

Arnold NextG at Agritechnica 2025: technology that moves agriculture forward.

What some still see as a vision of the future is already becoming a reality today with Arnold NextG technologies: With NX NextMotion and DuxAlpha, drive-by-wire and 3D track planning are being introduced to autonomous agriculture in a precise, retrofittable and production-ready way.

Pfronstetten-Aichelau, 6 November 2025 – A joystick instead of a steering wheel. A tractor axle that responds to digital signals with millimetre precision and provides feedback from the ground to the control system. A track that autonomously follows the terrain with centimetre precision. What sounded like science fiction just a few years ago is now becoming a reality in agriculture.



Autonomous operation: The NX NextMotion system takes over the digital control of the tractor, while the DuxAlpha system handles 3D guidance and the coordination of the machine fleet, ensuring precise workflows even on sloping terrain. Photo: Arnold NextG

The future of agriculture is autonomous – and begins where reliable, fail-operational technology meets specific requirements. At Agritechnica 2025 (9–15 November, Hall 21, Booth H05), Arnold NextG will demonstrate how technological concepts are transformed into production-ready applications at a 210-square-metre stand. These include the fail-operational drive-by-wire system NX NextMotion and the cloud-based 3D guidance system DuxAlpha. Both systems are modular in design, retrofittable and proven in practice.

Visitors to the booth can experience the systems in detail, whether in the driving simulator with force feedback or at the teleoperation stand: precise control, digital feedback and stable system architecture. Autonomy does not begin with a promise, but with a functioning system. Arnold NextG demonstrates this with concrete exhibits, practical application examples and an interdisciplinary development team. From retrofit systems to series integration: Arnold NextG platforms combine control, safety and software, and are scalable, robust and ready for use.

NX NextMotion: putting drive-by-wire into practice.

The basis remains the same, whether it's autonomous lane guidance, teleoperated driving or precise joystick steering: NX NextMotion, the multi-redundant drive-by-wire system from Arnold NextG. It is fully electronic, fail-operational and platform-independent, replacing mechanical control with digital precision for full control, even in the event of a malfunction.

PRESS RELEASE

Pfronstetten-Aichelau, November 6, 2025



The platform enables a safe and flexible entry into autonomous mobility, from retrofit systems for existing machines to series integration, in the field, on the road, and beyond. Certified to ASIL D, SIL 3 and ISO 21434 standards, NX NextMotion meets the highest safety-critical application standards and is ready for productive use.

"Our technology is more than a control system – it enables the safe and flexible application of autonomous driving," emphasises Kevin Arnold, CEO of Arnold NextG. "It enables new machine concepts, new forms of collaboration and agriculture that is safe, efficient and sustainable. At Agritechnica, we are showing how this vision can be put into practice today with NX NextMotion: it is scalable and tried and tested."

Together with MIRA GmbH and the Rheinmetall Technology Center, Arnold NextG is demonstrating what this means in practice: in a tractor, the partners are showcasing the combination of autonomous fieldwork and safe teleoperation. At the trade fair stand, visitors can experience this concept for themselves with a real teleoperation stand, complete with panoramic camera view, digital cockpit and remote control via teleoperation. Visitors can experience how reliable driverless mobility is today.

Furthermore, it is clear that NX NextMotion has applications that extend far beyond agriculture. Arnold NextG uses a car axle with a force feedback steering wheel to demonstrate how the technology can be integrated into a wide variety of vehicle types in a platform-independent and scalable manner, including special-purpose vehicles, retrofit solutions and large-scale production. Force feedback technology enables intuitive and scalable control and allows road feedback and ground information to be transmitted to the control process.

The Krone forage harvester cab, which features an integrated agricultural machinery axle and drive-by-wire control, represents a significant step towards the next level of autonomy. Here, the NX NextMotion system is connected to a force feedback joystick that controls the hydraulic steering of the front axle, providing a realistic and direct experience without the need for a steering column. The cab serves not only as an ergonomic demonstration object, but also as the perfect introduction to 3D track guidance and automated work processes.

DuxAlpha: transforming data into precision.

Digitalisation begins where data is networked, visualised and made usable. DuxAlpha is the first fully-fledged, cloud-based 3D track planning system for agriculture on the market. It was developed for creating topography-appropriate routes, providing real-time documentation and coordinating fleets intelligently. DuxAlpha was awarded the DLG Silver Medal in recognition of this innovation. "We don't just calculate routes – we optimise processes," explains Christoph Hei, DuxAlpha's CTO.

"DuxAlpha analyses terrain profiles, machine parameters, and work data in real time and uses this information to generate dynamically adjusted driving routes. This reduces the driver's workload, lowers operating costs, and brings the next level of automation directly to the field – even with mixed fleets or older machines. This makes autonomy accessible to every farm."

At the heart of the system is modular hardware with an intuitive display that is synchronised with the machine fleet and enhanced with functions such as automatic billing, farm management and ISOBUS integration. The entire guidance system is based on digital elevation models, so manual readjustments are a thing of the past, even on slopes. The system is complemented by the FarmLink adapter, which integrates analogue signals and older machines into the digital environment.

In the shredder cabin, visitors can experience the system in a simulator, complete with 3D field planning, reverse driving and automated turning manoeuvres. What was once just a vision is now becoming a tangible reality: intelligent track guidance, networked control and autonomous processes. Additionally, eight networked DuxAlpha steles encourage visitors to participate in an interactive test, enabling them to operate the user interface, adjust driving strategies, and witness firsthand how topographical data, machine parameters, and device settings converge in real time to generate an accurate driving schedule that is both intuitive and efficient.

PRESS RELEASE

Pfronstetten-Aichelau, November 6, 2025



DuxAlpha has also been nominated for the prestigious FARM MACHINE 2026 audience award in the Smart Farming & Robotics category. The award ceremony will take place on 11 November at Agritechnica. You can vote online until then at www.farmmachine.eu.

Come and experience the possibilities with NX NextMotion and DuxAlpha at Agritechnica 2025!

In Hall 21, at Booth H05, Arnold NextG will demonstrate the capabilities of modern control technology: autonomous control, intuitive operating concepts and sophisticated system integration, including force feedback joysticks, teleoperation interfaces and 3D route planning. These exhibits will be complemented by interactive technology showcases. Visitors will gain detailed insights into safety-critical components such as the roadwheel actuator, the head module and the multi-redundant architecture of NX NextMotion.

The Arnold NextG team will be on hand to answer all your questions, whether you are an OEM, system partner, retrofitter, or farmer. Consisting of developers, application experts, and product specialists, the team not only represents the vision of autonomy, but also presents concrete solutions tailored to individual requirements and operational conditions. From single vehicles to fleets, and from retrofitting to series integration, anyone looking to take the next step towards autonomous agriculture will find the right platform here.

The trade fair appearance will be complemented by a specialist presentation by Christoph Heiß, CTO of DuxAlpha, on the DLG Expert Stage. On Sunday 9 November from 10:30 to 11:00, he will speak on 'Retrofittable autonomy in agriculture – starting today'. The presentation will provide practical insights into mechanical and vehicle software requirements and the current implementation status. This is a must-attend event for anyone who wants to make autonomy a reality, not just discuss it.

Visit us at Agritechnica 2025 in Hall 21 at Booth H05. Arnold NextG & DuxAlpha: drive-by-wire and digital track guidance for tomorrow's agriculture.



Take a look inside the control centre: The teleoperator controls the tractor remotely via a multiscreen visualisation system, sensor feedback and a digital cockpit. Photo: Arnold NextG



In action: The tractor is operated remotely. The camera image replaces the view from the cab and all control and system monitoring is carried out from the control centre. Photo: Arnold NextG

PRESS RELEASE

Pfronstetten-Aichelau, November 6, 2025



Final tests: Visitors experience joystick steering with NX NextMotion in the chipper cab, in conjunction with DuxAlpha. The two are networked via a steel for track planning and machine coordination. Photo: Arnold NextG



Simulated reality meets real precision. At AGRITECHNICA, visitors can test the functions of the 3D track planning system in the Krone forage harvester cab with integrated DuxAlpha system directly in the driving simulator. Photo: DuxAlpha

About Arnold NextG:

Arnold NextG is bringing tomorrow's Safety-by-Wire® technology to life. The multi-redundant central control unit, NX NextMotion, enables fail-operational and customised implementation, independently of the vehicle platform, and is unique worldwide. The system allows autonomous vehicle concepts to be implemented safely and in accordance with the latest hardware, software and safety standards, as well as providing solutions for remote operation, teleoperation and platooning. As an independent advanced developer, incubator and system supplier, Arnold NextG takes care of the entire process, from vision to road approval. With the road approval of NX NextMotion, we are setting the global drive-by-wire standard. www.arnoldnextg.com.

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