**Autonomy and the New Era of Global Farming**

The global agricultural industry is facing a multitude of challenges as pressure mounts to produce more food with less while finding new ways to increase biodiversity and care for the environment.

These issues are compounded by a shortage of labour in developed nations and people leaving the land in favour of cities in the developing regions of the world.

But as fast as problems arise, technology is being developed to solve them.

At the heart of these advances is autonomy which promises a new dawn for agriculture globally, by reducing environmental impacts, solving the labour problem, and bringing unprecedented efficiencies to the industry.

Bernardo de Castro describes autonomy as the 'next big wave of technology in the global farming industry'.

Bernardo is the Vice President of Strategy with Hexagon's Agriculture Division – a company at the forefront of the development of autonomy solutions for agricultural development.

"Autonomy will allow us to produce more food with less," he said.

"Less inputs, less time, less labour, less impact.

"This will drive huge savings and help to make farming more sustainable – both environmentally and financially."

**Hexagon: The Foundation to Autonomous Agriculture**

Much of the autonomy we see in agriculture today is underpinned by Hexagon's tried and tested positioning solutions. This technology – which is delivered via Hexagon's brands NovAtel and TerraStar – provides a trio of solutions for robotics companies: safety; reliability; and redundancy.

It enhances safety by ensuring robots operate only in the places they are supposed to be. Reliability results from trust that the position will work and be accurate, and redundancy ensures there is a backup in case of an outage.

With ongoing developments in AI, the accuracy and benefits of positioning and correction technology will only improve, bring unprecedented efficiencies to farming while optimising on-farm safety and environmental sustainability.

James Szabo, Hexagon's Portfolio Manager for Agriculture Autonomy, said: "With farming, we went from being able to operate at farm level to now being able to operate at field level with precision agriculture, and that has brought about new efficiencies.

"But with autonomy, we will be able to operate at a single plant level and that's something humans are simply unable to do. With this new level of control, we can be far more targeted with inputs and operations and that will deliver massive savings while helping to increase crop yields and, ultimately, food security."

**Embracing the autonomy revolution**

One OEM to fully embrace the autonomy revolution is AgXeed, a company at the cutting edge of autonomous agricultural robot and vehicle production.

AgXeed uses Hexagon's NovAtel SMART7-SI and SMART2 antennas, along with TerraStar and RTK corrections, in its autonomous machines to ensure they operate accurately and reliably.

By combining these hardware systems and correction sources, the company's machines benefit from enhanced reliability and redundancy, as well as heading and positioning for static or slow-moving agricultural vehicles.

According to AgXeed, the technology has led to increased efficiency and safety in the field, as well as better operational adaptability by enabling its robots to function accurately in a diverse range of environments, from apple orchards in Canada to the open plains of Australia.

Bernardo de Castro said: "Hexagon's solutions are helping developers like AgXeed get their machines into production faster by providing a reliable foundation, allowing them to focus on their machines' use cases and uniqueness."

Peter Robinson, Regional Head of Sales for UK, NA and Australia at AgXeed, added: "Hexagon's solutions give us the confidence and support of a functionally safe solution, but at the same time allows us to integrate our own sensors and input depending on those conditions.

"Our solutions need to vary depending on the environments, and it gives us the flexibility we need for accurate guidance and perception."

Mr Robinson added that autonomy is being well received by farmers globally.

"It's taken 20 years for autosteer to become mainstream globally, and that was a very long and painful process," he said.

"But autonomy has accelerated that very quickly."

Bernardo added that advancing autonomy in agriculture depends on a strong innovation ecosystem that connects robotics developers, positioning technologies, and real-world field validation.

As a result, he said Hexagon is proud to support initiatives alongside FIRA that bring together robotics innovators and advanced positioning technologies to accelerate the development of autonomous solutions for agriculture.

"Initiatives such as FIRA's Field Day in Spain create opportunities for companies to test and demonstrate technologies in real farming conditions, helping the ecosystem validate, refine, and scale reliable autonomy for the future of agriculture," he said.

**About Hexagon**

Hexagon is the global leader in measurement technologies. We provide the confidence that vital industries rely on to build, navigate, and innovate. From microns to Mars, our solutions ensure productivity, quality, safety, and sustainability in everything from manufacturing and construction to mining and autonomous systems.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,800 employees in 50 countries and net sales of approximately 5.4bn EUR. Learn more at hexagon.com

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