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Cultivar Semanal

Soil management for sugarcane

Table of Contents

Table of Contents

Table of Contents

Researchers identify brown beetle's locomotion strategy

This information can help combat grain infestation.

10.04.2025 | 14:18 (UTC -3)

Cultivar Magazine

Researchers at the University of St Andrews have discovered the movement mechanisms of the larvae of the brown beetle (*Tribolium castaneum*). This information can help combat grain infestation and improve food safety.

It is estimated that up to 20% of flour and grain reserves in the developing world are damaged by pests such as *Tribolium castaneum* each year, posing a significant threat to global food security.

The research revealed that beetle larvae use an adaptive locomotion strategy, especially on uneven terrain such as flour. The ability of these larvae to move efficiently is one of the factors that makes the beetle such a devastating pest.

Although researchers already knew that these insects were efficient at infiltrating food reserves, until now, how they managed to move with such precision was still unknown.

The study showed that beetle larvae move most efficiently on rough, fibrous surfaces, such as paper and cardboard, using an undulating locomotion pattern. This movement starts at the back of the body and moves forward, providing both flexibility and efficiency.

When larvae face more challenging conditions, such as sloping surfaces or the need to dig through flour – a crucial food source – they use structures called pygopodia, located at the back of their bodies, to grip and stabilize themselves.

The research also showed that when the researchers disrupted the neural connections between the front and back sections of the larvae's bodies, their ability to climb and dig was severely impaired. This highlights the importance of coordination between the abdominal and thoracic structures in adapting movements.

In addition to the implications for pest control, the research findings could also inspire new ideas in the field of robotics. The beetle’s locomotion strategies could be used in the design of agile, bioinspired robots.

More information can be found at

doi.org/10.1242/jeb.250015

RETURN TO INDEX

Study reveals why young plants have more difficulty fighting off diseases

The study revealed that young plants expend more energy to fight the disease

07.04.2025 | 14:56 (UTC -3)

Cultivar Magazine, based on information from Georgia Jiang

Plant image *Silene latifolia* infected - Photo: Emily Bruns

A study by researchers at the University of Maryland offers new insights into why young organisms, including plants, are more susceptible to disease. The research suggests that fighting disease early in life can compromise plants’ growth and reproductive capacity later in life.

The research focused on the plant *Silene latifolia*, known as white bellflower, and how it deals with the fungal disease called anther-smut, which prevents the plant from producing pollen and, consequently, from reproducing.

While the disease doesn't kill the plant, it prevents reproduction, which has been compared to a "plant STD," according to Emily Bruns, assistant professor of biology

at UMD and co-author of the study.

The study involved 45 genetic variations of *Silene* in a controlled environment. The researchers found that young plants with greater disease resistance had significantly fewer flowers and seeds over their lifetimes, even in a disease-free environment. On the other hand, adult plants with greater resistance did not suffer this penalty.

“The cost of fighting disease is higher for young plants, as they have limited resources and, by using them to defend against pathogens, they are unable to invest in future growth,” said Bruns.

The study revealed that while young plants expend more energy to fight the disease, they end up being more vulnerable to

infection, which prevents the evolution of stronger resistance at this stage of life.

The researchers also created a mathematical model that illustrates how these high costs of combating pathogens are large enough to prevent the evolution of resistance in young plants.

In theory, plants with greater juvenile resistance could eradicate the disease, but the costs of developing this resistance prevent this from happening.

Another interesting finding was that males of the species *Silene latifolia* presented even higher costs to resist the disease compared to females. This may be because males produce a much larger number of flowers to spread pollen, which makes it more costly to divert resources to

disease defense.

More information can be found at

pnas.org/doi/10.1073/pnas.2419192122

RETURN TO INDEX

Senate approves extension of cultivar protection period

Proposal also limits farmers' ability to save seeds for the next harvest

11.04.2025 | 14:59 (UTC -3)

Cultivar Magazine, based on information from the Senate Agency

Photo: Jefferson Rudy / Senate Agency

The Senate Agriculture Committee (CRA) approved, in a supplementary round, a bill that extends the term of protection for cultivars in Brazil. The measure extends the term of protection to 20 years.

In addition, the bill restricts the possibility of farmers saving seeds to plant in subsequent harvests. The text amends the law by including the following provision:

> "III - the provisions of item I [possibility of saving seeds] only apply to crops managed by producers who hold possession or control of rural properties with an area equivalent to at least four fiscal modules, calculated in accordance with the provisions of Law No. 4.504, of November 30, 1964, or one hundred and fifty hectares,

whichever is greater, when intended for production for industrial processing purposes;"

The project is now being analyzed by the Chamber of Deputies.

The amendment changes the Cultivar Protection Law (Law 9.456/1997), which currently guarantees a protection period of 15 to 18 years, depending on the type of cultivar.

The rapporteur of the proposal highlighted that the change is essential to promote the seedling production sector and to align with the guidelines of the International Union for the Protection of New Varieties of Plants (UPOV), of which Brazil has been a signatory since 1999.

The full text of the project can be read at the link below.

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RETURN TO INDEX

LS Tractor dealers get to know the MT4 70 tractor that will be launched at Agrishow 2025

The new model was presented during the annual meeting of the dealership network, in Itatuba (SP)

11.04.2025 | 14:23 (UTC -3)

Cultivar Magazine

During the annual meeting of its dealer network in Itatuba (SP), LS Tractor announced the launch of the MT4 70 tractor. The model, scheduled to officially debut at Agrishow 2025 (between April 28 and May 2, in Ribeirão Preto, SP), brings together features designed to offer performance in various operations in the field.

According to the information we have gathered, the MT4 70 has a four-cylinder LS Diesel engine, aligned with the Tier 3 emissions standard, which has 62 hp of power and maximum torque of 202,6 Nm. The system has electronic protection, which reduces the risk of damage to the equipment.

The LS transmission includes 16 forward and 16 reverse speeds, and can reach 32 forward and 16 reverse speeds when equipped with the creeper system, which allows working speeds from 160 meters per hour. The tractor also incorporates a Synchro reverser, which allows the direction of travel to be changed by touching a single lever.

At the front, the MT4 70 features a new Heavy Duty LS front transmission with a 2,04-meter wheelbase, a feature that, according to the brand, provides the smallest turning radius in the category of tractors with approximately 70 hp. The hydraulic system offers a lifting capacity of 1.655 kg, accompanied by two remote control valves, one of which has a variable flow rate from 0 to 35 liters per minute.

Regarding the PTO (power take-off), the MT4 70 reaches 58 hp on the shaft and allows manual or automatic activation. There are five rotation options: 540, 540E, 540SE, 750 and 1000 rpm.

The MT4 70 design has won an award in South Korea, where it is already being sold

The tractor will be available in both the ROPs (with protective structure) and cabin

versions. According to the manufacturer, the MT4 70 stands out for having the highest load capacity and stability in its segment, in addition to including measures related to operational comfort. At Agrishow 2025, LS Tractor should present more details about sales and after-sales, as well as the configurations of accessories and implements compatible with the new launch.

The MT4 70's design has won awards in South Korea, where it is already being sold. It features bold lines and modern features, which will likely be part of the brand's upcoming launches.

Before being launched, the tractor underwent field tests and validations, working mainly on coffee plantations in Brazil.

RETURN TO INDEX

AGCO and SDF enter into partnership to produce tractors

The Italian company will be responsible for producing tractors with up to 85 hp for the Massey Ferguson brand

11.04.2025 | 14:21 (UTC -3)

Cultivar Magazine, based on information from Paolo Ghislandi

AGCO has signed a supply agreement with Italian company SDF. Starting mid-year, SDF will be responsible for producing tractors with up to 85 hp for the Massey Ferguson brand, with distribution to several global markets, including Brazil.

According to Luis Felli, senior vice president and general manager of Massey Ferguson, the partnership reinforces the brand's strategy, which places the farmer at the center of its operations.

“We are delighted to have a partner like SDF who shares our passion for serving farmers around the world. This partnership strengthens Massey Ferguson’s position in the low- to mid-size tractor segment, providing farmers with high-quality, dependable equipment to boost their

productivity and maximize profits,” said Felli.

The new tractor line will be available with a range of powertrain options to meet the specific needs of different markets. AGCO expects the renewal of Massey Ferguson’s portfolio to help it increase its share of the tractor segment up to 85 horsepower.

Alessandro Maritano, SDF’s Chief Commercial Officer, commented on the benefits of the partnership: “This agreement highlights the efficiency of SDF’s vertically integrated production system across all our facilities. It confirms the value of our in-house expertise and know-how in the design and manufacturing of essential components, ensuring excellence and innovation worldwide.”

RETURN TO INDEX

Soil management for sugarcane

The expansion of the crop in the South-Central region of the country, in areas where the land is more susceptible to erosion, has caused concern

11.04.2025 | 09:57 (UTC -3)

The expansion of sugarcane cultivation in areas where soils with a light textured surface horizon predominate, in the

Center-South region of the country, has caused worrying soil degradation processes, with these soils being more susceptible to erosion.

On the other hand, clayey soils may have greater compactness, or reaction to machine traffic and overflows, than sandy soils, being subject to increased density and decreased porosity, which harms plants and their root development.

The effect of the reform period and the use of economic crops (oilseeds - soybean, sunflower or peanuts and grasses -, sweet sorghum, corn) and soil recovery crops (brachiaria, green manures) will be observed. The physical, chemical and biological behavior of the soil and its capacity for self-recovery and production

should be evaluated, taking as reference areas under natural vegetation, long-term pastures and annual and perennial crops managed with conservationist systems.

Meiosi (simultaneous interrotational method), with intercropping, which allows mother lines of sugarcane to be left in the field, and therefore the seedlings, will enable the replacement and rotation of crops in the location, where the predecessor crop is soybeans, for example.

Description of activities

The use of ratoon crops, as a way of facilitating the incorporation of fertilizer into the soil and leaving the land in favorable

conditions for the application of herbicides in places where there is no straw, makes the soil more suitable for management and preparation.

The purpose of soil preparation is to make the land ready and suitable for the next activity in the production chain - the planting process - to be carried out. It includes activities normally carried out according to an operational sequence, sometimes quite standardized.

Operational sequence

The choice of type of preparation will depend on the characteristics of the soil in each location where the management will be carried out. Harrowing is an operation

used to build roads, as it allows the soil to become compacted when used with excessive soil moisture, forming preparation scars. The extensive use of harrowing at the same depth does not improve water infiltration or promote soil aggregation. However, harrowing combined with subsoiling and plowing can have benefits, if well regulated and used at the appropriate time.

Tabela 1 - diferentes classes de grades: leve, média, pesada e superpesada

Classes	Peso /disco	Distância entre discos	Diâmetro de disco	Finalidades
Grade leve	20 — 60 kg	17—24cm	20” — 24”	Nivelamento e destorroamento como operação de acabamento de preparo de solo.
Grade média	100—150 kg	24—36 cm	26” — 30”	Preparo de solo raso para cereais.
Grade pesada	200—350 kg	32—50 cm	32” — 34”	Preparo de solo mais profundo em culturas como a cana-de-açúcar e terras virgens.
Grade super pesada	400—600 kg	50 cm	36”	Idem anterior, porém, apresentam maiores dificuldades em situações de penetração e corte de restos vegetais

different classes of grades: light, medium, heavy and super heavy

The certainty that poorly managed soils can irreversibly lose their productive

capacities underlies the importance of the resilience of tropical soils. This leads farmers to seek to minimize potential damage that may be caused to soils due to the lack of agronomic care in their use for agricultural production.

Definition and use of conventional preparation

Heavy grading: This same operation must be carried out again in the final phase of conventional soil preparation, with the aim of reducing, as a priority, the size of the blocks left by previous operations (construction of terraces, subsoiling and plowing, if applicable) and incorporating

any crop remains that still remain on the surface of the land.

Light harrowing and interaction in management with herbicides: When used to complement the second heavy harrowing, it is intended to break up the soil, leaving the surface level for furrowing. For the operation to be effective in assisting herbicide products, it must be carried out at most one or two days before furrowing. This is justified because seeds, especially grass seeds, when germinating, send out their root primordia in the direction of the soil depth and, after one or two weeks, the root absorption products can no longer have the expected effect in controlling weeds. After this time, the roots are no longer within the range of action of

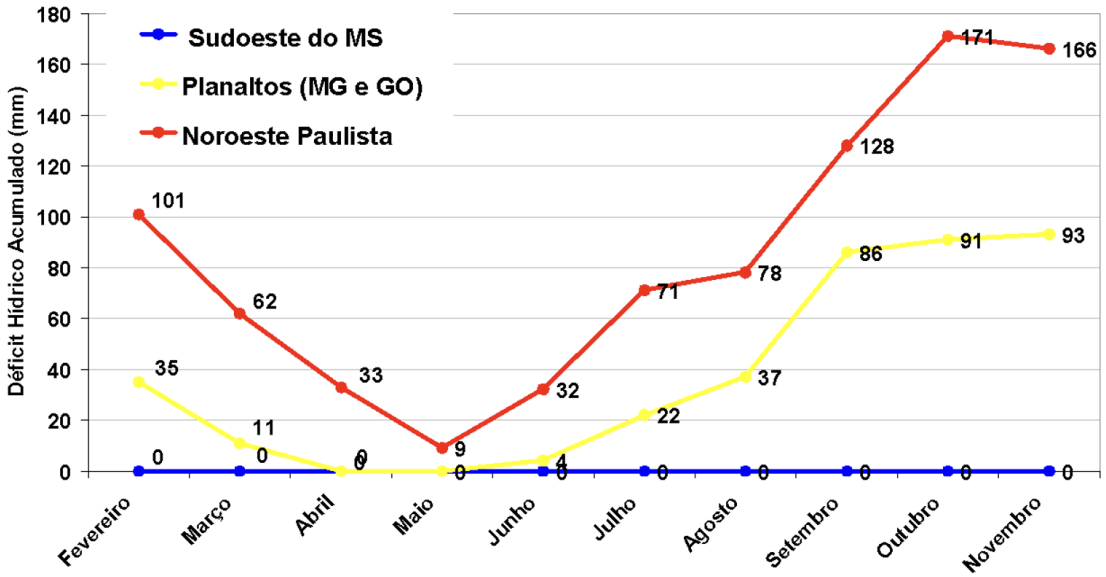
the herbicide products and the weeds vegetate without limitations.

Intensive mechanization

Morphological and, consequently, physical-hydraulic attributes are extremely relevant to the management and conservation of soils in sugarcane cultivation, since, together, they affect the speed of water infiltration (hydraulic conductivity), its storage capacity, the resistance of aggregates to destabilization, or the stability of aggregates, and the available water.

The average water deficit values ??for some locations in the Center-South region

are shown in the figure. It should also be noted that these deficits are calculated based on monthly data, which significantly mask the real deficits.



Average accumulated water deficit for planting in different regions and seasons in soils with CAD of 50 mm (CAD = Available Water Capacity)

Third axis matrix

The third axis matrix is ??due to a new strategy developed by the IAC, by bringing the production cycle, that is, the cutting of sugar cane, as another factor, the third, to

be added to the production environment and the harvest season, with the objective of minimizing the effects of the water deficit.

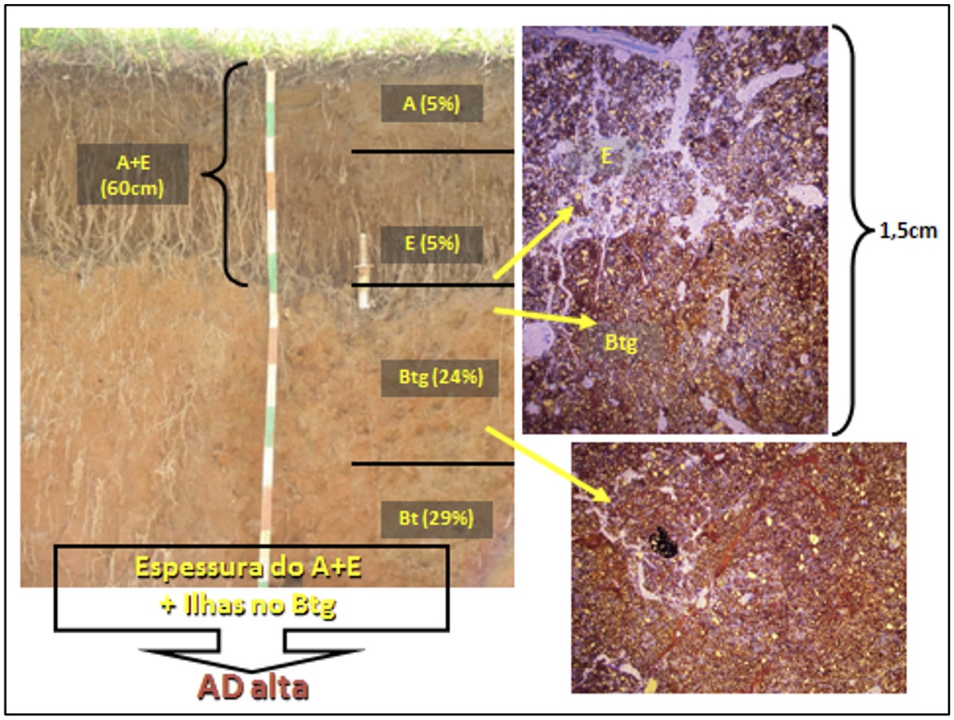
This effect of minimizing the water deficit consequently generates more expressive and immediate gains in productivity, especially in the second cut and in the most advanced cuts in the sugarcane field. This is because this model directly impacts the deepening and development of the roots, causing a decrease and even an increase in the stalk population in these first cycles.

The question of argisols

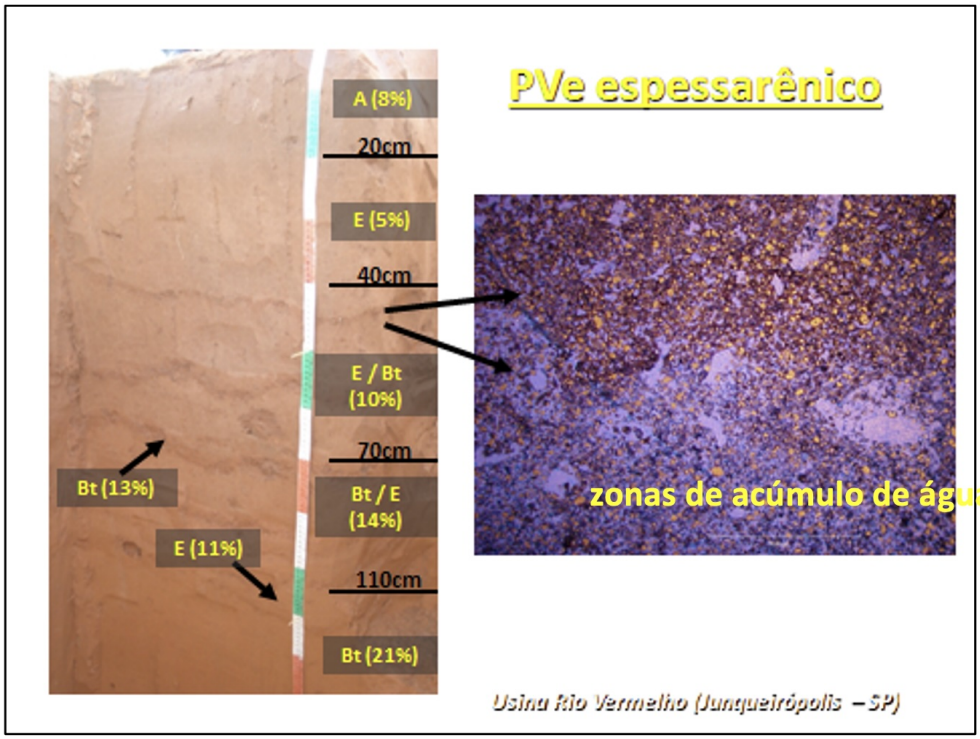
Considering the soils of the western region of São Paulo, they can be defined, in ascending order of susceptibility to erosion: LV ? PV arenic ? PV. Regarding preparation (Table 1), they should be allocated, when necessary, in periods of greater rainfall, allowing the preparation of argisols to be directed to months of less intense rainfall. In regions with more pronounced water deficit, latosols should not receive sugarcane planting in January/February, exceptionally when eutrophic, since, due to the low CAD and significant development until May/June, even implying the formation of the first internodes, they will be exposed to high water deficits in the middle of the harvest.

In this composition of soils developed from sandstones, the sandy argisols, which

have lower erodibility than the argisols with a thinner A horizon, should be used for the beginning of planting. The figures show some images of profiles of sandy argisols with an abrupt character and sandy texture in the A horizon and medium in the Bt horizon, and images of the micromorphology of these profiles.



Morphology and micromorphology of a eutrophic sandy red-yellow argisol profile illustrating the reasons for the high CAD



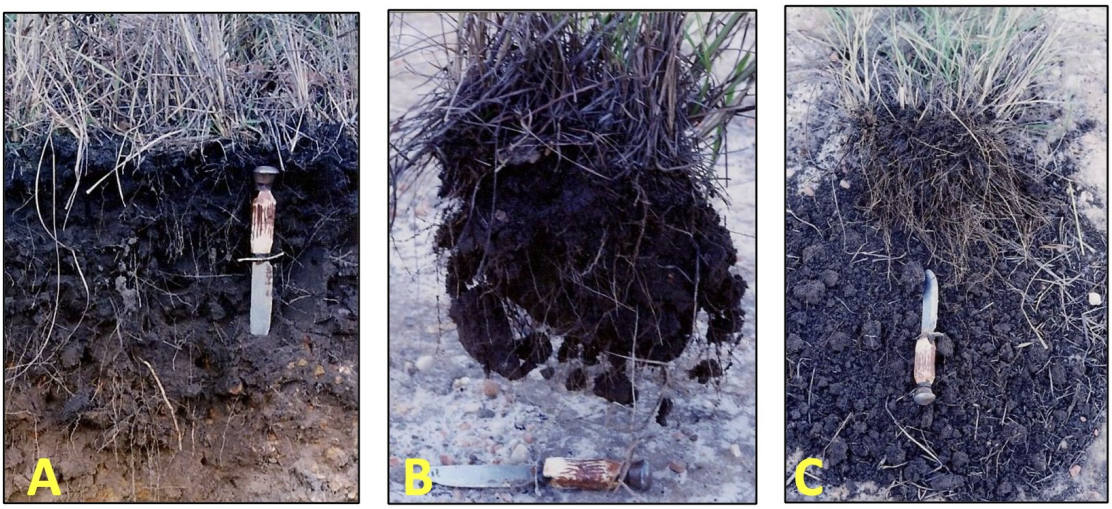
Profile of a eutrophic red-yellow spessarenic argisol, with micromorphological detail showing the contact between a clay lamella and the massive porous structure in single grains of the E horizon, causing the formation of water accumulation zones

It is observed that, between the A + E and Bt horizons, there are medium-textured lamellae (15% to 20% clay), which partially interrupt drainage; in Bt, there are water accumulation zones, due to structural weakness (average clay content between 15% and 25%), with no continuity of the pores, resulting in high amounts of available water due to the lack of drainage

of this Bt horizon, classifying these profiles as high CAD soils and, therefore, their harvest period should be extended, both to the beginning and to the end of the harvest.

It should be remembered, however, that susceptibility to erosion is a function of hydraulic conductivity and the resistance of aggregates to dismantling and washing away by water (Morgan, 2005), and that these argisols are presented without aggregation in the A horizon (single grains, normally quartz). Thus, although arenic soils present high hydraulic conductivity, only one phase of resistance to erosion requires plant cover to promote the binding of sand by the root system of this cover (sugar cane ratoons, crotalaria, millet, weeds, etc.), which produces a temporary

“structure” sufficient to prevent dismantling and the consequent washing away of individual quartz particles.



(A) Soil profile with sandy A horizon. (B) Grass clump providing support for the weak structure. (C) Volume of soil surrounded by the coiling of the grass clump root system.

* *By* **Sandro Roberto Brancaliao**, **Marcos Guimarães de Andrade Landell**, **Marcio Aurelio Pitta Bidoia**, **Raffaella Rossetto**, *and* **Mauro Alexandre Xavier** *(IAC/APTA/SAA)*

RETURN TO INDEX

Indigo Ag Announces Executive Promotions

Cristiano Pinchetti and Reinaldo Bonnecarrere now take on other roles

11.04.2025 | 09:15 (UTC -3)

Ludymila Marques, Cultivar Magazine edition

Indigo Ag announced that Cristiano Pinchetti, previously CEO for Latin America, will assume the position of "Head

of Indigo International – CEO Latam and Europe", also leading the company's operations on the European continent.

In addition, Reinaldo Bonnecarrere, who already headed the Biologicals department in Latin America, is expanding his operations to Europe, reinforcing the company's commitment to integrating units and accelerating the use of biologicals in the world's main agricultural markets.

Founded in Boston in 2013, Indigo has achieved market prominence with its focus on solutions that drive sustainable practices, combining biotechnology, digital data and customized solutions for rural producers. In addition, the company is a leader in the generation of carbon credits in the United States, with increasing rates

with each harvest.

“Taking on the role of Head of International at Indigo is an opportunity to apply successful models from Latin America to Europe. These positive results were only possible thanks to the good work of the Latam team in day-to-day execution. Our goal is to align global strategies, maintaining our commitment to offering the best solutions, regardless of culture or region, and to grow sustainably, with continuous investment in research to increase efficiency and productivity in the field,” highlights Pinchetti.

The executive will remain based in Brazil, but will have a frequent presence in Switzerland (the base of Indigo Ag's European operations), a country where he

previously lived and worked as an executive at another agribusiness company between 2007 and 2010.

Indigo Ag’s strategic move also includes the promotion of Reinaldo Bonnecarrere, who will now lead the Biologicals division in both Latin America and Europe. Under Pinchetti’s leadership, Bonnecarrere will be tasked with accelerating the adoption of biologicals in global agribusiness, strengthening the company’s presence in strategic markets.

“It is a source of pride to see our work recognized and to be able to contribute to the global expansion of biological solutions. The opportunity to bring this experience to Europe represents a great challenge, but at the same time a fundamental step towards strengthening

sustainability and innovation in the sector," highlights Bonnecarrere.

RETURN TO INDEX

FMC announces Sofero Fall against "Spodoptera frugiperda"

The product uses technology based on interrupting pest mating

10.04.2025 | 17:57 (UTC -3)

Cultivar Magazine

FMC Corporation announced the approval of the registration of Sofero Fall in Brazil. This is a pheromone used to control fall

armyworm (*Spodoptera frugiperda*).

According to Ronaldo Pereira, president of FMC, the approval of Sofero Fall in Brazil is an important milestone in the development of high-performance and sustainable crop protection solutions.

“We are excited to provide growers with an effective new tool to combat fall armyworm, which has developed resistance to many traditional insecticides,” said Pereira.

According to information from FMC, Sofero Fall uses technology based on interrupting the pest's mating. The product emits pheromone signals that disrupt the fall armyworm's reproductive cycle, preventing its reproduction. This controls the pest before the next generation can emerge,

protecting crops in the early stages of development, reducing damage and promoting healthy plant growth.

Sofero Fall is the first product to be launched under FMC’s Sofero brand, which encompasses pheromone solutions for a variety of crops, including rice, corn, cotton and soybeans.

In addition to Sofero Fall, registration of the pheromone Sofero Frugi, also aimed at fall armyworms, is pending in Mexico, with approval expected in 2027.

Technical information about Sofero Fall

- Registration holder: FMC Química do Brasil Ltda. - Campinas/SP.

- Trademark: SOFERO FALL FEROMONE.
- Request result: Granted. Granted Certificate with registration no. 11025, according to process no. 21016.002383/2024-37, filed on 01/04/2024.
- Manufacturer: Name: Cheminova A/S - Address: Thyborønvej 78, DK-7673 Harboøre - Denmark.
- Formulator: Name: FMC Corporation - Address: 100 Niagara Street, Middleport, 14105, New York - United States of America; Name: FMC Química do Brasil Ltda. - CNPJ: 04.136.367/0005-11 - Address: Av. Antônio Carlos Guillaumon, 25 - Distrito Industrial III - Uberaba/MG -

Zip Code: 38.001-970; Name: Kwizda Agro GmbH - Address: Laaer Bundesstrasse, Kwizda Alie 1, A-2100, Leobendorf - Austria.

- Chemical name: (Z)-9-tetradecen-1-ol acetate; Z-9-tetradecen-1-yl acetate.
- Common name: (Z)-9-Tetradecenyl acetate.
- Indication for use: indicated for any crop with occurrence of the biological target *Spodoptera frugiperda*.
- Toxicological classification: Not Classified - Unclassified Product.
- Classification according to potential environmental hazard: Class IV - Product of little danger to the environment.

Information about (Z)-9-tetradecenyl acetate

(Z)-9-Tetradecenyl acetate (CAS 16725-53-4) is a chemical compound that plays a crucial role in the control of agricultural pests and is widely used in integrated management strategies. This compound belongs to the ester class and acts as a sexual or aggregation pheromone in several insect species.

Its application in the agricultural field is based on the exploration of natural mechanisms of chemical communication between insects, which enables an efficient and sustainable approach to pest control.

(Z)-9-Tetradecenyl acetate acts as a specific chemical signal, released by females to attract males during the mating season. This function can be exploited by farmers in several ways. One of the most common techniques involves the use of traps containing the compound to monitor pest population densities. By capturing male insects, these traps provide valuable information about infestations, allowing for more accurate and timely interventions.

In addition, pheromone can also be used in sexual confusion systems, where its massive release into the environment hinders the ability of males to locate females. This method significantly reduces the reproduction of the pest, decreasing its population over time.

Another strategy involves combining traps with lethal agents, such as pesticides or adhesive surfaces, to directly capture and eliminate insects. This approach is particularly useful in organic or sensitive crops, where the use of toxic chemicals is limited or undesirable.

(Z)-9-Tetradecenyl acetate has been successfully used to control several agricultural pests. For example, it is used to manage moths such as the apple moth (*Cydia pomonella*) and the citrus moth (*Prays citri*), which cause significant damage to fruit orchards. It is also used to control beetles such as the rice beetle (*sitophilus oryzae*), and in vegetable crops, where it helps protect plants against the diamondback moth (*Plutella xylostella*).

One of the main advantages of using this compound is its specificity. Pheromones are highly selective for certain insect species, minimizing the impact on non-target organisms.

Furthermore, (Z)-9-tetradecenyl acetate has a low environmental impact, as it is biodegradable and does not persist in soil or water for long periods. Another important benefit is the reduced likelihood of pests developing resistance, since pheromones exploit natural communication mechanisms.

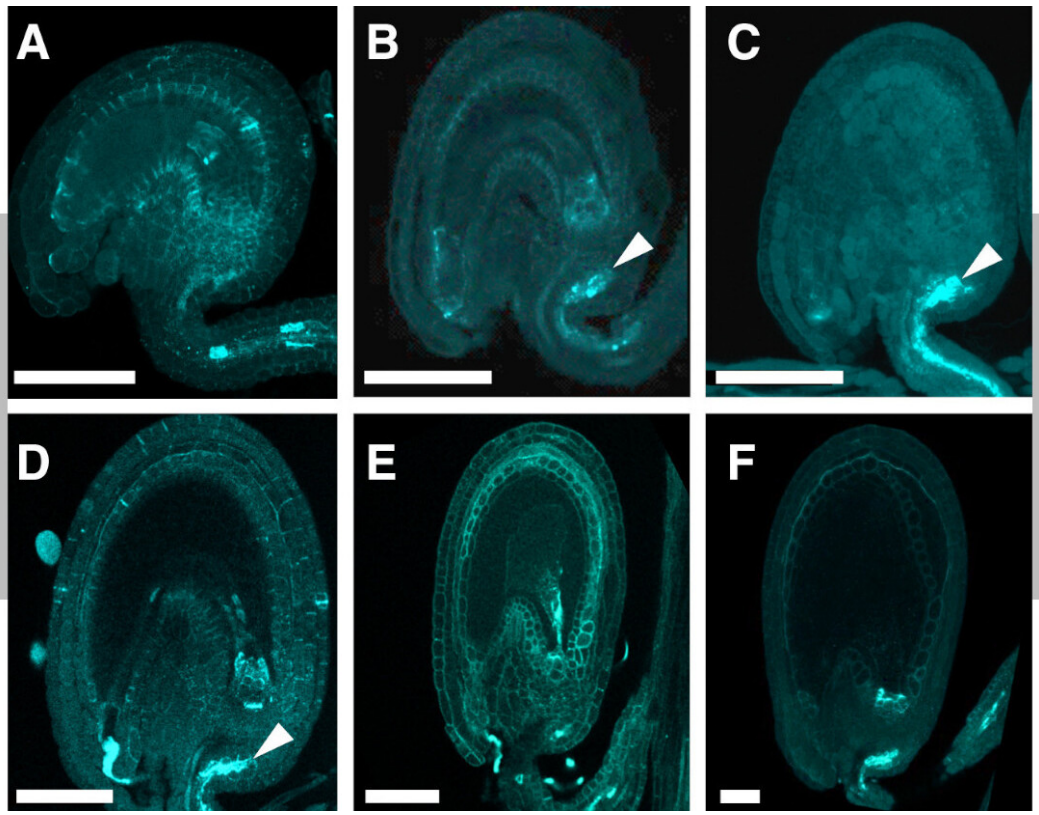
RETURN TO INDEX

Researchers discover new plant tissue after 160 years

Unprecedented identification paves the way for increased productivity in agricultural crops

10.04.2025 | 15:17 (UTC -3)

Cultivar Magazine



Callose deposition decreases from A to C but increases from D to E. (A–C) Wild-type ovules 1 day after pollination (DAP) (A), 2 DAP (B), and 3 DAP (C). (D–F) Genetically modified ovules 1 DAP (D), 2 DAP (E), and 3 DAP (F) - Image: Ryushiro Kasahara

Researchers at Nagoya University in Japan have identified plant tissue that is essential for seed formation. According to the scientists, this is the first plant tissue discovered in 160 years. The study was published in the journal Current Biology. The discovery has already demonstrated practical applications, allowing for increased productivity in crops such as rice.

The new fabric, named by scientists as "Kasahara Gateway" after researcher Ryushiro Kasahara, was found by accident.

During an investigation into the deposition of callose, a substance associated with fertilization, Kasahara observed unexpected signs in areas opposite to the usual site of fertilization in plants.

"Nobody was looking where I was. I was surprised, especially because we noticed that the signal was especially strong when fertilization failed," the researcher said.

The newly discovered tissue acts as a kind of "gate", controlling the flow of nutrients to the developing seeds. In a closed state, callose blocks the transport of nutrients, preventing the development of unfertilized seeds.

After successful fertilization, this gate opens by degradation of callose, allowing nutrients to be directed exclusively to viable seeds.

Scientists identified the AtBG_ppap gene as responsible for this callose degradation. When genetically engineered to overexpress this gene, the "gate"

remained permanently open, increasing the flow of nutrients and, consequently, the size of the seeds. Experiments carried out with rice showed seeds that were 9% larger; other species achieved up to 16,5% increase.

The discovery of this mechanism could be significant for plant genetic improvement, offering a new strategy to increase agricultural productivity.

Furthermore, the results expand our understanding of the evolution of flowering plants (angiosperms), explaining how they optimize resources by avoiding wasting nutrients on unviable seeds.

More information can be found at
doi.org/10.1016/j.cub.2025.03.033

Clique aqui e veja no YouTube
Click here and watch on YouTube

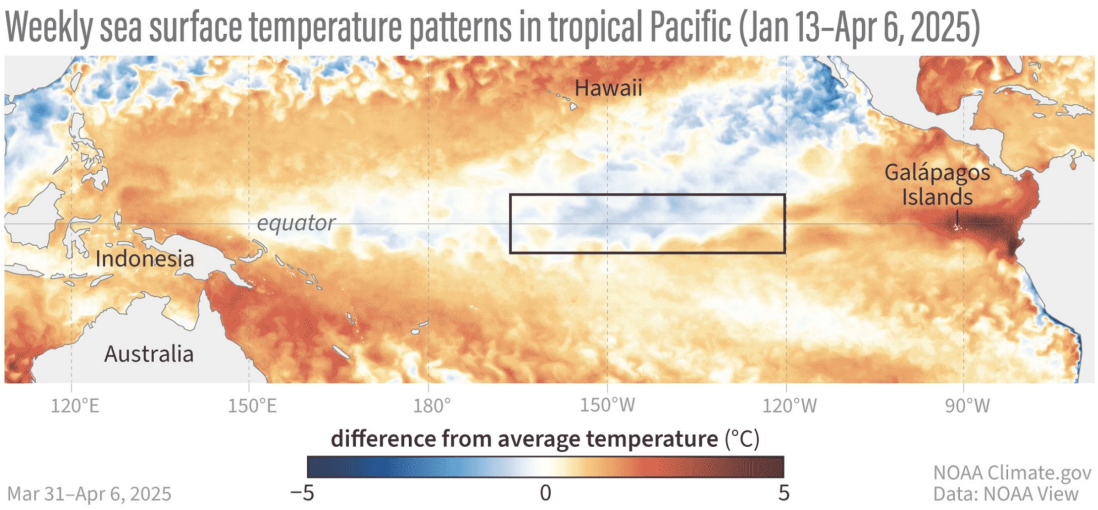
RETURN TO INDEX

La Niña ends and climate returns to neutrality in the Pacific

Change announced by NOAA affects rainfall and temperature patterns

10.04.2025 | 14:52 (UTC -3)

Cultivar Magazine



The U.S. National Oceanic and Atmospheric Administration (NOAA) has announced that La Niña conditions have ended. The equatorial Pacific Ocean is

now in a neutral climate state. This transition to El Niño-Southern Oscillation (ENSO) neutrality has significant implications for global agriculture, affecting temperature and precipitation patterns in many regions.

La Niña is characterized by cooler-than-average sea surface temperatures in the central and eastern equatorial Pacific, influencing weather patterns around the world.

During its occurrence, areas such as the southern United States tend to experience drier winters, while regions such as northern Brazil may experience increased rainfall. With the transition to neutral conditions, these patterns are expected to change, gradually returning to historical

averages.

Recent observations indicate that in February 2025, the Niño-3.4 temperature anomaly was -0,6°C, slightly above the La Niña threshold of -0,5°C. In addition, the Southern Equatorial Oscillation Index, which measures the atmospheric pressure difference between the western and eastern Pacific, decreased compared to January, suggesting a weakening of the atmospheric circulation associated with La Niña. These factors contributed to the transition to the ENSO-neutral state.

For the agricultural sector, this change could bring changes in precipitation and temperature patterns that affect the planting and harvesting cycle. For example, in Brazil, ENSO neutrality could

lead to a more even distribution of rainfall, benefiting crops that depend on adequate moisture.

Experts point out that although the current forecast indicates that neutral conditions will remain in the coming months, it is possible that La Niña will return at the end of the year.

RETURN TO INDEX

The Board of Directors of the Rural Union of Lucas do Rio Verde is sworn in

Rural producer Tiago Cinpak assumed the presidency of the union

10.04.2025 | 14:46 (UTC -3)

Famato System, Cultivar Magazine edition

The Mato Grosso Agriculture and Livestock Federation (Famato) has appointed the new board of directors of the Lucas do Rio Verde Rural Union for the four-year period 2025/2029. Rural producer Tiago Cinpak assumed the presidency of the union with the commitment to continue a management marked by responsibility, dialogue and appreciation of the productive sector.

Vilmondes Tomain, president of the Famato System, highlighted that the inauguration ceremony is a time to reaffirm confidence in the rural producer elected to the presidency. “This is when the rural producer is sworn in for the trust placed in him. This is when he takes on the commitment to be the voice of agribusiness, to defend the interests of the

sector and to fight for those who make this state what it is. I congratulate Tiago and all the directors for their courage," he said.

"I take on this role with humility, but also with courage and willingness to work for our sector. I know that the responsibility is great, but I have a strong board of directors and the trust of our members by my side. Together, we will achieve even more," said the new union president.

With the accounts approved unanimously, former president Denise Hasse highlighted the sense of duty fulfilled and the care with the resources of the rural producer, invested in actions that return directly to the field. "It is a cycle that is renewed, with the certainty that everything we did was focused on the collective good and the appreciation of the agricultural sector of

Lucas do Rio Verde”, she concluded.

RETURN TO INDEX

2024/25 orange harvest ends with a drop of almost 25%

Adverse weather conditions and increased severity of greening impacted production

10.04.2025 | 13:42 (UTC -3)

Cultivar Magazine, based on information from Daniele Merola

The 2024/25 orange harvest in the citrus belt of São Paulo and Triângulo/Sudoeste

Mineiro ended with a production of 230,87 million boxes of 40,8 kilos, as announced today (10/4) by Fundecitrus. The volume represents a 24,85% decrease in relation to the previous harvest, which totaled 307,22 million boxes, and consolidates this as the second smallest harvest in the last 37 years.

The final figure was 0,65% below the initial projection from May 2024, which estimated a production of 232,38 million boxes. According to Fundecitrus, the result was strongly influenced by climatic factors, such as the prolonged drought and temperatures above the historical average between May and August, in addition to the intensification of greening, a disease that compromises the productivity and quality of the fruits.

“Although forecasts indicated little rain, the intensity of the drought exceeded expectations. The volume of precipitation was 31% below average and maximum temperatures were between 3ºC and 4ºC above normal,” explained Juliano Ayres, executive director of Fundecitrus.

These conditions hindered the development of the fruits, which were below the ideal weight. The average weight of the oranges harvested was 159 grams, while the fruits from the fourth flowering — which stood out for their late and expressive emission — registered an average of only 146 grams.

The early harvest, caused by the accelerated ripening of the fruits, was also a direct consequence of the adverse

weather. Despite this, the faster harvest pace helped reduce losses due to fruit drop, which reached 17,8% — the lowest rate recorded in the last five years. Even so, it is estimated that around 50 million boxes were lost, 25 million due to greening, 12 million due to fruit flies and chiggers, and the remainder due to other factors such as natural drop, black spot, leprosy and citrus canker.

The estimate for the next harvest, 2025/26, will be released on May 9, in an in-person event at Fundecitrus with online transmission. The survey is carried out in partnership with the Department of Exact Sciences at Unesp, Jaboticabal campus.

RETURN TO INDEX

Conab releases seventh survey of the 2024/25 harvest

Brazil could reach record production of 330,3 million tons

10.04.2025 | 09:47 (UTC -3)

Cultivar Magazine

Brazil's 2024/25 grain harvest is set to set a new record. Brazil's national grain supply company, Conab, estimates production at

330,3 million tonnes. The figures were released today.

The volume, if confirmed, represents a growth of 32,6 million tons in relation to the 2023/24 cycle, consolidating itself as the largest in the historical series.

The increase was mainly driven by the expansion of the planted area, which should reach 81,7 million hectares, 1,7 million more than in the previous harvest.

Furthermore, the favorable climate for the first harvest has contributed to the good performance of the crops. The outlook for the second harvest is also optimistic, with a forecast increase of 8,6% in productivity, estimated at 4.045 kilos per hectare.

soy and corn

Among the main crops, soybeans stand out as the product with the largest production volume. The estimate is that Brazil will harvest 167,9 million tons of the grain, an increase of 20,1 million tons compared to last year.

The Central-West and North regions, the main producing areas, are expected to record productivity, with Mato Grosso standing out, where average productivity has already reached 3.897 kilos per hectare. Goiás also stands out, with an average productivity of 4.122 kilos per hectare and 97% of the area harvested.

With soybeans in an advanced stage of harvest, the planting of the second corn

crop is about to be completed. Total corn production for the 2/2024 harvest is estimated at 25 million tons, which represents an increase of 124,7 million tons compared to the previous harvest.

For the second harvest, the forecast is 97,9 million tons, driven by a larger planted area and a 5,5% recovery in productivity, which should reach 5.794 kilos per hectare.

Rice, beans and cotton

The rice harvest is progressing well, with over 60% of the area already harvested. Production is expected to grow by 14,7%, reaching 12,1 million tons, due to a 7,2% recovery in average productivity, which should reach 7.061 kilos per hectare. The

area planted with rice grew by 7%, reaching 1,72 million hectares.

In the case of beans, production is expected to grow by 2,1%, reaching 3,3 million tons, as a result of the improvement in average productivity, which should rise from 1.135 to 1.157 kilos per hectare. The planted area, in turn, remains stable at 2,86 million hectares.

Finally, cotton production is also expected to reach a record level. Planting has been completed on an area of ??2,1 million hectares, 6,9% larger than in the previous harvest, and lint production is expected to reach 3,9 million tons, 5,1% more than in 2023/24.

TABELA 1 - COMPARATIVO DE ÁREA, PRODUTIVIDADE E PRODUÇÃO POR PRODUTO

Brasil	Estimativa da produção de grãos			Safras 2023/24 e 2024/25					
Produto	ÁREA (Em mil ha)			PRODUTIVIDADE (Em kg/ha)			PRODUÇÃO (Em mil t)		
	Safra 23/24	Safra 24/25	VAR. %	Safra 23/24	Safra 24/25	VAR. %	Safra 23/24	Safra 24/25	VAR. %
	(a)	(b)	(b/a)	(c)	(d)	(d/c)	(e)	(f)	(f/e)
ALGODÃO - CAROÇO (1)	**1.944,3**	**2.079,3**	**6,9**	**2.681**	**2.635**	**(1,7)**	**5.212,7**	**5.478,0**	**5,1**
ALGODÃO - PLUMA	**1.944,3**	**2.079,3**	**6,9**	**1.904**	**1.871**	**(1,7)**	**3.701,5**	**3.890,8**	**5,1**
AMENDOIM TOTAL	**255,4**	**280,0**	**9,6**	**2.873**	**4.197**	**46,1**	**733,7**	**1.175,1**	**60,2**
Amendoim 1ª Safra	248,2	272,8	9,9	2.908	4.264	46,6	721,7	1.163,1	61,2
Amendoim 2ª Safra	7,2	7,2	-	1.660	1.669	0,5	12,0	12,0	-
ARROZ	**1.607,8**	**1.720,3**	**7,0**	**6.584**	**7.061**	**7,2**	**10.585,5**	**12.146,7**	**14,7**
Arroz sequeiro	324,8	366,0	12,7	2.594	2.742	5,7	842,6	1.003,9	19,1
Arroz irrigado	1.283,0	1.354,3	5,6	7.594	8.228	8,3	9.742,9	11.142,8	14,4
FEIJÃO TOTAL	**2.859,5**	**2.861,6**	**0,1**	**1.135**	**1.157**	**2,0**	**3.244,3**	**3.312,7**	**2,1**
FEIJÃO 1ª SAFRA	**861,1**	905,0	**5,1**	**1.094**	1.170	**6,9**	**942,3**	**1.058,8**	**12,4**
Cores	343,1	344,7	0,5	1.665	1.702	2,2	571,4	587,0	2,7
Preto	124,7	168,5	35,1	1.492	1.953	30,9	186,1	329,1	76,8
Caupi	393,3	391,8	(0,4)	470	365	(22,4)	184,9	142,9	(22,7)
FEIJÃO 2ª SAFRA	**1.528,2**	1.463,8	**(4,2)**	**990**	**1.008**	**1,8**	**1.512,2**	**1.475,1**	**(2,5)**
Cores	364,7	326,8	(10,4)	1.456	1.529	5,0	530,8	499,6	(5,9)
Preto	331,6	301,8	(9,0)	1.534	1.691	10,3	508,4	510,6	0,4
Caupi	831,9	835,2	0,4	568	556	(2,1)	472,8	464,9	(1,7)
FEIJÃO 3ª SAFRA	**470,2**	**492,8**	**4,8**	**1.680**	1.580	**(5,9)**	**789,9**	**778,9**	**(1,4)**
Cores	403,3	422,3	4,7	1.829	1.732	(5,3)	737,9	731,5	(0,9)
Preto	14,5	15,7	8,3	1.199	906	(24,4)	17,4	14,3	(17,8)
Caupi	52,4	54,8	4,6	663	604	(9,0)	34,7	33,1	(4,6)
GERGELIM	**659,9**	**660,3**	**0,1**	547	**504**	**(7,9)**	**361,3**	**332,8**	**(7,9)**
GIRASSOL	**59,7**	**67,4**	**12,9**	1.188	**1.463**	**23,2**	**71,1**	**98,8**	**39,0**
MAMONA	**58,7**	**64,2**	**9,4**	**1.484**	**1.367**	**(7,9)**	**87,1**	**87,7**	**0,7**
MILHO TOTAL	**21.050,8**	**21.313,1**	**1,2**	**5.496**	**5.853**	**6,5**	**115.697,2**	**124.743,4**	**7,8**
Milho 1ª Safra	3.970,1	3.768,7	(5,1)	5.784	6.492	12,2	22.962,2	24.465,4	6,5
Milho 2ª Safra	16.437,4	16.895,0	2,8	5.491	5.794	5,5	90.255,0	97.890,9	8,5
Milho 3ª Safra	643,3	649,4	0,9	3.856	3.676	(4,7)	2.480,3	2.387,1	(3,8)
SOJA	**46.149,6**	**47.515,7**	**3,0**	**3.201**	**3.533**	**10,4**	**147.721,1**	**167.869,8**	**13,6**
SORGO	**1.459,2**	**1.504,6**	**3,1**	**3.033**	**3.116**	**2,7**	**4.425,6**	**4.688,1**	**5,9**
SUBTOTAL	76.104,9	**78.066,5**	**2,6**	**3.786**	**4.098**	**8,2**	**288.139,6**	**319.933,1**	**11,0**

Culturas de inverno	ÁREA (Em mil ha)			PRODUTIVIDADE (Em kg/ha)			PRODUÇÃO (Em mil t)		
	2024	2025	VAR. %	2024	2025	VAR. %	2024	2025	VAR. %
	(a)	(b)	(b/a)	(c)	(d)	(d/c)	(e)	(f)	(f/e)
AVEIA	488,4	488,4	-	2.132	2.279	6,9	1.041,5	1.113,1	6,9
CANOLA	147,9	201,8	36,4	1.322	1.459	10,4	195,5	294,5	50,6
CENTEIO	2,6	2,6	-	1.654	2.038	23,2	4,3	5,3	23,3
CEVADA	123,1	123,1	-	3.561	3.775	6,0	438,4	464,7	6,0
TRIGO	3.058,7	2.772,8	(9,3)	2.579	3.056	18,5	7.889,3	8.472,3	7,4
TRITICALE	15,6	15,6	-	2.603	2.897	11,3	40,6	45,2	11,3
SUBTOTAL	**3.836,3**	**3.604,3**	**(6,0)**	**2.505**	**2.884**	**15,1**	**9.609,6**	**10.395,1**	**8,2**
BRASIL (2)	**79.941,2**	**81.670,8**	**2,2**	**3.725**	**4.045**	**8,6**	**297.749,2**	**330.328,2**	**10,9**

RETURN TO INDEX

Environmental performance of agriculture in the OECD shows mixed results

Production grows, but challenges in gas emissions and nutrient management persist

10.04.2025 | 08:39 (UTC -3)

Cultivar Magazine, based on information from Yumiko Sugaya

Agricultural production in the Organisation for Economic Co-operation and

Development (OECD) countries grew by 40% between 1990 and 2021, but environmental performance has shown mixed results. This is what the report on Agri-Environmental Indicators (AEIs) in its 2025 version shows.

The report shows that during the period 1990 to 2021, agricultural area in member countries decreased by 10%, while production increased.

The positive environmental impact of this development was reflected in a moderate 4% increase in greenhouse gas (GHG) emissions, despite the significant increase in production. The adoption of more climate-efficient agricultural practices appears to have contributed to this result.

However, since 2010, the pace of progress in environmental performance has slowed. GHG emissions, which had been stable, began to increase at an average rate of 0,4% per year in the 2010s.

Furthermore, median emission intensity, which had declined consistently in the first two decades (1990s and 2000s), slowed down, falling by only 0,2% per year in the 2010s, after a decline of 0,6% per year in the previous two decades.

In terms of land use, the total agricultural area remained relatively stable between 2011 and 2021. However, the area of ??arable land decreased at an average annual rate of 0,7%, while the area of ??grassland increased by 0,4% per year.

The report can be read at the link below.

Clique aqui para baixar o PDF
Click here to download the PDF

RETURN TO INDEX

Corteva closes unit in Rio Grande do Sul

Closing will take place on May 1st

09.04.2025 | 18:16 (UTC -3)

Cultivar Magazine

Corteva will close its unit in Santa Cruz do Sul (RS) as of May 1. The unit's employees were already working in a hybrid regime.

When contacted, the company reported that: "employees in Santa Cruz do Sul are

migrating to a fully remote work model due to the closure of the physical office in the city starting May 1, 2025. This is a decision aligned with our business objectives."

Corteva also reported that there were no layoffs.

RETURN TO INDEX

Advances in biotechnology in cotton cultivation and safety in the management of ratoon crops

By Fernando Prudente, Executive Director of Cotton for Bayer's Agricultural Division

09.04.2025 | 13:21 (UTC -3)

Brazilian cotton farming has stood out on the global stage, driven by high productivity and the adoption of innovative technologies that promote sustainability and efficiency in the sector. In the 2023/2024 harvest, Brazil took the lead as the world's largest cotton exporter, an unprecedented feat that consolidates the country as an important player in the global market.

Biotechnologies such as Bollgard, the first version of which was launched in Brazil almost 20 years ago, have represented a significant advance in pest protection and driven the growth of the sector. At the 14th Brazilian Cotton Congress, Bayer presented the Bollgard 3 XtendFlex (B3XF) platform, maintaining protection against the main caterpillars targeted by

cotton crops and increasing tolerance to herbicides - being the first cotton biotechnology tolerant to glyphosate, glufosinate ammonium and dicamba.

This tolerance to herbicides offers greater flexibility in management, reduces weed competition and ensures greater assertiveness in weed control. Tests carried out indicated that cotton growers who adopted this biotechnology obtained an increase in productivity of approximately 11 arrobas of lint per hectare. This is the result of the combination of integrated management with dicamba in desiccation, glufosinate ammonium and glyphosate in post-emergence to genetics with high productive potential.

The biotechnology was developed to support cotton farmers in the challenges of tropical agriculture, from pre-planting to post-harvest, including crop protection and seed protection. B3XF was made available in the 2024/2025 harvest with varieties adapted to the main cotton-producing regions in Brazil.

Quality standard in ratoon management

In cotton farming, the safety of cotton stubble management is a concern for cotton growers. The destruction of cotton crop residues after harvest is a recommended practice as a measure to reduce pest and disease populations during the off-season. Stubble destruction occurs through cultural, mechanical, chemical methods and through the integration of methods, with chemical destruction being the most widely used due to operational yield and control benefits.

This process is divided into three stages: at the stump, the plants are cut 20 to 30

centimeters from the ground and sprayed immediately, which requires constant monitoring for possible reapplications; at regrowth, where spraying is carried out when the regrowth reaches between 5 and 8 centimeters in height, paying attention to the stage of phytosanitary risk; and standing plants, without prior mowing, with herbicide application when the regrowth is uniform, considering the same size and monitoring criteria as for regrowth.

Regardless of the chemical destruction method, one of the most commonly used active ingredients to eliminate cotton ratoon weeds is 2,4-D, applied alone or in combination, sequentially. Other herbicides are usually added in the second application to enhance the effectiveness of ratoon weed control.

Regarding the adoption of Bollgard 3 XtendFlex technology coupled with the use of 2,4-D, there are no changes in the chemical destruction practices of ratoon crops. This is confirmed by Technical Circular No. 62, recently published by the Mato Grosso Cotton Institute (IMAmt). In other words, producers who use B3XF can follow the same application protocols as 2,4-D, without the need for adjustments to their operations.

In 2020, IMAmt conducted three experiments to evaluate ratoon control with a Bollgard 3 XtendFlex line compared to a commercial variety without dicamba tolerance. The studies were conducted at IMAmt's experimental stations in Primavera do Leste, Sorriso, and Rondonópolis, in Mato Grosso. Treatments

included standard ratoon destruction management, with the first application made to the stump - immediately after mowing the plants - and standard ratoon destruction management with the first application on the regrowth, without application immediately after mowing.

The experiment did not identify significant differences in the evaluation of regrowth in the treatments applied to the B3XF line and the commercial variety without dicamba tolerance. The results demonstrated that the standard management of ratoon destruction, based on the use of the herbicide 2,4-D, was efficient in plants with the B3XF technology.

In 2023, new trials were conducted at the IMAmt experimental stations in Primavera do Leste, Sorriso and Sapezal. The experiment compared a Bollgard 3 XtendFlex line with another commercial variety without dicamba tolerance. The standard destruction management, with the first application on the stump after mowing, proved to be efficient, resulting in low percentages of regrowth in the final evaluation in both technologies. The results confirmed that the chemical destruction management based on 2,4-D is effective in eliminating cotton ratoon plants with the B3XF technology.

The IMAmt Technical Circular serves as a safe guide for cotton growers, and ensures that ratoon destruction operations are carried out efficiently and in compliance

with the legal parameters established by the cotton crop health gap. Bollgard 3 XtendFlex is a biotechnology that helps producers face the challenges of tropical cotton farming to improve productivity and sustainability in the field.

** By* **Fernando Prudente***, executive director of cotton for Bayer's agricultural division*

RETURN TO INDEX

Climate change increases pest threats to crops

Study reveals that global warming and agricultural intensification favor the expansion of threats

08.04.2025 | 15:16 (UTC -3)

Cultivar Magazine

Climate change and globalization are increasing the threats posed by insects and mites to crops. Researchers warn of increased risks to agricultural production, with the spread of pests and increased damage to various types of crops.

Global warming and the expansion of international trade are cited as factors that favor the migration of pests to new regions. At the same time, the intensification of agriculture weakens the natural control of these threats.

The study, carried out by the universities of Hebei and Exeter, and the Chinese Academy of Sciences, suggests that warmer temperatures allow pests to move further from the equator and to higher altitudes.

Increased global trade has accelerated the spread of invasive species. Researchers say it is urgent to adopt effective strategies for pest monitoring, predictive models and climate-adapted agricultural practices.

“The impact of pests is increasing, with greater numbers of species, more annual generations and longer seasons of activity,” said Professor Dan Bebber, from the University of Exeter. He noted that around 40% of global food production is lost to pests and diseases, putting global food security at risk.

The study reveals that climate change has weakened natural constraints on pests, which migrate to new areas due to rising temperatures. Loss of biodiversity also reduces biological control, or the ability of

natural predators to control pest populations. In addition, extreme weather events, such as heat waves and droughts, can trigger unexpected pest outbreaks.

Increased pest damage will be most significant at higher latitudes in temperate regions where crops such as wheat, rice and corn are predominant.

However, climate change can negatively affect crops in many parts of the world, requiring an integrated approach to pest management.

In their analysis, the researchers point out that intensified agriculture, with excessive use of fertilizers and irrigation, is favoring pests by offering ideal growing conditions, while changes in land use, such as deforestation, further aggravate the

damage, altering the local climate and harming natural predators.

Among the main pests affecting crops are aphids (for wheat and soybeans), rice hoppers and corn borers. The study predicts that, with rising temperatures, wheat pests will become more abundant in spring, while damage to rice may expand to temperate regions.

The research warns that productivity losses caused by pests and the increased use of pesticides are rising trends. However, it also highlights that pests may decrease due to extreme weather events and the use of genetically modified crops.

Sustainable pest management is seen as fundamental, with an emphasis on increasing biological diversity and using

biological control to reduce dependence on pesticides.

More information can be found at

doi.org/10.1038/s43017-025-00652-3

RETURN TO INDEX

ZF reaches the milestone of 700 thousand axles produced in Brazil

The milestone occurs in the same year that the company celebrates 40 years of national production of axles

08.04.2025 | 14:26 (UTC -3)

Marta de Souza, edition of Cultivar Magazine

ZF has reached 700 axles produced at its Sorocaba unit. This is in the year in which it celebrates four decades of nationalization of these components for the agricultural and construction sectors in Brazil.

The unit, which has a physical test space dedicated to performance validation, serves international markets and became the ZF Group's global development competence center in 2018.

The figure of 700 axles produced is evidence of ZF’s increasing production speed. In 2017, the company announced that it would manufacture 500 axles over 32 years; in the last eight years, an additional 200 have been produced, representing an increase of around 60

percent in the production rate compared to the previous period.

According to Juliano Alquati, business development manager at ZF South America, “ZF is the only supplier of agricultural axles in the country to work with a robust and complete local infrastructure, which involves everything from the development of customized solutions, production structure to the final cycle that takes place in the physical space for testing the equipment.”

The milestone reached includes all axles produced at the unit, both for agricultural applications, from the TSA and APL families, and for construction, from the MTB and MSB families. These include front axles for tractors and agricultural

machinery with powers ranging from 75 to 240 HP, as well as front and rear axles for backhoe loaders. Production serves the Brazilian and Argentine markets.

Global Competence Center

Brazilian expertise in axle development already has a rich history of evolution and it was precisely this know-how in the business that was responsible for the ZF Group's recognition in highlighting Brazilian engineers for the task of developing axles for all markets around the world.

One of the most successful examples of development was the TSA23 axle for the

agricultural sector, which has been very well received by the market since its launch in 2017. Its design and application, developed entirely by product engineering in Brazil, were conceived mainly to meet the needs of the end customer and automakers in a customized way, which, according to Juliano Alquati, has become a major differentiator for ZF in this market over the last few years. The TSA23 was developed for use in agricultural tractors with a power range between 160 and 240 HP after several technical visits in the field. Its design provides much more stability in steering, providing more control on autopilot and robustness, ensuring a longer service life than those available on the market.

Physical testing space

The infrastructure designed to serve the agricultural sector in South America is being expanded with the new physical testing space also located in Sorocaba.

The site is used to perform tests and validations on the performance of the axles that equip the main agricultural machines on the market. With approximately 1.000 m², the space was designed to simulate challenging scenarios, taking into account the real conditions faced in the field, such as uneven terrain and situations that require high axle oscillation, which allows their durability and robustness to be validated.

“Working with a new physical testing space that validates our local developments puts us ahead of the competition in terms of innovation, while meeting the demands for more efficient and sustainable products, strengthening our leadership position in the sector,” emphasized Juliano Alquati.

RETURN TO INDEX

Rabobank report points to transformations in the global food system

Increasing agricultural productivity has proven increasingly difficult to achieve

08.04.2025 | 13:36 (UTC -3)

Cultivar Magazine

Figure 1: Forecast population and economic growth, by region, 2024-2034

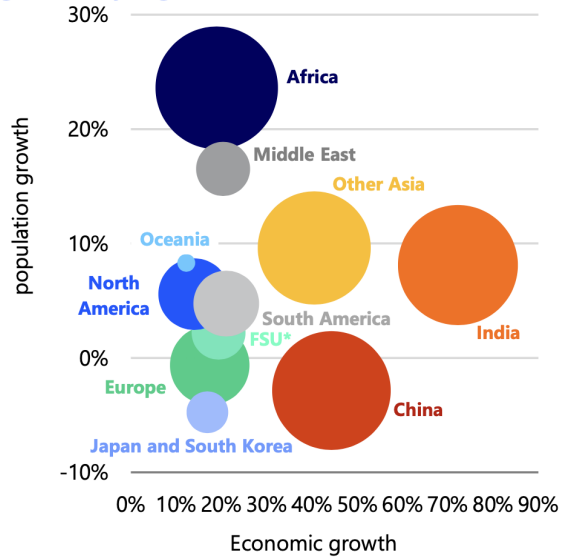
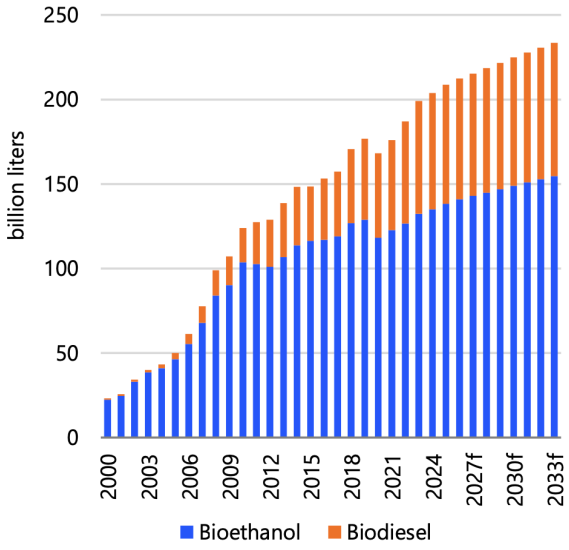


Figure 2: Global biofuel production, 2000-2033f



The global food system is facing a period of profound transformation. Slowing growth in food demand and stagnant agricultural

production are just some of the challenges that value chain players will have to face in the coming decades. The analysis is included in a study by Rabobank.

Studies indicate that the growing volatility in the food market is not just a question of supply and demand, but also a reflection of a global economic model that is approaching its limits. This is what the institution's analysts say.

The reduction in the expansion capacity of agricultural areas and the increasing scarcity of natural resources are factors that hinder the increase in production. At the same time, sustainability policies are becoming more stringent, forcing companies and governments to reevaluate their commitments.

Demand slowdown

Population growth and rising incomes continue to be the main drivers of food demand. However, growth patterns are no longer homogeneous.

While regions such as Africa and the Middle East continue to record high population growth rates, countries such as China, Japan and those in Europe are experiencing significant declines.

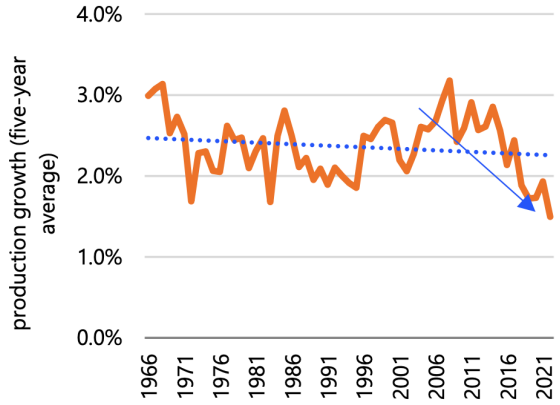
Furthermore, the quest for more balanced diets in wealthier regions is also shaping food preferences, with a growing focus on quality foods rather than volume.

Stagnation in production

In recent years, increasing agricultural productivity has proven increasingly difficult to achieve. The use of synthetic fertilizers, improved seeds and advanced machinery, which for decades have driven production gains, is showing diminishing results, the Rabobank report said.

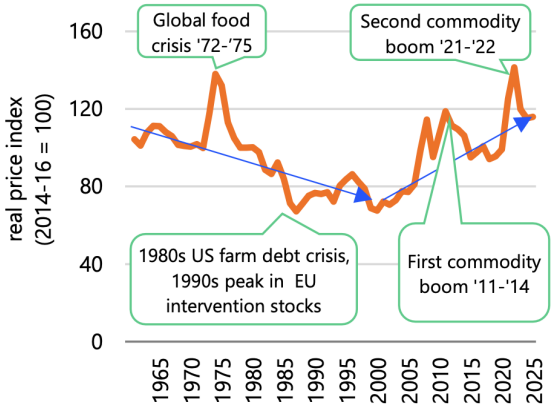
In contrast, emerging technologies such as aquaculture and precision fermentation have emerged as promising alternatives. Aquaculture, for example, has shown significant growth in the production of animal proteins, and is expected to continue to be an efficient solution to limited land and resources.

Figure 7: Global agricultural production growth, five-year average, 1966-2022



Source: USDA-ERS 2024

Figure 8: FAO food price index, 1965-2025



Source: FAO 2025

Trade and political tensions

In recent years, global trade policy has been marked by increasing restrictions, with countries seeking greater strategic autonomy. The rise of the “grand macro strategy,” with economic policies focused on national independence, has resulted in growing uncertainty about the future of supply chains.

South American countries, for example, have become the world's largest net exporters of agricultural products, while China has become the world's largest importer. The ongoing trade war and the imposition of tariffs are further complicating global transactions.

Volatility and supply chains

Over the past 20 years, the food market has become cyclical, alternating between periods of scarcity and abundance, affected by factors such as climate change, geopolitical crises and the global trading system itself.

Companies face the dilemma of whether to secure product supply through long-term contracts when there is a shortage, or seek flexibility in volatile markets when supply is more abundant.

This scenario generates higher margins for food processors, who have to deal with volatility in raw material prices.

Growing role of sustainability

Sustainability issues have become central to the debate over the future of the agricultural sector. In high-income regions such as the European Union, companies and governments are under pressure to reduce carbon emissions and adopt more

environmentally friendly practices.

However, the implementation of sustainability policies has shown mixed results. Voluntary sustainability targets set by large companies are being progressively adjusted, with some even abandoning commitments due to public pressure and economic difficulties.

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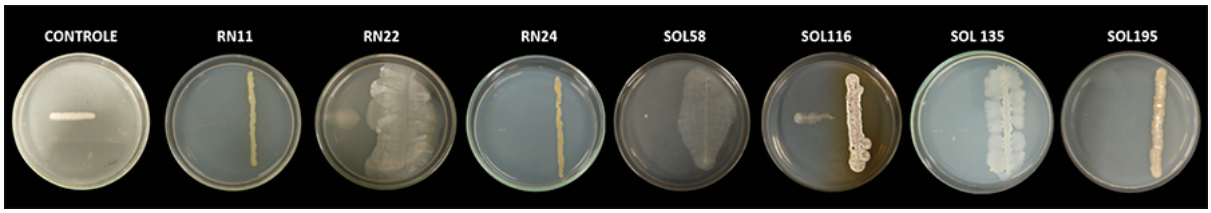
RETURN TO INDEX

Scientists identify microorganisms to combat "Ralstonia solanacearum"

The results point to the development of biological solutions

08.04.2025 | 09:19 (UTC -3)

Cultivar Magazine, based on information from Síglia Souza



A study conducted by scientists from Embrapa Western Amazon revealed that microorganisms from Amazon rivers may be essential for the biological control of the bacteria *Ralstonia solanacearum*, which causes bacterial wilt in tomato plants. (

Learn more about "Ralstonia solanacearum" by clicking here)

The results point to the development of biological solutions, such as microbial inoculants, to reduce the incidence of the disease, one of the main threats to tomato production in the region, in addition to affecting other crops such as potatoes, peppers and soybeans.

Coordinated by researcher Gilvan Ferreira da Silva, the research focused on the potential of bacteria isolated from sediments of the Solimões and Negro rivers to combat the disease.

Among the 36 bacteria analyzed, three stood out for their ability to inhibit the growth of *Ralstonia solanacearum* up to 100%. The isolates were *Priestess*

aryabhattai RN 11, *Streptomyces* sp. RN 24 and *Kitasatospora* sp. SOL 195.

These bacteria have demonstrated great potential in controlling bacterial wilt, with *P. aryabhattai* RN 11 showing a reduction of up to 90% in the incidence of the disease during the rainy season.

In addition to fighting the disease, these bacteria promote the growth of affected tomato plants. The isolate *P. aryabhattai* RN 11, in particular, stood out for its effectiveness in varied environments, reducing the presence of the pathogen in the soil and stimulating plant development, even under adverse climatic conditions.

Despite the promising results, the researchers highlight the need for further studies to understand the molecular

mechanisms involved in the interaction between plants and microorganisms, in addition to testing the effectiveness of the isolates under field conditions.

Gilvan Ferreira da Silva remembers that, in addition to the tomato plant, *Ralstonia solanacearum* affects a wide range of crops, including potatoes, peppers, eggplant and soybeans, which broadens the application prospects of these biological solutions.

More information can be found at
doi.org/10.3390/microorganisms12071364

RETURN TO INDEX

Embrapa launches soybean cultivars for the Midwest

The new materials were developed through a partnership between Embrapa and Fundação Meridional

07.04.2025 | 17:07 (UTC -3)

Lebna Landgraf, Cultivar Magazine edition

Embrapa and Fundação Meridional have just launched two soybean cultivars (BRS 1075IPRO and BRS 774RR) that stand out for their high production potential, resistance/tolerance to major diseases, among other differentials.

“We are putting two very promising soybean cultivars on the market for the Central-West region, one of Brazil’s productive hubs,” highlights Alexandre Nepomuceno, general manager of Embrapa Soja (PR).

Launch at Tecnoshow With Me

The cultivars were launched at Tecnoshow Comigo 2025. In addition to the soybean

cultivars, Embrapa launched a rice variety (BRS A503) during the fair. It also presents technological solutions for soybean, pigeon pea, wheat, and rice crops, as well as new bioinputs and for the management of pests, diseases, and weeds.

Interested parties can obtain the seeds from the Meridional Foundation.

BRS 1075IPRO is a transgenic cultivar with “Intacta RR2PRO” technology. This characteristic confers tolerance to the herbicide glyphosate, which facilitates weed control, and resistance to some caterpillars that attack soybean crops, such as Anticarsia gemmatalis and Chrysodeixis includens, for example.

According to Embrapa researcher Carlos Lásaro Melo, this material proved to be

quite competitive, as it has high productivity, with yields above 7% when compared to the cultivars most used in the regions where it is indicated. In tests, the new cultivar demonstrated high productive stability, good resistance to lodging, as well as leaf and root health. “It is an option that allows early planting of soybeans, enabling its inclusion in the rotation or succession system with other crops,” explains Melo.

Another highlight of BRS 1075IPRO is its high health. In field and greenhouse tests, the cultivar showed resistance to the main soybean diseases such as stem canker, bacterial pustule, stem necrosis virus and Phytophthora root rot. In addition, it is moderately resistant to frogeye leaf spot. BRS 1075IPRO will benefit producers in

the indicated regions: Goiás (RECs 301, 303 and 401), Mato Grosso do Sul (REC 301), Mato Grosso (RECs 401 and 402), and Rondônia (REC 402).

BRS 774RR soybean is a transgenic cultivar with resistance to glyphosate, which makes it easier to manage weeds. “It achieved an average gain of 4,2% in productivity compared to other materials in the region, and with a large share of the area cultivated with soybeans,” Melo emphasizes.

It also has the advantage of allowing a wide sowing window and stability in the adaptation region. “It is a soybean cultivar option for those who want early and profitable planting in areas of high fertility, enabling its insertion in the rotation system or succession with other crops”, explains the researcher.

Regarding health, in field and greenhouse evaluation tests, it showed resistance to stem canker, brown stem rot and Phytophthora root rot and cyst nematode (Race 3). The cultivar also showed moderate resistance to bacterial pustule, frogeye leaf spot and the root-knot nematode Meloidogyne javanica.

According to Melo, the BRS 774RR stands out for its excellent plant architecture and production stability in the adaptation region. The BRS 774RR will serve producers in some edaphoclimatic regions of Goiás (RECs 301, 303, 304 and 401), Mato Grosso (RECs 401 and 402), Mato Grosso do Sul (REC 301), Rondônia (REC 402) and Minas Gerais (RECs 303 and 304).

Suitable for refuge areas

Another advantage of BRS 774RR is that it can be used in refuge areas of crops that grow cultivars with Intacta IPRO technology (cultivars with resistance to glyphosate and a protein - Cry1Ac - that confers resistance to some caterpillars), and Intacta2 Xtend (I2X) combines three proteins (Cry1A.105 and Cry2Ab2 and Cry1Ac), which provides protection against six species of caterpillars that affect soybean crops: Helicoverpa armigera, Spodoptera cosmioides, false looper (Chrysodeixis includens), soybean caterpillar (Anticarsia gemmatalis), apple caterpillar (Chloridea virescens) and axil

borer (Crocidosema aporema). In addition, it combines tolerance to the herbicides glyphosate and dicamba.

The current recommendation for refuge for soybean crops is to have at least 20% of the area with technology other than Intacta IPRO and I2X. According to researcher Daniel Sosa Gomez, this is a preventive measure that consists of planting part of the crop with other non-Bt soybean options (without the Bacillus thuringiensis (Bt) toxin - at a maximum distance of 800 meters from crops).

“The adoption of refuge areas allows for the random mating of moths originating from the refuge areas, favoring the maintenance of susceptible populations and delaying the selection of resistant

populations,” he explains. Embrapa also advocates that pest management in crops should follow the same premises as Integrated Pest Management (IPM).

“In 50 years of operation, Embrapa Soja has been delivering new cultivars every year with increasing productivity ceilings, in addition to stability and health so that Brazilian producers have the most advanced technologies embedded in their seeds,” summarizes Nepomuceno.

RETURN TO INDEX

Vinitaly 2025 has a section on work in the vineyards

Equipment on display includes specialist tractors, treatment vehicles and grape harvesters.

07.04.2025 | 13:50 (UTC -3)

Cultivar Magazine

Vinitaly, one of the biggest events in the world wine sector, which takes place until April 9th ??in Verona (Italy), has opened space for a section dedicated exclusively to work in the vineyards.

The work exhibition was organized by FederUnacoma, the Italian federation of agricultural machinery manufacturers. It recreates the vineyard environment and showcases 11 types of specialized vehicles.

The equipment on display includes specialized tractors, grape harvesting vehicles and grape harvesters. All of these document the complete mechanization of viticulture, which, with increasingly sophisticated vehicles, can monitor the health of crops, perform ecological

treatments and transport grapes in a way that preserves their properties intact.

Robotics and advanced digital systems are also part of the production process. The Verona exhibition includes three robots designed for crop protection and maintenance, capable of assessing crop needs and intervening autonomously and efficiently. These robots represent the future of viticulture, combining innovation and sustainability.

Mariateresa Maschio, President of FederUnacoma, highlighted the Italian industry’s leadership in vineyard technologies and specialty crops. “The Italian industry is a world leader because it has developed in direct contact with wineries and the unique needs and

traditions of the producing regions," said Maschio. She also highlighted that the expertise acquired in Italy's diverse wine regions, such as the Langhe in Piedmont, the hills of Tuscany, the valleys of Veneto and Trentino, and the coasts of Puglia and Sicily, has been widely valued in international markets.

The president of FederUnacoma argues that the use of Italian machinery is a hallmark of quality viticulture worldwide. "Today, anywhere in the world, quality viticulture is carried out with Italian machinery," she stressed. Simona Rapastella, the organization's general director, also emphasized the importance of collaborating with the Ministry of Food Sovereignty on various initiatives that promote mechanization in the agri-food

sector and that aim to educate the public about “made in Italy” vehicles.

RETURN TO INDEX

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