CLAYDON CUSTOMER

FARMFOCUS

Soil is now 'moving with worms' on the Penicuik Estate and no longer slumps or turns anaerobic over winter.

Direct seeding revolutionises crop establishment on Midlothian estate

Improved timeliness, large cost savings and reduced weather risks are just some of the benefits of Claydon drilling on the Penicuik Estate.

Since its introduction in 2020, direct seeding has revolutionised crop establishment on the historic Penicuik Estate. Using the technique has transformed the farming operation in so many ways that manager John Davidson now regards it as indispensable.

Having experienced the high cost and drawbacks of the plough and 3m power harrow/drill combination which had been the mainstay for decades before John joined the business, he now uses the Claydon Opti-Till® System to establish all crops at Penicuik Farms, the 567 hectares of in-hand land on the 3035-hectare Penicuik Estate.

FOCUS EDINBURGH

Farmer: John Davidson
Location: Penicuik Estate, Edinburgh
Area farmed: 567 hectares
Soil: mainly light, some peat over blue clay, clay over rock
Crops: winter wheat, winter barley, oilseed rape, spring barley, fodder rape, kale, turnips, cover crops
Livestock: 100 Aberdeen Angus cattle, Highland cattle and 1,500 sheep

Many people suggested direct seeding would not work; the farm's height and it being in a livestock situation were among the reasons. Instead, crops produced using this technique have performed well.

In the dry weather of 2022 this approach provided significant benefits as soils retained more moisture than on other farms where conventional cultivations were used.

A mixed operation, Penicuik Farms includes permanent grassland and short-term leys which support 100 Aberdeen Angus cattle, a small herd of Highland cattle and up to 1500 sheep. All straw from

Claydon drilled winter wheat on the Penicuik Estate.

120 to 140 ha of combinable crops is baled for the livestock.

Arable cropping includes 40ha of winter wheat which averages 10t/ha, 40ha of winter barley (10t/ha) and 32.5ha of winter oilseed rape (5t/ha), together with up to 40ha of spring barley (8.6t/ha) which generally produces the best gross margin. Fodder rape, kale and turnips account for 61ha, while the farm makes extensive use of cover crops, growing approximately 81ha each year.

Situated in the foothills of the Pentland Hills, Penicuik Estate has been owned by the Clerk family since 1654. Annual rainfall is around 750mm and most of the land lies from 243m to 305m above sea level, reaching 365m in places. This limits cropping options and impacts crop establishment. Although on the whole soils are quite light and easy working, there is some peat over blue clay, and clay over rock with around 25cm of topsoil.

"Timeliness is key to everything that we do here", John states. "We have only 10 days to combine winter barley, bale the straw, apply manure and drill the following crop of oilseed rape. With just myself and one member of staff that would be impossible using the previous conventional system. By direct seeding with the Claydon I can establish 35ha of oilseed rape in just two days.

"All winter crops must be in by the end of September otherwise we run the risk of the weather turning and keeping us off the land until spring. To avoid that I have even drilled winter wheat at the beginning of September, before we finished harvesting the previous crop," says John, who worked for a contract farming operation in East Lothian before moving to Penicuik.

A NEED TO CHANGE

"When I came here eight years ago, the estate had just started to take some tenanted farms back in hand, but still had a lot of short-term grazing lets", John adds. "We've increased our own stock numbers considerably since then but still take livestock owned by local graziers to utilise surplus fodder or cover crops and add fertility.

"Over the years, the estate had gone from using a four-furrow plough behind a 90hp tractor to needing 150hp to pull the same implement, so obviously something had changed as the land was becoming harder to work. The combination of plough and power harrow/drill was very detrimental to soil health and posed a significant weather risk with cultivated land exposed between operations.

"There is a widespread view that growing good crops requires seedbeds to look like a garden vegetable box, but the reality is that over working soil is hugely detrimental to its structure and health. Rather than relying on an expensive, power consuming, labour-intensive system I wanted a more efficient method of establishing crops. Disc-type direct drills were not an option because they produce inconsistent results and posed too much of a risk."

After looking at various makes and models of drill John became acquainted with the Claydon System in 2020. During the first lockdown in April that year he had a demonstration to evaluate its potential, but due to the stringent movement

Drilling winter wheat directly into a cover crop. Penicuik Estate grows 20 to 25 acres of environmental green manure crops which are sown in May, mulched in September then drilled with winter wheat. In this situation, the 3m Hybrid's standard leading tines can be replaced with front discs, which are easy to fit and reduce the power requirement even further.

restrictions in force at the time it was one with a difference. Instead of a Rickerby representative coming out with a demonstration unit, they requested Claydon send a drill directly from the factory to the farm. That, says John, was about the best thing that could have happened as it forced him to read the literature and make it work himself.

Having considered two other 3m direct drills, a SimTech mounted box-type unit and trailed Mzuri, John purchased a 3m Claydon Hybrid grain-only drill from Claydon dealer Rickerby's Dunbar branch. An ex-demonstration unit with only 80ha under its belt, it better suited Penicuik's diverse cropping, steep slopes, and awkward fields, particularly compared with the heavy trailed machine.

When the field of spring barley sown with the Claydon Hybrid took slightly longer than usual to get going John initially questioned his decision. However, the crop quickly caught up with that established using the plough/power harrow-based system and yields were identical. Since then the Hybrid has drilled over 400ha, still on the original tines which probably have another 160ha left in them. It has surprised many in the area with its ability to work directly into cover crops or following a heavy application of farmyard manure.

"The Claydon is tried and tested, simple and practical, with many benefits," John states. "Timeliness is the biggest factor. Instead of crop establishment being a two-man system to plough, cultivate and drill it is now a one man, one tractor, one pass operation. Being a mixed farm with just myself and one member of staff that is very important, especially early in the year when lambing and calving coincide with spring drilling. Now, we can both deal with the stock in the morning and I can jump on the tractor in the afternoon and go drilling.

"That approach greatly reduces the weather risk, which is a major consideration being located where we are. Previously, land would have been ploughed, rolled, sown with the power harrow/drill combination, then rolled again. During that time it was very vulnerable to heavy rain, which was a real issue.

"The time window available for establishing crops is quite small, so the Claydon's high work rate and one-pass operation is a huge bonus. By starting early and working late I can cover 20ha in 12 hours, in the morning if it is too damp to combine, I can drill a few hectares while the crop dries out, or after seeing to stock I can start at lunchtime, drill 12.5ha and be back by 9pm to check on the cows and calves. The soil has become much easier to work and fuel use is just 20% of what it was before. That is a massive saving and with prices set to keep rising it is one which will become increasingly important.

"We tend to start harvest at the end of August and finish by mid-September. Where possible the aim is to have winter wheat follow a cover crop or oilseed rape and grow a cover crop ahead of spring cereals to build fertility and hold nutrients over winter. Some of the cover crop area is part of the EPS scheme, with an overwinter stubble followed by green manure,

Sowing a fodder crop directly into an 8-year grass ley.

and the rest is off our own back. A variety of species are used in the mix, including black oats, phacelia, clovers, chicory, and vetch. Seed rates are the same with the Claydon, but we are scaling back on applied fertiliser due to the extra nutrient contribution from cover crops.

"Last year, we fitted a 3m roller on the tractor's front linkage to mulch the cover crop and with the Claydon Hybrid on the rear linkage it made drilling a one-pass operation. This approach looks unconventional when you first see it in action but works extremely well and is very beneficial for soil fertility. Worm numbers have increased dramatically in the last two years, so any crop residues are quickly taken down and disappear entirely over the winter months.

"On one occasion I drilled some winter wheat directly into a neighbour's field which had been in grass for eight years, so the soil was tightly compacted. The Claydon's leading tines removed the compaction and although the surface initially looked somewhat untidy by spring the turf had all but disappeared and the crop looked spot-on. On another field where I drilled winter barley following a liberal application of manure a few people commented that it looked 'a bit rough' but ultimately it produced an excellent crop, which really is all that matters."

MULIPLE BENEFITS

The benefits of the Claydon System at Penicuik Estate include much-improved timeliness worth up to an additional 0.5t/ha in yield, an 80% fuel saving and significant improvements in soil health. In the short time since its introduction fields have become much easier to work and more level, while the land has become more supportive, allowing sprays and fertilisers to be applied early in the spring with hardly a mark.

There are a host of other benefits, which tend to go unnoticed but are significant, John says. Under the previous system, for example, the estate's New Holland T7.210 clocked up enough hours

each year to need two 600-hour services, each costing £1200. Having changed to the Claydon System hours are so much lower that only one annual service is required, a significant saving.

Another benefit rarely considered when evaluating the full benefits of direct seeding is that the tractor does far fewer hours, so it will be more reliable and worth more when sold.

Rated at 165hp, the New Holland T7.210 is a perfect match for the Claydon Hybrid, operating at 10km/h in 12th gear with the engine spinning at just 1600rpm. With the power harrow/drill combination at 8km/h the engine operated at 2100rpm, resulting in much higher fuel use and far more wear and tear because of shock loads to the transmission.

Simple, practical, and backed up by excellent service from the dealer and manufacturer, the 3m Claydon Hybrid is also much easier to maintain than the power harrow/drill combination which required constant attention and expenditure. With less time spent establishing crops and maintaining machinery it has enabled John and David to have more free time and a better work life balance.