

Brutal soils brought into check



ON FARM OPINION



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One of England's finest country estates has some of the country's toughest soils.

CPM visits to find how a change in cultivation policy is taming them.

By Tom Allen-Stevens

Compton Manor Estate at King's Somborne in Hants is the sort of place you'd dream about — 970ha of rolling Hants countryside, there's 530ha of arable, set in generous fields among well managed mature woodland. Passing through is one of the best stretches of the River Test for trout fishing, and this, along with the woodland, has earned it a reputation as one of the top sporting estates in the country — truly a jewel set in a scepter'd isle.

But just try and work its soils. "Evil" is how drill operator Peter Jarvis describes them. Although it neighbours easy-going chalk downland, Compton itself sits on brutal, heavy clay, laced with unforgiving flints. When Andrew Day took over as estate manager three years ago, it was at the start of a radical change in the way these soils were kept in check.

Deep cultivations culture

"Previously, there'd been a culture of deep cultivations," explains Andrew Day. "Ploughs and heavy tines made multiple passes to beat the soils into shape. The estate had more tractors than it needed and no earthworms at all, while the wearing metal and fuel bills were spiralling out of control and proportion. This may have been sustainable in a good year, but it wasn't one to rely on as costs rose."

The quest had been underway to find a new cultivation system. "A number of demo machines had been tried and

frequently went back broken. We've a number of small fields with tight corners, which made the previous drill — a trailed Horsch Sprinter — difficult to manoeuvre. A drill with too many press wheels isn't suitable because the flints just tear them to shreds."

In the end, the decision was taken to buy a 4m Clayton Hybrid drill, which arrived shortly after Andrew Day started on the estate in March 2011. "The Clayton sows the crop in bands, so you only move ▶

“The Clayton buys us time on our difficult ground.”



Andrew Day, holding one of the more "girlie" flints, says there was a need to move to a more sustainable cultivation system.

► as much soil as you need. The first crop we tried was spring barley, and there's always an issue over ensuring the crop has enough moisture. But it established well — because you're not moving so much soil, it doesn't dry out and the plants find their own moisture. The crop of Propino yielded 7t/ha, which for us is pretty good."

That autumn was the drill's first full season. "It did a remarkable job, and all the crops looked fantastic. One thing we noticed straight off was the time saving — previously drilling had typically carried on into Nov or even Dec, but the Claydon buys us time on our difficult ground."

The wet conditions in June and July 2012 scuppered hopes of high yields, however, and proved a challenge for getting the crop established that autumn. "We struggled, but then everyone did. We did wonder whether we should bring in the plough, but we stood by the system and got everything drilled up. Like many others in the UK, some of our 2012 winter oilseed rape and wheat failed, and I think if that had been the first year we'd operated the new system, we would've questioned whether we'd made the right move, but by then we'd had exposure to the benefits."

The Claydon system is a relatively simple one. Leading tines, set at 300mm centres, create a deep-drainage tract down to 150mm depth. These lift just enough soil for the following A-share tines, which place the seed in a 150mm-wide band. A choice of batter boards, harrows or press wheels (or an optional combination of two of these) cover the seeds at the back. The Hybrid is a fixed-frame, mounted drill, available in 3-6m widths, with all sizes above 4m folding for transport to 2.85m.

"The main advantage for us is the

speed and efficiency of the system," continues Andrew Day. "We start sowing a little earlier, which suits direct-drilling — that was 15 Sept for cereals last year — but we also finish a lot earlier. The main difference is the work rate — we can comfortably drill 32-40ha in a day. Given our steep banks, stones and some fiddly fields that's a decent rate, and far more than we could achieve with the plough. Last autumn, the final field was drilled on 10 Oct — the day before the weather turned."

And the rain didn't stop, he recalls. "Between 14 Dec 2013 and 19 Feb 2014 we had 655mm, while the UK average was 486mm — I reckon we were about the wettest spot in the UK for that period. But looking at our soils you wouldn't believe we've had that much. Back in the old days of ploughing you'd expect to see rills and gulleys, but the fields have held the water well without ponding, and I'm convinced that's down to the Claydon system."

While the soil's been worked less, it's needed less work, he notes. "There's not as much compaction — we hung on to a Cousins subsoiler which was used regularly when we ploughed, but we've not needed it at all. Take a spade out and dig a hole and you find earthworms — you rarely find a compacted spot."

Other equipment has been sold — the fleet of four tractors has been reduced to two, with a Massey Ferguson 6499 putting 245hp in front of the drill. "It's a brilliant tractor for our slopes and fields, but it knows the drill is behind it. It's also relatively light and we've had some issues with lifting the heavy drill. But this was soon resolved with a 1.5t weight we purchased to go on the front."

A high flint content make the heavy clays on the Compton Estate a challenging prospect.



The tyres are foam-filled, while a set of leading tines will only cover 600ha.

Cultivation clutter

The 7f Gregoire Besson plough has long since departed, along with several other items of cultivation clutter that are no longer needed. "There are just a few pieces of tillage equipment we now use: we purchased a 7.5m Claydon Rake at the same time as the drill. This goes in straight after the combine and does a really good job of raking the straw — we can whizz through a 40ha field in just four hours.

"However, I think we put too much faith in the extent to which it would prepare the seedbed ahead of the drill. We've now invested in a 5.6m Great Plains Xpress. The discs are angled quite sharp so it shallow mixes the soil, going no more than 50mm deep. We don't use it everywhere — just if time allows and an enhanced chit is required. It does a good job where you need a bit of tilth in the topsoil. I'd hope this is transitional, and over time as the soil improves further, we won't need the Xpress."

The new system has also brought the combine into focus. "We chop all our straw, but when direct drilling, the quality and spread of the chop becomes part of the purchasing decision of a new combine. So when we traded ours out, we looked at various models, and only Claas and MF combines did the job.

"We settled for an MF Delta 9280, with a 9.1m header. On paper, the combine has a higher capacity than we need, but we've opted for over-capacity to ensure we can manage if faced with smaller weather windows. We could have gone for a 10.7m cut, but this would be too wide for the straw to spread well enough."

Following the drill is a 9m set of Cousins Cambridge rolls, with a sizeable 78cm diameter. "It's the most useful tool there is for direct drilling on hard, stony ground,"



The Claydon Hybrid drill has been fitted with a micro-fert kit for applying Primary-P to the OSR and a slug pellet applicator.

claims Andrew Day. “You need a heavy set of rolls to whack the stones in and seal the seedbed. However, we did find they were just too heavy in 2012, so we also have a 12m set of 53cm diameter rolls, for when the ground’s just a little too sticky.”

So what about slugs? “We had a real problem in 2012. I think they took the seed out before they actually came to the surface. So we now have a slug-pellet applicator mounted on the drill, which helps incorporate the pellets into the seedbed before the rolls come through.”

No more grassweeds

Weeds are no more of a challenge than they were with the previous conventional methods, he notes. “Because we’re only working the top 5-10cm, there’s less charlock and no more grassweeds.” There’s one field with part-resistant

blackgrass, but he admits the weed hasn’t been as much of an issue as other growers have faced.

“The wide rows of the Claydon take a bit of getting used to. They show up any drilling imperfections, but the crop tillers and branches out more to compensate. By the time it grows in the spring, you don’t notice the wide rows and it does result in a good crop.”

The drill itself has received some modifications. The width has been extended to 4.8m, and batter boards have been added to the harrows at the back. “We added the Claydon double toolbar in Jan 2013. In the early days and in wetter conditions, the leading tine tended to leave a bit of an open channel as a result of our poor soils. But we didn’t see that at all in autumn 2013, which may be down to the better structure we’ve now achieved.

“We also added a micro-fert kit in

time for autumn 2013, so we could put Primary-P in with the OSR. Half of the crop had this treatment, while the rest had the usual diammonium phosphate (DAP) applied shortly after drilling. To be honest, all the OSR came through well, and it’s hard to tell the difference.”

The drill is strong and sturdy, notes Andrew Day, but even this was no match for the fearsome flinty clays. “The central frame broke in the first year. Claydon were very good, and replaced it straight away, but to be fair, I think it’s our ground that’s the problem. Once the frame had been replaced, we reinforced it and it’s held together since.”

Predictably, the tyres have failed. “We had ten punctures in one day, so replaced them with foam-filled tyres. A set of leading tines will only cover 600ha for us, while I believe they’ll usually be good for twice that on other farms. However, we keep them quite deep — they’re set to 150mm for the OSR and we now leave them there for cereals. You don’t have to, but it eliminates the need to subsoil.

“The A-shares just kiss the surface, but we still found they wore heavily in the first year, and had to replace them after only 60ha. Now they’ll do about half the farm — again, I think that’s a sign the soils are easing. We also changed the C tines to some with double thickness to add further robustness.”

But Andrew Day finds he values the rigidity of the fixed frame, and doesn’t yearn for independently mounted drill coulters. “Generally drilling depth isn’t a ▶

Claydon launches trailed drill

Cereals 2014 will see the launch of Claydon’s new Hybrid T drill — a trailed version of the company’s existing linkage-mounted Hybrid seed/fertiliser unit.

The drill meets the needs of larger, 1000ha-plus farms in the UK and Europe, according to sales director Spencer Claydon. “Existing and potential customers have been asking us for a trailed version of our existing linkage-mounted model. What’s more, over the past two years, we’ve seen a big increase in interest in fertiliser placement while drilling. The Hybrid T meets these requirements.”

Available initially in a 6m form, this has 19 seeding tines and should cover 4ha/hr with a 300-350hp tractor. There are plans for a 25-tine, 8m version, says Spencer Claydon, which should manage 5ha/hr and will need an extra 100hp of grunt at the front. Hydraulically folding outer sections bring the travelling width of both units down to less than 3m and an overall length of 8.75m.

Both versions incorporate a 5500-litre hopper — equivalent to about 4t of seed and fertiliser — with a 60:40 split between the two. In 6m form, the weight of the drilling chassis is carried



The Claydon Hybrid T meets the needs of larger, 1000ha-plus farms in the UK and Europe.

on five centrally mounted depth wheels, fitted with 10.0/75-15.3 cleated tyres. The seed hopper is carried separately on four transport wheels which run on 380/55-17 cleated tyres.



Peter Jarvis notes the drill is doing some good for the soils.

► problem. We've the odd field that verges into the chalk, and getting the right depth in the softer soil can be an issue, as we're set up for clay."

For Peter Jarvis, the main advantage has been having more time to do other

things at a busy time of year. "Also, it used to be awkward getting the Sprinter into corners, but the Claydon's much easier to handle. There isn't a line of press wheels to get bugged up, either."

Lumps crumble

The drill pushes the MF 6499 "to its limits" on the slopes, he says, but he comfortably manages a forward speed of 12km/h on the flat. "You can tell the drill's doing some good for the soils — before, you'd get hold of a lump and could barely break it open, now it just crumbles. You see far more worm casts, too.

"The calibration's very easy and the micro-fert and slug-pellet applicators just seem to look after themselves — they're very low maintenance. You get a good service from Claydon, too — we've never had to wait long for parts."

It's been something of a task to set up the A-shares, he admits. "We started off with 18cm-wide shares, but moved down to 13cm thinking we were probably moving too much soil. But they then didn't give enough soil coverage, especially at the rear and when it's a little sticky. We tried various adjustments to the drill, but eventually went back to the wider shares. It means more fuel and wearing parts, but you do a better job."

The one slight gripe he has is the tramlining kit. "It wobbles around a little — it could really do with a tie-bar. But otherwise it's a good drill — I'd go for one again for its ease of use and service."



Care was taken when trading out the combine to ensure straw was chopped well and evenly across the full width of the cut.

The plan is to move to variable-rate seeding in the near future, reveals Andrew Day. "The farm's been mapped by SoilQuest and the drill is set up for it. But we're already getting considerable benefits from the new system."

Wheat yields have increased from 9t/ha to 11t/ha, spring barley has risen from 6.5t/ha to 7t/ha and, once there's a 'normal' year for OSR, he expects to raise those yields from the farm's 3.5t/ha average. "We also take pride in what the estate looks like — the Claydon doesn't bring you the purest, perfect seedbed, but you can't do that here. What it does is to buy us time and bring us speed to help us achieve a good, profitable crop and an improving soil structure across very difficult soils." ■

Farm facts

Compton Manor Estate, King's Somborne, Hants

- **Farm size:** 970ha of which 520ha is arable
- **Soils:** heavy clay with flints
- **Staff:** two full-time on arable plus an experienced harvest operator
- **Cropping:** winter wheat (KWS Santiago, KWS Kielder, KWS Gator, Invicta), winter oilseed rape (DK Cabernet, DK Camelot), spring barley (Propino), spring beans (Fuego)
- **Tractors:** 245hp Massey Ferguson 6499, 210hp MF 6495, JCB Fastrac 2170 (for spraying)
- **Drill:** 4.8m Claydon Hybrid with double toolbar, Stocks Rotor-Meter granular applicator and Stocks Fan Jet slug-pellet applicator
- **Cultivation equipment:** 7.5m Claydon Rake, 5.6m Great Plains Xpress, 9m Cousins Cambridge rolls (78cm diameter), 12m Cousins Cambridge rolls (53cm diameter)
- **Sprayer:** Knight 3000 litre with 24m boom
- **Spreader:** KRM M2W 3000 litre
- **Loader:** Merlo P40.7

The estate's Massey Ferguson 6499 puts 245hp in front of the drill, which is just enough to manage the slopes, while it now has a 1.5t weight in front to balance the heavy drill.

