Direct Strip Seeding Delivers

The 4.8m Claydon Hybrid, seen here drilling Propino spring barley in April, is equipped with a double row of following harrows and steel batter boards which help to level the surface.

Switching from conventional cultivations to direct strip seeding has brought multiple benefits for Essex farming business I J Macaulay & Sons.

"Direct strip seeding has delivered numerous benefits," says Donald Macaulay, who farms with his brother Stuart near Colchester. Having established I J Macaulay & Sons in 1986 after completing their agricultural studies at nearby Writtle University College they now farm 820 acres, 90 of which they own, 200 which is on a FBT, together with land their grandfather took on in 1933 when he became a tenant of the adjacent Birch Estate.

Until recently the Macaulay brothers produced a significant area of root crops, including potatoes and onions to supply local markets, but to remain competitive in this sector would have meant increasing the scale of their involvement and considerable additional investment. They stopped growing sugar beet too, due to increasing haulage costs, declining profitability and the amount of soil compaction caused during harvesting.

Instead, they decided to focus on combinable crops, which this year includes 285 acres of Skyfall winter milling wheat, 130 of oilseed rape, 88 of winter beans, 75 of winter linseed, 45 of borage, 100 of spring barley and 60 acres of soya beans. The brothers now only grow first wheats, preferring a greater acreage of break crops to ensure a good rotation. Winter linseed has been added recently, which together with oilseed rape allows fields to be cleared early and compost from a nearby green waste processing site to be applied.

They've always liked to experiment with different crops and have tried various alternatives over the years, including hemp, lupins, rye and even pumpkins. This year, they have 60 acres of soya beans, after growing 40 acres for the first time in 2017. Like all the other crops on the farm these were established using the Claydon System.

Changing The Approach

"We used to use a Sumo Trio one-pass stubble cultivator, followed by a Kuhn power harrow and Sulky Xeos Pro drill combination to establish combinable crops, but the system tended to over-work our soils, which run from gravel to boulder clay, so we looked at alternatives," Donald explains.

Their base is a demonstration farm for Frontier Agriculture, with cereals and oilseed rape varieties in trials this year. Three years ago, the Macaulays suggested that direct drilled plots be established to allow visitors to compare the results with standard farm practice. The brothers were also interested in ways to simplify crop establishment and reduce costs, so this was an ideal opportunity for them to see actual results on their own farm. Of the three manufacturers invited, the brothers were impressed by the Claydon system.

"We bought our Claydon Hybrid in May 2015 after visiting the factory and chose the 4.8m version because the additional output over the 3m would greatly reduce the time required to drill the farm. Having the larger model also meant that our 230hp John Deere 7230R would clock up fewer hours and ensure timeliness, as the higher output meant there would be no pressure to operate when conditions were less than optimal. It is equipped with variable rate seeding and we have installed a 1000-litre tank on the tractor's front linkage so

Donald Macauley has used the Claydon Hybrid since 2015.

Each year 4500 tonnes of compost, sourced from a neighbouring farm, are spread on a third of the acreage. Made from green waste, it is high in potash and releases nitrogen slowly.

that liquid fertiliser can be applied while drilling," Donald explains.

Continuing, he says that they were keen to compare the Claydon with their original system. "Marcus Mann is a very progressive agronomist at Frontier and he has always been keen to follow what we are doing. In the first year we drilled half the winter wheat with the Claydon Hybrid and half using our existing system to provide a large-scale comparison and confirm that we were on the right track.

"At harvest there was no difference in yield between the two systems, but those which had been Claydon drilled involved much less time, fuel and cost, so we used it for all the winter wheat in 2016. Then, as we started to get to know the drill better and had more confidence we started using it for other crops," he says.

Two such crops were borage and linseed, which both posed their own set of challenges, according to Donald. "Borage has a bushy growth habit and can be difficult to establish well. Last year some crops in this area drilled conventionally were very patchy, but ours were sown with the Claydon in bands 300mm apart, went into moisture and were the best we've ever seen," he explains.

"When establishing winter linseed, we took advice from Taig Norman (Claydon's Regional Manager in the East of England) because the seed is small and needs moisture, so it benefits from going into undisturbed soil. I wasn't sure how winter linseed would perform in the wider bands but need not have worried and we were delighted with the results."

Straw Harrow Proves Effective

After success with the Claydon drill, Donald and Stuart found that fields became far more level and uniform, making spraying with their 24m John Deere 740i trailed sprayer significantly faster and easier because the boom stayed more stable in operation. Encouraged by the results, they subsequently purchased a 7.5m Claydon Straw Harrow.

"The Straw Harrow levels the surface and does an excellent job," Donald confirms. "It works best when the soil is dry on the surface but moist enough underneath to allow it to produce a shallow tilth. We use it at a slight angle to the direction of combining on the first pass, then again at a different angle to help level the surface."

Concluding, Donald notes that they have seen a rise in yields since adopting the Claydon system. "It has certainly made us think much more carefully about the soil biology and how it can maximise crop performance. The changes have resulted in our best-ever yields of up to 12t/ha from winter wheat and the productivity of headlands has been much improved."