

Host says soil structure's the key

The grower hosting a farmer-organised no-till meeting is driven by a love of soil

By Mike Abram

"My interest is in the soil. I'm not direct drilling to save money, although obviously there are savings," Simon Cowell says. He is in his second year of direct drilling with an Aitchison drill; the first year of direct drilling the whole farm.

The soil at Motts Farm, St Lawrence in Essex, is a heavy clay loam and unsuitable for a plough-based system, he says. He hasn't ploughed for about 12 years. "It was always trouble, either drying out too much or being too wet to drill. It failed too much."

A soil analysis revealed it was high in magnesium. "That makes it sticky and difficult to work. When it dries out it bakes and makes it very hard."

To counter that, for the past six years he has been applying gypsum (calcium sulphate) to lower magnesium and raise calcium levels. The sulphate in the gypsum combines with the magnesium to form magnesium sulphate, which is soluble in water and, therefore, gradually leaches down the soil profile. As such, it leaves the calcium on the surface and takes the magnesium lower. "It has made a big difference to the land," says Mr Cowell. "It is not so sticky and doesn't stick to your boots anywhere near as much."

Mined gypsum is not cheap, admits Mr Cowell. "It is too expensive for farmers, so I've been getting recycled plasterboard

DIRECT DRILL OPEN DAY – IT'S FREE

* Mr Cowell is the host farmer for the first no-till farmer meeting, on 22 April. It has been set up by farmers for farmers, says organiser Will Scale. And it is free.

His aim is to set up a no-till farmer alliance, similar to ones in other parts of Europe, Australia and the USA, where growers can collectively discuss all aspects of no-till crop production.

"The intention is to promote a better understanding of the potential of direct drilling, no-till, conservation agriculture, whatever you want to call it.

"We are concerned at the lack of government and industry interest in this area and we don't want to get left behind. So we've

decided to do something ourselves."

It's not just limited to cereal farms. "The potential for direct drilling sugar beet, maize and vegetables exists, as shown elsewhere in the world. The system could also suit mixed farms extremely well."

A range of expert speakers, including independent consultant Steve Townsend, will talk on the machinery involved, agronomic and nutrition issues, before attendees get the chance to quiz five growers operating no-till systems on the practicalities and pitfalls of no-till.

To book your place at the HGCA/drill manufacturers-sponsored free event email directdrillday@googlemail.com or ring Mr Scale on 07971 605 174.

offcuts from building sites."

The whole farm was treated with an initial 10t/ha (4t/acre), with the heaviest parts getting a second 5-7.5t/ha (2-3t/acre) application. "I'll continue to put on maintenance applications of 1-2t/acre every few years."

That amount of gypsum is enough to make a difference to the top 2-3in of soil. "Because I have been working from the top

down, I didn't want to mix the soil and bring sticky stuff to the surface. That led me initially down the disc/min-till route.

"But that makes other problems, particularly with having large amounts of straw mixed in with the topsoil. Seeds don't like it, the straw uses up all the nitrogen. So I came to the conclusion the straw was best left on the surface and not incorporated. It won't use up the nitrogen, and the worms

will break down the straw over the year."

But with his rotation of two wheats followed by oilseed rape, it was vital he used a direct drill that would cope with non-incorporated straw, he stresses. Growing spring crops allows more time for the straw to be broken down, while the wider row spacing for winter beans makes it easier to get through. "Wheat followed by wheat is the most difficult part of the rotation; a straw rake is pretty essential."

He rakes at a 45° angle soon after harvest and repeats at the opposite 45° angle a few weeks later. "The idea is to get the straw as evenly spread as possible. Most combines don't spread it well enough."

The operation also helps create a stale seed-bed on the surface, he points out. "It is like harrowing, so you hope to get some weeds to grow before drilling."

Even so, there was still too much straw on the surface for his Moore drill of 15 years to handle. It meant moving to an Aitchison tine drill. "I wanted a tine drill to shovel underneath the mat of straw rather than cutting through it.

"I've been really pleased with the way it has worked, particularly in the wet conditions this autumn. We've had good germination and the plants appear much healthier."

Being so light the drill hasn't caused much mess, he says. "I'm trying to aim for a different soil structure. Instead of having layers of cultivated soil, I'm looking for a vertical soil structure, with the cracks all vertical. Think of it like



The lightweight Aitchison drill has hardly left a mark this autumn.



Sweet smell: Simon Cowell's enthusiasm for looking after his soil has driven his no-till regime.

a toilet roll. If you put pressure on a toilet roll on its side it just squashes. If you put pressure on it vertically it takes the weight much better. Soil is the same."

Low-ground-pressure Terra tyres, bought for £500, also help minimise soil damage. "The tyres are one of the best things I've bought. We put them on the combine, a Case Axial flow, and even in last year's wet harvest, there wasn't a mark anywhere."

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AGRONOMY NOTES

* A surprising finding Mr Cowell has made is that his crops are suffering from less take-all.

"Since I've been moving the soil less, I've seen less take-all. I think it is a soil health thing. I'm not disturbing the soil, so we have better biological activity and that doesn't allow take-all to get a foothold. Others might disagree, but that's what I've found."

He also has managed to get on top of resistant blackgrass, albeit initially through the use of Atlantis (mesosulfuron-methyl + iodosulfuron-methyl-sodium). "That saved our lives. But direct drilling is better for blackgrass now. We leave the blackgrass seed on the surface, where it doesn't want to be. It wants to be mixed with soil. If it is on top it either rots or grows, and if it grows we've found pre-emergence herbicides to be brilliant."

That's allowed him to get away without using Atlantis on some fields, he says.

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No-till system practised by Mr Simon Cowell on heavy Essex clay soil at St Lawrence, Essex



Stubbles are harrowed immediately after combining and again up to 2 weeks later.



The chopped straw is now spread evenly over the ground and a weed chit is encouraged.



Drilling commences after spraying with Glyphosate. LGP tyres are always used.



All operations are carried out at differing angles to maintain a level field surface.



All the crop residue is left above the seed avoiding toxic contamination.



The same tramlines are used year on year and are reinstated using a home made device.