land has improved significantly and because it was better able to support the weight of following machinery I could spray or apply fertiliser well before other farms in the area.

Yields increased steadily, he reports, from 8t/ha with the previous systems to 10.5t/ha in 2013, 11t/ha in 2014 and they continue to climb. "The Straw Harrow is essential to distribute chopped straw evenly across the field, control weeds and keep on top of slugs."

Graham carried out on-farm trials to see what difference stubble height makes to how well the Claydon system works — some stubbles were left at 30cm, some at 25cm and others at 15cm. "The drill worked best when the stubble is 15cm high, which also produced the best germination and crop, so now I set the combine's header to that height and the chopper to cut the straw as short as possible."

The Straw Harrow passes through once



The ITEC system, controlled through a screen on the corner post of the cab, ensures absolute accuracy and reduces driver fatigue.

a week between harvest and drilling — a total of three or four passes on OSR ground and two or three on wheat. He highlights that it's becoming increasingly important to deal with slugs effectively. "Seasons have changed, and we've had no hard winters to naturally reduce pest populations and disease issues.

"Where slugs are an issue it doesn't seem to matter how many pellets you throw at them, within the limits allowed, so on some fields I take advantage of hot, dry ▶

LEMKEN AZURIT AND SOLITAIR 25

THE INNOVATION IN SINGLE-SEED DRILLING



Solitair 25

- Integrated width section control
- Versatile combinations
- Naturally with ISOBUS control



Azurit

- Up to 10% greater yield
- 70% more space for each plant with the triangular DeltaRow system
- Loss-free tramline mechanism
- Central fertiliser placement



lemken.com



The Agricultural Corporation



There's been a noticeable improvement in soil texture since cover crops were introduced.

► weather after harvest to go over the stubbles with the Straw Harrow at up to 25km/h to knock out as many slugs, nests and eggs as possible. In 2018 it was so effective that we've not needed to use any slug pellets."

Volunteers and weeds are left to chit and then killed off with glyphosate before drilling, rolling and applying a pre-emergence herbicide. The Straw Harrow is also used to break down any clods which remain on the surface of heavier fields after drilling, so plants are better able to germinate, and herbicides work more effectively.

"After five seasons, in 2018 I traded in the 4.8 Hybrid M mounted drill for a new 4.8m Hybrid T trailed model to allow diammonium

phosphate (DAP) fertiliser to be applied at drilling as this helps the crop establish quickly, especially where there's a large amount of chopped straw. The trailed model also allows us to use front shouldered discs and can drill directly into cover crops, which is important now they're a permanent feature of our system."

The new Claydon Hybrid will drill up to 53ha a day, he says. Establishing his first and second wheats in around four days, this has allowed him to take on contract drilling for other farms.

"For the past two years I've used the ITec Pro control system on the 215hp John Deere 6125R. This ensures that the drill is lowered and raised exactly where needed so there are no overlaps when turning on headlands. It saved 1t of seed last year, worth approximately £500. It also automates the whole process — raising the implement, turning the tractor and then dropping back into work all done for you — which makes it much easier and leaves me feeling much less tired at the end of a long day."

For the first time this year Graham's used the 6m Claydon TerraStar. "It was bought to produce slightly more tilth than the Straw Harrow on certain soils, under certain conditions, and that's made a big difference to weed germination. We've also moved to



Double-rolling seedbeds after drilling has been very effective in reducing slug numbers and no slug pellets have been applied in the last 12 months.

double-rolling all seedbeds, often on the same day as drilling, to achieve better consolidation and make it a less attractive environment for slugs.

"The recycled gypsum we apply to provide sulphur and help to break up the heavy clay soils also helps to dry out and kill slugs. This has been very effective and last year we didn't need to apply any slug pellets. It all adds up to a considerable cost saving and, what's more, it's better for the environment," he notes. ■

Still scope to cut machinery costs

Farmers at AHDB Monitor farms have been comparing machinery costs at a series of meetings over the winter.

At one event in Pembrokeshire last month, AHDB machinery 'guru' Harry Henderson and James Turner from Strutt & Parker led 15 farmers through a discussion on how they could put accurate, detailed costs against their farm labour and machinery.

Monitor Farm host Tom Rees displayed his own machinery costs. "Being a small farm, I thought our machinery costs would be fairly high because we don't have the area to spread it over. But what became apparent once we started getting the results of our own machinery review back, was that by using large kit, running it for a long time and doing repairs in-house — this makes economic sense for us."

Tom's total arable labour and machinery cost, at £403/ha, was around the average for all 22 AHDB Monitor Farms to have done a machinery and labour costs review. He keeps machinery and implement costs extremely low because the family can do a lot of the repairs themselves. But his total arable labour costs are high in comparison with the group.

Based on data from all Monitor farms (which may not be a sufficiently large dataset to be reliable), characteristics of those with the lowest 25% of costs are:

- Depreciation below £63/ha
- Low repair costs through tactical hiring and experience
- Diesel use below 100 l/ha
- Farm size 500-1000 ha

Harry notes that every farm is different, and urges others to do a review and start using the data to make informed decisions. "There's no single strategy to suit everyone. It's important to bear in mind that having the lowest possible costs isn't necessarily the aim — machinery also needs to be reliable and fit for purpose."

The AHDB Machinery costing calculator is available as a pdf or Excel spreadsheet — go to ahdb.org.uk/machinery-costing-calculator

Optimum cultivations

Claydon's Opti-Till crop establishment system is five times faster and three times cheaper than plough-based techniques, dramatically reducing establishment costs, according to the company's founder Jeff Claydon.



Tom Rees keeps costs low because the family can do a lot of the repairs themselves.

The aim is to create the optimum amount of tillage for all soils and conditions. The Claydon TerraStar, Straw Harrow and TerraBlade are used for stubble and weed management, in addition to the Hybrid mounted and trailed drills, together with the firm's Cambridge rolls. All have been designed with a minimum of wearing and moving parts to keep operating costs low, says Jeff.

"Opti-Till has transformed the economics of crop production on farms in over 30 countries worldwide," he claims. There's a cost saving calculator on the Claydon website www.claydondrills.com/savings-calculator