



Nottinghamshire farming business moves on – part II

Farmeco plans a controlled-traffic future

As Farmeco progresses into its next development phase, the company does so without its managing director who has been at the helm through nearly two decades of change. Before leaving to take up another post, Keith Challen talked to profi about the Notts farming business's current system. Mick Roberts reports

Farm Facts

Farmeco UK Ltd

Base: Starnhill Farm, Bingham, Notts

Soil type: Medium loam to heavy clay soils – mixed

Farmer directors: David Rose, Richard Hutton, Chris Lamin, Tim Farr (chairman)

Staff: Keith Challen (ex-managing director, who has recently left for another post), Kevin Tindale, plus harvest casuals in summer period

Total farmed area: 1,400ha

Cropping: 50:50 (winter wheat and oilseed rape), 40ha sugar beet, 20ha let for potatoes. 40ha of spring red wheat

It's all change at Farmeco – and not just in the fields that are now being farmed under a controlled-traffic regime. After 20 years helping to develop the business, Keith Challen has relinquished his managing director's position and moved on to another farming estate nearby where, quite possibly, he'll start the whole process all over again.

As a result of Mr Challen's departure, David Rose, a founding Farmeco partner and director, is returning to a management role. "Having been away from day-to-day running of the farm for the past

ten years I can see the many changes that have taken place. It's great to now have a lower hp requirement and much less machinery on the farms. Along with the management team, I am very pleased with the controlled-traffic farming system (CTF) and its impact on fuel and labour costs. We're monitoring the results very closely to gauge where we go from here, but, in general terms, we now view it as time for consolidation," says Mr Rose. The switch to CTF using a streamlined fleet of equipment is not something that happened overnight, stresses Mr Challen.



The Claas Lexion 580 remains in the Farmeco fleet. Although its cutterbar is 1m wider than the 8m controlled-traffic farming tracks, the loss in width is countered by faster forward speeds.



The combine's auger allows the grain cart tractor and trailer to run in the 8m wide CTF track, so the land in between is 'untrafficked'.

"The previous system's changes allowed us to progress to surface cultivations and then on to direct drilling, which is also ideally suited to working in a CTF regime," he adds.

The switch to CTF has also resulted in some significant changes to the farm's equipment line-up (see profi int 10/2010 p72). Out have gone the high-hp tracked and artic-steer tractors, with the business now relying on a small fleet of Fendts, headed up by a comparatively small (for Farmeco) 330hp 933 Vario as the main workhorse along with a 300hp 930 Vario and a ten-year-old Fendt 395 toolcarrier. These front-line units are supported by two 716 models, which are owned by two Farmeco directors and hired into the company as required.

Self-propelled sprayers have made way for a couple of trailed Chafer 24m wide Guardian models. And with a new 8m wide Väderstad Seed Hawk direct drilling the cereals and rape, the business's soil-working machines have been pared down to just a Simba Flatliner subsoiler, which is fitted with a home-made oilseed rape/fert sowing rig, plus an old 8m wide Wil-Rich cultivator. Indeed, the only machine left that reflects anything like the scale of the previous Farmeco fleet is the Claas Lexion 580 combine with a 9m header.

While direct drilling isn't a prerequisite for CTF success, says Mr Challen, it does make it much simpler to implement the system and, as a result, it's fast becoming the preferred method for most of the UK's leading CTF exponents.

"I feel the new CTF system should be producing a gross margin improvement of at least 25% and maybe as much as 40%, but, in reality, I expect it will be somewhere between the two," he adds. "It also has the potential to carry out work on a further 400ha if necessary."

Drill choice is an important consideration when moving over to the no-till system.

"I eventually went for the Väderstad Seed Hawk because I think it's the most versatile drill on the market. Employing tines, not discs, brings big benefits.

"Tines consume less power, have lower running costs and I feel do a better job. The 10mm legs also create less soil disturbance, which saves energy. We have used the drill in a range of seedbeds and found the tines avoid hairpinning of straw and smearing, which can be a problem with discs," he explains.

Another important reason for buying the Seed Hawk is because it is a combination drill, with the ability to place fertiliser at the same time as sowing the seed. "Placing nutrition while drilling oilseed rape is a fundamental requirement," he adds.

The drill is powered by the farm's 330hp Fendt 933 Vario flagship, which is part of yet another big change to the farm's fleet (see box, p52). "We needed to move away from big prime movers and, even though the total hp at about 0.75hp/ha remains similar, it's a very different type of power from the Fendts.

"We were looking for higher speed, high comfort and high specification. A 60km/hr capability is now a key requirement, and that's achievable in comfort with axle and cab suspension," says Mr Challen.

"The tractors do about 900hr/yr and, after using them for 12 months, we're glad we went down the Fendt route. The savings on fuel alone justify the additional purchase price. But you need to understand how the TMS system works and master it. In the wrong hands I expect they could drink as much fuel as any other tractor." The farm slashed about £50,000 off its fuel bill by going to min-till in the 1990s, and now that figure has been cut again. The previous establishment system was consuming about 40 litres/hr or 7 litres/ha.

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Mainline Machinery

Combine: Claas Lexion 580 (2009) 9m cutterbar, with Trimble RTK GPS receiver and Trimble EZ-Guide 500 and EZ-steer assisted steering

Tractors: Fendt 933 Vario, Fendt 930 Vario and Fendt 395 toolcarrier. 2 x Fendt 716 models – both hired

Sprayers: 2 x Chafer Guardian trailed sprayers, 24m wide booms with 4,000-litre tanks

Drill: 8m wide Väderstad Seed Hawk seed/fert combination direct drill

Cultivations: 4m wide Simba Flat-liner subsoiler with Accord hopper for fertiliser and seed placement (oilseed rape); 4m wide Simba Xpress cultivator; 8m wide Simba Horsch Terrano Optipack; old 8m wide Wil-Rich cultivator

Handlers: 2 x Manitou and one MF 8900 – owned by directors; borrowed when on respective farms



David Rose, a director and one of Farmeco's founding partners, is now taking over the day-to-day management of the farm. He is pleased with the benefits achieved so far from switching from min-till to controlled-traffic farming.

With the new CTF set-up, the average has fallen to just 24 litres/hr or 3 litres/ha. "That's just one tangible advantage that comes from not only switching to Fendt, but also from the accuracy and precision of the controlled-traffic farming system. With CTF, and RTK auto-steering correction, we can run every operation without any overlaps; I don't think we can get any more efficient with our field operations," says Mr Challen.

All the tractors came from Warsop-based B & B Tractors, which also provided the requisite steering systems, controllers and even the signal needed to shift up to RTK accuracy. B & B supplies Trimble electronic equipment and has installed its own

RTK network in the area, with base stations and repeaters on its own and on its customers' premises.

"I chose Trimble because I was confident the equipment provided what we needed, and I felt it was the most 'future-proof' option. One of my main concerns was that this equipment can get out of date very quickly," explains Mr Challen. "As well as speaking to the dealer we also consulted with AS Communications, Trimble's UK distributor, and this company assured me that both the software and hardware are capable of being upgraded as the technology develops."

Farmeco is no newcomer to GPS systems and has been utilising auto-steering for some time. But controlled-traffic operations require not only high precision – to within +/- 2cm – but also a repeatable accuracy to ensure bouts match up each and every year.

"We knew we needed RTK and felt the B & B network, which allows us to subscribe to a signal from a series of fixed transmitters in the area, offered the best answer to our needs," says Mr Challen.

"The downside was that we found we were right on the edge of the network's range. To address this, we've installed our own mast and joined in partnership with B & B Tractors' RTK network. This means we are in control of our own signal but with the advantage of being able to rely on the dealer's expertise for not only the installation, but servicing and future upgrades." The end result is that the farm has a base station at its Bingham yard and a further repeater station at Kirklington.

Three of the farm's Fendts – the 933, 930 and one 716 – are equipped with Trimble's AgGPS AutoPilot integral steering system, operated through the firm's FmX integrated display terminal. The Lexion combine, in contrast, uses a Trimble EZ-Guide 500 terminal and EZ-Steer assisted steering unit which, after harvest, can be transferred to another tractor. The two trailed sprayers are towed by the Fendt 933 and Fendt 716, and feature EZ-Boom auto-section control through the same FmX terminal.

The controlled-traffic system is based on 24m wide tramlines with the Claas Lexion combine's 0.5m wide tracks setting the outer limits and the tractors' wheels all running inside this area.

"This means that about 80% of the land always remains untracked. The secret to



Direct drilling means all crops are established by one man and one tractor – Fendt 933, Väderstad Seed Hawk seed/fert drill and Simba Horsch Optipack. The 8m wide Seed Hawk drill sets the track width for the following fieldwork.



Trimble GPS antenna and radio aerial on the tractor roof receive signals from the on-farm RTK base station.

successful no-till drilling is eliminating compaction, and that is achieved with CTF. At the same time the technique will also increase yields, because compaction has a major effect, especially in oilseed rape. And that, along with the reduced overlaps and improved efficiency, is why CTF improves the margins so much.” Last season the farm established about 90% of its crops using just one tractor, one man and the drill. The system is also much quicker. Mr Challen reckons to have established the crops about a week faster than before, which makes it possible to drill them all in optimum conditions.

In practice, the CTF system starts with the first pass. The Seed Hawk puts in the A-B lines, which form the tracks, meaning that the system is based on 8m bout widths. “We then saved the fields and tracks onto a USB stick, inputted them on to the office PC and then transferred them to the tractor terminals. It couldn’t be easier,” says Mr Challen.

The combine, however, has a 9m wide cutterbar. So, how does this fit with the CTF aim of increasing efficiency if the farm loses 1m on each harvester bout? “What we lose in width we gain in extra forward speed and not having to steer. The Claas 580 is more than capable of handling the total cropping of 1,400ha, split equally between oilseed rape and wheat. The extra width either side also ensures nothing is left standing.”

With the tramlines set at 24m spacings, any other work fits the system because the Simba Flatliner subsoiler is 4m wide



Fendt tractor cab mission control centre: Along with the tractor’s own Variotronic terminal, the cab hosts the drill controller, FmX screen and sprayer switch box. All of these items work together in the controlled-traffic system.

and the Wil-Rich cultivator is 8m. The only ‘random’ trafficking happens when turning on the headland. “But there are ways to overcome this by drilling the middle of the field first and then using the subsoiler on the headland before drilling.” The farm has also now modified the drill to sow the oilseed rape and place fertiliser at the same time. The seed is spread behind onto the soil consolidated by the pneumatic tyred wheels. A harrow, from an Amazone drill, is fitted with 45° angled tines that lightly rake the surface sideways, which Mr Challen finds improves seed-to-soil contact. The combination can also tow a tyre press if required.

“We place about 30kg/ha of ammonium nitrate – the maximum application that’s allowed in the autumn. I am absolutely convinced that nutrient placement is a fundamental requirement when sowing rape. It also has the additional benefit of creating an acidic zone around the seed, which means the slugs won’t go anywhere near it,” he explains. The system also reduces the seed rate to about 25-30 seeds/m² for hybrids.

The longer term plan is to use the precision offered by the RTK positioning to move the oilseed rape rows across by about 50mm to 60mm – to counter the effect of the tight oilseed rape/wheat rotation. This will provide the potential to grow the crop in fresh soil. “By shifting the 250mm row spacings every other year means that, in theory, the seed does not go on the same ground for six years,” says Mr Challen.

In effect, the new CTF system is allowing Farmeco to increasingly treat its rape as a row crop. “There is huge potential. For example, a great way to control black-grass could be to use a ‘hooded sprayer’ to apply a non-specific herbicide in between the crop rows. This could halve the amount of Kerb we need to apply.”

Summary: In two decades at Farmeco, Keith Challen has guided the company through some dramatic changes – from a plough-based regime, through deep min-till and then to shallow cultivations, and now finally to direct drilling and controlled-traffic farming (CTF). Despite these developments, however, Farmeco’s goal remains exactly the same as when it was first set up – to operate company-owned machinery and employ staff to fix costs and achieve the highest level of sustainable profitability.

CTF BENEFITS AT FARMECO

- Gross margin increases of 25% to 40%
- Reduced fuel consumption to 24 litres/hr or 3 litres/ha
- Total tractor power 0.75hp/ha
- RTK accuracy of +/- 2cm
- One man/one tractor establishment system
- No-till drilling saves labour, tractors, time and fuel
- Establishment time cut by up to one week