# Direct approach delivers for County Durham farm


County Durham farmer David Hankey.

## Direct seeding and cover crops play a major role on a farm in County Durham, where this combination has greatly improved flexibility and timeliness while reducing costs and improving the ecology.

Using strip seeding solely to save money is the wrong approach, believes County Durham farmer David Hankey. Instead, he says that caring for the soil must come first and everything else will follow.

"The more you work with nature the better the results," says David, who farms 120ha at Dunkirk Farm, Chester-le-Street within sight of the famous Angel of the North statue which dominates the skyline beside the A1 at Gateshead. Currently the farm is on a five-year rotation, but the aim is to widen this to seven years, comprising winter beans, winter wheat, a cover crop, spring barley, winter wheat, winter barley, oilseed rape and winter wheat. David also contract-farms an additional 40ha and drills 70ha each year for other farmers in the area.

Outlining the background to his system, he states: "In the north of England, the amount of time between harvest and drilling autumn-sown crops is generally much shorter than in the south. We are often still combining at the end of August and drilling soon afterwards so, with a conventional system, that does not leave much time to do things. Because the output of the Claydon direct strip seeding system that I have used for the past four years is so high compared with ploughing and combination drilling that I used previously, there is no rush – I can bide my time and wait for the right conditions."

Cattle featured at Dunkirk Farm until 2001 (when foot-and-mouth disease struck), and combined with a very good rotation resulted in wheat yields of up to 11.1t/ha. The mostly sandy clay loam cannot be classed as heavy, but years of ploughing and conventional cultivations, combined with continuous cereal crops, had le it in poor condition and with no real structure. In 2010 the land started to slump, the amount of compaction from field traffic increased and ploughing down straw year after ye had led to the soil becoming more anaerobic. When yields started to sli further back towards 8.6t/ha David looked at what could be done to reverse the process.

### A turning point

Extreme weather over the 2010/201 winter and again in 2012/2013 took a further toll on the soil and the land became increasingly difficult to wor Many crops in the area were muddle in that autumn and consequently the following harvest wasn't great. That was the last year that crops were produced after land had been ploughed and combination drilled.

Having decided to move away from this method of establishment David had contractors drill the following season's crops using three different machines, but each had

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their drawbacks such as a lack of under-frame clearance which led to blocking. Wanting a versatile 3m mounted drill that would reliably establish any crop in any conditions, he looked at all the options and after much research visited three farms which used the Claydon System, one in the Scottish Borders and two in Yorkshire.

Having decided that it better suited his requirements, David visited the company's factory in Suffolk and saw the benefits of using it correctly during a tour of the Claydon family's arable farm, where Jeff Claydon has used the system he invented since 2002. David placed an order for a new 3m Claydon Hybrid in spring 2015 and the company's territory manager, Taig Norman, visited the farm to set the new drill up, where it was used to establish the first cover crops in June that year. The farm was one of the first to try Claydon's leading discs and the crop of Skyfall winter wheat which followed yielded 10.1t/ha.

## Soil improvement

In 2015 and 2016 the standard combination of leading tines and discs was used for establishing cereals, but the soil has improved so much that now most of the time David uses just the front cutting discs. Water infiltration tests have confirmed that the soil's ability to drain and water-holding capacity are now far greater and continue to improve.

After just two years of using the Claydon System yields were back to 10.6t/ha, while establishment costs were a fraction of what they had been before. With the previous system, ploughing with a 5f reversible followed immediately by a power harrow/drill combination, the amount of diesel used was 45-litres/ha, 5 times as much as the 9-litres/ha required with the Claydon System.

"We have soils tested regularly and compared with the old system, where all straw was taken off the land and fertiliser came out of a bag, we have not had to apply any phosphorus or potassium for three years," David states. "Some of the cereal straw and all of the bean and oilseed rape residues are chopped to help build up soil organic matter

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*David drilling home-saved beans into stubble for another farmer in October 2018 using his 3m Claydon Hybrid behind a new 194hp Valtra T194 tractor.*

*In many cases only the front disc coulter and seeding tine are used on the Claydon Hybrid drill.*

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and I leave an even stubble height to improve the consistency of following operations."

## A versatile option

The Claydon Hybrid is very versatile and has created a much improved, more open soil structure which is much better able to support the weight of following machinery, continues David. "The land walks so much better now and has become almost self-healing: rather like a sponge, any wheelings that are created disappear very quickly. The worm population has also increased dramatically and there are so many that they are incredibly effective at taking the chopped crop residues down into the soil, so within about six weeks it has all disappeared. Every year the soil gets better and better. I cannot expect to continue seeing the same big gains that have been the case over the past four years, but that process continues.

"In many cases the soil structure is now so good because of the honeycomb of roots which remain that often I just use the disc coulters when drilling cereals 30–35mm deep, and the leading tine only when drilling oilseed rape or beans because of the extra depth required. The Claydon drill acts like a grading machine and over the past four years it has levelled the fields so well that it makes following operations such as spraying and harvesting much easier, quicker and kinder on machinery.

"The soil has also become much easier to work and the front cutting discs covered 600ha before they needed to be replaced, equivalent to a cost of just 0.67p/ha, while the modular design of the Claydon drill meant that it was easy to do."

## Cover crops

Cover crops have played an increasing role at Dunkirk Farm to help improve the condition of the soil. The mix selected is field dependent, but David uses different species of radish because their long taproot is like having a cultivator working to remove compaction 24 hours a day, and much cheaper than wearing metal. This has been helped by the fact that all the equipment, except for the New Holland TX62 combine which runs on wider-than-standard 800-section tyres, runs in the tramlines.

Growing cover crops successfully is all about creating roots at different levels, so in addition to deep rooting cover crops David looks for those with a good canopy to crowd out weeds and create as much mycorrhizal association as possible. The mix used after the last harvest included phacelia, peas, vetch, buckwheat and oats.

Cover crops cost around £35/ha for the seed, but David says that, in combination with the Claydon System, he has noticed significant improvements in soil structure and less soil erosion. The combination of a wider rotation with cover crops and strip seeding has also been of significant benefit in terms of minimising weed populations and now the farm has far fewer grass weeds than many where ploughing is used, all while using fewer agrochemicals and at far lower cost than with a conventional establishment system.

Insecticides are not used and, again in combination with strip seeding, this has resulted in a lot more wildlife on the farm, including insects such as ladybirds and wasps which consume aphids and flea beetle, and a noticeable increase in the number of birds, including stone curlews, pheasants and grey partridge.

*This cover crop, containing phacelia, three varieties of oil radish, oats, barley, buckwheat and vetch, had been drilled on 29th July and was photographed just before it was due to be sprayed off midway through October prior to drilling winter beans.*

The key to using the Claydon System successfully, David emphasises, is to commit to it and not be tempted to plough, for any reason. If ploughs were banned, he says, soils, crops and biodiversity would be the better for it. ■