



“ We see this being a big step forward in precision agriculture ”

Machinery Sprayers

Down to the nozzle

As pressure mounts on growers to farm with the environment in mind, sprayer technology has evolved rapidly to ensure applications are as efficient as possible. *CPM* takes a look at some of the most recent launches.

By Charlotte Cunningham

When it comes to selecting a sprayer, there are many factors to consider. Trailed or self-propelled? What size tank? Oh, and don't forget about nozzle choice too...

It can seem a bit of minefield, but it all boils down to selecting something that's sizeable enough for the job in hand and that works as efficiently as possible to maximise both environmental and production benefits.

To help growers who are thinking about something new, *CPM* has rounded up some of the latest technology on the market.

Amazone

To optimise the use of any agrochemical, Amazone recently unveiled its new nozzle control system AmaSelect Row — based on the new AmaSelect.

According to Simon Brown, the system comes as a result of the firm's drive to offer more responsible solutions to sustainable chemical usage. "AmaSelect Row offers accurate band spraying at the press of a button," he says.

With AmaSelect Row, Amazone now offers the possibility to switch any machine with an AmaSelect nozzle body remote control from whole-area application to row-specific band spraying.

"Row-specific band spraying makes it possible to reduce the usage of plant protection agents by up to 65%," adds Simon. "This requires special SpotFan 40-03 nozzles with a spraying angle of just 40°. These special nozzles work without overlap and apply 100% of the plant protection agent across the whole width of the spray cone."

AmaSelect nozzle bodies are normally fitted to the boom at a spacing of 50cm and row specific applications in crops with a 50cm row spacing can very easily be implemented without any further retooling, he adds.

As an option, Amazone also offers an extension kit for the AmaSelect nozzle body which is used to reduce the nozzle spacing on the boom to 25cm. "The extension kit shifts apart two of the four nozzle positions of the AmaSelect nozzle body towards the right and the left," explains Simon. "This solution has the advantage that, even with a nozzle spacing of 25cm, treatment of the whole area is still guaranteed.

"Using the extension kit with a 25cm nozzle spacing also allows for band applications on crops with 75cm row spacing. Only the nozzles at the desired spacing are switched on for that purpose."

Each nozzle position in the AmaSelect nozzle body can either be opened individually or in combination with a second nozzle, he adds. "Switching between the individual nozzle positions or between whole-area and spot application can easily be achieved by the press of a button on the terminal."

When the nozzle spacing is set to 25cm, only every third nozzle will be opened for applications in crops with 75cm row spacing.

This means only the row spacing, the

spraying angle of the nozzle for band spraying, and the application height need to be entered into a separate menu in the ISOBUS machine controller, explains Simon. "The selection of the right nozzle and the associated nozzle positions to the band needing to be treated is carried out automatically."

Adhering to the height above target is of particular importance for band spraying, he adds. "The band gets wider if the distance between the nozzle and the target surface is too large. It becomes narrower if the distance is too small.

"A combination of the AmaSelect nozzle body with the active ContourControl boom guidance can fully maximise the advantages here."

According to Amazone, the possible reduction in plant protection agents for the specified applications depends on the row spacing and varies between 40-50% (50cm sugar beet rows) or 50-65% (75cm in maize and potatoes).

John Deere

Along a similar vein, John Deere launched its ExactApply system as an option on its new R4140i and R4150i sprayers last year. But what exactly is ExactApply?

According to the firm, ExactApply is an 'intelligent' solution that combines the ability



Lemken recently launched its new Orion trailed field sprayer.

HORSCH Leeb sprayers

Stay close to the crop



BoomControl ensures precision spraying, less than 30cm at speed and over hilly terrain.

Reduce drift and maximise inputs with BoomControl, available across the entire Leeb sprayer range.

- Leeb TD** - 12,000 litres, 24m-42m working widths
- Leeb PT** - 6-8,000 litres, 24m-42m working widths
- Leeb GS** - 6-8,000 litres, 18m-42m working widths
- Leeb LT** - 4-6,000 litres, 18m-42m working widths
- Leeb AX** - 3,800 litres, 18m-30m working widths



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Sprayers



January 2020 saw a new generation of Agrifac's Condor self-propelled sprayers roll off the production line.

► to change spray nozzles manually from the cab or automatically depending on application rate and speed. It can also maintain droplet size while changing speed using pulse width modulation (PWM) technology up to 30Hz.

With ExactApply, each nozzle is controlled individually via GPS-based section control. Furthermore, with PWM enabled, turn compensation ensures that application rates remain consistent across the full boom width even when turning the sprayer. ExactApply technology enables savings in crop protection products of around £5/ha, says Deere, while at the same time yield can be increased by up to 3% by reducing under/overdosing to a minimum.

Bigger boom for Fendt's Rogator

Fendt's trailed Rogator 300 recently received an update, increasing boom width to up to 36m. Up to five OptiSonic sensors guide the left and right boom arms individually over the target area, so booms maintain a consistent distance from the target crop, according to Fendt.

The 300 series also benefits from a newly designed hydropneumatic single-wheel suspension — but how does it work? Two hydraulic cylinders cushion the vehicle to increase stability during cornering, in difficult road conditions and on slopes. The suspension reduces the load on the tractor and boom and allows for higher application accuracy, even at high speeds, says the firm.

With the Fendt Stability Control automatic levelling system, the Fendt Rogator 300 is also claimed to guarantee safe use on the hillside and



Fendt's trailed Rogator 300 recently received an update, increasing boom width to up to 36m.

stable road positioning.

When driving parallel to the gradient, the single-wheel suspension design also allows a slope compensation of up to 7°, or 12%. Single wheel suspension also comes into play in filling processes with plant protection products, as it allows the Rogator 300 to be automatically levelled for even more accurate filling, adds Fendt.

Lemken

Lemken recently launched its new Orion trailed field sprayer boasting tank volumes ranging between 4000 and 6000 litres. Inside the tank, a powerful hydraulic injector agitator ensures that spray fluid is available at the optimal concentration, even if the sprayer has been standing for some time,

explains Paul Creasy, general manager at Lemken. "Thanks to the electronic fill level indicator, operators always know how much fluid is in the tank."

In terms of working widths, the Orion is available with aluminium booms from 24 to 39m.

These lightweight booms fold two or three



Amazone sprayers - reaching a new 'level'



Certified drift control

With environmental protection very much in the spotlight at the moment, controlling and minimising drift has become incredibly important when it comes to spraying crops.

And not only is it good for watercourses and the wider environment but can also help to keep a lid on costs.

With that in mind, Micron Group — manufacturers of low volume precision sprayers — have recently had its range of shielded equipment re-assessed for LERAP Low Drift status by the Chemical Regulation Directorate.

Four products were put through their paces — the Micron Varidome, Spraydome, Undavina and Spraymiser Boom sprayers (both CDA and HiFlo models) — and all achieved a four-star LERAP accreditation, the highest rating currently available in the UK.

According to the firm, this means the sprayers are now recognised as “drift-reducing technology” (DRT), with proven drift potential of over 90%.

The wind tunnel testing carried out in conjunction with Silsoe Spray Applications Unit to support the LERAP application also showed that the shields actually have the potential to reduce spray drift by over 95%, with no drift at all recorded using the Varidome shield and CDA nozzles

“For decades our research and development efforts have been dedicated to reducing the environmental impact of pesticides through innovative technologies with a particular focus on low volume application. That was initially achieved via atomisers and sprayers using Controlled Droplet Application technology invented by Micron which is also a DRT,” says Tom Bals, managing director at Micron.

“Current demands require increasing precision of product placement through careful spray system selection and our range of shielded band sprayer systems for reducing drift offers users major commercial benefits in terms of targeted application and economy of pesticide usage.”

times laterally — depending on working width — and are parallelogram-controlled and balanced via an axial rotary mechanism

in the centre section.

As well as this, Lemken's AdaptiveBalancingControl (ABC) works to



Horsch's Leeb PT is available in two tank sizes – 6000 litre and 8000 litres.



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ensure a good boom position with the centre of gravity below the pivot point, adds Paul. “The optional proactive boom control results in the individual boom arms adapting directly to uneven terrain or changes in the crop. A circulation line with individual nozzle ▶



of spraying technology

Amazone UX 01 Super sprayers are engineered to help you maintain yields, save costs and conserve the environment.

Take SwingStop for example, it works alongside ContourControl, uniquely reducing boom tip movement still further to maintain the exact position of the nozzle above the target - even at high speeds.

Don't get left behind; spraying technology is changing and Amazone is leading the way in intelligent crop protection.

Contact your local dealer or phone us on 01302 755 725.

ContourControl boom guidance

Instantaneous response to changing crop height

SwingStop boom control

Higher precision during application

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AMAZONE



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► control in the boom provides for precision.”

The inductor has a capacity of 55 litres and delivers edge moistening without

producing spray mist, while an intake and flushing connection for a closed transfer system are optionally available.

The inductor swivels out easily, and its height can be adjusted for improved ergonomics, he adds. “The lid seals tightly and allows empty containers to be held securely to that residual liquid can drain fully before it is flushed out. All lines are housed underneath covers on both sides of the field sprayer and are easily accessible for maintenance.”

Horsch

Designed to offer increased flexibility, comfort and precise application, Horsch debuted its latest self-propelled options at Agritechnica last year.

The brand new Leeb PT is available in two tank sizes — 6000 litre and 8000 litre —

and boasts increased ground clearance and its award-winning boom control system, which is now available in boom widths up to 43m and up to 42 sections.

Both versions are equipped with the continuous inside cleaning system CCS Pro with automatic washing program and can be operated from the cabin, while the rotary pump provides a filling capacity of 1000 l/minute.

As well as this, the new range features Horsch's ComfortDrive chassis concept. With driver-comfort in mind, this chassis boasts central frame and hydro-pneumatically spring-loaded individual wheel suspension, explains the firm.

“Active level regulation provides increased driving comfort on the road, in the field and on slopes. The wheel hub drive provides automatic load-dependent stepless drive and an anti-slip control.”

Further to this, and in a bid to provide customers with additional confidence and support when purchasing a Leeb self-propelled sprayer, Horsch has also recently announced three care schemes.

PremiumCare provides fixed-price dealer servicing on the latest Leeb 6.300 PT and 8.300 PT self-propelled sprayers and is available as a stand-alone scheme.

This is complemented by PremiumWarranty that covers all service parts against breakdown for up to five years and can be added to a PremiumCare service scheme. “The two schemes are ideal for sprayer owners wishing to fix their maintenance costs, helping to improve their business cashflow,” says the firm.

The third, PremiumUsed, is a manufacturer-defined audit with more than 200 checkpoints that ensures used Leeb PT270 and PT280 self-propelled sprayers still meet their original rigorous performance and reliability benchmarks.

According to Horsch, the checklist has been developed by the firm's sprayer engineers to cover all critical and wearing elements. Once completed by the dealer technicians, customers can be confident that the used machine has been serviced and returned to original factory standards.

Agrifac

January 2020 saw a new generation of Agrifac's Condor self-propelled sprayers roll off the production line, following the announcement of their launch at the end of last year.

According to the firm, the Condor V design has been updated in line with the also-new Condor Endurance, and one of the

Seedbed preparation with high precision





NZM. Thanks to its ingenious drawbar, NZ Mounted is able to move independently from the tractor, thereby offering exceptional contour following comparable to a trailed machine.



NZ Aggressive. The highly intensive cultivation saves passes whilst retaining ground moisture. You benefit from a high carrying capacity, giving a constant working depth and enabling early entry into the field.

Learn more at vaderstad.com



Precision guidance – without guidance lines

To help improve precision within self-propelled sprayers, John Deere has launched its AutoTrac Vision system for selected tractor and self-propelled sprayer models.

In essence, this system uses a high-resolution front-mounted camera to automatically guide machinery down established crop rows, and effectively provides guidance without the need for guidance lines, according to the firm.

“AutoTrac Vision allows users to bring more technology and automation to operations that are still driven manually. We see this being a big

step forward in precision agriculture, to help producers enhance their equipment performance, improve machine uptime and reduce operating costs,” says John Deere AMS product sales specialist, Jack Howard.

“The system uses a camera combined with GPS technology to guide the tractor or sprayer down either tramlines or crop rows, and allows operators to work faster, with less stress, at speeds of up to 30kph.”

Currently AutoTrac Vision can be retrofitted to R Series self-propelled sprayers.



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major updates is a stage V motor in the heart of the sprayer.

Key features include the StabiloPlus chassis for optimum stability and GreenFlowPlus to ensure continuous pressure using the specially designed pump, to ensure that there is no difference in spraying at any point during operation, and no residual liquid left in the tank.

With versions that give a wider track width and higher ground clearance, the Condor concept can also be used in specific circumstances and the most diverse crops, explains the firm.



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In addition to various possible options and versions, the Condor is also NEED Farming-ready, which means that the Condor is ready to spray on a per-plant level, with Agrifac innovations such as AiCPlus (location-specific spraying thanks to camera technology) and DynamicDosePlus (individual dosage per nozzle). ■

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Sprayer control on tap

Quick and simple, high volume chemical induction or a more intricate tank cocktail?

The Comfort-Pack plus 7" pressure-actuated screen can be programmed for either liquid fertilising or spraying. Automatic fill pauses prevent the spray tank filling before the active ingredients are induced. Water can be selected from bowser or suction fill and clean-out functions are at the press of the screen - filters suck dry for easy cleaning and the on-board fresh water pump ensures that the induction bowl stays topped up.



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Amazone sprayers
More than just the best boom ride



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