# Drilling into successful soils


**Machinery choices are a divisive topic and often at the helm of discussions when it comes to promoting better soil health. *CPM* speaks to the winners of this year's Soil Farmer of the Year competition to find out how smart drill choices can help soils flourish.**

*By Charlotte Cunningham*

**As regenerative principles continue to gain ground across the UK, more growers are recognising that the drill is far more than just a tool for seed placement – it's a critical component in building soil health, crop resilience, and long-term farm profitability. Whether it's reducing disturbance, preserving biology, or improving establishment in challenging conditions, the choice of drill can either support or sabotage the wider system.**

One farmer who's proving that when it comes to sustainable arable farming, what happens at drilling matters more than ever, is John Joseph.

On the slopes near Ross-on-Wye in Herefordshire, John and his wife Julie have spent the past decade rethinking everything they thought they knew about farming. Today, their small arable unit is gaining national recognition for its low-input, biologically-driven approach to soil management – recently earning John the top title of Soil Farmer of the Year. The competition is run by Farm Carbon

**Award-winning approach**
**Herefordshire farmer John Joseph has reinvented his approach to crop establishment and soil health, leading him to be crowned this year's Soil Farmer of the Year.**


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Toolkit, in partnership with Innovation for Agriculture, and sponsored by Cotswolds Grass Seeds and Hutchinsons.

But his journey hasn't been an overnight success, nor was it the result of following a blueprint. Instead, it's been a steady process of breaking, rebuilding and reimagining the farm – with an engineer's eye for how soil, machinery and biology interact.

However, Trecorras Farm hasn't always been run this way. Like many farms, John began with a conventional two- to three-pass minimum tillage system. But in 2013, a season of extreme wet weather left him unable to establish a crop.

"I was a one-man-band using a system that required more passes and more horsepower than I had," he explains. "It rained and rained, and by the end of the season, there was nothing in the ground. Meanwhile, neighbours who'd ploughed and drilled were up and running. It was a painful moment."

That failure forced a rethink, not just about the cultivation system, but about the soil itself. "The structure was shot and the resilience just wasn't there," he says. "We were treating soil like a surface to work, not a living system."

The change began with a full commitment to strip-till, having met Martin Lole and then investing in a Mzuri drill. "We sold everything else – no ploughs, no power harrows, no cultivators; just the Mzuri. It was a bold move, but forced us to learn how to make it work."

They didn't stop there. A no-traffic policy was introduced whereby only the tramlines would see tyres, explains John. "That simple decision massively reduced compaction, and we're absolutely religious about it."

In parallel came a broader rotation and a deeper dive into soil biology. "We started asking: what makes a soil actually function? It came back to those regen basics – live roots, constant cover and diverse species.

"We stopped trying to impose control and started trying to create conditions for the soil to do the work."

After several seasons of improving soil condition under strip-till, John moved to a Horsch Avatar direct disc drill – aiming for even less disturbance and more accurate seeding. But he says his high-magnesium soils had other ideas.

"Initially it looked great, but then we noticed the slots opening up after a few days. I'm convinced the high-mag soils were glazing the sides of the disc slot, almost like a seal. Once

**A living system**

**Viewing soils as a living ecosystem, rather than just a surface to work upon, has been fundamental in John Joseph's success.**

dried, the slot would gape open."

This glazing, he believes, limited root development, encouraged slug movement, and left seed vulnerable. "There was no oxygen; no structure around the seed. Crops just didn't have that early vigour – even if depth and placement were perfect."

Unhappy with existing options, John collaborated with Tom Land of Landwrx to build his own drill – one designed from the soil up.

The result was a custom-built, pre-production direct drill tailored to John's soil conditions and cropping system. It featured a five-leg low-disturbance tine configuration on a 3m toolbar and contour-following seeding shoes adapted from Landwrx's Varia interseeder.

Two seed hoppers and a liquid tank were added for fertiliser, biology or companion crops, while variable row spacing and coulter width for adaptable row configurations was also made possible. "We can tweak row spacings, band widths, and seed placement depending on the crop. It's incredibly versatile."


**Custom-built**

**John Joseph is currently running a custom-built direct drill from Landwrx, tailored to his soil conditions and cropping system.**

With his new drill, John also began applying a biological starter dressing to the seed, typically comprising molasses, calcium, trace minerals and microbial inoculants.

Critically, for a farm this size, he says there's no room for waste. "We're a small business, our KPI is profitability. We can establish a cover crop for under 1 litre of fuel/ha – that's the level we're operating at."

He also points to significantly lower variable costs than regional averages. "Input use is down because the system's more resilient to drought or deluge. And we're no longer reliant on expensive passes or crop protection."

But perhaps most importantly, the farm is no longer chasing yield at all costs. "You can kill your predators with a cheap insecticide, but you'll pay for that down the line – in slugs, aphids, soil ▶

health. We're playing the long game."

Being crowned Soil Farmer of the Year 2025 is a huge accolade – one that John says he's still digesting. "We're thrilled – genuinely humbled. Some incredibly well-respected names have won before so to be in that company is a big honour."

But John is clear: this isn't about preaching or perfection. "I always tell people – I'm not saying this is what you should do. I'm saying it works for us and there are alternatives out there."

In Bedfordshire, Andrew Mahon – a runner up in this year's Soil Farmer of the Year competition – has a similar story to tell when it comes to that symbiotic relationship between the drill and soil health.

It's not often you hear a grower describe their worst harvest as the catalyst for one of the most transformative journeys in their farming career, but for Andrew – who's farm manager at Bromborough Estate in North Bedfordshire – that's exactly what 2012 was.

**Success on the Horizon**

**During the past five years, Bedfordshire farmer Andrew Mahon has trialled several Horizon models – mounted and trailed, across two and now three generations of design. The current drill is a 6m Gen 3 Horizon DSX, trailed, and was on display at both Groundswell and Cereals this year.**

"That harvest was just horrendous," recalls Andrew. "We had relentless rain, terrible quality, poor yields – it was the worst I've ever experienced. Something had to change."

Farming 840ha of heavy clay soils with a typical arable rotation, Andrew joined the business in 2008, stepping into a conventional system: full-time staff, some ploughing and min-till, and largely autumn drilling. But 2012 prompted a period of soul-searching, research, and a complete rethink of the farm's direction, he says.

That same year, BASE-UK was established and Andrew joined. "There were guys like Jake Freestone and Tom Sewell just coming through their Nuffield scholarships, and I started reading into that kind of thinking – regenerative, low-disturbance systems. What really resonated with me was the idea that less could be more."

The following years saw a dramatic transition – a staff retirement helped ease the structural change and in came a Mzuri strip-till drill, the first step away from full cultivations. But by 2015, the farm had committed fully to direct drilling. "I realised strip-till was still moving too much soil. We had to go further," explains Andrew. "Since then, we've not looked back."

The shift has gone hand-in-hand with a wider philosophy around soil-first farming: cover crops since 2013, zero insecticides and compost extracts in the past 12 months. These are all decisions made with one central goal in mind: healthier soil.

"It's at the heart of everything we do now. If conditions aren't right, we won't drill. It's about respecting the soil – especially on heavy clay, where pounding it when it's wet causes more harm than good."

The first practical step came with the purchase of a 4m Mzuri drill – a significant shift away from the pass-heavy systems of before. "It was a good stepping stone;

we still required horsepower to pull it, but we weren't churning the soil."

Two years later, the farm made the leap to full direct drilling. The drill of choice? A 5m Cross Slot, powered by a hired-in 330hp tractor. "The Cross Slot was brilliant – the seed placement, the performance in heavy soils – it was spot on," says Andrew. "But the tractor required to haul it was a limiting factor, both financially and logistically.

"We wanted something simpler, more flexible, and importantly, something that didn't tie us to a massive tractor."

After exploring various options, Andrew ordered a Sly Boss drill, only to discover that George Sly's own business was undergoing transformation and would soon become what today is known as Horizon Agriculture.

"I ended up with one of the very first Horizon drills – serial number two, in fact. That's how the relationship with Horizon started, and it's gone from strength to strength since."

During the past five years, Andrew has trialled several Horizon models – mounted and trailed, across two and now three generations of design. The current drill is a 6m Gen 3 Horizon DSX, trailed, and was on display at both Groundswell and Cereals this year.

"It's changed massively since the first version. The design is cleaner, the setup is quicker, and it's incredibly user-friendly. We're also trialling Horizon's peristaltic pump system – version three arrives in September – which will help with precision placement of biologicals and inputs."

And critically, the drill aligns with Andrew's principles around minimal disturbance and soil integrity. "It's a disc drill, so of course hairpinning can be an issue if you're drilling into straw-heavy stubbles. But we build our rotation to avoid that – cover crops are the main entry point, and we rarely drill second wheats."

The real magic of the system is the flexibility it provides, believes Andrew. "Our fixed costs have come right down. Because we're not investing in multiple cultivations or running huge tractors, we can afford to be adaptable. If the conditions aren't right, we don't drill. Simple as that."

That same ethos carries through to crop protection – or more accurately, the lack of it. "We don't use insecticides anymore and that alone is such a relief. No thresholds to monitor, no knee-jerk sprays. We've seen the system balance itself; it's made farming far more enjoyable."

Andrew's approach turns conventional wisdom on its head – the drill isn't the final act in a crop's establishment, it's the first true commitment, he says. "We don't invest in pre-drilling cultivations. So I always say, until the drill goes in, nothing's set in stone. That gives us options – and options make for better decisions.

"If autumn doesn't behave, I'm happy to pivot. We've designed the rotation and infrastructure to allow that; I never feel locked in."

Looking ahead, Andrew remains firmly committed to the soil-first philosophy – one that keeps the farm profitable, the system resilient, and the team grounded. "I always come back to that quote: 'we owe our existence to six-inches of topsoil and the fact that it rains'. That's it. Without good soil, we're nowhere, so it has to be the priority – in every decision, every pass, every pound spent." ●

# What's new in drills?

Following a busy summer of kit launches, here's a look at some of the latest drill options to hit the market

### Aerworx Viper Series direct double disc seed drill

Aerworx debuted its new Viper Series direct drill earlier this year at the Cereals Event. Designed for both arable and grassland systems, the double disc drill supports a wide range of seed types and offers a straightforward, no-till establishment option for farmers focused on improving soil health. With row options of 19, 21, or 23 at 125mm spacing and a hopper capacity of 1000 litres (with split options for seed and fertiliser), the drill combines ease of use with adaptability.

Depth control is available in both manual and hydraulic formats up to 100mm. The Viper Series complements Aerworx's long-standing range of drum and blade aerators which were designed to relieve compaction and encourage better root development by creating a 'slot and shatter' effect down to 30cm, aided by their high weight-to-width ratio and durable blades.

### Lemken Solitair PT

Ahead of Agritechnica in the autumn, Lemken has launched the Solitair PT, a new trailed seed drill/power harrow combination aimed at improving drilling efficiency on larger arable farms. The machine features the company's OptiDisc double disc coulter system, designed to maintain consistent depth and seed placement across a range of conditions.

There's the option of a single 4400-litre model or a 5100-litre twin tank, which allows for simultaneous application of seed and fertiliser or companion crops, offering flexibility in establishment strategies.

The integrated Zirkon power harrow is equipped with four tine carriers per meter of working width. Thanks to its special tine arrangement and the hydraulic depth adjustment, which comes as standard, it ensures even crumbling and a continuous flow of soil in all conditions.

### Alpego 6m DTEK combination drill

Also making its Cereals debut earlier this summer was Alpego's 6m DTEK power harrow combination drill – distributed by Opico.

The drill features Alpego's heavy-duty Rapido harrow paired with the ASPro front hopper, while the DTEK unit uses Twin Force Tek rotor pairs fitted with taper roller bearings for long-term durability, and comes with quick-fit tines, including tungsten options for reduced wear.

The rear seeding bar, mounted via a parallelogram linkage, maintains uniform drilling depth across coulters, while rubber-mounted 355mm disc coulters offer maintenance-free operation and consistent soil penetration. Seed delivery is managed via Alpego's Turbo Rotal system, which ensures even distribution even at low rates or on slopes.

The ASPro front hopper includes a 1900-litre tank, electronic metering system, and RDS Super control box for calibration, rate adjustment, and half-width shut-off. The setup supports application rates from 2-450kg/ha and offers an ISOBUS upgrade. Front-mounted press wheels aid consolidation and balance the machine, limiting compaction and improving on-road handling.

### Claydon


Claydon has showcased a myriad of new technologies during the past few months, all designed to enhance the firm's existing range of low-disturbance drills.

This includes the Evolution Front Hopper which offers a total capacity of 2750 litres, split between two pressurised tanks (1510-litre and 1240-litre) to support reliable, high-volume delivery to rear-mounted drills.

Twin metering units allow for either separate or combined seed and fertiliser flow, controlled via a simple airline box selector, while an ISOCAN terminal manages all hopper functions, supporting variable rate application and auto stop-start, with ISOBUS compatibility built in.

The unit comes with a range of interchangeable metering wheels and spare components to suit different materials. Weighing 730kg and measuring just under 2.5m wide, the hopper includes low-level and empty sensors, a toolbox, and a foldable step for operator access. Optional extras include up to 550kg of ballast, packer wheels with passive steering, and a light and vision kit featuring road and internal cameras.

Designed with flexibility in mind, the Evolution hopper is suited for a range of establishment systems requiring efficient, adaptable front-mounted delivery.

This is complemented by the new NutriSeeder, which allows dual seed/cover crop metering mounted on a Straw Harrow – ideal for companion crop sowing and regenerative practice.