5.abr.2025 Nº 24

Cultivar Semanal

S7 combines now with predictive technology

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John Deere launches S7 Series harvesters with predictive technology

Presentation took place during "John Deere Space"

04.04.2025 | 20:51 (UTC -3)

Cultivar Magazine

During the "John Deere Space" event, John Deere presented the new S7 combine harvester, one of the brand's most anticipated launches. The machine comes equipped with unprecedented predictive technology, advanced connectivity and a design that aims to optimize productivity and operational efficiency in the field.

The main innovation of the S7 combine harvester is harvesting automation, which is divided into two fundamental technologies.

The first is Predictive Speed ??Automation, which uses two front-facing cameras installed in the cab to map the terrain up to 8,5 meters in front of the cutting deck. These images, combined with satellite information, allow crop yield

prediction and harvest speed adjustments 3,6 seconds before cutting. This automatic adjustment ensures consistent and more efficient feeding.

The second technology is Harvest Settings Automation, which uses geographic location and crop type to make automatic adjustments to machine settings. It also takes operator preferences into account, providing up to 10% more grain quality and 10% reduction in losses.

Felipe Santos, marketing and business manager for production systems for Latin America, explained that the S7 harvester was developed to bring significant gains in productivity.

"Increasing operational capacity by up to 20% is a major differentiator," he said. He also highlighted the launch of a larger

platform, with the possibility of cutting 50 feet, an innovation in Brazil.

In addition, John Deere introduced the JD14 engine in the S7 800 and S7 900 combines. This 13,6-liter engine, already used in other models of the brand, such as sugarcane and cotton harvesters, was integrated into the S7 line, ensuring greater efficiency and rapid support from dealers.

Another important point was the innovation in the straw cutting and distribution system. Felipe Santos highlighted that the new system ensures uniformity when chopping straw and its efficient distribution. This improvement helps maintain soil moisture and facilitates the application of agricultural pesticides, which contributes to better performance in the next planting

cycle.

John Deere also announced a new licensing-based business model. Instead of paying a high cost when purchasing a machine, farmers will be able to spread that cost over time by paying for licenses that provide access to technology, GPS monitoring and JDLink Boost connectivity.

Santos stressed that this approach aims to increase the adoption of cutting-edge technologies in the field, contributing to a leap in farmer productivity.

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Other releases

Several other products were presented at the event: S5 harvesters, 9RX tractors and 1200 and 3100FT planters. The S5 harvesters, for example, have the Automatic Terrain Adjustment (ATA) System, which reduces losses by up to 50%.

The 9RX tractor promises up to 40 hectares more operational efficiency per day. Equipped with JD18 engines and technologies such as Efficiency Manager, it offers reduced operating costs and greater operator comfort with its CommandView 4 Plus cabin.

The 1200 planter stands out for its increased operational performance and fertilizer autonomy, in addition to reducing seed supply time. The 3100FT series features high technology with electric drive for greater planting precision. And the 230M sprayer, with individual nozzle control, offers savings of up to 5% on chemical products.

Additionally, John Deere has expanded its line of bioinput applicators with the FA 400,

FA 600, FA 800 and FA 1300 models. These applicators help increase the productivity and quality of soybean and corn crops.

S7 Series Harvester Specifications

Specifications S-Series Combines

COMBINE MODEL	S7 600	S7 700	S7 800	S7 900
Engine Specifications				
Type	John Deere PowerTech™	John Deere PowerTech™	John Deere PowerTech™	John Deere PowerTech™
Displacement	9.0 L (549 cu in.)	9.0 L (549 cu in.)	13.6 L (830 cu in.)	13.6 L (830 cu in.)
Emission Level	Final Tier 4 / Tier 2 (Australia/New Zealand)	Final Tier 4 / Tier 2 (Australia / New Zealand)	Final Tier 4 / Tier 2 (Australia/New Zealand)	Final Tier 4 / Tier 2 (Australia/New Zealand)
Rated Engine Speed	2,200 rpm	2,200 rpm	2,000 rpm	2,000 rpm
Rated Engine Power	249 kW (334 hp)	300 kW (402 hp)	353 kW (473 hp)	405 kW (543 hp)
Power Boost @ Rated Speed	25 kW (34 hp)	25 kW (34 hp)	25 kW (34 hp)	37 kW (50 hp)
Max Engine Power Speed	2,000 rpm	2,000 rpm	1,800 rpm	1,800 rpm
Max Engine Power	285 kW (382 hp)	343 kW (460 hp)	402 kW (540 hp)	460 kW (617 hp)
Fuel Capacity	950 L (250 gal.)	950 L (250 gal.)	1,250 L (330 gal.)	1,250 L (330 gal.)
DEF Capacity	74.2 L (19.6 gal.)	74.2 L (19.6 gal.)	74.2 L (19.6 gal.)	74.2 L (19.6 gal.)

Feeding				
Drive Type	Fixed or Variable	Fixed, Variable, or Multi-Speed	Fixed or Multi-Speed	Fixed or Multi-Speed
Conveyor Chain Slat Type	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Width	139.7 cm (55 in.)	139.7 cm (55 in.)	139.7 cm (55 in.)	139.7 cm (55 in.)
Length	172.5 cm (67.9 in.)	172.5 cm (67.9 in.)	172.5 cm (67.9 in.)	172.5 cm (67.9 in.)
Feed Accelerator, Stone Trap (FAST)	Standard	Standard	Standard	Standard
Reverser	Standard	Standard	Standard	Standard
Threshing/Separating				
Separator Type	Rotary	Rotary	Rotary	Rotary
Rotor Length	312 cm (123 in.)	312 cm (123 in.)	312 cm (123 in.)	312 cm (123 in.)
Rotor Diameter	76.2 cm (30 in.)	76.2 cm (30 in.)	76.2 cm (30 in.)	76.2 cm (30 in.)
Rotor Speed Range (High / Low)	400-1,000 / 210-530 rpm	400-1,000 / 210-530 rpm	400-1,000 / 210-530 rpm	400-1,000 / 210-530 rpm
Rotor Threshing Concave Area	1.1 m^2 (11.8 sq ft)	1.1 m^2 (11.8 sq ft)	1.1 m^2 11.8 sq ft	1.1 m^2 11.8 sq ft
Rotor Separation Grate Area	1.54 m^2 (16.6 sq ft)	1.54 m^2 (16.6 sq ft)	1.54 m^2 (16.6 sq ft)	1.54 m^2 16.6 sq ft
Discharge Separation Grate Area	0.36 m^2 (3.9 sq ft)	0.36 m^2 (3.9 sq ft)	0.45 m^2 (4.8 sq ft)	0.45 m^2 4.8 sq ft

Cleaning				
Front chaffer	0.5 m^2 (5.4 sq ft)	0.5 m^2 (5.4 sq ft)	0.5 m^2 (5.4 sq ft)	0.5 m^2 (5.4 sq ft)
Front Chaffer Extension (Code: 8496)	N/A	N/A	0.8 m^2 (8.6 sq ft)	0.8 m^2 (8.6 sq ft)
Chaffer	2.5 m^2 (26.9 sq ft)	2.5 m^2 (26.9 sq ft)	2.5 m^2 (26.9 sq ft)	2.5 m^2 (26.9 sq ft)
Sieve Area	2.1 m^2 (22.6 sq ft)	2.1 m^2 (22.6 sq ft)	2.1 m^2 (22.6 sq ft)	2.1 m^2 (22.6 sq ft)
Total Cleaning Area (louvered)	5.1 m^2 (54.9 sq ft)	5.1 m^2 (54.9 sq ft)	5.9 m^2 (63.5 sq ft)	5.9 m^2 (63.5 sq ft)
Cleaning Fan Speed	620-1,350 rpm	620-1,350 rpm	620-1,350 rpm	620-1,350 rpm

Grain Handling				
Grain Tank Size	10,600 L (300 bu)	10,600 L (300 bu)	14,100 L (400 bu)	14,100 L (400 bu)
Unloading Auger Length	6.9, 7.9, or 8.7 m (22.5, 26, or 28.5 ft)	6.9, 7.9, or 8.7 m (22.5, 26, or 28.5 ft)	6.9, 7.9, or 8.7 m (22.5, 26, or 28.5 ft)	6.9, 7.9, or 8.7 m (22.5, 26, or 28.5 ft)
Peak Unloading Rate	127 L/s (3.6 bu/sec)	150 L/s (4.2 bu/sec)	150 L/s (4.2 bu/sec)	150 L/s (4.2 bu/sec)

Base Weight – Less Head				
Front Axle	9,858 kg (21,737 lb)	10,366 kg (22,857 lb)	11,116 kg (24,511 lb)	11,116 kg (24,511 lb)
Rear Axle	9,646 kg (21,269 lb)	9,476 kg (20,895 lb)	11,170 kg (24,630 lb)	11,170 kg (24,630 lb)
Total Machine	119,504 kg (43,006 lb)	19,842 kg (43,752 lb)	22,286 kg (49,141 lb)	22,286 kg (49,141 lb)

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John Deere presents technologies for connectivity and precision agriculture

Company highlighted several solutions, such as JDLink Boost, Precision Upgrades, Autopath and others

04.04.2025 | 19:06 (UTC -3)

Cultivar Magazine

Horacio Meza and Antonio Carrere, during a presentation of new technologies

John Deere presented technological solutions at its "John Deere Space" event focused on rural connectivity and automation of agricultural processes. Among the new products are the JDLink Boost satellite connectivity solution and upgrade packages for previous generation equipment, as well as specific innovations for sugarcane cultivation.

At the event, John Deere announced the commercialization of JDLink Boost in Brazil. This technology, developed to overcome connectivity challenges in rural areas, uses SpaceX's Starlink network to ensure continuous communication between agricultural equipment.

The company expects to connect 1,5 million machines by 2026, a significant increase over the 775 already connected.

The solution collects operational and agronomic data from the machines, sending this information to the cloud, which allows producers to make decisions in real time.

Another highlight was the launch of technology packages aimed at the sugarcane sector. Traffic control was improved with the combination of three solutions: Passive Implement Guidance (ATIG), Autopath and Machine Sync. These innovations aim to optimize the precision of field operations, such as planting, spraying and harvesting. According to the company, the use of these technologies reduces damage to the soil and ratoon crops, in addition to improving crop efficiency and productivity.

John Deere also introduced “Precision Upgrades,” a package that allows older equipment to be updated with cutting-edge technologies. The upgrades include systems to improve planting and spraying precision, such as MaxEmerge 5e and See & Spray Select. This latest technology allows the identification of invasive plants, resulting in up to a 90% reduction in herbicide use, promoting sustainable and economic gains.

“Unlocking the technological potential of the countryside, through rural connectivity and precision agriculture, is a decisive point for the country's socioeconomic development. Therefore, in 2024, John Deere invested approximately R$180 million in the construction of the world's first development and testing center for

tropical agriculture, so that its products can be designed and tested in Brazil, considering all variables", explained Antonio Carrere, vice president of sales and marketing for John Deere in Latin America.

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Embrapa tells the story of soybeans in Central Brazil

At Tecnoshow Comigo, the company will present a timeline that tells the evolution of cultivars

04.04.2025 | 16:18 (UTC -3)

Lebna Landgraf

Making Brazil the world's largest soybean producer - 147,35 million tons in the

2023/2024 harvest - was only possible with investment in science to adapt this species for cultivation in tropical regions. To demonstrate the evolution of soybean cultivars in Brazil, with a focus on the Midwest, Embrapa will be demonstrating a timeline with different soybean cultivars in its Technology Showcase at Tecnoshow Comigo, which will be held from April 08 to 12, in Rio Verde (GO).

The initiative aims to demonstrate the evolution of this grain, whose commercial planting began in Brazil 100 years ago, and also to celebrate the 50th anniversary of Embrapa Soja, in 2025. Since the experimental introduction of soybeans in Brazil, several cultivars have been developed, always seeking to increase productivity, adaptability and resistance to

diseases.

Embrapa Soja played an active role in this evolution, so much so that in 50 years the institution has developed around 440 soybean cultivars. “Soybeans are the driving force behind agribusiness and the Brazilian economy, and this was possible thanks to the various players that make up the soybean production chain – scientists, technicians and producers – who did an excellent job,” highlights Nepomuceno. Alexandre Nepomuceno, general manager of Embrapa Soja.

To compose the Embrapa Showcase, 15 soybean cultivars were selected, which are part of the Active Germplasm Bank (BAG), a collection of approximately 65 thousand accessions (types of soybean) introduced

from the collection of the United States and other countries in Africa, Europe, Asia, the Middle East and Oceania. "The BAG, maintained by Embrapa, is responsible for storing the genetic variability of soybeans. The more different and characterized accessions, the better the use in breeding programs for the development of new varieties," explains the researcher and curator of BAG-Soja, Marcelo Fernandes. Marcelo Fernandes de Oliveira, curator of BAG-Soja.

Soybean Timeline

Right at the entrance to the Embrapa Showcase, visitors will be able to see wild soybeans (which are perennial) and the “closest” ancestor of soybeans (Glycine

soja), which has an annual cycle. In addition to these, some cultivars of Glycine max (cultivated soybeans) will also be on display. The Pelicano cultivar, introduced from the United States in the 1950s, adapted to Brazil and was planted until the mid-1960s. Also in the 1960s, researcher Mônica Zavaglia, from Embrapa Soja, mentioned the Davis cultivar, which, due to its resistance to frogeye leaf spot and brown stem rot, lasted for several years and gave rise to other cultivars.

“Finally, in 1966, we had the launch of the first genuinely Brazilian soybean cultivar of commercial importance, which was the Santa Rosa cultivar. It is considered one of the most important cultivars of all time, standing out for several decades,” says the researcher.

In the following two decades, soybeans expanded in the Center-North of Brazil, thanks to the performance of the first genuinely Brazilian cultivars adapted to Brazil's low latitudes. In the 1970s, the highlights were the UFV-1 cultivars, developed by the Federal University of Viçosa, and the FT Cristalina, developed by FT Sementes. Then, the first cultivar developed by Embrapa for Central Brazil was launched, the Doko cultivar, launched in 1980. Also in the 1980s, the BR 9 (Savana) cultivar also stood out, adapted to BA, TO, MA and PI.

In the 1990s, the focus of breeding programs was directed towards improving root health, with cultivars resistant to root-knot and cyst nematodes. As a highlight of this decade, the cultivars MG/BR 46 –

Conquista (with resistance to both root-knot nematodes, *Meloidogyne incognita* e *M. javanica*), BRSMG 68 [Winner] (with resistance to *Meloidogyne incognita* and moderate resistance to *M. javanica*) and BRSMT Pintado (with resistance to races 1 and 3 and moderate resistance to races 4, 10 and 14 of the soybean cyst nematode).

“It is important to mention that the soybean cyst nematode was first identified in Brazil in the 1991/92 harvest, progressing rapidly. Due to its resistance, the BRSMT Pintado cultivar was one of the most important cultivars in Central Brazil since its launch, being sown until the early 2020s,” explains Mônica.

In the 2000s, a new generation of cultivars began with the introduction of transgenics

(soybeans with resistance to the herbicide glyphosate). According to researcher Roberto Zito, from Embrapa Soja, the cultivar BRS Valiosa RR stands out, as it has made a great contribution to soybean farmers in Central Brazil. According to him, the search for cultivars with a cycle and plant size that would allow for the sowing of second-season corn was the scenario for the success of the cultivar BRS 2, registered in 284: “a great highlight and continues to be cultivated to this day”, emphasizes Zito.

In the 2010s, after the introduction of GMOs, there was a significant reduction in the areas planted with conventional soybeans, mainly due to the lack of cultivar options. “In this scenario, the conventional cultivar BRS 8381, with an indeterminate

growth type (new at the time), differentiated plant architecture, and broad adaptation (recommended for the states of GO, DF, MT, BA, TO, and MG), occupied a large space and is still planted today," says Zito. Another highlight in this decade was the GMO cultivar BRS 7380 RR, which made a major contribution to farmers in areas with problems with cyst and root-knot nematodes.

In the 2020s, with the arrival of the transgenic soybean platform with BT technology for caterpillar management, the researcher highlighted two cultivars. The first is BRS 5980 IPRO, an early cultivar with broad resistance to cyst and root-knot nematodes. The other is the BRS 7881IPRO cultivar, the most recent launch,

with high productivity and resistance to the cyst and root-knot nematodes Meloidogyne javanica.

Soybean History

Four thousand years ago, soybeans were a wild plant that grew on the east coast of Asia. During this period, the legume was domesticated by the Chinese, making it one of the oldest agricultural crops in the world. “The soybeans sown today have the genetic makeup of their Chinese ancestors, but they are different in appearance, morphological characteristics, and production,” explains Nepomuceno.

According to the publication “*The soybean saga: from 1050 BC to 2050 AD*”, published by Embrapa Soja, soybeans

arrived in Brazil via Bahia in 1882, when the first tests were carried out with cultivars introduced from the United States, but they were unsuccessful. It was only after arriving in RS in 1914 for testing, and from 1924 onwards in commercial plantations, that soybeans showed adaptation. However, soybeans only gained economic importance in the 1960s. Until the end of the 1970s, commercial soybean plantations in the world were restricted to regions with temperate and subtropical climates, whose latitudes were close to or above 30º. “Brazilian producers had to use cultivars imported from the United States that were adapted only for the southern region of Brazil”, explains researcher Carlos Arias.

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Syngenta changes its Biologicals & Seedcare business

Igor Lyra takes on the role of head of biologicals and seed care for Brazil

03.04.2025 | 17:15 (UTC -3)

Cultivar Magazine

Syngenta has announced Igor Lyra as the new head of Biologicals & Seedcare in

Brazil. With over 17 years of experience in the agricultural sector, Lyra has held strategic positions in companies and institutions in the sector. Previously, he worked at the company as head of Biologicals & Seedcare for Latin America (Latam).

An agricultural engineer, he has worked as Marketing Manager for Corn Seeds and Biotechnology at Syngenta, as well as being Commercial Director at Nidera and Regional Sales Manager at Dekalb. He was also Administrative Director at Fundação Bahia, where he structured the soybean business in partnership with Embrapa.

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Volkswagen confirms production of new pickup truck in Argentina

Manufacturing is scheduled to begin in 2027

03.04.2025 | 15:58 (UTC -3)

Claudio Rawicz, edition of Cultivar Magazine

Volkswagen has just confirmed the production of a new mid-size pickup truck

in Argentina. It is the New Amarok, which will feature robust proportions, sculpted surfaces and an authentic optical signature. Production is scheduled to begin in 2027 at the Volkswagen plant in General Pacheco, in the province of Buenos Aires. The investment in the factory is 580 million dollars, to be applied between 2025 and 2029.

The announcement comes in the same year that the German brand celebrates 45 years in the Argentine market. At the same time, the recently renewed Amarok V6 will continue to be sold normally in Latin America until the arrival of the New Amarok.

Boost for industry

The investment will boost the automotive industry on the continent and reinforce VW Argentina’s strategic role as a major pickup production hub within the Volkswagen Group. In addition, the Pacheco Industrial Center was the first Volkswagen plant in the world to be selected to manufacture pickups, and in 15 years, more than 770 units have already been produced.

"We are experiencing a fundamental change process for the entire VW brand. This project represents a perfect fusion of German engineering excellence and next-generation technology, ensuring that our customers receive the best product in its class. Argentina and the entire South American region play a key role in this effort. With this investment, we underscore

the importance of our production plant in Argentina," said Thomas Schäfer, CEO of Volkswagen.

The investment also implies a technological leap in the production process. The investment includes further innovations in the facilities, which will generate improvements in product and environmental standards. “Argentina has been a key player in Volkswagen’s regional strategy, and this investment reinforces our confidence in its industrial capabilities. The new pickup will set a new benchmark in the segment, combining performance, innovation and sustainability,” adds Alexander Seitz, Executive Chairman of Volkswagen in the South America Region.

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Abbins elects new board

Rafael Garcia was chosen to assume the presidency in this new cycle

03.04.2025 | 14:07 (UTC -3)

Gisele Gomes, edition of Cultivar Magazine

Last month, the Brazilian Association of Bioinputs (Abbins) elected the new board of directors that will lead the entity for the next three years. At the Ordinary and

Extraordinary General Meeting, the balance sheets for the last few years, the management accounts and the 2025 financial budget were also approved, in addition to the election of members for the Fiscal Council.

Rafael Garcia (pictured above), an agricultural engineer graduated from the Luiz de Queiroz College of Agriculture, founder and current CEO of Agrobiológica Sustentabilidade, was chosen to take over the presidency of Abbins in this new cycle.

Garcia highlighted the honor of holding this position and being able to contribute to building a different kind of agriculture. “If today we have a Bio-Consumers Law, Abbins was essential in bringing together other entities and other actors in society in

the search for fairer regulations for the industry and farmers," he celebrated.

governing board

The Board of Directors, the association's highest governing body, will be composed of five members. In addition to Garcia, Marcos Bellini, representative of TopBio - Sistemas Biológicos (vice president), Ueno Neto of Hubio BioPar (financial director), Rose Monnerat, representative of Solubio (legal and institutional relations director) and Fabio Rossigalli of Bioworld (director of communications and strategy) were elected.

After three years of activity on the board, members will have the possibility of re-election for a single subsequent term.

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Amaggi and Naturall Carbon launch regenerative agriculture project

The objective is to generate carbon credits through sustainable practices

03.04.2025 | 10:38 (UTC -3)

Cultivar Magazine, based on information from Carolina Holland

Amaggi and Naturall Carbon have announced a partnership to develop a regenerative agriculture project. The goal is to generate carbon credits through sustainable practices on an Amaggi farm in Rondônia. The project will be certified by Verra and uses the VM 0042 methodology.

The partnership aims to transform an area of ??25 thousand hectares of degraded pastures and conventionally managed crops into a regenerative agriculture model.

The project envisages the use of practices such as direct planting, crop rotation and the use of cover crops, which help to capture CO? from the atmosphere and store it in the soil.

Soil carbon sequestration is seen as a scalable solution to reduce the effects of climate change. According to the companies, similar projects in other countries, such as Romania and Europe, have demonstrated the potential of this approach to generate carbon credits in a measurable and verifiable way.

The project will be monitored using geoprocessing and remote sensing technologies. Quantification of carbon credits will be carried out based on physical soil measurements and advanced computational modeling, ensuring accuracy and transparency in the process.

By generating Removals credits, which represent the effective removal of CO? from the atmosphere, the project will

contribute to the mitigation of climate change and the preservation of ecosystems.

"The challenge of decarbonizing the agricultural sector is collective. With this partnership, we are promoting a more sustainable agribusiness that is committed to the future," said Juliana Lopes (pictured above), director of ESG, Communication and Compliance at Amaggi.

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São Paulo toughens fines for arson

Government announced the start of the yellow phase of Operation São Paulo Without Fire

02.04.2025 | 16:36 (UTC -3)

Cultivar Magazine, based on information from Agência SP

The Government of São Paulo announced the start of the yellow phase of Operation São Paulo Sem Fogo, aimed at preventing and preparing for the critical period of

drought. Measures include the purchase of equipment, training, reinforcement of teams and expansion of the firefighting structure.

One of the main changes is the tougher penalties for those who cause illegal fires. Changes in environmental legislation provide for specific fines for rural landowners who do not adopt preventive measures, ranging from R$5 to R$10 million. Those who cause fires in productive areas or vegetation without authorization may pay R$3 per hectare affected, with the possibility of doubling in more serious cases.

In addition to the increase in penalties, the government will invest R$17,3 million in the purchase of 101 vehicles and 336

pieces of equipment for the Civil Defense, with delivery scheduled for May. 15 preparatory workshops will also be held, distributing protection and fire-fighting kits to around 200 priority municipalities.

Another initiative is the expansion of the Emergency Management Center (CGE), which will have a new meteorological service for more accurate forecasts. In the environmental area, the Forestry Foundation will allocate R$11 million for prevention and combat actions, including the hiring of civilian firefighters and the acquisition of equipment.

The Department of Highways (DER/SP) will also invest more than R$300 million in highway maintenance, with mowing and weeding services to reduce the risk of fires

in the right-of-way.

In 2024, São Paulo faced the worst drought in history, mobilizing 15 people and investing R$260 million in fighting fires. With the new resources and prevention measures, the government seeks to reduce occurrences and improve the response during the critical period.

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Stem rot spreads in orchards and threatens orange harvest

The infection causes cracks in the branches, rot in peduncles and fruits

02.04.2025 | 15:09 (UTC -3)

Daniele Merola, edition of Cultivar Magazine

Stem rot, also known as twig rot, twig gummosis or Bot gummosis, has been a

concern for citrus growers due to its increased incidence in recent months. The disease is caused by fungi from the family *Botryosphaeriaceae*, or “Bot fungi”, including *Lasiodiplody* e *Dothiorella*, which become pathogenic when plants face stress, such as high temperatures, intense drought and other diseases.

In the orchards of São Paulo, the thermal and water stress recorded between February and March favored the spread of the disease. The infection causes cracks in the branches, rot in peduncles and fruits, in addition to gum exudation, which can lead to partial or total drying of the tree canopy.

“We had a period of high temperatures and water deficit in February and March of this

year, which left the plants severely affected in some situations. In addition to the climate issues, the plants also had other diseases, which left them vulnerable to infections by the Bot fungus. When it rained, the environment became more humid and the fungi infected and colonized the plant tissues, and the symptoms were observed," highlights Fundecitrus researcher Geraldo Silva Junior.

disease control

Controlling stem rot requires constant monitoring and integrated management with cultural practices, chemical and biological pesticides, and measures to reduce plant stress, such as the use of sunscreens. Since the disease was

considered secondary in the citrus belt, there are still few studies on effective control under Brazilian conditions.

Fundecitrus has already begun research to identify the species of fungi involved and evaluate management strategies. In the meantime, citrus growers can seek direct guidance from the entity's technicians to minimize the impacts of the disease on their crops.

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New technique increases viability of the fungus "Trichoderma"

Scientists have developed a sustainable technique for producing a fungus that controls agricultural diseases

01.04.2025 | 15:42 (UTC -3)

Christina Tordin

Photo: Gerald Holmes

Brazilian researchers have developed an innovative method for producing and formulating the fungus *Trichoderma asperelloides*, considered a key tool in the biological control of diseases that affect cultivated plants. This advance, the result of joint efforts by the São Paulo State University (Unesp) and Embrapa Meio Ambiente (SP), uses a system based on the application of rice flour as a substrate for the so-called "granular bioreactor". Rice flour is a low-cost and widely available agro-industrial byproduct.

This approach combines efficiency, sustainability and economy. In this way, it represents a practical and accessible alternative that not only reduces costs, but also extends the shelf life of the final product. “Our method not only increases

conidia production, but also increases the stability of the product, making it more accessible and effective for the farmer," explains Lucas Guedes, a researcher at Unesp, who developed his doctoral thesis on the subject.

The major difference in this research is the use of dry granules (photo above) containing fungal conidia, which function as biological "seeds." When stored under

refrigeration, these granules remain viable for more than 24 months, ensuring stability even over long periods. This durability is essential for large-scale applications in agriculture. When incorporated into the soil, the *Trichoderma* contained in the granules is effective in controlling sclerotia of Sclerotinia sclerotiorum, a pathogen that causes a severe disease known as white mold. This disease affects several crops of high economic value, such as soybeans, beans, cotton and tomatoes, causing significant production losses.

Nitrogen sources increased efficiency

The investigation focused on five critical factors in the fermentation process of the

fungus using rice flour as a base. The researchers found that adding 0,1% nitrogen to the substrate resulted in a significant increase in the production of *Trichoderma*, assessed by the number of colony forming units (CFUs), a parameter used to measure the viability of the fungus.

Additionally, the study found that complex nitrogen sources, such as hydrolyzed yeast and corn liquor, outperformed traditional inorganic sources, such as ammonium sulfate, in process efficiency. “This discovery reinforces the importance of exploring less conventional and more sustainable alternatives in agriculture,” adds Guedes.

Another crucial point was the adoption of special packaging with humidity and

oxygen control. According to the researchers, these materials help maintain the viability of conidia, structures produced by *Trichoderma*, even in storage conditions at room temperature, expanding the applicability of the product in the field and reducing losses.

Economic and environmental impact

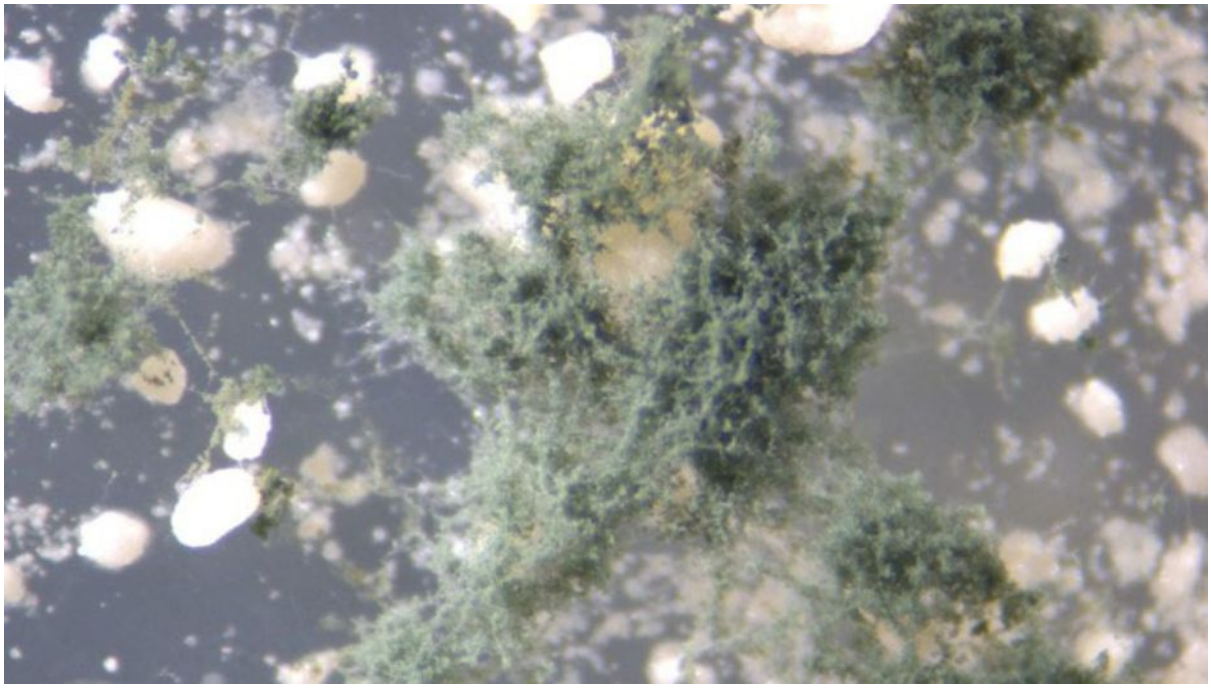
Gabriel Mascarin, from Embrapa, highlights that the use of rice flour as a substrate becomes even more relevant in the current scenario of rising rice prices in Brazil. “Replacing it with agricultural byproducts, such as broken rice, not only reduces costs, but also promotes sustainability by valuing materials that

would otherwise be discarded," he notes. He reports that this model is innovative and is aligned with the concept of circular economy, promoting the full use of agro-industrial waste.

Wagner Bettiol, also from Embrapa, reinforces the potential of the granules to act as small bioreactors in the soil. "They release the fungus gradually and efficiently, optimizing the control of pathogens without generating additional waste in the environment, since neither the production of the fungus nor the formulation generates waste."

Reduction of chemical fungicides and

expansion of applications



the use of *Trichoderma asperelloides* It is widely recognized as an alternative to the use of chemical fungicides, which often generate resistance in pathogens and have negative impacts on the environment. The new methodology, in turn, represents a significant advance.

“This type of formulation can be used to control a wide variety of soil phytopathogens, such as *Fusarium*, *rhizoctonia* **(learn more here)** e *Pythium*, in addition to nematodes, if the isolate is specific for this purpose,” explains Bettiol. “This expands the possibilities of use for various agricultural crops, from vegetables to large crops such as soybeans and cotton."

Furthermore, most of the products based on *Trichoderma* available on the Brazilian market uses a single methodology, based on the production of spores in rice grains. The new approach diversifies methods and reduces production costs, making biological control even more competitive.

A promising future for Brazilian agriculture

The researchers say that Brazilian agriculture, characterized by its crop diversity and phytosanitary challenges, can benefit greatly from this innovation. Especially because of a growing demand for sustainable agricultural solutions.

By integrating sustainability, economy and efficiency, the technique reaffirms Brazil as one of the main leaders in agricultural innovations. Products derived from this research have the potential to serve both the domestic market and exports, expanding the frontiers of sustainable agriculture.

More details about organic products, based on *Trichoderma*, registered in Brazil can be consulted in the Agrofit database of the Ministry of Agriculture (Mapa), a fundamental tool for professionals in the agricultural sector. This advance reinforces the relevance of national research in the development of accessible solutions with global impact.

Photo: Gerald Holmes

Main uses of "Trichoderma" in biological control

1. White mold control (*Sclerotinia sclerotiorum*)

Prevents and combats the pathogen that causes severe losses in crops such as soybeans, beans and cotton (photo above).

2. Control of other soil phytopathogens

Effective against diseases caused by *Fusarium*, *rhizoctonia*, *Sclerotium* e *Pythium*, common in various agricultural crops.

3. Protection of vegetables and ornamental plants

It acts in the prevention of diseases that affect tomatoes, lettuce, ornamental plants and other plants of commercial value.

4. Nematode control

Some Trichoderma isolates are recommended to reduce populations of nematodes, organisms that affect roots and compromise plant development.

5. Replacement of chemical fungicides

Reduces dependence on chemicals, offering a sustainable and environmentally responsible solution.

6. Improvement of agricultural soil

Promotes a healthier soil environment by increasing plants' natural resistance to pathogens and improving productivity.

In addition to being a sustainable and economical alternative, the *Trichoderma* It has proven effectiveness in various crops and contributes to safer and more environmentally friendly agricultural practices.

Article

The work, which can be accessed at the link below, is signed by Lucas Guedes Silva (São Paulo State University, Unesp), Renato Camargo (University of São Paulo - USP), Camila Fávaro, (Federal University of São Carlos - UFSCar), Peterson Nunes (Federal University of Lavras - UFLA), Cristiane Farinas and Caue Ribeiro (Embrapa Instrumentation) and Gabriel Mascarin and Wagner Bettiol (Embrapa

Environment).

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Research indicates expansion of the Rachiplusia nu caterpillar on Bt soybeans in Brazil

The research identified variations in the presence of the two pests according to the region and type of soybean

01.04.2025 | 08:05 (UTC -3)

Cultivar Magazine

Photo: Alberto Luiz Marsaro Junior

The presence of the caterpillar *Rachiplusia nu*, traditionally associated with temperate regions of South America, has intensified in soybean crops in Brazil. Studies carried out between the 2021 and 2024 harvests revealed that this pest has become predominant in areas with genetically modified (Bt) soybeans, especially in varieties that express the Cry1Ac protein (learn more about "Bacillus thuringiensis" here).

The increased incidence of *R. naked*, combined with the difficulty of differentiating its larvae from those of *Chrysodeixis includens*, has generated concern among producers and researchers, especially with regard to resistance to control technologies (learn more about "Chrysodeixis includens" here

).

According to the recent study, the collection of 1.601 larvae in 91 soybean fields in the main producing regions of Brazil revealed that, in 2023/24, R. nu represented up to 99% of larvae in fields with Bt soybean.

The research used molecular methods to accurately identify the Plusiinae species, confirming that although *C. includens* continues to be an important pest, especially in non-Bt soybeans, *R. naked* has demonstrated rapid adaptation to transgenic crops.

The study highlights that, by 2020, the *R. naked* was a minor pest in central and southern regions of Brazil. However, as of 2021, the species began to show signs of

resistance to the Cry1Ac protein, used in the first generations of Bt soybeans.

Furthermore, the research identified variations in the presence of the two pests according to the region and type of soybean. While *C. includens* still dominates in some areas of non-Bt soybeans, especially in the Midwest, *R. naked* has been shown to be the main pest in Bt soybean crops, particularly in varieties that express Cry1Ac and Cry1F.

Learn more about "Rachiplusia nu" by clicking here.

More information can be found at

doi.org/10.3390/insects16040365

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Adama Announces Eric Dereudre as Chief Commercial Officer

With 30 years of experience in the agricultural sector, he joins the company after working at Corteva Agriscience

01.04.2025 | 07:13 (UTC -3)

Cultivar Magazine, based on information from Tal Moise

Adama Ltd. has announced the appointment of Eric Dereudre as Chief

Commercial Officer (CCO). He will take on the role immediately. With 30 years of experience in the agricultural industry, Dereudre joins the company from Corteva Agriscience, where he served as Vice President of Government and Industry Affairs and led the Western Europe region for the seed and crop protection sectors.

During his career, Dereudre has held several leadership roles at companies such as Dow AgroSciences, where he began his career. With experience in sales and marketing in Europe and Africa, he also played a key role in the post-merger unification of Dow and DuPont, leading the Western European commercial organization.

Over the years, he has been heavily involved with crop protection industry associations, including CropLife International, where he has held leadership roles including acting CEO and President.

Gael Hili, President and CEO of Adama, said the appointment strengthens the company’s commercial structure. According to Hili, Dereudre’s arrival will enable the company’s teams to focus more on local client needs, while leveraging global expertise to drive commercial excellence.

In his statement, Dereudre expressed excitement about joining Adama, highlighting the company’s importance in the crop protection industry and its

commitment to solutions that meet the needs of farmers. He also said he is looking forward to working with Adama’s global teams to strengthen the company’s commercial strategy and continue to bring innovation and value to the company’s customers.

Dereudre holds a master's degree in agronomy from L'Institut Agro Rennes-Angers in France and an MBA from Northwood University in Michigan.

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FMC and Bayer sign agreement to market Isoflex herbicide in Europe

Collaboration aims to expand resistant weed control in cereals and other crops

31.03.2025 | 17:42 (UTC -3)

Cultivar Magazine, based on information from FMC

FMC Corporation announced a partnership with Bayer to commercialize products

containing the branded active ingredient Isoflex (bixlozone, bixlozone, CAS 81777-95-9) in the European Union (EU) and Great Britain.

According to FMC material, Isoflex is a new generation herbicide that provides long-lasting control of key weeds, including those resistant to other herbicides. Classified by the Herbicide Resistance Action Committee (HRAC) as a Group 13 herbicide, Isoflex received registration in the UK in 2024 and is expected to be registered in the EU in 2025, subject to regulatory decisions.

According to Ronaldo Pereira, president of FMC, the agreement will allow the company to expand its access to the EU and Great Britain markets, regions that

have around 30 million hectares of winter cereals planted.

“We believe Isoflex will be an important tool for European growers in controlling resistant weeds, especially grasses,” said Pereira.

Under the agreement, both companies will bring Isoflex-based products to the winter cereal and rapeseed markets in the EU and Great Britain. FMC plans to market its own Isoflex-based formulations to the winter cereal, corn, rapeseed and potato markets.

Bayer will be responsible for submitting registrations and marketing mixtures containing the active ingredient for use in winter cereals, in addition to distributing a formulation developed by FMC for use in

rapeseed.

Frank Terhorst, Executive Vice President Strategy and Sustainability at Bayer’s Agricultural Sciences division, highlighted the importance of collaboration: “In the face of climate change and pressure on food systems, farmers need effective tools to control weeds. Herbicides like Isoflex play a key role in this process and contribute to food security.”

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Growing demand raises freight prices in Brazil, says Conab

Growth in demand for freight, shortage of service providers and diesel price adjustment are key factors

31.03.2025 | 17:32 (UTC -3)

Conab, Cultivar Magazine edition

The movement of agricultural products in Brazil has been heavily impacted by the

high demand for freight, which, according to the Logistics Bulletin of the National Supply Company (Conab), has resulted in an increase in transportation prices in several regions of the country. The report, released this Monday (31/3), highlights that the growth in demand for freight, combined with the shortage of service providers and the adjustment of diesel prices, has driven up freight prices in states such as Bahia, Distrito Federal, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Paraná, Piauí and São Paulo.

In Mato Grosso, the intensification of the harvest and costs resulted in an increase in prices at the end of February. In Piauí, prices rose, driven by the early start of the soybean harvest, reaching an average of

39%. In Maranhão, soybean shipments via the VLI multimodal system increased freight rates by 26,8% on the route from Balsas to the São Luís Port Terminal.

In Bahia, while some markets saw increases due to higher demand, in Irecê there was a reduction, reflecting the increased supply of service providers. In São Paulo, prices rose slightly and remain at their highest levels in recent history, due to competition for trucks with other producing regions. In Paraná, the appreciation of soybeans had a direct impact on freight rates, with increases of 20% in Campo Mourão, 19,35% in Cascavel and 11,94% in Ponta Grossa.

In Goiás, the difficulty in finding trucks and the high demand for transportation, especially to the ports of Santos and

Paranaguá, were reflected in prices. In the Federal District, the increases were 12% to 15%, with emphasis on the routes from Araguari (MG), Santos (SP) and Imbituba (SC). In Mato Grosso do Sul, the increase in freight rates was driven by the harvest of summer crops and the increase in ICMS, resulting in high costs for transporting the harvest.

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Malu Weber takes over as communications leader for Bayer's agricultural division in Latin America

Karina Fiorezi joins the global communications team for the agricultural division

31.03.2025 | 16:44 (UTC -3)

Malu Weber - Photo: Cassia Cinque

Executive Malu Weber, currently vice president of corporate communications for the Bayer Group Brazil, will also be responsible for leading communications for the agricultural division in Latin America. Karina Fiorezi, who previously held the position, will join the global communications team for the agricultural division, focusing on innovation and support for the research and development area.

With this move, Malu Weber now has a seat on both the executive team of Bayer Crop Science for Latin America and the global communications team of the agricultural division, in addition to the seats on the business board of the Bayer Brazil Group and the global communications team, which she has held since 2020.

"I am very happy with the invitation I received from Mauricio Rodrigues, a leader I respect and admire greatly, and with the opportunity to expand my role in a company where communication is strengthened and reflects the business strategy. Bayer's agricultural division is focused on listening to rural producers and helping them produce more, with greater profitability and regenerating the land and the environment. This is our commitment to the future of agriculture," says the executive.

A journalist with over 25 years of experience, Malu Weber joined the company in August 2020, after working for national and multinational companies such as Johnson & Johnson, Grupo Votorantim and Grupo Globo (EPTV Campinas). She

currently holds the presidency of the Deliberative Council of Aberje (Brazilian Association of Business Communication).

Mentor, speaker and columnist, she began her career in academia in 2017 as a professor of reputation management, having worked at Link School of Business, Aberje and ESPM. In 2024, she was elected one of the most influential leaders in the Americas by Horse Consultoria.

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Honeybees use sequence learning to anticipate rewards

In the experiment, bees were trained to recognize an alternating visual pattern

31.03.2025 | 07:03 (UTC -3)

Cultivar Magazine

Apis mellifera - Photo: By Ivar Leidus, CC BY-SA 4.0

Study revealed that honey bees (*Apis mellifera*) are able to learn sequences of events and predict future rewards based on visual stimuli. The research, conducted by the University of California, San Diego, showed that even when events are separated by intervals of minutes, bees can use this sequence of information to make more effective decisions when searching for food.

In the experiment, bees were trained to recognize an alternating visual pattern between two feeders, with only one of them offering a reward at each visit.

The challenge was that the rewarded feeder varied, and the bee had to infer that the previously unrewarded pattern would be the next one to offer food.

The research found that, with time and experience, bees were able to make correct choices more frequently, surpassing the expectation of being correct by chance.

The results were obtained from 320 visits by 20 different bees, which participated in experiments over several days. During the first half of the visits, the bees did not perform better than expected by chance.

However, as visits progressed, performance improved, with a 63,4% accuracy rate in the second half of visits. This increase in performance is attributed to learning the reward sequence.

Furthermore, the study ruled out the possibility that the bees were using olfactory cues or specific locations of the

feeders, since the control experiments showed that learning success was related only to visual patterns and reward alternation.

More information can be found at

doi.org/10.3390/insects16040358

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Optimizing fertilizer use: challenges and solutions

By Walder Antonio Gomes de Albuquerque Nunes and Adriana Marlene Moreno Pires, from Embrapa Agriculture West

31.03.2025 | 06:08 (UTC -3)

Several factors influence crop productivity, and can be classified as biotic, related to living beings involved in the production

process, as well as abiotic factors, among which climate, physics and soil fertility stand out. Of the latter, soil fertility is the most easily managed, and the use of fertilizers, soil conditioners and amendments to provide a better production environment is undeniable.

However, Brazil imports approximately 85% of the approximately 41 million tons of fertilizers it consumes annually. Among the essential macronutrients, we import 90% of nitrogen (Russia, China and the Middle East), 75% of phosphate (China, Morocco and Russia) and 90% of potassium (Belarus, Canada and Russia). It is worth noting that, fortunately, our main agricultural commodity, soybeans, does not depend on nitrogen fertilizer, a result obtained through intensive research into

biological nitrogen fixation (BNF).

This external dependence, a matter of national security and sovereignty, is extremely uncomfortable for a player of our importance in global agriculture, mainly because a significant part of these fertilizers comes from politically unstable regions, which facilitates the action of speculators and has caused sudden increases in their prices.

Among the fertilizers consumed in larger quantities, phosphorus (P) and potassium (K) depend exclusively on mineral reserves, but nitrogen (N) can be obtained from natural gas or from a process that fixes atmospheric N, the latter with a large consumption of electrical energy.

It is important to highlight that this uncomfortable situation does not occur in relation to limestone (acidity corrector) and agricultural gypsum (soil conditioner), in which we are self-sufficient.

Actions to partially reverse this external dependence on fertilizers, aiming to reduce it to 50% by 2050, include prospecting for deposits, encouraging increased domestic production and addressing environmental and logistical issues, as detailed in the National Fertilizer Plan, prepared by an Interministerial Working Group, which recently had its goals revised. Also close to this line of action, we can mention the use of mineral or organic waste from industrial or agro-industrial chains as fertilizers, which also provides a tangible opportunity to reduce

the generation of greenhouse gases and to recycle nutrients that would otherwise be destined for landfills.

Another approach to addressing this problem is to reduce the amount of fertilizer required, resulting from increased efficiency in the use of this input, without compromising productivity. It has been observed that after the advent of mineral fertilizers, the way crops are fertilized remained practically unchanged for decades: soluble sources of N, P and K are still applied to the soil, often with a low rate of utilization by crops. For example, it is estimated that only 50% of the nutrients applied are effectively utilized by plants, with losses due to fixation in the soil (P), leaching (N and K) and volatilization (N).

Fertilizer use efficiency

Increasing the efficiency of fertilizer use requires different strategies, the most commonly used being to synchronize the release of nutrients with crop development, so as to make them available as the plant cycle progresses, reaching maximum demand during the grain filling phase. The most notable example involves nitrogen, in which techniques are used to physically encapsulate fertilizer granules and/or use chemical or biochemical retardant substances, which is widely used with urea, the most common source of N on the market.

The most widely used natural source of P is phosphate rock (calcium phosphate),

which must undergo acid treatment to increase its solubility in the soil. However, highly soluble forms, such as MAP (monoammonium phosphate), when applied to tropical clay soils, are subject to P fixation in oxides, quickly becoming unavailable to plants. As a result of this process, although our agricultural soils already have high levels of phosphorus due to the long history of fertilization, a significant portion of this element is not accessible to plants. To solve this problem, biological products have recently been developed that can make part of this phosphorus available, reducing the need for fertilizers.

The approaches mentioned above were obtained after years of Research, Development and Innovation (RD&I) by

Embrapa, universities and other public and private research institutions and do not dispense with solutions that involve the use of more efficient plants, biostimulants and improvements in production systems. Just to give an example, the use of cover crops can reduce some of these nutrient loss processes by providing a cycle between the deeper layers and the soil surface, indicating that combined strategies can be more efficient for increasing fertilization efficiency.

Therefore, it is understood that to maintain the successful history of our agriculture, with consistent increases in productivity, constant advances in soil fertility and plant management technologies are necessary, providing greater efficiency, lower costs and less environmental impacts.

*Per **Walder Antonio Gomes de Albuquerque Nunes** e **Adriana Marlene Moreno Pires**, from Embrapa Agriculture West*

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