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# Cultivar<sup>®</sup> *Semanal*

**Biological  
clock in  
the field**

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# MUNDO KUHN

DO PLANTIO À COLHEITA



## TECNOLOGIA EM AÇÃO NO CAMPO

Da preparação do solo à colheita, soluções em ação que mostram como elevar a performance da lavoura com tecnologia e eficiência.



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ANOS  
NO BRASIL

# Nissan and BASF to launch Prexio Active insecticide in Japan

Novel molecule combats important rice pests

17.10.2025 | 08:34 (UTC -3)

Cultivar Magazine, based on information from Nissan Chemical Corporation

## Prexio<sup>®</sup> Active Insecticide



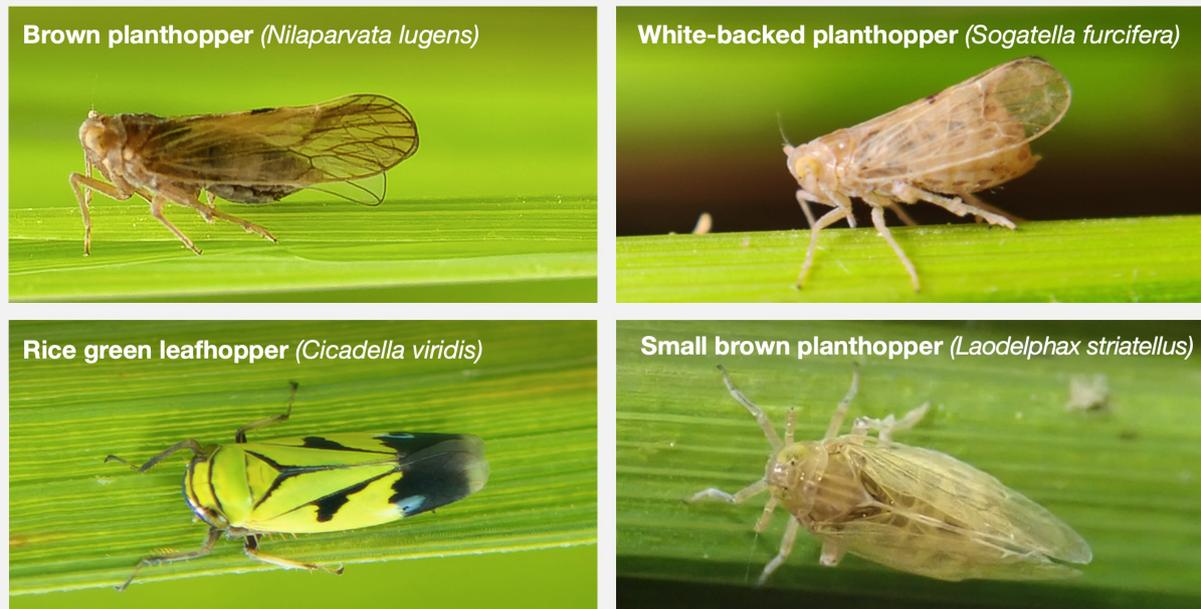
Nissan Chemical Corporation and BASF announced a partnership to bring the insecticide Prexio Active to the Japanese market. The novel molecule, technically

named Phenmezodithiaz (code NC-520), combats important rice pests, such as *Nilaparvata lugens*, *Sogatella furcifera*, *cycadella viridis* e *Laodelphax striatellus*.

According to Yuji Sato, director of Nissan's agricultural products division, the initiative aims to support the sustainable growth of agriculture in Japan with solutions adapted to local conditions. The new product expands pest resistance management options and contributes to crop productivity.

Harold Bastiaans, BASF's vice president of global insecticide research, highlighted that the development of the molecule involved years of research focused on effective and sustainable pest control. The product, when used as directed, protects

crops with reduced impact on non-target species.



Photos: BASF

Stephanie Jensen, vice president of BASF's rice crop system and insecticide portfolio, stated that Prexio Active offers operational flexibility. It can be applied as a granule in nurseries or as a foliar spray on transplanted or direct-seeded rice. The formulation was designed to facilitate use in different agricultural practices and

contribute to more sustainable rice production.

Each company will develop its own formulations based on Prexio Active. The products will be supplied directly to Japanese rice farmers.

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# Adama Announces Deborah Baruzo as New Herbicide Manager

She will lead strategies to expand and position the company's herbicides

17.10.2025 | 13:43 (UTC -3)

Cultivar Magazine, based on information from Flávia Tavares



Adama has hired Deborah Costa Baruzo as product manager, focusing on the

herbicide portfolio. The agronomist brings experience in marketing and commercial management in the agricultural sector.

With a degree from UEL and a specialization from USP/Esalq, Deborah began her career at Milenia. She worked in the Marketing and Sales teams at DuPont and led teams at Corteva for seven years.

In his new role, he will lead strategies to expand and position Adama's herbicides. He reports to Leandro Garcia, Portfolio and Market Development Manager.

“My focus will be to strengthen the connection between the company’s solutions and the challenges producers face in weed management,” he said.

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# Agricultural Market - October 17, 2025

Market remains cautious with China's absence

17.10.2025 | 10:47 (UTC -3)

Vlamir Brandalitze - @brandalitzeconsulting



China's lack of American soybean purchases for more than six months is putting pressure on the Chicago market. The soybean remains sideways, even with

Donald Trump's statements about a possible resumption of trade negotiations. The war over rare earths between China and the United States continues as a geopolitical backdrop.

In the US, the soybean harvest has reached 60%, above the historical average. In Brazil, planting is progressing, particularly in Paraná, which has exceeded 60% of the area. Mato Grosso has exceeded 30% and is expected to gain momentum as rainfall levels stabilize in the Midwest.

Conab projects soybean production of 177,6 million tons for the 2025/26 harvest, compared to 171,5 million in the previous cycle. Planted area is expected to grow to 49,1 million hectares, potentially reaching

50 million. Total exports of soybeans, meal, and oil are estimated at 138,3 million tons.

Domestic demand is also growing. The use of biodiesel with B15 throughout the year increases soybean oil consumption. The feed sector maintains record demand for soybean meal.

The IBGE (Brazilian Institute of Geography and Statistics) projects a total grain harvest of 341,9 million tons, up from 292,7 million tons in the previous harvest. For soybeans, it estimates 165,9 million tons, below Conab's forecast.

Brazilian exports total 97 million tons shipped. Sales of the harvest reached a record 74,6% in volume. Sales of the new

harvest are increasing, but still below the historical average.

## **Corn situation**

In corn, the American harvest reaches 50%. The Chicago market is trying to sustain itself with technical support, but is impacted by the budget impasse in the US. Conab estimates 138,6 million tons for the new harvest, compared to 141,1 million in the previous cycle. Exports are expected to reach 46,5 million tons.

Domestic demand grows to 94,6 million tons, driven by corn ethanol. Sales of the second crop reach 70 million tons. Planting is progressing in the South, particularly in Paraná (90%) and Rio Grande do Sul

(85%).

## **Wheat situation**

Wheat faces oversupply from Eastern Europe. The devaluation of the ruble and hryvnia is putting pressure on prices. The Brazilian harvest is progressing with good productivity in Paraná. In Rio Grande do Sul, grain filling is progressing well. The harvest could reach 7,5 million tons, compared to a national demand of between 12 and 13 million.

## **Rice situation**

The rice market remains calm. Producers hold almost 50% of the harvest. Industries

operate with inventory. Retail prices range from R\$15,00 to R\$20,00 for commercial brands. Conab projects production of 11,5 million tons, enough to meet the estimated national demand of 11 million.

## **Bean situation**

Beans are experiencing a smaller harvest, with 3,045 million tons compared to 3,075 million the previous year. Conab estimates exports of 214 tons for the next harvest, but shipments already exceed 488 tons in 2025, a historic record. Despite strong external figures, the domestic market remains weak. Prices for carioca and black beans are falling, pressured by tight retail and high supply.

**By Vlamir Brandalitze -**  
*@brandalitzeconsulting*

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# Biological clock could revolutionize wheat production

Researchers indicate that adjusting circadian rhythms in cultivars can increase nutritional quality and resistance

17.10.2025 | 08:28 (UTC -3)

Cultivar Magazine



Photo: Luiz Henrique Magnante

The circadian rhythm plays a central role in wheat yield, quality, and adaptation, according to researchers from the University of Melbourne and the Commonwealth Scientific and Industrial Research Organization. The new approach, called chronoculture, aims to adjust plants' biological rhythms to enhance agricultural performance in the face of climate change.

The idea is based on the principle that each plant has an internal clock. This mechanism regulates functions such as photosynthesis, metabolism, and senescence (leaf aging).

In the study, scientists identified significant variations in the circadian rhythm of Australian wheat cultivars. Some showed a

mismatch with the environment. This affects the timing of nutrient remobilization into the grains, directly impacting the crop's nutritional quality and yield.

## **Acceleration of pace with age**

The research measured circadian rhythms during three phases of wheat development: seedling, tillering, and maturation. As leaves age, the internal clock speeds up. This change in rhythm affects the timing of senescence (the earlier this process occurs, the higher the protein content in the grain). However, this anticipation can reduce overall yield. Adjusting this balance is essential for

agronomic success.



Photo: Paulo Kurtz

When evaluating fifteen commercial cultivars, the team found differences of up to ten days in senescence time. Varieties with shorter senescence rates exhibited earlier aging. The researchers correlated these characteristics with the grains'

nutritional content, particularly their efficiency in mobilizing nutrients such as phosphorus, sulfur, potassium, magnesium, and zinc.

## **Circadian genes and genotypes**

Genetic analysis revealed that variants of the Early Flowering 3 (ELF3-D1) gene, already known to regulate flowering, also control senescence and nutritional quality. Lines with a deletion in this gene exhibited earlier senescence and higher grain protein content. The experiment used near-isogenic lines (NILs) with and without this mutation to confirm the link between the gene and plant physiological behavior.

Additionally, scientists developed multilocus circadian genotype profiles. This tool groups varieties according to genetic markers from seven clock genes, allowing for genome-wide predictions of physiological behavior. The model contributes to breeding programs seeking more efficient cultivars adapted to different latitudes.

## **Altered transcription and rhythm**

The team also sequenced RNA from mature and senescent leaves of the Mace cultivar. During aging, more genes began to exhibit rhythmic behavior, many of which were linked to the transport of

proteins and nitrogen compounds. In contrast, genes related to photosynthesis exhibited slower rhythms or lost regularity.

Among the most affected genes, the WRKY family of transcription factors stood out. Already known to participate in senescence control, it showed increased rhythmic activity in aged leaves. This indicates that the biological clock not only regulates aging but also coordinates a complex network of genes that affect the final nutritional value of wheat.

Further information at  
[doi.org/10.1111/nph.70565](https://doi.org/10.1111/nph.70565)

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# Yanmar's YPV-L concept tractor wins Red Dot Design Award 2025

Model combines robustness and sustainability  
with a focus on autonomous operation

16.10.2025 | 14:20 (UTC -3)

Cultivar Magazine, based on information from Paul Bartels



Yanmar Holdings won the Red Dot Design Award 2025 with its YPV-L concept tractor. The award recognized the equipment in the Design Concept category.

The YPV-L was created based on the Yanmar Product Vision (YPV), launched in November 2024. The Japanese company's proposal envisions the ideal form of products by 2035. The project's central philosophy, called "Essential Design," emphasizes the function and purpose of equipment, not just its appearance.

The YPV-L tractor aims to meet the needs of tomorrow's agriculture by combining efficiency and sustainability. The model features flowing lines while maintaining a robust structure. The cabin, shared with agricultural and construction machinery, reduces costs and enhances comfort and

intuitive operation. The project also includes a cabinless version, prepared for autonomous driving.



The design platform created by Yanmar standardizes elements such as cabin structures and human-machine interfaces. This facilitates development, increases usability, and reduces costs. The concept was presented at the Yanmar Design Exhibition, held in Tokyo from November 8 to 15, 2024.

The YPV-L's cockpit includes a large central display, which acts as a command

center for other autonomous machines.  
This functionality reflects Yanmar's vision of building an ecosystem of connected equipment focused on precision agriculture and reducing environmental impact.



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# Scientists activate gene in wheat and increase production with more ovaries per flower

Researchers identify the WUSCHEL-D1 gene as responsible for flowers with multiple ovaries and grains

16.10.2025 | 10:27 (UTC -3)

Cultivar Magazine



Researchers from universities in the United States, Australia, and China have identified the gene responsible for a rare characteristic in wheat: the formation of flowers with up to three functional ovaries, instead of one. Activation of the WUSCHEL-D1 (WUS-D1) gene caused the development of multiovulate flowers, resulting in an increase of up to 70% in the number of grains per ear.

The discovery is based on analysis of a mutant wheat called MOV (multiovary), already known to form more than one pistil per flower, but whose genetic basis remained unknown. The activation of the WUS-D1 gene occurs through an unusual reorganization of the plant's genome.

This activation results in larger floral meristems, which then produce multiple ovaries. The WUS-D1 gene belongs to a family of plant stem cell growth regulators, and its overexpression has previously been associated with increased flower and reproductive organ numbers in tomato, cucumber, rice, and corn.

## **Genetic rearrangement**

The work involved complete genome sequencing of the MOV lineage using PacBio and Nanopore technologies. The researchers observed that the Mov-1 locus, on the long arm of chromosome 2D, had a 414 base pair deletion combined with a 31 base pair inverted insertion. This unusual structure altered the chromatin

and facilitated the activation of the WUS-D1 gene.

The WUS-D1 gene was up to 34,5 times more active in the reproductive tissues of the MOV line compared to conventional wheat (SOV, single ovary). This overexpression occurred during all early stages of floral development.

Furthermore, the scientists observed that increased WUS-D1 activity did not affect flowering time or spike length. However, the formation of double spikelets and the increased number of flowers per spikelet resulted in a spike with 204 grains, compared to 119 in common wheat.

## **Genetic tests**

To validate the gene's function, the researchers used two complementary approaches: mutation and crossing. In one approach, MOV plants were subjected to irradiation and the mutagenic agent EMS to generate mutations in the WUS-D1 gene. All plants with inactivating mutations lost the multiovary trait and produced only one grain per flower.

In another strategy, MOV plants were crossed with SOV wheat varieties. The offspring with the mutant allele returned to producing conventional ears, while those that retained functional WUS-D1 continued to exhibit multiple ovaries.

## **Collateral effects**

MOV plants also exhibited other characteristics associated with increased meristematic activity. They developed thicker stems and wider leaves. Despite the increased grain number, these were smaller and lighter than those of SOV wheat, which may indicate a limitation in assimilation redistribution.

The discovery paves the way for the use of gene editing techniques targeting WUS-D1 regulatory regions. According to the authors, alterations in the spatial and temporal control of this gene could allow the creation of lines that balance increased grain number with maintenance of grain size and weight.

Further information at  
[doi.org/10.1073/pnas.2510889122](https://doi.org/10.1073/pnas.2510889122)

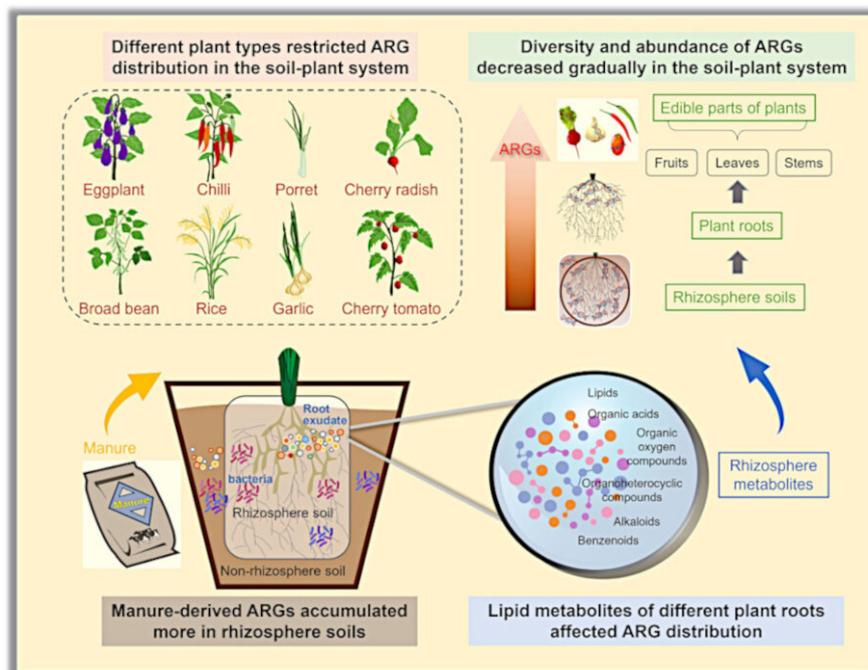
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# Root metabolites regulate the risk of antibiotic resistance in vegetables

Researchers have identified a specific type of mobile genetic element

16.10.2025 | 10:06 (UTC -3)

Cultivar Magazine



Vegetables growing in manure-fertilized soil concentrate antibiotic resistance genes

(ARGs) primarily around their roots. This is shown by a study that analyzed eight plant species and revealed how specific root metabolites influence the propagation of these genes in the soil-plant system.

The study compared edible plants, whether they were leaves, fruits, grains, or roots. The highest concentrations of ARGs appeared in the rhizosphere soil, an area directly influenced by roots. In these samples, the presence of the genes was 1,24 times greater than in soil not associated with roots. In plant tissues, especially in the edible parts, the number of these genes decreased significantly.

## **Greater accumulation**

Leafy plants, such as leeks, showed greater accumulation of ARGs in edible tissues compared to fruits like cherry tomatoes. The concentration in the fruits was up to a thousand times lower. The study identified the mexF gene as the most recurrent among the ARGs, present in all tested crops.

The researchers also identified a specific type of mobile genetic element, *clnt1-1* (clinic), as the primary vector for transferring ARGs from soil to plant tissues. This element was directly correlated with the presence of resistance genes in both roots and edible parts.

## **Unequal distribution**

Among the factors explaining this uneven distribution, lipid metabolites produced by the roots stood out. Compounds such as PA (16:0/15:0) and PS (14:0/14:1[9Z]) were shown to be decisive in regulating root-associated bacteria and in the transport of ARGs into the plant. These lipids act as chemical signals between roots and microorganisms, altering the microbial composition and, thus, the pattern of dissemination of resistance genes.

The experiment was conducted in a greenhouse in Yunnan Province, China, using animal manure as fertilizer. Crops such as lima beans, garlic, rice, cherry tomatoes, peppers, eggplant, radishes, and leeks were tested. The analysis

included rhizosphere soil, non-rhizosphere soil, roots, and edible parts of the plants.

## Critical region

The results reinforce the role of the rhizosphere as a critical region for the accumulation and spread of antimicrobial resistance in agricultural systems. They also indicate that crops edible for their leaves or stems may pose a greater risk of human exposure to ARGs than those that produce fruits or grains.

Further information at  
[doi.org/10.48130/aee-0025-0005](https://doi.org/10.48130/aee-0025-0005)

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# DLG-Agrifuture Concept 2025 Award Winners Announced

Five products that promise to transform the countryside in up to ten years were awarded

16.10.2025 | 08:07 (UTC -3)

Cultivar Magazine, based on information from Malene Conlong



Five innovations in agricultural technology have won the DLG-Agrifuture Concept Winner 2025 award. The DLG (German Agricultural Society) announced the winners on Thursday, October 16. The

award ceremony will take place on November 12 at Agritechnica in Hannover.

The winning ideas were selected by experts from DLG, universities, and international institutions from a list of eight finalists. The award recognizes technologies with market potential within five to ten years.

The project **FieldDataSync**, from **AEF** (Agricultural Industry Electronics Foundation), proposes wireless communication between agricultural machines to synchronize activities in the field, even without a cell phone signal.

The proposal allows for the exchange of data such as area boundaries, video transmission and location, facilitating joint operations.

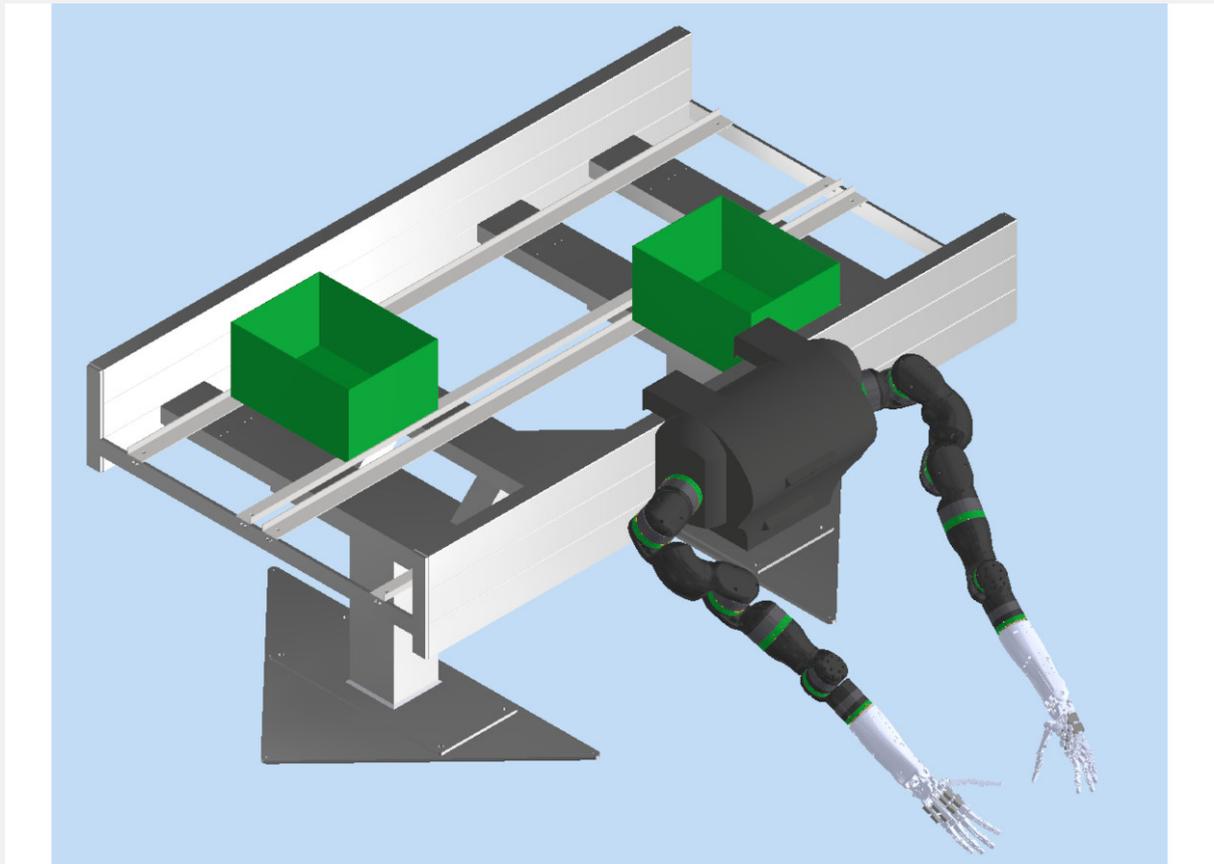
The system works with machines from different brands and meets security and cybersecurity requirements.



Company **AI.Land** was awarded the system **Davegi**, focused on the local production of vegetables.

The robot performs all stages of cultivation in open fields, with two articulated arms that imitate human movements.

Harvesting takes place on demand, and vegetables are delivered directly to consumers, without disposable packaging.



The model reduces resource use, cuts emissions, and eliminates centralized logistics steps.

A **Amazonen-Werke** presented the **SoilDetect**, a system that collects soil data

during preparation.

A set of sensors on the implement records resistivity, depth and slope.

The information is integrated with satellite data, weather, tractor consumption and producer assessments.

An artificial intelligence system generates productivity and management maps, without the need for technical knowledge.



A **SLS Systementwicklungen** won with the **NextDrip**, technology that transfers the assembly of drip irrigation systems to the factory.

The lines are custom-assembled and implemented by machines, reducing errors and costs.

The installation allows the inclusion of metal markers and emitters according to productivity zones.



Company **Zürn Harvesting**, in partnership with **University of Dresden**, created the **Seed Select**, a module for harvesters that captures weed seeds during harvesting.

The seeds are separated, deactivated and returned to the soil without risk of germination.

The solution reduces the weed cycle and improves crop hygiene.



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# Provivi accelerates global expansion with pest-fighting pheromones

Company enters into new commercial partnerships and reduces production costs

15.10.2025 | 19:58 (UTC -3)

Cultivar Magazine, based on information from Provivi



US-based Provivi announced today that it has signed five new distribution

partnerships for 2025 and expanded its presence in agricultural regions across Latin America, Asia, Europe, and Africa. The company has also initiated more than 25 collaborations for field trials in several countries.

Provivi's technology uses pheromones to control pests in crops such as corn, cotton, rice, and soybeans. With 21 regulatory registrations in seven countries, its products now cover all relevant agricultural continents. The portfolio includes solutions for controlling fall armyworms, sugarcane borer, and other pests.

## **Reduced costs**

The company also reported that it reduced its production costs through the combined use of olefin metathesis and biocatalysis. This innovation makes it feasible to use pheromones over large areas, overcoming the historical cost limitations of synthetic insecticides.

Furthermore, new formulations compatible with conventional agricultural equipment have facilitated the adoption of the technology. The global pheromone market, currently estimated at US\$2,5 billion, is expected to exceed US\$6,3 billion by 2033, with an average annual growth rate of 13%.

## **Agreements concluded**

Major agreements include partnerships with Syngenta, Godrej Agrovvet, UPL, AgNova, Koppert do Brasil, Andermatt Group, and Susbin. In Brazil, the collaboration with Koppert includes the use of pheromones to protect corn and soybean crops.

According to the company, the products have already demonstrated effectiveness in more than 880 internal tests and 90 studies conducted by partners. The strategy targets areas where chemical insecticides lose effectiveness due to pest resistance.

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# Kubota KATR wins Red Dot Design Award 2025

The vehicle is designed to operate on uneven terrain

15.10.2025 | 10:56 (UTC -3)

Cultivar Magazine, based on information from Kubota



Kubota Corporation announced that its KATR multi-purpose platform vehicle has received the Red Dot Design Award 2025

in the Design Concept category. The awards ceremony is organized by the Design Zentrum Nordrhein Westfalen in Germany.

The KATR is designed to operate on uneven terrain, maintaining load stability through hydraulic legs that fold and extend depending on the terrain. The structure supports up to 240 kg and uses a modular design, allowing for adjustments in width, wheels, and other specifications as needed.

According to Kubota, the equipment will be able to serve sectors such as agriculture, forestry, construction, and disaster response, functioning as a mobile base capable of receiving various implements. The company also plans to evolve the

model into an autonomous version with artificial intelligence and automatic driving technology.

The KATR design concept seeks to express robustness and empathy, inspired by organic forms that favor interaction with humans. The vehicle can communicate information through lights, sounds, and voice, signaling directions and offering operational suggestions collaboratively.

The Red Dot Design Concept category recognizes prototypes in development that demonstrate innovation, aesthetic quality, functionality and social contribution.

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# Trends in digital systems and information technology

By Heinrich Prankl, Wieselburg (Austria)

15.10.2025 | 08:43 (UTC -3)



Digitalization is permeating every aspect of our professional and personal lives to an extent never seen before. This

development is also evident in agriculture, especially in agricultural machinery.

As a result, almost no new machine, system, or product appears on the market without more or less complex electronics and software. The more expensive a product, the more important professional service and maintenance become.

Consequently, higher-performance machines are naturally connected to the internet. However, the trend toward ever-increasing automation requires increasingly intelligent systems, such as the use of complex sensor technology, control and regulation technology, and artificial intelligence.

# Intelligent systems to increase automation

However, this trend is no coincidence; it is essentially due to the following factors:

- The demand for quality work in the various processes involved in agricultural production is constantly increasing. Precision in soil cultivation, seeding technology, crop protection, fertilization, and harvesting technology requires sophisticated process control and monitoring, as well as the corresponding sensor and actuator technology.
- Machine complexity is constantly increasing. On the other hand, there is a shortage of suitably qualified

operational personnel. Such intelligent and complex systems require an operational concept that is as simple as possible.

- There is considerable pressure to further increase work efficiency. Resources must be conserved and working hours reduced. Therefore, machine power must be further increased. Machine settings must therefore be adjusted as precisely as possible to environmental conditions. This also requires appropriate sensor technology.
- Problems, errors, and component or system failures consume significant time and money. Therefore, problems must be identified early, which

requires the use of sensor technology, which can be very complex in some cases.

- Due to climate change, with periods of drought on the one hand and heavy rainfall on the other, it becomes increasingly necessary to recognize unexpected situations and respond to them flexibly.
- Time and cost pressures ultimately drive machines and systems to become increasingly automated and, ultimately, to operate autonomously. The system must monitor itself, its environment, and the work process, and be incorporated into a management system.



However, this is only possible thanks to the rapid development of innovative new technologies. Digitalization, and artificial intelligence in particular, currently plays an important role. As long as the appropriate data is available, AI methods can be used to model a wide variety of processes. This makes it possible, for example, to obtain

information from image data for process control.

Models can be trained based on this. High-quality models enable predictions, thus facilitating automated decision-making processes. This requires comprehensive sensor systems and machine learning methods. Thanks to accessible communication technologies, process data is often delivered directly to the manufacturer's cloud, where it can be conveniently evaluated and processed.

Many new developments are evident in this area, which are described in more detail below.

# Innovative developments

Developments in the area of ??digital systems and IT have been divided into four different categories, some of which overlap:

- Sensor technology and forecasting systems
- Computer vision
- Supply Chain
- Hardware and software components

## Sensor technology and forecasting systems

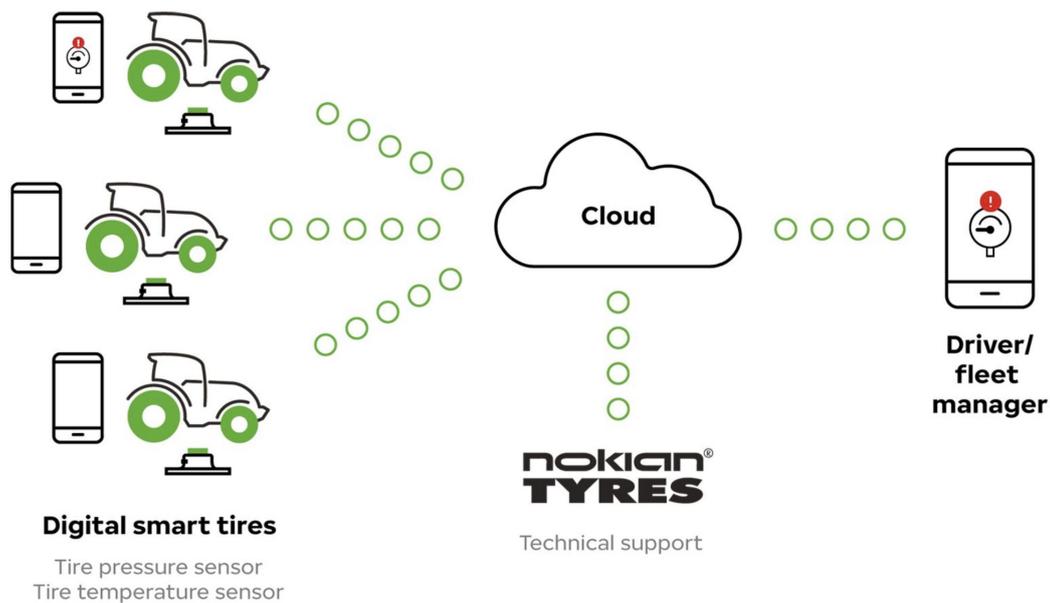
Sensors are used to record individual parameters and provide data. To accurately assess situations and base decisions on them, it's often necessary to implement pre-trained models using AI methods. Vibration monitoring is a typical example.

A **Agrosentinals Kft.** offers a vibration sensor of the same name in combination with a diagnostic system that allows real-time fault monitoring and early detection of damage to agricultural machinery components.

the italian company **COMET SpA** presents Campus, a diagnostic system for pumps in crop protection equipment based on various sensors. **EMILIANA SERBATOI SrL** offers Emil Level, a level sensor

designed primarily for use in mobile tanks.

Another very interesting product is the Intuitu Smart Pressure Assistant from **Nokian Heavy Tires Ltd.** Just like a tire pressure monitoring system, the tire pressure sensor is integrated directly into the tire and transmits pressure, temperature, and weight data to a smartphone via the cloud. This allows for convenient adjustment of the correct tire pressure. **TECALEMIT Flow** is a flow meter for tank systems that is also connected to a data cloud.



Tailored irrigation is becoming increasingly important. The prerequisite for this is knowledge of the water available to plants in the soil. To achieve this, **Drought Analytics GmbH**, a spin-off of the Jülich Research Center, has developed Dürrepilot, which provides a powerful irrigation management system based on TDR sensors in the ground, plant models and daily weather forecasts.

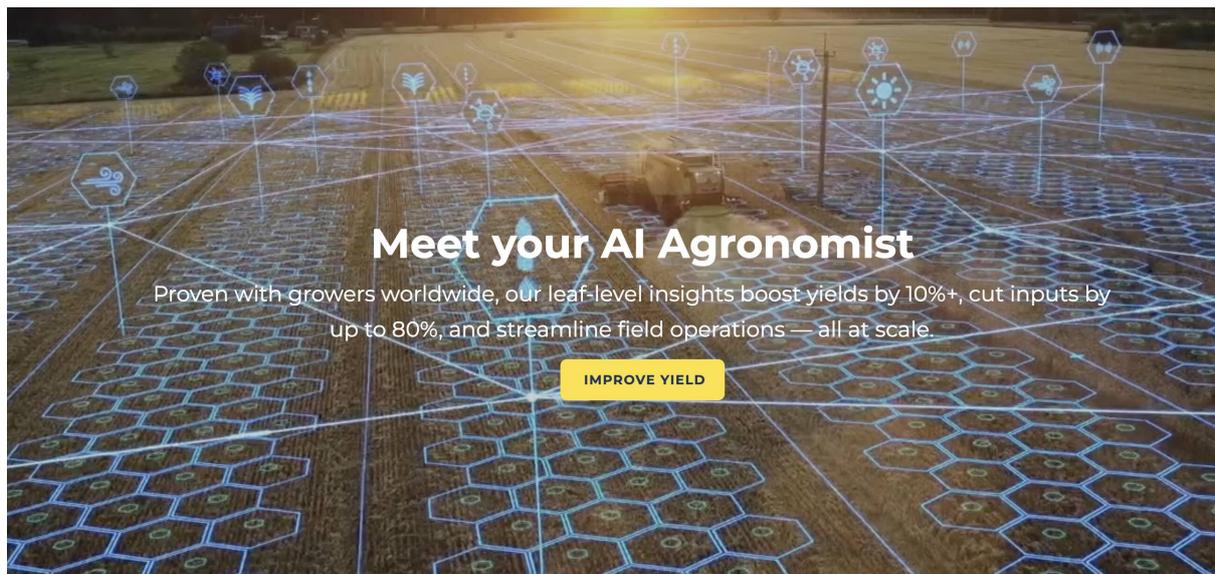
The Austrian company **Bauer**, an irrigation specialist, developed Cosmofield. It uses the principle of cosmic neutron detection to measure soil moisture. One sensor covers 5 to 10 hectares of arable land, eliminating the need for a large number of individual soil sensors.

In the field of pest detection, **EFOS doo** introduces the AURA 2 SC, a solar-powered insect trap that uses UV light instead of pheromones and features AI-based assessment. The same company also developed the BARKB SC, a solar-powered beetle trap with automated assessment.

## Computer vision

The development of increasingly affordable camera systems and, above all, the possibilities of image analysis through machine learning have led to a number of new developments. In particular, the evaluation of drone imagery is becoming increasingly diverse.

**A Proofminder Services** uses high-resolution drone and camera imagery in AI Agronomist for weed detection, yield prediction, crop counting, weather and wildlife damage assessment, and accurate spray maps, supporting over 30 use cases.



ZONEYE, from **Skymaps sro**, also uses a cloud-based AI algorithm to detect over 30 plant species from drone footage. **Kiel University of Applied Sciences**

developed Dynamic Field Scout, which uses drone orthophotos to determine the current and exact contours of the field and also detect obstacles in the process.

**Photoheyler GmbH** offers the Custom AI training platform to train AI algorithms with the user's own images.

A **Brigade Electronics** offers a new front camera monitoring system with AI-based person and traffic detection, including alert messages. The front camera has already been tested by DLG.

EasyMatch, from **Amazonen Werke GmbH**, allows automated adjustment of the fertilizer spreader, identifying the commercial fertilizer to be applied through image analysis. **Hagedorn Software Engineering GmbH** is launching VISION, an AI-based 3D camera system that can be used to monitor the performance of implements. For example, blockages in a cultivator can be automatically detected.



Vision Pro from **FieldBee**, on the other hand, is a retrofit solution for a steering system, but also includes an RGB and NIR camera to calculate a vegetation index (EVI) in real time. With WIN – Weeder Intelligent Network, **Rau Serta Hydraulik GmbH** offers a camera-based row recognition system for hoe control and track guidance.

A **Claas** developed AI-powered spare part recognition using image analysis of a

photograph to quickly find the correct spare part.

## Supply Chain

The more expensive and complex a system becomes, the more important machine management becomes. High machine utilization, monitoring, and optimized functionality are prerequisites for efficient operation.

A **Lemken** has already presented innovative developments in the past with iQblue. The iQblue tool monitoring system for assessing cultivator blade condition, introduced (and awarded) two years ago, has been expanded to become the iQblue Smart Implement. In addition to roller

speed, crop flow is also monitored to detect blockages. iQblue Machine Connect allows combinations of devices with and without their own ISOBUS functionality to be networked into a single unit.

A **Claas**, on the other hand, has developed an AI-powered assistance system for machine operation and maintenance. A chatbot with an analytics module assists with specific questions and supports the planning of maintenance and repair measures at the authorized workshop. The Claas Green Yield Score enables the automated collection and allocation of emissions data throughout agricultural production chains. This involves allocating fuel consumption to the respective process stages.

With Carrier Connected Services, **Case IH** offers a total of four digital services to help drivers optimize the use of their machines, avoiding errors and increasing productivity. Operator Insight analyzes machine data in real time and provides immediate feedback to the driver. The Operational Report analyzes consumption, CO2 emissions, and performance, links the data to expert knowledge, identifies operational errors, and displays consumption and emissions trends, including specific suggestions for improvement. The Operational Dashboard offers dealers a powerful tool for proactive maintenance planning and service improvement. Operator Advisor generates individual driving feedback based on machine data.

## Case IH FieldOps™

Purposefully designed to be a simplified and streamlined all-in-one operations management solution, Case IH FieldOps™ empowers owners and operators to manage and visualize their multi-branded fleet at anytime from anywhere.

CONNECT NOW

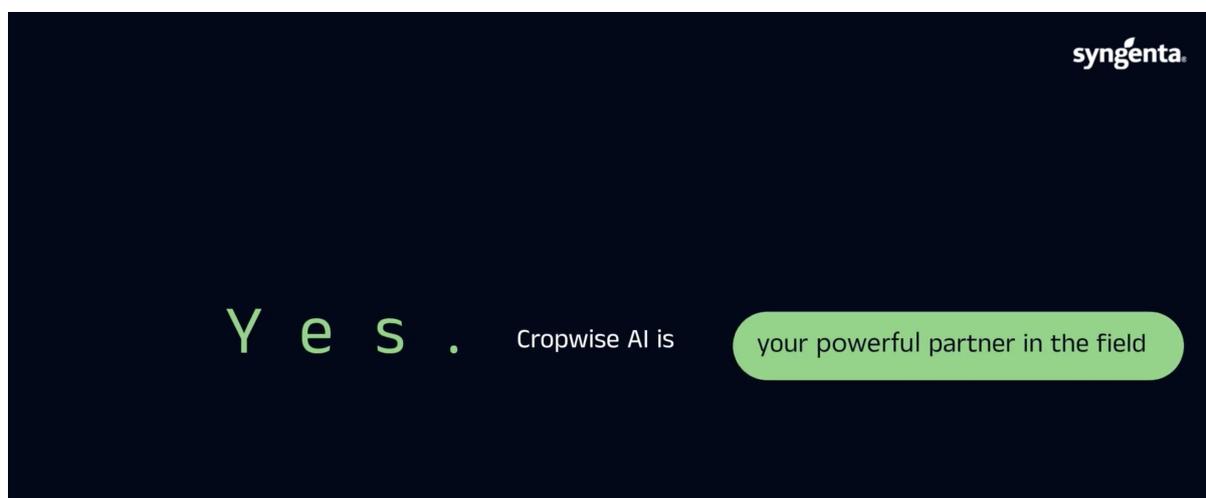
A **FarmBlick GmbH** developed SRC Smart Relay Cropping, a tool for automatic track planning, field optimization and data transfer directly to the steering system.

With the TCU Traction Control Unit from **AgXeed bv** Centrally planned tasks can be performed with an existing multi-brand fleet (tractor, self-propelled machine, robot, etc.). Depending on the technology level, the scope of the order can range from track lines to complete routing, including implement configurations.

**A Maschinenfabrik Bernhard Krone** developed SPARTA, a system for the standardized description of the spatiotemporal behavior (trajectories) of machine movements. The goal is interoperability between combinations of machines from different manufacturers.

**A Syngenta Agro GmbH** is launching two new systems: Cropwise Operations AI Machine Pool, a machine rental platform that suggests optimal equipment combinations to farmers through real-time analysis of planned fieldwork and machine utilization. Machine Manager allows the creation of work orders taking into account field terrain, soil type and composition, weather conditions, and crop growth stages. An integrated telematics module enables machine allocation, quality control,

and real-time monitoring.



A **AGMO Inc.** offers SeamOS, an "ecosystem as a service" platform. The open operating system allows the development of applications and plug-ins, for example, for ISOBUS applications.

With Panorama Passmaster, **PTx** provides real-time visualization of machine data, including data exchange between machines in the tractor cab, thus facilitating the coordination of work

between multiple machines and operators by combining application maps.

## Hardware and software components

New hardware and software components form the basis for more complex systems and a greater degree of automation.

A **Motion Center** developed a new display and controller called the CrossCore A100. The WEED-IT DASH from **Rometron BB**, on the other hand, is part of a localized spraying system consisting of a touchscreen, controller, and communication module. **Neousys Technology GmbH** offers the Fanless Flattop, a dustproof control unit with six

camera inputs for AI applications. The STEERMASTER from **marinelli** is a system for sensor integration, remote control and data acquisition for autonomous driving.

The NX Next Motion **Arnold NextG GmbH** is extremely interesting. It's a complete drive-by-wire system that replaces mechanical steering, braking, and drive connections with electronic ones and is approved for road use. The same company's DUXALPHA retrofit solution is a 3D guidance system for off-road terrain. Lanes are planned according to terrain slope and working width.



The logiBUS2026 of **HR Agrartechnik GmbH** is an excellent example. This is the next version of an intuitive graphical development environment for ISOBUS applications. ISO Cloud Control from **Zunhammer** Also interesting: here, the ISOBUS Task Controller is directly connected to the cloud. A new application card is therefore immediately synchronized with the vehicle.

The Smartstick of **Hagedorn Software GmbH** replaces the flash drive for transferring orders, driving routes, and application maps with an app on the user's smartphone. The terminal recognizes it as a flash drive. **AgGateway** introduces a new version of ADAPT, a data model for a common, portable, and interoperable file layout.

With Mela, the **IAV GmbH** offers a system that can be used to analyze large videos, measurement data, or text. VLLM—a tool already widely used in the automotive industry—enables the generation of critical driving scenarios.

# Conclusion and perspectives

This year's Agritechnica will also showcase a wide range of new developments in digital systems and IT. The possibilities offered by artificial intelligence, and machine learning in particular, are being explored in a variety of applications.

In image processing, in particular, this can be used to generate information previously only available to humans. Sophisticated components within complex systems require the development of new management systems so that machines can be used efficiently. Decisions are increasingly being transferred to the system.

Therefore, it is expected that more and more autonomous systems will be introduced in the future, but their beneficial application also needs to be proven.

**By Heinrich Prankl, Wieselburg (Austria)**

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# BASF Receives Approval for Zorina Fungicide in the United States

Product offers control in soybeans, canola and beans

15.10.2025 | 07:56 (UTC -3)

Cultivar Magazine, based on information from Pace Sagester



BASF announced the approval of the fungicide Zorina by the U.S. Environmental

Protection Agency (EPA). The product, aimed at controlling white mold (*Sclerotinia sclerotiorum*), may be marketed as soon as it receives state authorizations.

Zorina combines the performance of Endura (Boscalida) to prolonged and broad-spectrum control of Revysol (Mefentrifluconazole).

According to Erick Garcia, senior product manager at BASF Agricultural Solutions, Zorina was developed to offer specific control of white mold with high performance and prolonged residual.

The company considers the product a complete solution for crop protection in regions of the Midwest and Great Plains, where the pathogen causes the greatest damage.

For best results, preventative application should be made at full flowering stage in crops: R2 stage in soybeans and beans, and between 30% and 50% flowering in canola. The goal is to prevent colonization by fungal ascospores, avoiding yield losses.

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# FPT Industrial equips new line of JCB tractors

Manufacturer partnership brings N67 engine to Fastrac 6000 series

15.10.2025 | 07:09 (UTC -3)

Cultivar Magazine, based on information from Emanuela Ciliberti



Italy's FPT Industrial has announced a partnership with Britain's JCB to supply engines for the recently launched Fastrac

6000 series of tractors. The line features FPT's N67 engines.

JCB has developed a new generation of high-speed tractors. FPT has delivered engines recognized for their power, torque, and efficiency. The six-cylinder N67 engine delivers up to 340 horsepower at 1.950 rpm and 1.398 Nm of torque at 1.400 rpm.

The onboard technology includes a Common Rail injection system, an eVGT turbocharger, and an HI-eSCR2 aftertreatment system. The package meets Stage V emissions standards and eliminates the need for EGR, simplifying the design and reducing maintenance.

Designed for demanding applications, the NEF family of motors has accumulated more than two million units produced since

2001.



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# Ascribe Bio Receives \$12 Million to Launch Phytalix Biofungicide

Series A Round Boosts Phytalix Commercialization

15.10.2025 | 06:55 (UTC -3)

Cultivar Magazine, based on information from Christine Gould

The logo for Ascribe Bio, featuring the word "ascribe" in a dark green, lowercase, sans-serif font. The letter "i" is stylized with a small green circle above it and a green plant-like symbol below it.

Ascribe Bio has completed a \$12 million Series A funding round. The investment was led by Corteve, through its Corteve

Catalyst platform, and Acre Venture Partners, with participation from Syngenta Group Ventures, Trailhead Capital, Silver Blue, Cultivation Capital, and The Yield Lab.

The proceeds will fund the global launch of Phytalix (ascaroside ascr #18), a broad-spectrum biofungicide developed with natural molecules from the soil microbiome.

According to the company, Phytalix has already shown significant productivity gains in the field when compared to other biological products.

The product is awaiting regulatory approval in Brazil (for soybeans and corn), with launches planned for the United States and other markets to follow.

Tom Greene, senior director at Corteva, emphasized that the partnership reinforces the company's commitment to developing agricultural solutions inspired by nature and focused on sustainability. Alex Bondar, partner at Acre, highlighted Phytalix's rapid progress from the lab to the field, the result of a lean and disciplined team.

Ascribe CEO Jay Farmer said the funding accelerates the company's mission to bring highly effective and sustainable crop protection technologies to farmers worldwide.

Founded in 2017 in Ithaca, New York, Ascribe emerged from research at the Boyce Thompson Institute at Cornell University.

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# First registrations of fungicides based on *Trichoderma yunnanense* requested

It is one of the most promising species for use in phytosanitary management

14.10.2025 | 13:59 (UTC -3)

Cultivar Magazine



The first fungicide registrations based on the fungus were requested *Trichoderma yunnanense* in Brazil. The idea is to use the products against *Sclerotinia sclerotiorum*, *Rhizoctonia solani* e *Fusarium oxysporum*.

Two companies have initiated legal proceedings.

Total Biotecnologia requested two. It used trade names that are expected to change in the future: DEF-MIC-052-23A and DEF-MIC-052-23A-1.

Ihara has already requested authorization to market pesticide under the Kouken brand, containing *Trichoderma yunnanense* strain IHA02.

*Trichoderma yunnanense* is one of the most promising species for use in

phytosanitary management within the genus *Trichoderma*. These are filamentous fungi widely recognized for their antagonistic and plant growth-promoting capabilities.

*T. yunnanense*, morphologically, presents septate mycelium composed of hyaline hyphae that grow rapidly and colonize diverse substrates. Its reproductive structures include branched conidiophores that massively produce asexual conidia, the main propagating propagules of the fungus.

Its predominantly asexual life cycle allows for rapid multiplication and opportunistic colonization of new habitats. Conidial germination occurs within a few hours under favorable humidity and temperature

conditions, followed by extensive vegetative growth and subsequent sporulation.

With pathogenic fungi, *T. yunnanense* establishes predominantly antagonistic relationships through mycoparasitism, competition, and antibiosis. This results in the suppression of pathogen populations such as *Fusarium*, *rhizoctonia*, *Pythium*, *sclerotinia* e *Botrytis*.

[Click here to find out more about \*Trichoderma yunnanense\*.](#)

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# Conab releases first survey of the 2025/26 harvest

Company projects 3,3% growth in planted area and total production of 354,7 million tons

14.10.2025 | 10:11 (UTC -3)

Cultivar Magazine



The 2025/26 grain harvest begins with a positive outlook for Brazilian agriculture. Planted area is expected to reach 84,4 million hectares, a 3,3% increase compared to the previous cycle. Total

production is estimated at 354,7 million tons, 0,8% higher than in 2024/25. This information is from the National Supply Company (Conab).

The projection considers field surveys, market analyses, statistical and climate models, and remote sensing data. Planting of the first crop began in September and is progressing in the main producing states.

Soybeans led the growth. The planted area increased by 3,6%, with an expected production of 177,6 million tons.

September rains in the Center-South region favored the start of planting. By early October, Mato Grosso and Paraná had already planted 18,9% and 31% of the area, respectively.

Corn is also showing growth. Production is expected to reach 138,6 million tons. The first harvest will see a 6,1% increase in cultivated area, with an estimated harvest of 25,6 million tons.

Rice production is expected to decline. Sown area shrank by 5,6%, totaling 1,6 million hectares, with an estimated production of 11,5 million tons. The decline affects both irrigated and rainfed areas.

Cotton production is expected to grow 2,5% in area, reaching 2,1 million hectares. Fiber production could reach 4 million tons.

For beans, the estimate is 3 million tons across the three harvests. The first harvest saw a 7,5% reduction in planted area, totaling 840,4 hectares. São Paulo has

already completed sowing, while other states in the Southeast are in progress. In Bahia, planting has not yet begun.

Wheat is nearing the end of the 2025 harvest. Production is expected to reach 7,7 million tons, a 2,4% decrease compared to the previous year. Goiás, Mato Grosso do Sul, and Minas Gerais have already completed the harvest.

TABELA 1 - COMPARATIVO DE ÁREA, PRODUTIVIDADE E PRODUÇÃO POR PRODUTO - SAFRAS 2024/25 E 2025/26

Brasil	Estimativa da safra de grãos			Safras 2024/25 e 2025/26					
	ÁREA (Em mil ha)			PRODUTIVIDADE (Em kg/ha)			PRODUÇÃO (Em mil t)		
	Safra 24/25	Safra 25/26	VAR. %	Safra 24/25	Safra 25/26	VAR. %	Safra 24/25	Safra 25/26	VAR. %
Produto	(a)	(b)	(b/a)	(c)	(d)	(d/c)	(e)	(f)	(f/e)
<b>ALGODÃO - CAROÇO (1)</b>	<b>2.086,1</b>	<b>2.138,2</b>	<b>2,5</b>	<b>2.773</b>	<b>2.674</b>	<b>(3,6)</b>	<b>5.784,3</b>	<b>5.716,7</b>	<b>(1,2)</b>
<b>ALGODÃO - PLUMA</b>	<b>2.086,1</b>	<b>2.138,2</b>	<b>2,5</b>	<b>1.954</b>	<b>1.885</b>	<b>(3,5)</b>	<b>4.076,9</b>	<b>4.030,6</b>	<b>(1,1)</b>
<b>AMENDOIM TOTAL</b>	<b>280,3</b>	<b>280,5</b>	<b>0,1</b>	<b>4.137</b>	<b>4.045</b>	<b>(2,2)</b>	<b>1.159,7</b>	<b>1.134,7</b>	<b>(2,2)</b>
Amendoim 1ª Safra	273,1	273,3	0,1	4.202	4.108	(2,2)	1.147,6	1.122,7	(2,2)
Amendoim 2ª Safra	7,2	7,2	-	1.681	1.686	0,3	12,1	12,0	(0,8)
<b>ARROZ</b>	<b>1.764,0</b>	<b>1.664,7</b>	<b>(5,6)</b>	<b>7.232</b>	<b>6.887</b>	<b>(4,8)</b>	<b>12.757,5</b>	<b>11.465,1</b>	<b>(10,1)</b>
Arroz sequeiro	394,7	345,5	(12,5)	2.933	2.835	(3,3)	1.158,0	979,5	(15,4)
Arroz irrigado	1.369,3	1.319,2	(3,7)	8.471	7.948	(6,2)	11.599,5	10.485,6	(9,6)
<b>FEIJÃO TOTAL</b>	<b>2.696,8</b>	<b>2.685,2</b>	<b>(0,4)</b>	<b>1.140</b>	<b>1.134</b>	<b>(0,5)</b>	<b>3.075,0</b>	<b>3.045,6</b>	<b>(1,0)</b>
<b>FEIJÃO 1ª SAFRA</b>	<b>908,5</b>	<b>840,4</b>	<b>(7,5)</b>	<b>1.170</b>	<b>1.127</b>	<b>(3,7)</b>	<b>1.062,7</b>	<b>947,0</b>	<b>(10,9)</b>
Cores	347,3	336,6	(3,1)	1.707	1.641	(3,8)	592,8	552,5	(6,8)
Preto	169,0	122,1	(27,8)	1.953	1.759	(9,9)	330,2	214,7	(35,0)
Caupi	392,2	381,7	(2,7)	356	471	32,1	139,7	179,6	28,6
<b>FEIJÃO 2ª SAFRA</b>	<b>1.403,9</b>	<b>1.417,9</b>	<b>1,0</b>	<b>960</b>	<b>985</b>	<b>2,5</b>	<b>1.348,0</b>	<b>1.396,0</b>	<b>3,6</b>
Cores	294,1	296,9	1,0	1.501	1.507	0,4	441,5	447,3	1,3
Preto	286,6	292,4	2,0	1.616	1.658	2,6	463,2	485,0	4,7
Caupi	823,2	828,6	0,7	539	560	3,9	443,4	463,6	4,6
<b>FEIJÃO 3ª SAFRA</b>	<b>384,4</b>	<b>426,9</b>	<b>11,1</b>	<b>1.728</b>	<b>1.646</b>	<b>(4,8)</b>	<b>664,4</b>	<b>702,6</b>	<b>5,7</b>
Cores	326,5	361,0	10,6	1.883	1.802	(4,3)	614,9	650,6	5,8
Preto	14,1	14,1	-	1.268	1.145	(9,7)	17,9	16,2	(9,5)
Caupi	43,8	51,8	18,3	721	695	(3,7)	31,6	36,0	13,9
<b>GERGELIM</b>	<b>608,0</b>	<b>608,0</b>	<b>-</b>	<b>657</b>	<b>657</b>	<b>-</b>	<b>399,4</b>	<b>399,4</b>	<b>-</b>
<b>GIRASSOL</b>	<b>61,9</b>	<b>63,8</b>	<b>3,1</b>	<b>1.622</b>	<b>1.598</b>	<b>(1,5)</b>	<b>100,4</b>	<b>101,9</b>	<b>1,5</b>
<b>MAMONA</b>	<b>69,7</b>	<b>75,2</b>	<b>7,9</b>	<b>1.435</b>	<b>1.451</b>	<b>1,1</b>	<b>100,0</b>	<b>109,1</b>	<b>9,1</b>
<b>MILHO TOTAL</b>	<b>21.839,9</b>	<b>22.688,4</b>	<b>3,9</b>	<b>6.460</b>	<b>6.109</b>	<b>(5,4)</b>	<b>141.095,1</b>	<b>138.603,8</b>	<b>(1,8)</b>
Milho 1ª Safra	3.772,6	4.003,4	6,1	6.610	6.403	(3,1)	24.935,8	25.632,4	2,8
Milho 2ª Safra	17.427,9	18.092,9	3,8	6.499	6.105	(6,1)	113.271,4	110.460,4	(2,5)
Milho 3ª Safra	639,4	592,1	(7,4)	4.517	4.241	(6,1)	2.888,2	2.510,9	(13,1)
<b>SOJA</b>	<b>47.346,5</b>	<b>49.074,0</b>	<b>3,6</b>	<b>3.622</b>	<b>3.620</b>	<b>(0,1)</b>	<b>171.481,7</b>	<b>177.638,6</b>	<b>3,6</b>
<b>SORGO</b>	<b>1.632,0</b>	<b>1.796,0</b>	<b>10,0</b>	<b>3.739</b>	<b>3.684</b>	<b>(1,5)</b>	<b>6.102,2</b>	<b>6.616,0</b>	<b>8,4</b>
<b>SUBTOTAL</b>	<b>78.385,2</b>	<b>81.074,0</b>	<b>3,4</b>	<b>4.364</b>	<b>4.253</b>	<b>(2,5)</b>	<b>342.055,3</b>	<b>344.830,9</b>	<b>0,8</b>

Culturas de inverno	ÁREA (Em mil ha)			PRODUTIVIDADE (Em kg/ha)			PRODUÇÃO (Em mil t)		
	2025	2026	VAR. %	2025	2026	VAR. %	2025	2026	VAR. %
	(a)	(b)	(b/a)	(c)	(d)	(d/c)	(e)	(f)	(f/e)
AVEIA	527,8	527,8	-	2.386	2.386	-	1.259,5	1.259,5	-
CANOLA	211,7	211,7	-	1.531	1.531	-	324,2	324,2	-
CENTEIO	1,9	1,9	-	2.263	2.263	-	4,3	4,3	-
CEVADA	138,2	138,2	-	4.004	4.004	-	553,3	553,3	-
TRIGO	2.450,2	2.450,2	-	3.142	3.142	-	7.698,2	7.698,2	-
TRITICALE	12,2	12,2	-	3.025	3.025	-	36,9	36,9	-
<b>SUBTOTAL</b>	<b>3.342,0</b>	<b>3.342,0</b>	<b>-</b>	<b>2.955</b>	<b>2.955</b>	<b>-</b>	<b>9.876,4</b>	<b>9.876,4</b>	<b>-</b>
<b>BRASIL (2)</b>	<b>81.727,2</b>	<b>84.416,0</b>	<b>3,3</b>	<b>4.306</b>	<b>4.202</b>	<b>(2,4)</b>	<b>351.931,7</b>	<b>354.707,3</b>	<b>0,8</b>

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# Three innovations receive "Engineers' Choice" award at Agritechnica 2025

Innovations from Igus GmbH, Mach Inc. and ZF Friedrichshafen AG were recognized

14.10.2025 | 09:22 (UTC -3)

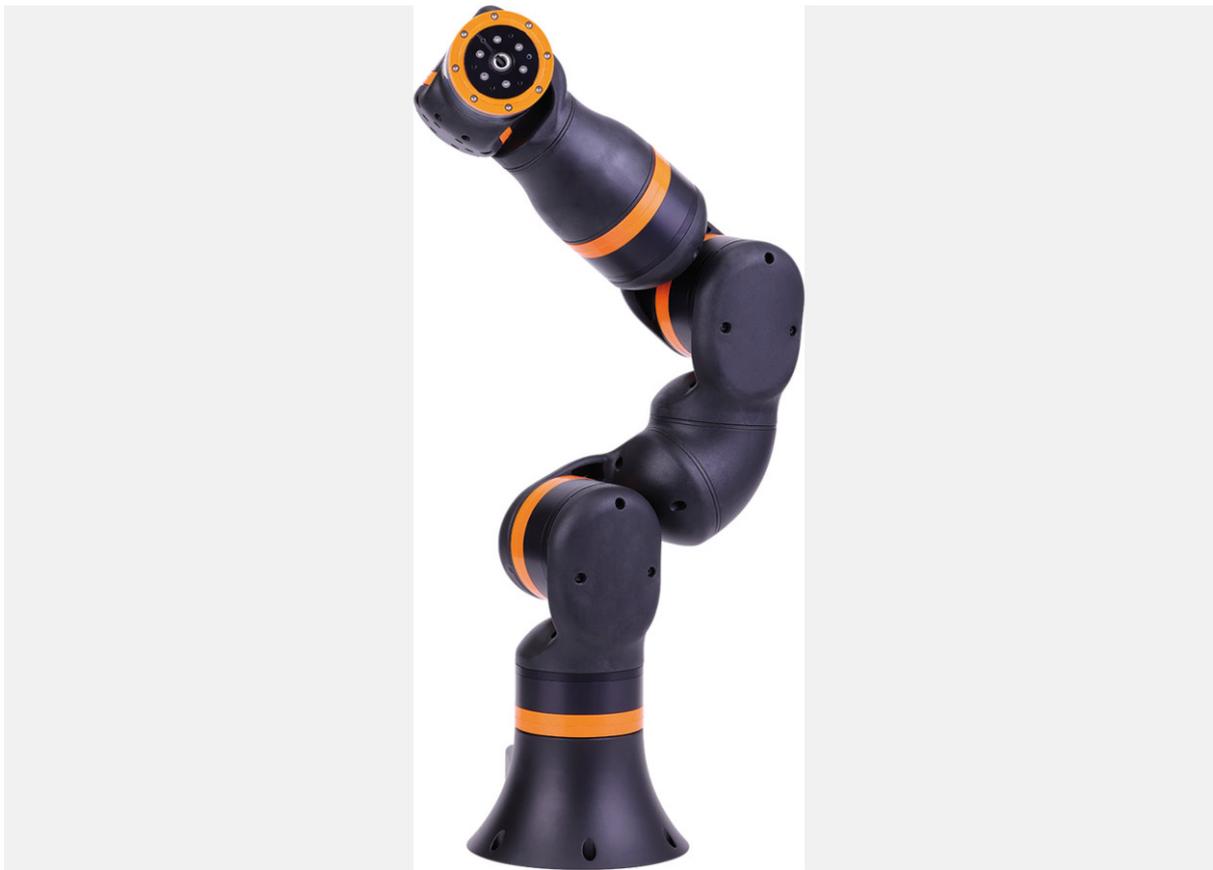
Cultivar Magazine, based on information from Malene Conlong



The DLG (German Agricultural Society) has announced the winners of the 2025 "Systems & Components Trophy – Engineers' Choice" award. The award

recognizes innovations in components and systems that drive the development of agricultural machinery and off-road vehicles. The ceremony will take place on November 9th during the Agritechnica trade fair in Hannover, Germany.

The cobot **ReBeL**, from the **German company Igus GmbH**, was one of the highlights. The robotic arm weighs 8 kg and facilitates the automation of repetitive, high-precision tasks, such as harvesting and planting. Its simple operation and affordable price make the robot attractive to farmers. The equipment can be fitted with sensors, cameras, or tools, and allows for pre-testing via free software. Installed on an autonomous chassis, ReBeL reduces labor requirements and increases the frequency of operations.



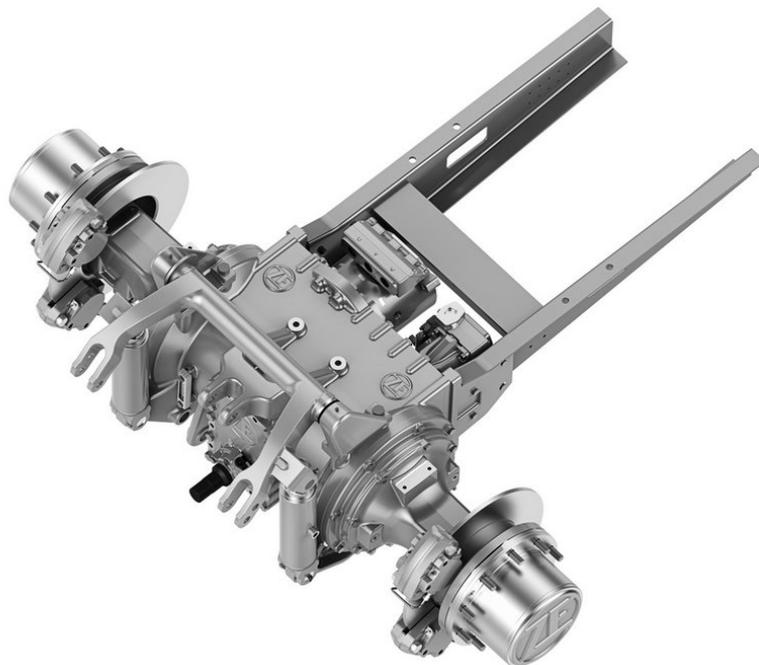
Another award-winning innovation was the **RadX, from Mach Inc.** The radar sensor with active e-beam technology performs real-time 3D detection without moving parts. Internal signal processing simplifies integration into the electronic systems of tractors and implements. RadX distinguishes soil, residue, and vegetation,

in addition to mapping the terrain. The technology can control planting depth, seeding, and combine header guidance, in addition to assessing the quality of the work performed.



And the third winner was **ZF Friedrichshafen AG**. The company presented the **eTD**, a modular electric axle for tractors up to 100 kW. The system combines traction, PTO, and hydraulics in

a compact design. The proposal eliminates components such as central transmissions and clutches, replacing them with two oil-cooled electric motors. The architecture frees up space for batteries or hydrogen tanks, increasing autonomy. The solution can also be applied to other types of machinery, offering a scalable alternative for emissions-free agriculture.



Forty-one products were entered into the competition. Of these, 16 were selected for the final stage by a jury led by Till Meinel of the Cologne University of Applied Sciences and Vice President of the DLG.

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# Stocks Ag Launches Turbo Jet 10 HD for Precision Application

Hydraulic fan equipment debuts at Agritechnica 2025

14.10.2025 | 08:55 (UTC -3)

Cultivar Magazine, based on information from Gwynfor Evans



Stocks Ag will launch the Turbo Jet 10 HD applicator on the global market at

Agritechnica 2025. The equipment was developed to handle working widths of up to 15 meters with high application rates and precision. The model features a high-performance hydraulic fan and rotor feed with pneumatic product delivery.

Designed for small and medium-sized seeds such as rapeseed, clover, and mustard, as well as granules and microproducts, the Turbo Jet 10 HD allows full-width, strip, or row application. The hydraulic unit can be remotely mounted, facilitating integration with various agricultural machinery and reducing the use of hydraulic piping.

The Crary hydraulic fan, with 1400 cfm and a 4 cc motor, reaches up to 6.000 rpm.

The tractor's oil flow requirement ranges from 27 to 65 L/min. According to the

manufacturer, in tests with Avadex at 15 meters, the coefficient of variation was only +/- 5%.



The HD version was used on 400 acres of pasture in England, ensuring uniform establishment of forages, cover crops and mixes for wild birds.

The applicator is available with 10 or 20 outlets and 240L or 400L hoppers. It offers two control systems: Jackal or i-CON, both with fan speed and function monitoring.

The ISObus version can be connected to the tractor terminal.

A set with Jackal control, large seed kit, 10 outlets and C-rails is priced at £8.718.



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# Agrilevante 2025 breaks attendance record

International fair in Bari attracts more than 100 visitors

14.10.2025 | 08:54 (UTC -3)

Cultivar Magazine, based on information from FederUnacoma



Agrilevante 2025, held in Bari, Italy, closed with record attendance. According to the organizers, the event welcomed 100.907

visitors, a 6,4% increase over the previous edition. The number of international participants grew by 10%, totaling 4.462.

Tractors, construction machinery, equipment, gardening tools, and components were exhibited by 350 specialized industries. The fair's indoor and outdoor areas also included livestock displays, award-winning technical innovations, gardening demonstrations, and hands-on testing of automated vehicles and agricultural robots.

Approximately 70 technical meetings were held, aimed at producers, business owners, students, and rural sector enthusiasts. FederUnacoma's general director, Simona Rapastella, highlighted the fair's aesthetic and functional

improvements, with an organization that facilitated access to areas of interest to visitors.

The institutional program was attended by Italy's Minister of Agriculture, Francesco Lollobrigida, as well as representatives from several Mediterranean and sub-Saharan African countries. Delegations from 34 countries participated in the business rounds organized by the ICE Agency and FederUnacoma.

According to Mariateresa Maschio, president of FederUnacoma, the event demonstrates that the agricultural machinery industry already offers effective solutions to the challenges of agriculture in the Mediterranean region. She advocated for public policies, services, and

collaboration in research and training as essential support for innovation in the sector.

Nuova Fiera del Levante president Gaetano Frulli stated that the partnership with FederUnacoma strengthens the event as a benchmark for Italy and neighboring countries. He also announced the construction of a new pavilion for the next edition, scheduled for October 2027.

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# How Aphids Overcome Plants' Natural Defenses

Research reveals molecular and behavioral strategies to neutralize toxic compounds produced by agricultural crops

13.10.2025 | 11:01 (UTC -3)

Cultivar Magazine



*Aphis glycines* - Photo: Claudio Gratton, University of Wisconsin

A study detailed how aphids overcome toxic defensive compounds produced by plants. These compounds, called secondary metabolites (PSMs), should function as a natural barrier against pests. But aphids develop resistance mechanisms that reduce the effectiveness of these substances.

Researchers at Yangzhou University in China have presented a review of the physiological, biochemical, and behavioral mechanisms that allow aphids to survive, multiply, and continue to transmit viruses even under pressure from complex plant defenses.

# Enzymes against poisons

Plants produce chemical compounds such as terpenoids, phenols, and alkaloids that act as natural insecticides. In response, aphids activate detoxification enzymes, such as cytochrome P450, glutathione transferases (GSTs), and UDP-glycosyltransferases (UGTs), capable of neutralizing the toxic effects of these compounds.

The process occurs in three phases.

First, the toxins undergo chemical transformations to become more soluble.

These substances are then bound to other molecules that facilitate their elimination.

Finally, the body excretes waste through cell membrane transporters, such as ABC transporters.



*Brevicoryne brassicae* - Photo: Jesse Rorabaugh

The research highlights that antioxidant enzymes also help aphids withstand oxidative stress caused by plant metabolites. This biochemical combination

contributes to the insects' survival and reproduction, even in hostile environments.

## **Allied bacteria**

Aphids also rely on symbiotic bacteria that enhance their defenses. Some of these bacteria, such as *Hamiltonella defensa* and *Regiella insecticola*, interfere with plants' hormonal defenses, reducing the production of toxic compounds or neutralizing the plant's immune response.

In experiments, aphids with certain symbiotic bacteria demonstrated increased survival on naturally toxic cultivars. In more extreme cases, these bacteria are capable of metabolizing synthetic insecticides and natural compounds present in leaves and

stems.

## Viral effect

In addition to enzymes and bacteria, aphids also benefit from the action of viruses that they transmit to plants.

Many of these viruses weaken plant defenses by suppressing important hormonal pathways, such as jasmonic acid and salicylic acid.

The result is twofold: less resistant plants and greater attractiveness to new aphids. In tests with plants infected by viruses such as *Turnip mosaic virus* or the *Potato leafroll virus*, the insects showed an increase in fecundity and a longer period of time spent on the plant.

# Strategic behavior

Aphid behavior also contributes to the success of the infestation. They avoid plant tissue rich in toxic compounds and prefer varieties with lower PSM content. This selection occurs during feeding, when the insects probe the tissue with their stylets and retreat when faced with undesirable chemical signals.

Certain aphid lineages or haplotypes show a preference for specific cultivars. This selection reflects not only physiological adaptation but also a refined behavioral ability to evade more effective plant defenses.



*Acyrthosiphon pisum* - Mihajlo Tomic

# Chemical sequestration

In some species, aphids accumulate toxic compounds from plants without suffering adverse effects. The sequestration of secondary metabolites, such as glucosinolates and alkaloids, may even serve as a defense mechanism against

predators.

The aphid *Brevicoryne brassicae*, for example, stores mustard compounds in its body and releases toxic substances when attacked.

This behavior turns the insect into a kind of “walking chemical bomb”.

In other species, such as *Acyrtosiphon pisum*, sequestration of compounds such as L-DOPA has shown antioxidant effects and even tissue repair.

Further information at  
[doi.org/10.1093/hr/uhaf267](https://doi.org/10.1093/hr/uhaf267)

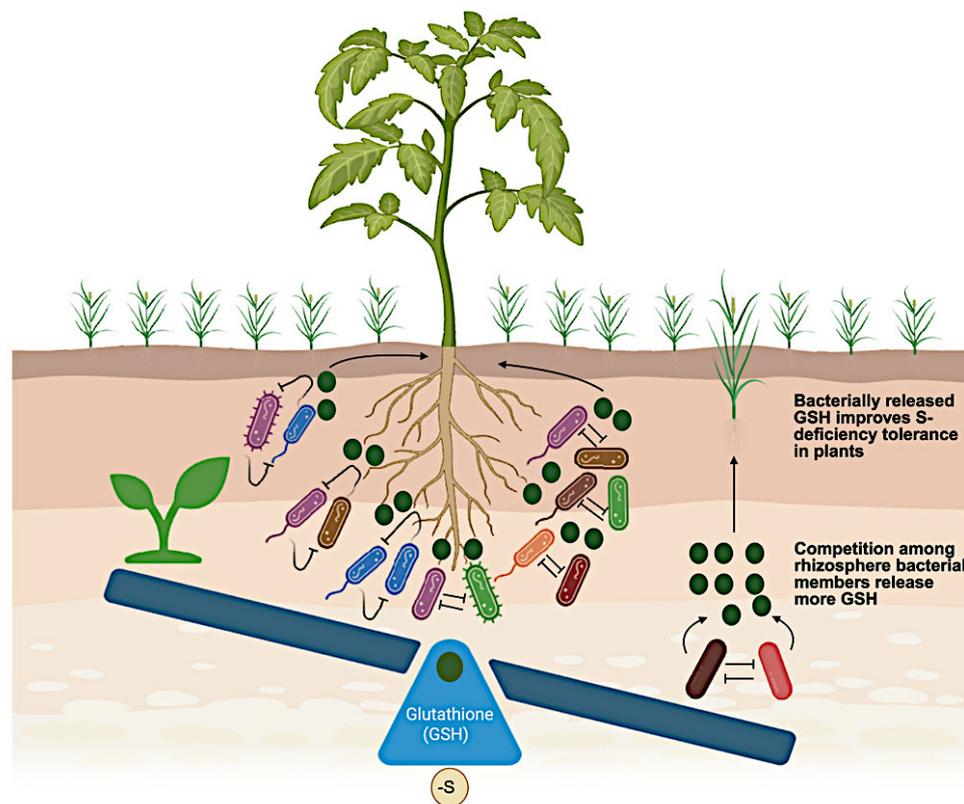
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# Microbes help plants grow in sulfur-poor soils

Researchers have discovered that competition releases a substance that stimulates plant growth.

13.10.2025 | 09:38 (UTC -3)

Cultivar Magazine, based on information from Scelse



Scientists from the Centre for Biofilm and Microbiome Research (SCELSE) and the National University of Singapore (NUS) have identified a biological mechanism that allows plants to grow even in sulfur-deficient soils. Their study shows that competition between soil bacteria leads to the release of glutathione, a compound that improves plant growth under sulfur-limited conditions.

The process involves what researchers call "fitness exchange between kingdoms." In this balance, microorganisms lose some of their ability to multiply, while plants gain vigor. This chemical interaction in the rhizosphere forms a natural strategy of cooperation and competition.

The team developed a synthetic community with 18 types of bacteria capable of restoring the growth of *Arabidopsis* and a vegetable from the brassica family in soil with low sulfur content. The benefit was maintained even when bacterial pairs competed intensely, which reinforced the advantage for the plants.

According to Arijit Mukherjee, the study's first author, understanding these exchanges between plants and microorganisms allows us to create more effective biological solutions for agriculture. The discovery offers a path to reducing the use of chemical fertilizers and strengthening agricultural systems in the face of nutrient scarcity.

Sulfur is essential for the formation of proteins, vitamins, and plant defense compounds. Reduced air pollution has reduced the natural replenishment of this element in the soil, leading producers to rely on synthetic fertilizers. The new approach proposes a sustainable alternative: using microbial consortia that naturally restore productivity.

The group has already filed a patent to apply the mechanism to agricultural products. According to researcher Sanjay Swarup, the method could enable biofertilizers that reduce dependence on chemical inputs and strengthen global food security.

Further information at  
[doi.org/10.1016/j.chom.2025.09.007](https://doi.org/10.1016/j.chom.2025.09.007)

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# FMC and Atticus settle legal dispute over chlorantraniliprole

Agreement foresees Atticus' entry into the insecticide market starting December 7, 2025

13.10.2025 | 08:29 (UTC -3)

Cultivar Magazine, based on information from Atticus LLC

Liquid Formulation		Active Ingredient	Liquid Formulation		
	Prevathon®	Rynaxypyr® Chlorantraniliprole ('CTPR')		Acelepryn®	
	Chlorantraniliprole 5.0%			Chlorantraniliprole 18.4%	
	Coragen®			Chlorantraniliprole 18.4%	
	Eventex® 400 SC Exceliprole® 400SC			Chlorantraniliprole 34.05%	
	Vantacor® Coragen® eVo Plaid® SC			Chlorantraniliprole 47.85%	
Dry Formulation				Granular Formulation	
	Altacor®				Acelepryn® G
	Chlorantraniliprole 35.0%				Chlorantraniliprole .20%
	Altacor® eVo			Manufacturer Use Concentrate	
	Chlorantraniliprole 70.0%				Calteryx® MC
Pre-Mix Formulation				Chlorantraniliprole 12.5%	
	Besiege®			DURENTIS® MUP	
	Chlorantraniliprole 9.26% Lambda-cyhalothrin 4.63%			Chlorantraniliprole 47.85%	

\* These products are not currently registered by the US EPA and/or still under Intellectual Property review, and therefore, all discussions are for market assessment purposes only and should not be misconstrued as an offer to sell or a solicitation of commercial offers/bids

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**Not an Offer to Sell, But an Invitation Not to Commit** 

FMC and Atticus have settled their legal dispute over the pesticide.

chlorantraniliprole With the agreement, Atticus dropped its lawsuit against FMC and will be able to market products based

on the active ingredient starting December 7, 2025.

Atticus plans to enter the market with a complete portfolio of chlorantraniliprole alternatives, seeking to position itself as a single supplier for a diverse customer base. The company has unveiled a branding strategy that positions its products alongside all available brands of the ingredient.

According to Randy Canady, CEO of Atticus, the agreement represents a step forward for the industry. "We've reached a professional and respectful outcome that values ??superior chemistry throughout its life cycle and agronomic potential," he stated.

The company's expectation is that, with the alignment between price and agronomic value, producers will be able to use chlorantraniliprole more frequently and efficiently to control insects.

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# Mahindra begins construction of new factory in Dois Irmãos (RS)

Investment of R\$100 million will triple production and generate up to 300 jobs

10.10.2025 | 17:07 (UTC -3)

Luciana Bambrilla



October is a month of celebration for Mahindra Brazil. In 2025, the company will

celebrate its ninth anniversary in Brazil and mark this milestone with a decisive step in its trajectory: the start of construction on the new industrial plant in Dois Irmãos, Rio Grande do Sul, the result of a planned investment of R\$100 million over the next five years.

The new headquarters will be built on the BR-116 highway – Travessão Ivoti/Dois Irmãos Highway, RS, on an area of ??over 89 m<sup>2</sup>, with 38.568 m<sup>2</sup> of built area and a planned expansion of 24 m<sup>2</sup>. This will triple Mahindra's production capacity, increasing from 3 to 9 tractors per year. The number of jobs will also be expanded, with an expected increase from 100 to 300 direct and indirect employees.

More than just a new factory, this project represents the strengthening of Mahindra in Brazil, consolidating its operations with more than 13 tractors nationwide, more than 90 points of sale and technical assistance, and a network of partners who share the purpose of transforming the countryside with strength, technology, and proximity.

"We are investing not only in infrastructure, but in the future of national agriculture, focusing on the producers who truly feed the country. This project reinforces our commitment to regional development, job creation, and accessible innovation for the Brazilian countryside," emphasizes Jak Torretta Jr., CEO of Mahindra Brazil.

The 9-year celebration is also marked by internal actions focused on employee belonging, tributes to the dealer network and initiatives that reinforce the company's culture of growth and transformation.

The choice of Dois Irmãos reinforces Mahindra's ties to the municipality, which has welcomed the company since its inception in Brazil. The partnership with the city government was formalized in September, with the issuance of the preliminary environmental permit and the signing of the contract to begin construction.

"The new Mahindra factory represents a significant step forward for Dois Irmãos. It's the result of a solid partnership that will create jobs, boost the local economy, and position our municipality as a benchmark

in the agricultural sector," said Mayor Jerri Meneghetti.

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