

What's driving implement development?



"Implement specialists have the experience and resources to stay in the sector through the cycles of agriculture."

THIERRY KRIER

Many long-line tractor manufacturers dip in and out of marketing implements, with few replicating the success of specialists in crop establishment and protection kit. *CPM* visited Kuhn at its pre-Agritechnica product launch event to reveal more and discover its latest developments.

By Martin Rickatson

For an implement specialist that 'doesn't specialise', the old generalisation that times of 'down corn' tend to be balanced with 'up horn' are something of a saving grace. French firm Kuhn makes or markets almost every machine that can be coupled to a tractor for all four seasons, and because it does so across both arable and livestock sectors, the current downturn in the former is being somewhat softened by slightly better times in beef and dairy.

There are plenty of other challenges that mean the manufacturer, like its peers, is experiencing some of the pain being felt by cropping farmer customers, explains Thierry Krier, global CEO of Kuhn Group.

"The fact the grazing livestock sector is enjoying reasonably good returns across Europe is – for us and others who supply them – at least countering the difficulties and uncertainty we know the arable sector continues

to face, although of course that's no comfort to our arable-only customers.

"Agriculture as a whole and its supplying industries continues to face a broad range of challenges. They

range from climate events to war, rising input costs compounded by more expensive fuel and shipping, the lingering effects of Covid on supply and demand, and agricultural policy changes, with support funding impacted by increased demands in areas such as defence spending," he added.

"During the first quarter of 2025, we could see improvement ahead but then the US began a trade war which is prolonging the downturn that began in the second quarter of 2023. This agricultural recession, and the machinery sector one it's created, have proven to be



Introducing Karl

Kuhn hopes to have its autonomous power unit, Karl, ready for production by 2028, explained Thierry Krier.

the longest in the industry for 40 years.

"We could see it approaching and adjusted accordingly without redundancies, but there was a lot of inventory for about two years."

Thierry pointed out that things are improving slowly, and by mid-2025 Kuhn was seeing new orders at rates above last year's. "Implement specialists have the experience and resources to stay in the sector through the cycles of agriculture, where long-line tractor makers often have to ask themselves 'why are we doing this?' when times are difficult and short-lines are underperforming."

"In the world market, it's generally necessary to sell 10,000 units of any machine for its manufacturing, marketing and support to be viable. And as our distribution is split fairly equally across the dealerships of the main tractor manufacturers, we have some insulation from any significant strategy changes among them."

On average, from 1500 base models, Kuhn estimates it sells 60,000 machines annually, with 40% custom-configured or built to order rather than being made for stock. That proportion is increasing, while unsurprisingly machines are also



Highlander

Available in 6.0m and 7.5m models, the Highlander is designed to work from 3-20cm deep for tasks from shallow root scalping to residue incorporation.

getting bigger with higher outputs, said Kuhn Group's Rolf Schneiden.

"Some 40% of our machine sales across the board are now represented by what we call the XL/XXL sector," he explained.

"That means machines specifically aimed at helping the growing number of larger farm businesses do more in a single pass, whether in cultivator or drill width, or sprayer boom span. Although a grassland example, in Germany last year, the same quantity of triple mowers were sold as single ones."

"In addition to the 20 new products displayed here for 2025/6, we have pipeline developments in test such as a range of direct drills up to 8m – just one result of an R&D spend of

more than €50m (£43m) in 2024."

Kuhn's biggest ever R&D project has already made its debut, although it's not quite yet ready for release. Although the firm is increasingly moving to XL/XXL implements, this takes a different direction, said Thierry.

"We hope to have our autonomous power unit, Karl, ready for production by 2028. While it's based around a diesel engine that powers a generator to provide electric drives, our plan isn't to compete directly in the tractor market, but to develop the 'swarm' concept of multiple smaller, lighter machines working together that use 'smart' integrated tools responding to data, mapping and conditions."

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► “We see such implements as a fundamental element of what an autonomous tractor should be able to work with to get the most from its abilities and potential.”

Here are some of Kuhn's other recent developments, as presented at the firm's pre-Agritechnica product launch event.

STUBBLE CULTIVATION

Aimed at the burgeoning market for high output shallow-working tine cultivators, the Kuhn Highlander is designed to work from 3-20cm deep according to task and intended effect, from shallow root scalping to residue incorporation.

Available in 6.0m and 7.5m models, it's targeted at tractors of 180-400hp; the Highlander slots in between the Prolander (intended for 3-12cm work) and the Cultimer (7-35cm).

Up front, pre-cutting discs with adjustable pressure are optional for pre-processing residue, cover crops and stubbles. These are followed by four rows of 20.8cm-spaced tines protected by a maintenance-free non-stop mechanical safety system with a 350kg point load.

Available point types comprise three Durakarb carbide types of 50mm, 65/35mm or 80/50mm, and two forged points measuring 60mm or 80mm, while all can have 280mm wings. At the rear, options include a 550mm diameter double-u roller with adjustable pressure, or a triple harrow with hydraulic tilt adjustment, designed to leave residues and roots on the surface.

Working depth is controlled by up to eight gauge wheels, and the machine features a floating drawbar and floating wings for front-rear and side-side contour-following. There are hydraulic or air braking options.

Elsewhere in stubble cultivation, Kuhn's 6.0/7.5m Optimiser cultivators are now ISOBUS-compatible, which makes them operational with the firm's Smart Soil Technology (SST). This includes features such as Steady Control Ultimate which provides automatic ground contour tracking adjustment to maintain consistent and uniform working depth across the implement's full width.

Pressure and position sensors connected to a computer determine the optimum pressure in the hydraulic rams to maintain consistent working depth even on uneven ground and at high working speeds, claims Kuhn, while a 'Geo' function permits working depth modulation via uploaded maps or recording of the working depths achieved.



Power harrow

For tractors up to 350hp, also new is the HR6030 RCS 6m power harrow, which can work with general or precision seeding bars and single- or double-tank front hoppers.

Section Control automates headland raising and lowering, while a headland turn mode can be selected to use either the transport wheels or the rear roller.

PLOUGH DEVELOPMENTS

Kuhn's latest Master M mid-range 4-6 furrow ploughs for 100-240hp tractors feature developments primarily aimed at enhancing comfort and safety, both when ploughing and during transport.

Complemented by a 'Comfort' top link bracket, several headstock options include a new GoDrive oscillating front axle, combined with the 'Work and Roll' wheel, a new concept that uses large-diameter wheels to compromise between traction and compaction, while providing on-road safety and comfort, and allowing hydraulic management of working depth from the cab.

Tool-free switching from Roll (transport) mode to Work mode is said to take under a minute. Wheel oscillation during transport means the plough follows the tractor's movement, and is suited to speeds of up to 40km/h.

There's also an EasyDrive option for swift switching to lower link-only attachment for transport, which can be combined with GoDrive. A further option, OptiDrive, provides front suspension shock absorption during headland movements. In terms of the bodies, each has its own accumulator to enhance responsiveness and ground tracking. Furrow width settings span 14-20in (35-50cm).

At the largest end of the scale, the 12-14 furrow semi-mounted Multi-Leader XT can be operated at those same furrow widths. In terms of tractor widths, for those working with wide tyres or dual wheels – perhaps not so common now in the UK – the model is suited

to working with widths of up to 4.5m or – when equipped with the offset position memory option – up to 5.5m.

Large-diameter transport wheels are said to enhance traction. The turnover rams are located on the central carriage, and the rear section, positioned after the wheels, is progressively engaged to minimise headland width to as little as 4m, while the front plough can be used alone if required.

TINE DRILL LINE EXPANDED

With mounted tine drills often providing all sizes of farm with a flexible drilling solution even in difficult conditions, Kuhn is expanding its Megant range with the addition of new 7.2m and 8.0m models to join the established 6.0m machine. The 7.2m model matches 36m tramlines over five passes, points out Kuhn, while the 8.0m version is reckoned capable of outputs of up to 8.0ha/hr.

All can be equipped with reversible forward-pointing coulters, straight coulters, or 12mm thin tines. Spacing is at 15cm (20cm on the 8.0m) and tine distribution is over four rows. Hoppers on all machines have 1800 litres capacity, while power requirement is said to be 180hp for the 7.2m version and 200hp for the 8.0m model.

Options include rear press wheels and an additional 110-litre hopper for fertiliser or a second seed type, which is injected into the flow of the main metering unit.

SPRAYER TECHNOLOGY

Kuhn has moved into the trailed sprayer 'big league' with the launch of its Karan range, a line of 4500, 5200, 6000 and 8000-litre models available with steel or aluminium booms from 18-45m and nozzle spacings of 50cm or 25cm.

Despite the capacity of the design,

Kuhn points to a compact overall length of 5.0m from hitch to axle on Karan 5200 and 6000 models. A Track-Matic steering axle offers a maximum steering angle of 28°, and up to 2.05m-diameter VF tyres are available, with optional central tyre inflation, plus mechanical or hydropneumatic suspension options.

In the right fields, Kuhn claims workrates of 100ha/hr are possible, matching the outputs of self-propelled alternatives.

The result of a four-year design and development project, the machine features Kuhn's Autoset solution system, with a tank fill rate of 900 l/min and an application rate of up to 500 l/min.

The Karan is capable of spraying at speeds up to 25km/h, courtesy of a new Eagle 'smart contour control system'. This technology automatically adjusts and actively controls the boom, and is said to be fully responsive at as close as 30cm above the crop.

A pulse width modulation-based AutoSpray system offers independent nozzle control, curve compensation and, claims Kuhn, the ability to maintain consistent droplet size across a wide speed range.

Induction hopper liquid intake rate is up to 220 l/min, and a closed transfer system is optional. Karan sprayers are available with Kuhn's Diluset solution system that automates management of filling, agitation, rinsing and assisted sequential dilution. Karan sprayers are available with PTO or hydraulic drive.

PRECISION WITH FERTILISER

Kuhn's range of ISOBUS Axis and Axent fertiliser spreaders are now available with the firm's OptiPoint Pro technology. The firm points out that outlet opening and closing at headlands varies typically depending on fertiliser type, working width and spreading disc type, and that with some fertiliser/working width combinations, the operator is already turning on the headland when the metering outlets close.

The result is that the spread fan pattern moves fan sideways, causing underdosing on the inside of the bend and overdosing on the outside.

OptiPoint Pro addresses this problem by simply closing the outlets sooner. At headlands, it adapts the spread fan by adjusting the application rate and the drop point. This increases the working width towards the middle of the plot, causing the outlets to close sooner, at the beginning of the headland turn.

Because spread fan doesn't



Multi-Leader XT

The rear section of the 12-14f Multi-Leader XT can be engaged progressively to minimise headland width to as little as 4m; the front plough can be used alone if required.

pivot, the correct application rate is maintained right up to the field edge.

The OptiPoint Pro setting is specific to each fertiliser, with the operator entering the details of the fertiliser, the working width, and the type of spreading disc into Kuhn's SpreadSet

app. The fertiliser spreader calculates the required application rate and drop-point settings automatically.

With a mobile version, settings can be transferred to the machine directly via an optional wi-fi module; manual data entry isn't necessary. ●

KRM

Klinea



The Klinea is the latest innovation in cereals hoeing. It features central tine angle adjustment (without tools) to improve penetration in hard conditions and utilises the new Kipline camera system for automatic guidance. The shares are followed by harrow tines to remove soil from weed roots and prevent re-growth. Optional section control lifts each element independently at the headland for the ultimate in accuracy and efficiency.

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