

Nick August, Cotswolds, Oxfordshire



'There is no mechanical means to improve soil structure, you can alleviate damage but you won't improve. Improvement works through the ecosystems of soil'

Two years on from NFU's last visit, I caught up with Nick August who farms around 400ha outside of Burford, Oxfordshire. The no till system on the farm has been implemented for nine years. The benefits from converting are evident, and Nick has no intention of going back to min-till or ploughing.

The soil on Nick's farm is Cotswold brash. Cotswold brash has a shallow depth, around 20-50cm, and is lime rich over limestone with a high rock (limestone) fraction. The farm is currently at 6-8% organic matter. The methods that Nick carries out on farm should increase organic matter however it's too early to say what the impact has been as initial testing for organic matter was not carried out.



The soil may look challenging to work, but Nick tells me that the tips on his drill can last over an impressive 4000ha. The friability of the soil has improved over time thanks to the methods used. The main mechanical issues caused by the soil to machinery are due to vibrations, which is unsurprising with the amount of loose stone on the ground.

Worms are vital for the no-till system. Not only do they help improve soil structure but also work to remove trash from the previous crop. There has always been a decent worm count on the farm even before Nick went from min-till to no-till nine years ago, but the transition has increased the number of worms further.

Nick's direct drill is a Vaderstad Seed Hawk which he purchased back in 2009. This model is not marketed anymore, but Nick says that it is ideal for his ground, so if he had to replace it he would only consider a similar machine. The drill is 8m wide and only requires a 150HP Tractor to operate on his soils.





There was a concern, at the very beginning, that there could be some compaction issues based on the theory that the soil had not yet had time to develop effective soil structure through biological activity such as worms and root density which you should eventually achieve through direct drilling. Early in the adoption of No-till Nick subsoiled the land pre-drilling. Unfortunately, a wet winter was followed by a dry summer which meant that the soil consolidated causing an increase in deep wheelings. The lesson was learnt that he would have been better off not sub-soiling at all. Nine years later Nick has significantly reduced his fuel bill, labour costs and machinery costs due to reducing the number of passes across the land.

After harvest, the chopped straw is spread across the ground. Nick has adapted a Vaderstad NZ spring tine cultivator into a straw harrow. This is a trailed machine so pulling a set of rolls is straight forward. Nick admits that he is pragmatic in using this approach as it has to be the right moisture and weather before using straw harrows. If it is too dry, you will not get the benefit of weed flourish meaning the whole exercise is pointless.

No-till has increased the amount of worm life in the soil. One benefit of this is that he can use the worms to incorporate trash left from the previous crop. The length of chop determines the speed the worms will digest the residue.

Inter-row drilling is carried out on the farm, which means seeding in-between the rows of the previous crop. As well as reducing the number of passes on the field and encouraging root structure, another advantage is that he can seed faster. This is because the stubble from the previous crop provides a barrier, so the topsoil does not move as far when making a pass. This means that Nick can reach an impressive speed of 8km an hour, achieving about 60ha of land drilled a day.



The rotation has changed since 2015 it is now: Winter wheat – Winter OSR- Winter wheat- Spring Barley- Winter Cover crop - Peas. One of the winter cover crops was taken out of the rotation due to double funding of BPS and ELS. The double funding issue meant that the over wintered stubbles option was adopted. The farm operates on a five block rotation which has roughly 80ha of each crop at one time. The cover crops are often block grazed by sheep and back fenced.

One of Nick's disappointments is the ban on plant protection products (PPP's) on the cover crops and peas he uses for his ecological focus areas for the basic payment scheme in 2018. The farm will struggle to grow peas economically and cover crops without PPP's, so to make the EFA requirement; Nick will likely opt for a cheap catch or cover crop; harvest timing and workload dependent.

The 'controlled traffic farming' system is still in place from 2008. CTF reduces the amount of compaction on the land where the crop is grown and makes areas that are designated for traffic more compact resulting in easier driving. Easier mobility means less fuel is used.

Nick recognises that tramlines can create soil run off. By keeping the tramline in the same place, you are not exacerbating the problem, and the increased permeability of the un-trafficked soil more than compensates. Nick has calculated that he uses 8-12% more fuel by going up and down a field bank instead of going across the slope. The CTF wheel ways go across banks not up and down them.



Nick describes himself as an advocate of precision farming. He currently uses Agrii Soilquest for electro conductivity (EC) scanning and has his own hybrid system of soil sampling which is a grid sampling system within intelligent field zones. Nick has found no more than 9 different soil zones across any field so it's important to have a system that is not too complicated.

Nick ignores plots near the soil zone boundary as they can be diluted. Samples from the same soil type with similar properties can be bulked up. By doing this soil sampling can be reduced to 1/5, reducing cost. This method meant that 460ha could be tested with 80 samples.

Nick argues that yield data should be the base line to start precision agriculture. Yield Data can identify field areas with qualitative yield information. When these areas are identified, further methods of precision farming such as soil sampling and variable rate applications can be used to investigate and rectify the low yield areas without wasting and overloading nutrients thereby achieving optimal returns on inputs. A case study of Nick August's Farm, which discusses the complexity involved using multiple machines and technology to deliver precision farming, can be found in a book called 'Precision' by Timothy Chou, PHD.

The farm was in an ELS scheme which finished in May this year. Nick has now applied for Mid-tier but is awaiting confirmation. There is a range of game mixes across the farms that where part of the ELS agreement. The mixes are made up of millet, quinoa, rye, vetch, phacelia, radishes, kale, barley and mustard. These mixes offer benefits to farmland birds and wildlife as well as fixing atmospheric nitrogen and improving organic matter to the soil.

It was clear to see from my visit that August Farms delivers for the environment. The promotion of biodiversity can be seen in the hedgerows, the field boundaries, across the fields and under the ground. When it comes to creating the perfect soil bed, Nick lets nature do the work for him; he states 'There are no mechanical means to improve soil structure, you can alleviate damage, but you won't improve. Improvement works through the ecosystems of soil.'

