05.jul.2025 N º 37

Cultivar Semanal ®

Massey Ferguson launches 8S Xtra tractors

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Massey Ferguson launches MF 8S Xtra tractors

New line brings six models with updates in performance, connectivity and fuel economy

04.07.2025 | 09:59 (UTC -3)

Cultivar Magazine, based on information from Caterina Prinzivalli

Massey Ferguson has launched the MF 8S Xtra tractor range, an evolution of the MF 8S series. The new product includes six models with power ranging from 205 to 305 hp. The update focuses on comfort, operational efficiency and connectivity.

The new line's unique feature is the combination of mechanical robustness and intelligent systems. Electronic power management (EPM) can increase engine power by up to 20 hp. The technology combines with mechanical reliability to deliver high performance with lower operating costs.

Enhanced performance

The new models are equipped with a 7,4-liter, six-cylinder AGCO Power engine and

Dyna-7, Dyna E-Power dual-clutch or Dyna-VT transmissions. The torque range extends from 950 to 1.280 Nm, with additional gains via EPM on five of the six models.

Among the technical features, the Xtra series features an improved cooling system with fan control that increases

efficiency by up to 5% and reduces fuel consumption. An optional reversible fan ensures the system remains clean even in environments with intense dust.

Redesigned and more connected cabin

The interior of the 3,4 m³ cabin has received updates aimed at the operator's well-being. There are new electrically adjustable exterior mirrors, a rear window defroster, a strategically positioned microphone and a dual-motion seat.

The optional entertainment package includes a 6,75-inch touchscreen with Android Auto, Apple CarPlay and Focal speakers. The equipment provides access

to digital radio, USB input and mobile services. The screen can be operated via the armrest controls.

More productivity, less effort

The Tire Control System (CTIS), available via the “MF By You” program, optimizes

traction on the ground, preserves the terrain and reduces fuel consumption. Changing hydraulic implements has been made easier with the new decompression lever, installed directly on the rear valves.

Lighting has also been enhanced. A package of LED lights with 360-degree coverage increases nighttime working capacity. The set includes 20 lights that add up to 51.500 lumens, surpassing the previous generation by 17.400. Additional lights on the handrails increase safety when moving around.

Functional design

The look of the MF 8S Xtra series maintains its neo-retro identity, but with

elements that enhance functionality. The black front grille and the side panels of the hood in matt black give it a robust appearance. The new exhaust, narrow and positioned in the corner of the cabin, improves forward visibility.

Technical versatility

The Datatronic 5 terminal integrates all control and connectivity functions. Farmers can add the Fieldstar 5 terminal for precision farming capabilities. The MF AutoTurn system and the Isobus-certified MF Section Control section control automate operations with precision for up to 96 sections.

WITH SIX MODELS TO CHOOSE FROM,
THIS IS ONE OF THE BEST CHOICES THAT YOU WILL MAKE.

	MF 8S.205 Xtra	MF 8S.225 Xtra	MF 8S.245 Xtra	MF 8S.265 Xtra	MF 8S.285 Xtra	MF 8S.305 Xtra
Engine	AGCO Power – Stage V – All-in-One technology					
Engine capacity	6 cylinder, 7.4 litre					
Transmission	Dyna-7 / Dyna E-Power / Dyna-VT				Dyna-VT	
Max. power @ 1,850rpm	205hp	225hp	245hp	265hp	285hp	305hp
Max. power EPM	225hp	245hp	265hp	285hp	305hp	N/A
Maximum torque @ 1,000 - 1,500 rpm	950Nm	1,000Nm	1,100Nm	1,200Nm	1,260Nm	1,280Nm

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2024/25 results of target spot control in soybeans released

Studies in 19 locations show consistent gains with treatments

04.07.2025 | 09:16 (UTC -3)

Cultivar Magazine

In the 2024/2025 harvest, cooperative trials carried out by 16 research institutions in 19 locations demonstrated that the appropriate use of fungicides significantly increased soybean productivity, even under high incidence of target spot, caused by fungus *Corynespora cassiicola*.

The most effective treatment (T8, a product not yet registered) achieved an average productivity of 4.576 kg/ha, an increase of 25% compared to the control without application (3.664 kg/ha). In the same statistical group is the treatment with Fox Supra + Milcozeb (T13), with 4.409 kg/ha.

Other treatments with high productivity were methyltetraprole + difenoconazole + Tróia (T7), Fox Ultra + Milcozeb (T12), Fox

Xpro + Milcozeb (T10), Almada (T14), Evolution (T15), Curatis (T16) and metominostrobin + prothioconazole + Manfil (T5). The FRAC fungicide rotation program also showed consistent results, with 4.271 kg/ha.

Disease control at a high level

Target spot affected all experimental areas with severity above 20% in the control. Treatment T8 was also the most effective in controlling the disease, with a 68% reduction in severity. Followed by T10 (62%), T12 (60%), T14 (59%) and T13 (57%).

The addition of mancozeb proved to be advantageous. For example, treatment T4 (metominostrobin + prothioconazole) had 45% control, and with mancozeb (T5) this rose to 54%. A similar trend was observed in the pairs T6/T7, T9/T10 and T11/T12.

High correlation between control and productivity

The joint statistical analysis showed a significant negative correlation (r = -0,95) between target spot severity and productivity. This reinforces the importance of chemical control and the appropriate choice of active ingredients.

Recommendations for sustainable management

Resistance monitoring carried out by FRAC identified lower sensitivity of the fungus to fungicides. To avoid the selection of resistant strains, researchers recommend limiting the use of succinate dehydrogenase (ISDH) inhibitor fungicides to two applications per cycle and prioritizing mixtures with multisites and rotation of modes of action.

The trials used cultivars susceptible to target spot. Selecting resistant materials is one of the first prevention strategies. The use of treated seeds, rotation with grasses and monitoring of weather conditions

complete the set of measures.

Tratamentos: ingrediente ativo (i.a.)	DOSES (g i.a./ha)	SEV MA (%)		C (%)	FITO (%)		PROD (kg/ha)		RP (%)
1.TESTEMUNHA	-	39,8	A	-	-		3.664	G	20
2. CORTINA GOLD (clorotalonil + protioconazol)	1.172,5 + 82,25	21,9	C	45	1,5	C	4.142	DE	9
3. MANFIL (mancozebe)	1.200	26,9	B	33	-		3.907	F	15
4. PNR[1,8] (metominostrobina + protioconazol)	80 + 80	22,1	C	45	2,1	B	4.182	CDE	9
5. PNR[1,8] (metominostrobina + protioconazol) e **MANFIL** (mancozebe)	80 + 80 e 1.200	18,3	FG	54	1,5	CD	4.303	BCD	6
6. PNR[2,8] (metiltetraprole + difenoconazol)	48 + 96	19,2	EF	52	-		4.161	CDE	9
7. PNR[2,8] (metiltetraprole + difenoconazol) e **TRÓIA** (mancozebe)	48 + 96 e 1.200	16,8	HI	58	-		4.397	B	4
8. PNR[3,8] (metiltetraprole + protioconazol) e **MANFIL** (mancozebe)	48 + 84 e 1.200	12,9	K	68	0,5	G	4.576	A	-
9. FOX XPRO[4] (bixafen + protioconazol + trifloxistrobina)	62,5 + 87,5 + 75	20,2	DE	49	2,9	A	4.134	DE	10
10. FOX XPRO[4] (bixafen + protioconazol + trifloxistrobina) e **MILCOZEB** (mancozebe)	62,5 + 87,5 + 75 e 1.200	15,3	J	62	1,0	E	4.393	B	4
11. FOX ULTRA[4] (impirfluxam + protioconazol + trifloxistrobina)	45 + 87,5 + 77,5	21,1	CD	47	3,0	A	4.112	E	10
12. FOX ULTRA[4] (impirfluxam + protioconazol + trifloxistrobina) e **MILCOZEB** (mancozebe)	45 + 87,5 + 77,5e 1.200	16,1	IJ	60	1,0	E	4.394	B	4
13. FOX SUPRA[4] (impirfluxam + protioconazol) e **MILCOZEB** (mancozebe)	42 + 84 e 1.200	17,1	GHI	57	1,3	D	4.409	AB	4
14. ALMADA[5] (fluxapiroxade + protioconazol + mancozebe)	50,625 + 70,875 + 990	16,4	HIJ	59	2,0	B	4.361	B	5
15. EVOLUTION[6] (azoxistrobina + protioconazol + mancozebe)	75 + 75 + 1.050	17,5	GH	56	0,9	E	4.360	B	5
16. CURATIS[4] (picoxistrobina + protioconazol + mancozebe)	82,5 + 72,5 + 1.032,5	17,0	HI	57	0,7	F	4.318	BC	6
17. PNR[7, 8] (difenoconazol + protioconazol + oxicloreto de cobre)	85 + 85 + 420	19,2	EF	52	2,8	A	4.249	BCDE	7
18. Programa FRAC		20,4	DE	49	1,5	C	4.271	BCDE	7

Target spot severity (SEV MA %), percentage of control in relation to the control without fungicide (%C), average phytotoxicity (FITO %), productivity (PROD kg/ha) and percentage of productivity reduction (RP %) in relation to the treatment with the highest productivity. Average of 19 sites for target spot severity, 15 sites for phytotoxicity (1, 2, 4, 7 to 11 and 13 to 19) and 14 sites for productivity (1 to 12, 14 and 16). 2024/2025 Harvest - **Averages followed by the same letter in the column do not differ from each other by the Tukey test (p?0,05)** - **(1)** Added Iharol 0,25% v/v; **(2)** addedAdgreen 0,25% v/v; **(3)** added Mees 0,25% v/v; **(4)** added Golden 0,25% v/v; **(5)** added Rumba 0,25 L/ha; **(6)** added Strides 0,25% v/v; **(7)** added Vision AD 0,25% v/v; **(8) PNR – unregistered product** - Temporary Experimental Registration (RET) III.

INSTITUIÇÃO	MUNICÍPIO, ESTADO	CULTIVAR	SEMEADURA
1. Instituto Mato-Grossense do Algodão - IMAmt	Primavera do Leste, MT	BMX OLIMPO IPRO	31/10/2024
2. Fitolab Pesquisa e Desenvolvimento Agrícola	Sorriso, MT	BMX BÔNUS IPRO	23/10/2024
3. Fitolab Pesquisa e Desenvolvimento Agrícola	Sorriso, MT	BMX TORMENTA CE	21/10/2024
4. Agro Carregal Pesquisa e Proteção de Plantas Eireli	Rio Verde, GO	CZ 37B43 IPRO	16/10/2024
5. Rural Técnica Experimentos Agronômicos Ltda	Querência, MT	NS 8080 IPRO	01/11/2024
6. Desafios Agro	Bandeirantes, MS	AS 3626 I2X	20/10/2024
7. Ceres Consultoria Agronômica	Primavera do Leste, MT	DM 75I74 IPRO	16/10/2024
8. EPR Consultoria & Pesquisa Agronômica	Sinop, MT	BMX OLIMPO IPRO	27/10/2024
9. Fitolab Pesquisa e Desenvolvimento Agrícola	Sorriso, MT	BMX OLIMPO IPRO	26/11/2024
10. Assist Consultoria e Experimentação Agronômica Ltda.	Campo Verde, MT	NS 8080 IPRO	29/10/2024
11. Campos Pesquisa Agricola (CPA) / UniRV	Rio Verde, GO	CD 2728 IPRO	24/10/2024
12. Fundação Mato Grosso	Sapezal, MT	CZ 37B43 IPRO	25/10/2024
13. Fundação Rio Verde	Lucas do Rio Verde, MT	M8220 I2X	30/10/2024
14. 3M Experimentação Agrícola SP	Artur Nogueira, SP	NEO 610 IPRO	30/10/2024
15. Agrodinâmica	Campo Novo do Parecis, MT	NS 8080 IPRO	23/10/2024
16. Staphyt	Formosa, GO	NS 8080 IPRO	07/11/2024
17. Fundação MS	Maracaju, MS	AS 3707 I2X	15/11/2024
18. Proteplan Pesquisa e Assessoria Agrícola	Sorriso, MT	BMX BÔNUS IPRO	08/10/2024
19. Proteplan Pesquisa e Assessoria Agrícola	Campo Verde, MT	BMX BÔNUS IPRO	28/10/2024

Institutions that participated in the research

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Bayer has a change in the Soy Marketing department

Bruno Camargo takes over as director after 14 years of experience in the company

04.07.2025 | 16:01 (UTC -3)

Cultivar Magazine

Bruno Camargo dos Santos has just taken on the role of Marketing Director for

Soybeans – Seeds & Traits at Bayer. With 14 years of experience at the company, the executive has held several leadership positions, with strategic roles in marketing, performance and commercial management in Latin America.

Prior to his new role, he served as Field Marketing Director and as head of training, performance and sales incentive plans for Bayer in Latin America.

Bruno is an agricultural engineer graduated from the Federal University of Lavras (UFLA) and has an MBA in marketing with an emphasis on sales from Fundação Getulio Vargas (FGV).

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Marcelo Figueira takes on new role at Sumitomo Chemical

With 29 years of experience in agriculture, executive takes over Marketing and Business Development for Fungicides Latam

04.07.2025 | 15:02 (UTC -3)

Cultivar Magazine

With 29 years of experience in the agrochemical sector, Marcelo Figueira has

just taken on the role of Senior Strategic Manager of Marketing and Business Development – ??Fungicides for Latin America (Latam) at Sumitomo Chemical. Prior to his new role, Figueira served as Fungicide Assets Manager and Soybean Crops Leader at the same company.

Throughout his career, Figueira has accumulated experience in companies such as UPL, Oxiquímica Agrociência, FMC, Cheminova and Bayer Cropscience, playing strategic roles in the commercial and marketing areas, with outstanding performance in crops such as soybeans, corn, coffee, cotton and fruits.

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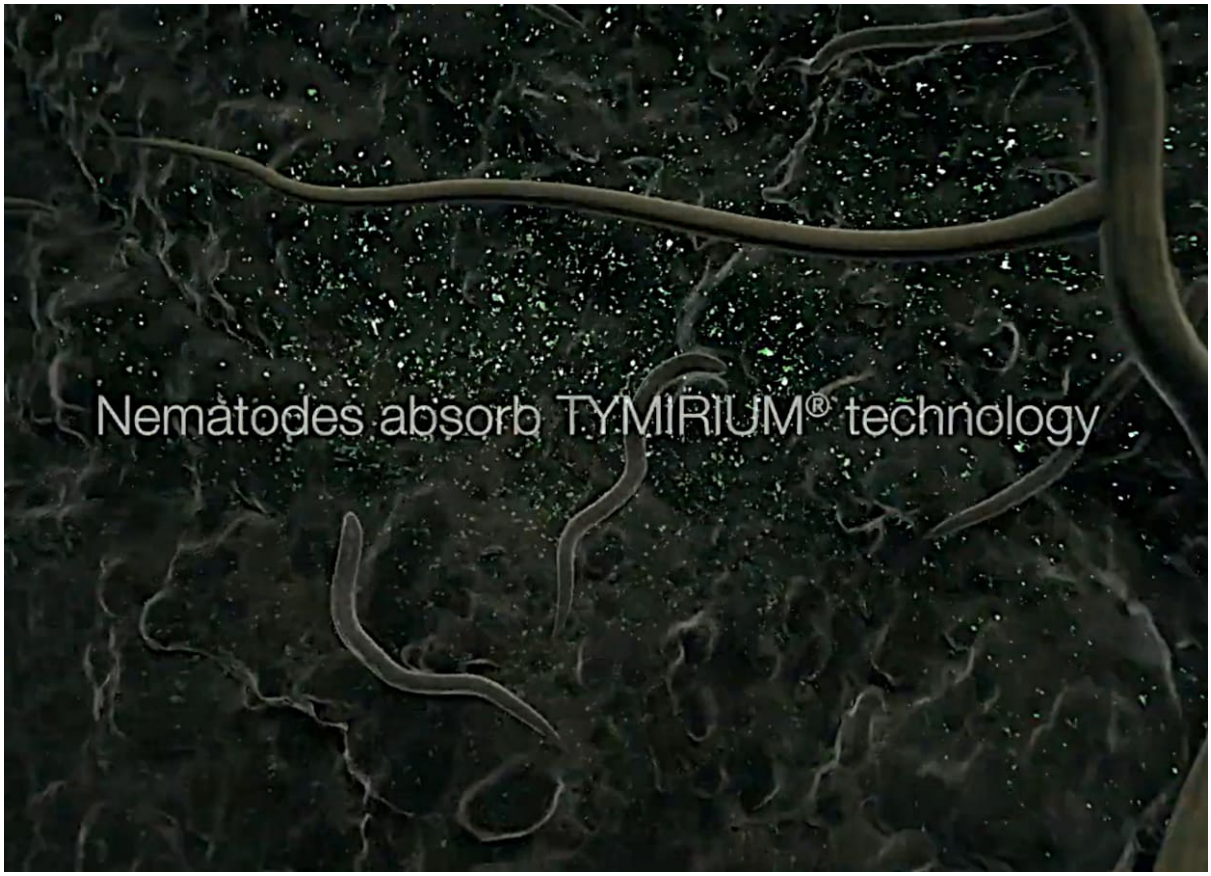
Syngenta launches Tymirium technology in Brazil

With nematicidal and fungicidal action, the molecule can be applied to various crops

04.07.2025 | 05:45 (UTC -3)

Cultivar Magazine, based on information from Eloisa Rangel



Syngenta announced that it has obtained registration in Brazil for a technology aimed at combating nematodes and soil diseases. According to the company, cyclobutrifluram - trademark Tymirium - provides control against nematodes and pathogens such as *Fusarium* spp., *Macrophomina* spp. And *sclerotinia* spp.

With nematicidal and fungicidal action, the molecule can be applied to various crops. It acts systemically and provides prolonged protection, which favors increased productivity.

In addition to protecting the plant above and below ground, Tymirium contributes to preserving soil health. It has low toxicity, does not interfere with macro and microbiological activity and is compatible

with biological products, says Syngenta. Its high selectivity ensures safety for pollinators and other beneficial insects.

According to Fernando Godinho, researcher and professor at the Goiano Federal Institute, the technology represents an advance in the integrated management of nematodes. The flexibility in application and the residuality of the molecule make the product a versatile tool in the field.

Leo Zappe, Syngenta’s seedcare marketing director, said the launch marks an important step towards sustainable agriculture. The new solution strengthens the root system, improves nutrient uptake and increases plant tolerance to biotic and abiotic stresses.

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Unprecedented mutation threatens effectiveness of acaricides in greenhouses

Resistance of the mite Tetranychus urticae to complex III inhibitors is associated with a mitochondrial gene

03.07.2025 | 16:14 (UTC -3)

Photo: G. San Martin

Mite populations *Tetranychus urticae* have developed resistance to acaricides used in the management of horticultural and ornamental crops in Turkey. The resistance involves a new mutation in the mitochondrial gene and the increase in enzymes that degrade pesticides. The finding raises a warning for producers who depend on acaricides from the group of respiratory chain complex III inhibitors.

Acequinocil and bifenazate are the main compounds in this class. Both act on mitochondria, interrupting energy production. They are preferred in protected cultivation systems because they have low toxicity to natural enemies.

However, tests with populations of *T. urticae* revealed resistance in four of the

twelve samples evaluated. The resistance levels exceeded the expected limits for effective control in the field, explain the researchers who worked on the study.

New mitochondrial mutation detected

Populations from ornamental greenhouses showed extreme levels of resistance. Molecular analyses revealed the presence of a novel mutation, M128T, in a conserved region of cytochrome b, a key protein of mitochondrial complex III. The mutation was fixed in populations subjected to selection with acequinocyl.

Reciprocal cross tests between resistant and susceptible lines confirmed the

maternal inheritance of resistance. The result indicates direct involvement of mitochondrial mutation.

Nevertheless, the resistance conferred by M128T was moderate. This suggests that other mechanisms also contribute to the reduction in the efficacy of acaricides.

Enzymatic activity increases resistance

Transcriptomic analyses of resistant populations revealed overexpression of genes related to detoxification.

Among them, P450-type monooxygenases, esterases (CCE) and DOG enzymes (dioxygenases) stand out, associated with the degradation of toxic

compounds. The Tu4S population, the most resistant among those tested, showed an increase in the activity of P450 enzymes and CCEs.

Tests with chemical synergists confirmed the role of P450s in resistance. When inhibited, there was an increase in the toxicity of acaricides, especially in populations with intermediate resistance. However, the efficacy of synergists was limited in highly resistant populations, indicating a set of factors acting in synergy.

Cross-effect and multiple resistance

Selection with acequinocyl also increased resistance to bifenazate, suggesting cross-resistance between the compounds.

The tests showed a direct correlation between the levels of resistance to both products. However, for other acaricides, such as abamectin and pyridaben, resistance remained stable, indicating that the mechanisms were already present in the initial populations.

Resistant populations also presented mutations associated with resistance to other modes of action, such as H92R in mitochondrial complex I. This genetic combination makes chemical management more difficult and reinforces the need for integrated strategies.

Recommendations for management

The research recommends constant monitoring of populations of *T. urticae* regarding the presence of the M128T mutation. The mutation can serve as a molecular marker for early diagnosis of resistance.

Furthermore, the researchers suggest the rotation of molecules with distinct modes of action and the use of biological agents, integrating tools in the context of integrated pest management (IPM).

Further information at doi.org/10.1016/j.pestbp.2025.106541

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Baldan strengthens partnerships in the Latin American market

The company received delegations from Paraguayan companies to present solutions in soil preparation, planting and spraying

03.07.2025 | 16:12 (UTC -3)

Mariana Moraes Spelled

As part of its strategy to strengthen its presence in the Latin American market,

Baldan, a Brazilian manufacturer of agricultural machinery and implements, welcomed two important delegations from Paraguay: 65 customers from Agro Altona and 12 representatives from Tracto Agro Vial. The meetings aimed to present Baldan's solutions for agribusiness in an up-close and immersive manner, in addition to strengthening the relationship with the international public, reinforcing the company's commitment to innovation, quality and the expansion of commercial frontiers.

The program for both visits began with an institutional presentation at the company's headquarters in Matão (SP), highlighting the brand's history, technological differences and global presence. The visitors were then taken to the subsidiary's

factory, where they were able to learn about the production process and some of the main equipment in the Baldan soil preparation line. In the afternoon, the delegation continued on to Unit 2, where the highlights of the spraying line were presented, including the Avola and Liri and the Agiflex planter. The visits ended with a celebratory dinner and an awards ceremony, reinforcing Baldan's commitment to maintaining a close and lasting relationship with its partners.

“Baldan maintains its leading position in soil preparation equipment and has been significantly expanding its presence in the planting and spraying lines. Our products are already recognized in more than 80 countries, and we continue to constantly invest in innovation and technology to

deliver high-quality agricultural implements to the market," says Robson Zofoli, Commercial Director of Baldan.

Agro Altona and Tracto Agro Vial are Baldan's representatives in Paraguay, and holding events like these is important to establish the brand's presence in Latin America, bringing about an exchange of experiences and mutual trust. This initiative is part of Baldan's strategy to strengthen its presence in the Latin American market by offering technological solutions that meet the specific needs of rural producers in the region.

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Fungicides increase wheat seed protection

Cooperative trials in six Brazilian wheat-growing regions indicate formulations with superior control

03.07.2025 | 15:40 (UTC -3)

Cultivar Magazine

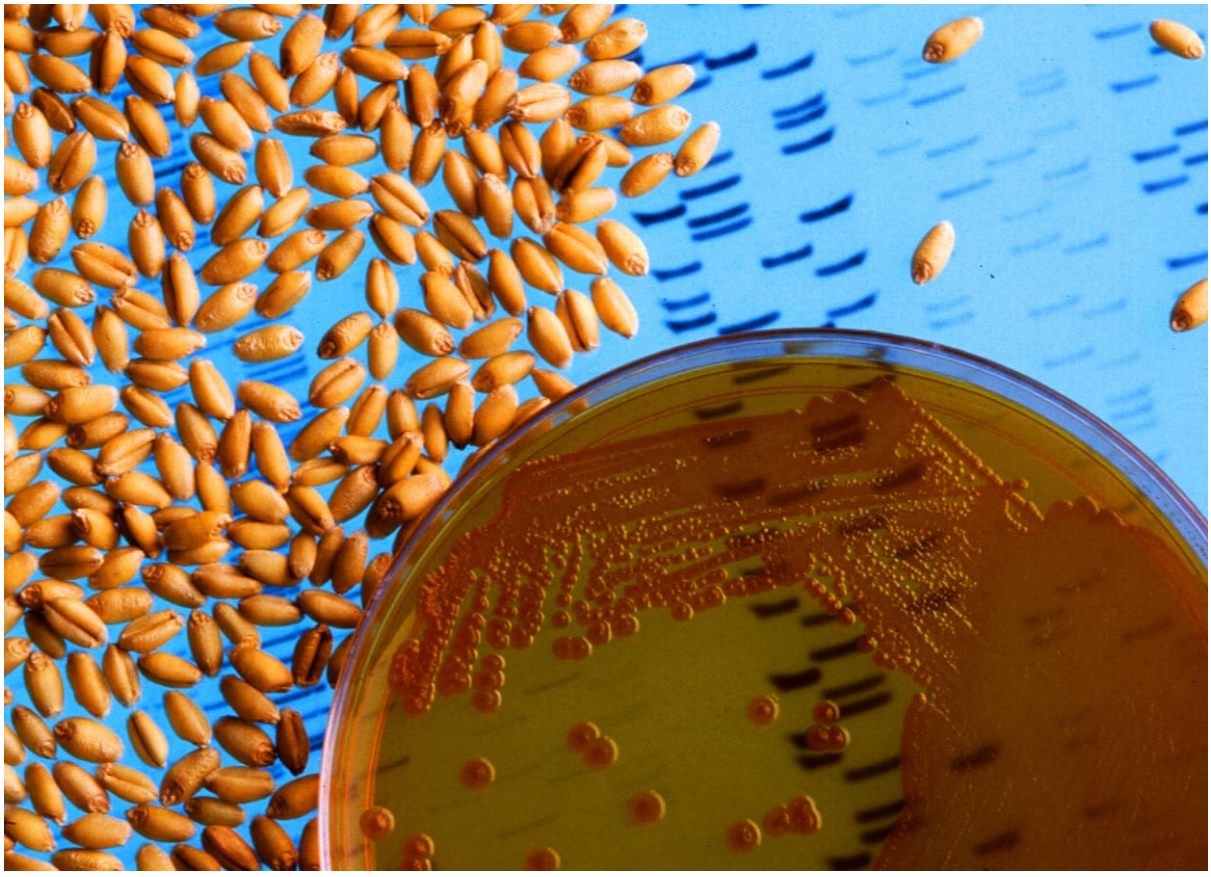

Photo: Jack Dykinga/USDA

The analysis of fungicides in the treatment of wheat seeds, conducted in six regions of Brazil in the 2024/25 harvest, confirmed the high efficacy of specific formulations against pathogens *Fusarium graminearum* e *Bipolaris sorokiniana*. The trials were part of the Cooperative Trials Network and used seeds from the 2023 harvest, marked by a high incidence of diseases caused by excess moisture.

Mixtures with benzimidazoles demonstrated control of up to 97,9% over *F. graminearum*. The combination of fluxapyroxad with mefentrifluconazole exceeded 96% control of *B. sorokiniana*. Products such as pyraclostrobin + thiophanate-methyl + fipronil and thiophanate-methyl + fluazinam maintained

control of over 85% for both pathogens.

Seeds compromised by the previous harvest

The origin of the seeds significantly influenced the rates of natural infection. Samples from Cafelândia (PR) showed 64,8% contamination by *F. graminearum*. In Palmeira (PR), the highest incidence of *B. sorokiniana* reached 6%.

This health condition reflected the environment of the 2023 harvest, when heavy rains favored diseases such as head blight and leaf spots. Exposure to these pathogens compromised seed quality, increasing the risk of infection in the new crop.

Objective and methodology of the tests

The researchers evaluated nine fungicidal treatments against *F. graminearum* and eight against *B. sorokiniana*, in addition to positive and negative controls. The seeds were inoculated to simulate artificial infections of up to 20%. The evaluation followed the “blotter test” protocol, with seed incubation and microscopic analysis of the presence of fungal structures.

Each treatment was applied according to the manufacturer's recommendations, with 600 mL of solution per 100 kg of seeds. The statistical analysis used mixed linear

models and the Tukey test (5%) to compare the effectiveness of the products.

Technical performance

in control of *F. graminearum*, the average natural infection rate was 7,8%. For *B. sorokiniana*, the average natural infection was 1,0%.

Among the treatments with good performance against both pathogens, two formulations stood out:

- pyraclostrobin + thiophanate-methyl + fipronil
- thiophanate-methyl + fluazinam

Both showed efficacy of over 85% in controlling the two diseases. The combination of ingredients allowed for a

broader spectrum of action, with a significant reduction in the seed infection rate.

Tratamento	Ingrediente ativo (i.a.)	Dose i.a. ($g\ L^{-1}$)
T1	Controle negativo[1]	–
T2	Controle positivo[2]	–
T3	Controle químico padrão (piraclostrobina + tiofanato-metílico + fipronil)	25 + 225 + 250
T4	Fluxapiroxide e mefentrifluconazol[3]	333 + 400
T5	Tiofanato-metílico + fluazinam	350 + 52,5
T6	Clorotalonil + tiofanato-metílico	425 + 170
T7	Carboxina + tiram	200 + 200
T8	Tiofanato-metílico + fluazinam	350 + 52,5
T9	Metalaxil-M + tiabendazol + fludioxonil	20 + 150 + 25

Treatments used in trials conducted in the Wheat Cooperative Trial Network for fungus control *Fusarium graminearum* via wheat seed treatment (*Triticum aestivum*)

Tratamento[1]	Incidência de *F. graminearum*[2] (%)		Erro padrão (%)	Eficiência de controle[3] (%)
T1	7,8		–[4]	–[4]
T2	37,9	e	1,3	–
T3	4,8	bc	3,1	87,3
T4	14,4	d	5,3	62,0
T5	0,8	a	1,3	97,9
T6	1,0	a	1,4	97,4
T7	9,1	cd	4,2	76,0
T8	1,7	ab	1,8	95,5
T9	3,2	ab	2,5	91,6
CV (%)	**10,4**		–	–

Means and standard error for incidence of *Fusarium graminearum* in wheat seeds (*Triticum aestivum*) and estimated control efficiency for different fungicide treatments. **(1)** T1 = natural occurrence of fungi in seeds without inoculation; T2 = positive control; T3 = standard chemical control (pyraclostrobin + thiophanate-methyl + fipronil); T4 = fluxapyroxide and mefentrifluconazole; T5 = thiophanate-methyl + fluazinam; T6 = chlorothalonil + thiophanate-methyl; T7 = carboxin + thiram; T8 = thiophanate-methyl + fluazinam; T9 = metalaxyl-M + thiabendazole + fludioxonil. **(2)** Means that do not share letters in common differ significantly from each other, according to the Tukey test performed at a significance level of 5%. Prior to analysis, incidence data were transformed by square root. **(3)** Percentage of control relative to treatment T2 (inoculated with the pathogen). **(4)** Treatment T1 did not perform statistical analysis as it was not subject to comparison with the other treatments.

Tratamento	Ingrediente ativo (i.a.)	Dose i.a. (g L^{-1})
T1	Controle negativo[1]	–
T2	Controle positivo[2]	–
T3	Controle químico padrão (piraclostrobina + tiofanato-metílico + fipronil)	25 + 225 + 250
T4	Fluxapiroxide e mefentrifluconazol[3]	333 + 400
T5	Tiofanato-metílico + fluazinam	350 + 52,5
T6	Clorotalonil + tiofanato-metílico	425 + 170
T7	Carboxina + tiram	200 + 200
T8	Tiofanato-metílico + fluazinam	350 + 52,5

Treatments used in trials conducted in the Wheat Cooperative Trial Network for fungus control *Bipolaris sorokiniana* via wheat seed treatment (*Triticum aestivum*)

Tratamento[1]	Incidência de *B. sorokiniana*[2] (%)	Erro padrão	Eficiência de controle[3] (%)
T1	1,0	–[4]	–[4]
T2	26,1 c	6,5	–
T3	1,4 ab	1,5	94,6
T4	0,9 a	1,2	96,6
T5	3,3 ab	2,3	87,4
T6	5,5 b	6,7	78,9
T7	5,3 b	2,9	79,7
T8	3,2 ab	2,3	87,7
CV (%)	**12,4**	–	–

Means and standard error for incidence of *Bipolaris sorokiniana* in wheat seeds (*Triticum aestivum*) and estimated control efficiency for different fungicide treatments. **(1)** T1 = natural occurrence of fungi in seeds without inoculation; T2 = positive control; T3 = standard chemical control (pyraclostrobin + thiophanate-methyl + fipronil); T4 = fluxapyroxide and mefentrifluconazole; T5 = thiophanate-methyl + fluazinam; T6 = chlorothalonil + thiophanate-methyl; T7 = carboxin + thiram; T8 = thiophanate-methyl + fluazinam; T9 = metalaxyl-M + thiabendazole + fludioxonil. **(2)** Means that do not share letters in common differ significantly from each other, according to the Tukey test performed at a significance level of 5%. Prior to

analysis, incidence data were transformed by square root. **(3)** Percentage of control relative to treatment T2 (inoculated with the pathogen). **(4)** Treatment T1 did not perform statistical analysis as it was not subject to comparison with the other treatments.

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Massey Ferguson highlights presence at Agronea 2025

Brand presents solutions adapted to the needs of Argentine agricultural production

03.07.2025 | 15:13 (UTC -3)

Cultivar Magazine, based on information from Marcos D´Andre

Massey Ferguson is taking part in Agronea 2025, which will take place from 4 to 6 July in Charata, in the province of Chaco, Argentina. Represented by its official dealer Maquinagro, the brand will be providing personalized service, technical support and after-sales services to the event, backed by its national network.

The fair will be the stage for the “En el Campo Massey” campaign, launched at Agroactiva and now reinforced in Chaco. The initiative seeks to bring the brand closer to producers, with a focus on offering practical, accessible tools aimed at achieving results in the field.

The proposal integrates technology, connectivity, robustness and ease of use. The experience presented at the stand

invites the public to learn how the brand's solutions are applied throughout the production cycle, from sowing to harvesting, from traction to digitalization.

The approach expands Massey Ferguson's presence as a strategic partner for Argentine rural producers. The company offers a portfolio focused on different production scales, with the aim of maximizing efficiency and yield.

According to Sergio Karin, commercial director for Hispanoamérica, the campaign expresses the brand’s commitment to producers and service providers. “We want to generate a real impact on productivity by offering access to the most advanced agricultural technology, adapted to local needs and challenges,” he said.

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Valtra celebrates 65 years in Brazil with a tribute to the “Valtreiros”

“Valtreiros Month” campaign brings together real stories and rewards those who are part of this journey

03.07.2025 | 14:48 (UTC -3)

Beatriz Voltani

Valtra, a manufacturer of agricultural machinery from the AGCO group, is holding another edition of the “Valtra Drivers Month” campaign in July, a celebratory event to honor customers and fans who are part of the brand’s history. This year, the initiative invites rural producers from different regions of the country to share their stories, in order to value the role of those who have directly contributed to the development of Brazilian agriculture.

The campaign is part of the company's anniversary celebrations, which marks 65 years of operations in Brazil. To participate, simply send audio or video messages via WhatsApp, telling about remarkable experiences with Valtra machines, which symbolize the partnership

between the field and technology.

The ten best stories will be selected and brought to life using animation techniques and published on the company’s social media channels during the second half of the year. The idea is to transform these real experiences into visual tributes that celebrate the Valtreiros’ journey. “This campaign is a way of recognizing the relationship built between Valtra and its customers and fans over more than six decades. By listening to these stories, we can better understand how the brand is present in everyday life and how this journey was built as a partnership,” emphasizes Fernanda Teixeira, Communications and Customer Care Manager at AGCO South America.

“Valtra has always been a pioneering company and has launched several technologies that are still widely used in the agricultural market today. Using AI and new design techniques to tell real stories is just following the company’s values,” he says.

“Valtra Driver Month” reinforces Valtra’s commitment to rural producers and recognizes the importance of each

customer who contributed to the consolidation of the brand in the country. Throughout its 65 years in Brazil, Valtra has stood out for its innovation, robustness and proximity to the countryside, values ??reflected in the stories that will be shared throughout the campaign. “Being a Valtra driver goes beyond using a Valtra machine. It’s about belonging to a community that shares values ??such as work, resilience and passion for the countryside. That’s why we’re proud to show their stories,” highlights Fernanda.

Registration began on July 1st and continues until July 21st. The entire process is simple and can be completed on Valtra's official website, where all the guidelines for submitting content are available.

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Gibberella and blast: how to identify in wheat

Precise differentiation allows effective handling

03.07.2025 | 14:17 (UTC -3)

Cultivar Magazine

Giberela - Photo: Marcelo Madalosso

Gibberella and blast, despite presenting similar symptoms, have different etiologies

and require different control strategies. Accurate identification allows effective management.

Fusariosis, also known as head blight, mainly affects ears and grains. It is caused by fungi of the genus *Fusarium*, Especially *Fusarium graminearum*, whose sexual phase is called Gibberella zeae.

Brusone, on the other hand, is caused by fungus *Pyricularia grisea* and is more recent in the Brazilian scenario, being detected for the first time in wheat in Paraná, in 1985, and in barley in the early 2000s.

Gibberella: whitish ears and grains with

mycotoxins

Head blight is manifested by depigmented spikelets, whitish or straw-colored, which contrast with the green of the healthy ones. Affected grains appear wrinkled, wrinkled and white-pink in color. The problem is aggravated by the production of mycotoxins, such as vomitoxin, which are harmful to human and animal health.

This disease has gained strength in the South of Brazil in recent decades. Conditions of high humidity for more than 48 hours and temperatures between 20°C and 25°C favor the pathogen. Events such as El Niño intensify the incidence.

Conservation management, which keeps crop residues on the soil surface, helps to maintain the inoculum in the crop. In addition, head blight affects other crops in the production system, such as corn, triticale, oats and soybeans.

Brusone: lesion in the rachis and whitening of the ear

In brusone, the most obvious symptom appears on the ears: premature discoloration of the upper portion, above the point of infection in the rachis. Grains in these areas appear smaller and deformed. The disease can also attack leaves, with elliptical lesions with a light

center and brown border.

Brusone - Photos: Augusto Goulart

High temperatures, cloudy days, prolonged dew and humidity above 90% favor the fungus. Spread by wind, the pathogen finds an ideal environment in the Midwest, where the humid climate and the presence of hosts such as rice and millet increase

the pressure of the disease. In barley, outbreaks have caused losses of up to 35% in higher quality grains.

Anomalies that confuse the diagnosis

Several factors can cause similar symptoms. Frost, hail, pests such as stalk borers and stink bugs, and even physiological problems such as sterility, can cause white ears or malformed grains. These signs confuse technicians and producers, making decision-making difficult.

Examples include the stalk borer, which causes the ear to dry out with perforated stalks, and the black grub, which damages

roots and prevents grain filling. Another common case is the white belly, linked to water and heat stress, which produces opaque and whitish grains.

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UPL Announces New Global Head of R&D Stations

Brazilian agronomist Mariana Amaral takes command of units in seven countries, including Brazil

03.07.2025 | 14:13 (UTC -3)

Rafael Iglesias, Cultivar Magazine edition

UPL Ltda., a multinational company specializing in sustainable agricultural

solutions, has appointed Brazilian agronomist Mariana F. Bittencourt Amaral as global director of Research and Development (R&D) stations. She has worked at the company since 2022, leading the R&D unit in Brazil.

With 16 years of experience in the sector, Mariana graduated from the Federal University of Uberlândia and has a master's degree from the United States, as well as an MBA in business management from FGV. Upon assuming the new position, she stated that this moment marks a trajectory built with dedication and collaboration.

The professional will be responsible for UPL's stations in India, Spain, Indonesia, Mexico, the United Kingdom, Vietnam and Brazil. The Brazilian unit is located in

Pereiras (SP) and has 70 hectares. For UPL Brazil CEO, Rogério Castro, Mariana's leadership will be strategic for the advancement of customized technologies aimed at national agriculture.

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Argentina authorizes new Corteva transgenic events

Permission to commercialize genetically modified varieties of corn and soybeans was published today

03.07.2025 | 10:43 (UTC -3)

Cultivar Magazine

Argentina has authorized the commercialization of two new genetically modified varieties, one of soybeans and the other of corn. The approval was granted through resolutions 113/2025 and 115/2025 of the Ministry of Agriculture, linked to the Ministry of Economy. Both varieties belong to the company Corteva Seeds Argentina SRL

The new genetically modified corn combines resistance to lepidopteran insects with tolerance to multiple herbicides. This variety shows increased yield potential and enables better control of resistant weeds. The tolerance includes widely used herbicides such as glyphosate , glufosinate ammonium, 2,4-dichlorophenoxyacetic acid (2,4-D) and aryloxyphenoxypropionate-based

herbicides. The transgenic events involved are DAS-Ø1131-3 x DP-91Ø521-2 x DP-2Ø2216-6 x DAS-4Ø278-9.

According to the National Advisory Committee on Agricultural Biotechnology (Conabia), the release of this corn is safe and does not pose additional risks to the environment, compared to conventional varieties. The assessment also considered food safety, confirmed by the National Agrifood Health and Quality Service (Senasa).

In Brazil, the opinion of the National Technical Commission on Biosafety (CTNBio) indicated that:

> CTNBio, after evaluating the request for Commercial Release of corn DAS-Ø1131-3 x DP-91Ø521-2 x DP-2Ø2216-

6 x DAS-4Ø278-9, all its subcombinations and exemption from post-commercial release monitoring, concluded to grant it under the terms of this Technical Opinion. In view of the above and considering the internationally accepted criteria in the risk analysis process of genetically modified corn, it is possible to conclude that the combined event DAS-Ø1131-3 x DP-91Ø521-2 x DP-2Ø2216-6 x DAS-4Ø278-9 in the commercial release process is safe. The data presented in the majority application for the combined event corn DAS-Ø1131-3 x DP-91Ø521-2 x DP-2Ø2216-6 x DAS-4Ø278-9 comply with the current standards and legislation that aim to guarantee the biosafety of the

environment, agriculture, human and animal health, and allow us to conclude that the combined event corn DAS-Ø1131-3 x DP-91Ø521-2 x DP-2Ø2216-6 x DAS-4Ø278-9 is substantially equivalent to conventional corn, being safe for human and animal health to consume. Regarding the environment, it can be concluded that the genetically modified subcombinations are not potentially capable of causing significant degradation of the environment, maintaining an identical relationship with the biota as conventional corn. CTNBio did not identify any non-negligible risk, therefore the company is exempt from the post-commercial release monitoring plan, as determined by Art. 18, first

paragraph of CTNBio RN32.

Authorized transgenic soybeans express proteins that provide protection against lepidopteran insects and tolerance to herbicides that inhibit the enzyme acetolactate synthase (ALS). This variety ensures more efficient pest management, helping to delay the emergence of resistance. According to an assessment by SENASA, the modified soybean presents food and nutritional safety similar to conventional soybeans. The transgenic event is COR-23134-4.

In Brazil, there is a request for commercial release of COR-23134-4 soybeans in progress at CTNBio.

The commercialization of transgenic soybeans will be subject to prior import

authorization from China, the main destination for Argentine exports. Cultivars of this soybean must also submit an Insect Resistance Management Plan (PMRI) for approval before registration in the National Cultivar Registry (RNC).

Both the corn and soybean varieties were evaluated by three different technical bodies: Conabia, Senasa and the Market Policy Department. In all cases, the evaluations highlighted that there are no additional risks compared to conventional varieties.

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Climate change alters nectar production

Study reveals direct impacts of extreme events on food supply for pollinators

03.07.2025 | 07:43 (UTC -3)

Cultivar Magazine

Extreme weather events caused by climate change are altering nectar production in

plants and could jeopardize global food security, according to recent research conducted by Brazilian and Argentine scientists.

The study investigated the effects of severe rainfall variations on the availability of nectar for bees in plants of the species *Cucurbita pepo*, popularly known as Italian zucchini. The researchers simulated four scenarios: control (regular rainfall), heavy rainfall, moderate reduction in rainfall and extreme drought.

The results demonstrated significant changes in nectar production and composition under extreme conditions. In extreme drought conditions, there was a sharp drop in nectar quantity, both in volume and sugar concentration. Female

flowers had up to 98% less sugar, while male flowers had a reduction of up to 95%.

On the other hand, scenarios with heavy rainfall caused an increase in sugar production per flower, reaching 79% more than in the control. This increase, however, was not accompanied by changes in nectar concentration, which remained stable.

Impacts at the plant and agricultural scale

Climate variations also directly impacted the number of flowers produced by plants. Plants exposed to heavy rainfall produced more female flowers, while those subjected to severe droughts had a

significant reduction in both female and male flowers.

Female flower of the zucchini - Photo: Maria Luisa Frigero / IBB-Unesp

On an agricultural scale, the scenario with heavy rainfall resulted in a 74% increase in the caloric supply of nectar available to pollinators per cultivated hectare. The extreme drought led to a drastic reduction

of up to 95% in this supply, putting the survival of bees at risk and compromising pollination.

Ecological and economic consequences

The research highlights that the observed changes could seriously compromise the relationship between plants and their pollinators. The drastic reduction in the supply of nectar could lead bees and other pollinating insects to seek other resources, reducing visits and, consequently, fruit production.

This scenario of reduced pollination has direct implications for agricultural production. Zucchini is just one example of many agricultural crops that depend on animal pollination. In Brazil, this crop is among the ten most economically valuable, especially for small farmers, who are more vulnerable to the impacts of these changes.

Predictions until 2075

Using projections from the most recent report by the Intergovernmental Panel on Climate Change (IPCC), the study predicts that by 2075, regions could face reductions of up to 23% in nectar production under severe drought scenarios. On the other hand, areas subject to heavy rainfall could

experience increases of up to 79% in the availability of this resource.

However, researchers warn that the increase in rainfall is not entirely positive, as frequent and intense rains can generate soil erosion, nutrient leaching and a reduction in pollinator activity, due to the difficulty of flying under adverse conditions.

Further information at doi.org/10.1038/s41598-025-94565-2

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USDA projects soybean growth in Brazil in the 2025/26 harvest

Planted area should reach 49,1 million hectares, with production estimated at 176 million tons

02.07.2025 | 16:47 (UTC -3)

Cultivar Magazine, based on information from the USDA

The United States Department of Agriculture (USDA) has released new

estimates for Brazilian oilseed production, highlighting growth in the soybean sector in the 2025/26 harvest. According to the report, the planted area is expected to grow by 3% and reach 49,1 million hectares, while production could reach 176 million tons - an increase of 2% compared to the previous projection.

According to the department, factors contributing to this scenario include the possible relaxation or end of the Soy Moratorium, more stable weather conditions with El Niño, and a recovery in productivity compared to previous harvests. Average national productivity is also expected to increase, reaching 3,58 tons per hectare (t/ha).

Review for the 2024/25 harvest

For the current harvest, the USDA revised upwards the estimate of planted area, now calculated at 47,6 million hectares - 300 thousand hectares more than in the previous report, representing an increase of 0,6%. The production projection, however, was maintained at 169,5 million tons.

The good weather conditions in the first half of 2025 favored the recovery of productivity, which increased by 6% compared to 2024. As a result, the estimated average productivity for the 2024/25 harvest was adjusted to 3,56 t/ha, slightly below the initial projection of 3,58

t/ha, but still representing a record performance.

Exports

Export projections for the 2024/25 harvest remain at 108,3 million tons. Although exports were expected to increase this year, driven by tariff tensions and possible strategic changes by China, USDA sources and industry analysts believe that these effects should only be consolidated in the coming years.

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Tobacco income per hectare exceeds grains by 700%

Survey shows that cultivation is the most profitable on small properties in the Southern Region

02.07.2025 | 15:07 (UTC -3)

Union

Tobacco production continues to be one of the most profitable agricultural activities in

the Southern Region of Brazil, especially on small properties. The high profitability per hectare allows investments in technology, crop diversification and improvements that improve the quality of life of rural families.

According to a survey conducted by the Brazilian Tobacco Growers Association (Afubra), with data from Conab, this difference is based on the income obtained by the producer per hectare of tobacco, which is R$45.989,85. When compared to other crops, the superior income is clear. For example, in relation to soybeans, which yield the producer R$5.755,88 per hectare, the profit is 700% higher.

In corn, a crop in which the producer can earn R$7.008,80 per hectare of crops, the

amount obtained with tobacco is 556,3% higher. To obtain income similar to that obtained from a hectare of tobacco, the producer would need 7,99 hectares of soybeans or 6,56 hectares of corn.

For Valmor Thesing (pictured above), president of the Interstate Tobacco Industry Union (SindiTabaco), the figures reinforce the strategic role of tobacco cultivation not only for the economic viability of small properties, but also for rural succession. “It is through tobacco that producers guarantee income to support their families with dignity and are able to remain in agricultural activity even with small areas of land,” he says.

Comparativo do tabaco com outras culturas
Sul do Brasil

Descrição	Tabaco	Soja*	Milho*
Hectares	309.982	13.535.700	3.988.600
Produção (t)	696.435	38.954.900	27.955.300
R$/kg	20,47	2,00	1,00
Faturamento R$	14.256.024.450,00	77.909.800.000,00	27.955.300.000,00
R$/ha	45.989,85	5.755,88	7.008,80
Para 1ha de tabaco necessita de (ha)		7,99	6,56

Fonte: Afubra/Conab

* Dados de Soja e Milho do levantamento da Conab

Area and production

According to Afubra, tobacco production occupies approximately 310 thousand hectares in the three states of the Southern Region, enabling production of more than 696 thousand tons and approximately R$ 14,3 billion in income for the producer. In soybean, there are 13.535.700 hectares of crops, with

production of 38.954.900 tons and R$ 77,909 billion in income for the producers. And in corn, the Southern Region has 3.988.600 hectares of crops, with production of 27.955.300 tons and revenue of R$ 27,955 billion for the producers.

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Bunge completes merger with Viterra to form global agribusiness giant

New company combines strategic assets to serve food, feed and fuel markets

02.07.2025 | 14:46 (UTC -3)

Cultivar Magazine, based on information from Mark Haden

Bunge Global SA announced today that it has completed its merger with Viterra Limited, creating a global powerhouse in food, feed and fuels. The agreement brings together two companies with complementary structures and strengthens their ability to operate across all stages of the agricultural supply chain.

Bunge CEO Greg Heckman said the merger marks a turning point for the company. He said the integration of teams and operations will allow it to better meet the demands of increasingly complex markets and deliver more value to customers and shareholders.

The new company combines origination in strategic agricultural regions with access to key growth consumer markets. Geographic

and crop diversification expands the company's global reach. The integrated structure promises greater cash flow stability, logistics gains and commercial synergies.

The "leaders" of Bunge and Viterra remain in charge. Heckman remains as CEO. John Neppl remains as CFO. David Mattiske, former CEO of Viterra, takes over as co-chief operating officer alongside Julio Garros, former co-president of Bunge.

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Silent mutation explains cucumber domestication

Study reveals how genetic alteration without protein change alters RNA conformation and regulates fruit size

02.07.2025 | 14:39 (UTC -3)

Cultivar Magazine

A synonymous mutation in the ACS2 gene, which encodes a key enzyme in ethylene synthesis, is at the origin of cucumber domestication (*Cucumis sativus*). Researchers have identified that replacing a cytosine with a thymine at position 1287 of the gene does not alter the resulting protein, but profoundly modifies its expression. This change affects the addition of methyl groups (m6A) to the messenger RNA, which in turn changes the conformation of the RNA and its translation efficiency.

In wild cucumbers, the presence of the C base at nucleotide 1287 favors the methylation of neighboring adenines in the RNA. This epitranscriptomic modification creates a looser RNA structure, facilitating reading by the ribosome and resulting in

greater production of the ACS2 enzyme. As a consequence, the fruits grow less, since ethylene inhibits cell division.

In modern cultivars, the T substitution prevents this methylation. The RNA structure becomes more compact, which makes translation difficult and reduces enzyme production. The result is a longer fruit, a characteristic selected during domestication.

Epistatic interaction

The ACS2 gene interacts with another gene, YTH1, which encodes an m6A reader protein. In wild cucumbers, the YTH1 protein recognizes methylated sites and stabilizes the most accessible RNA

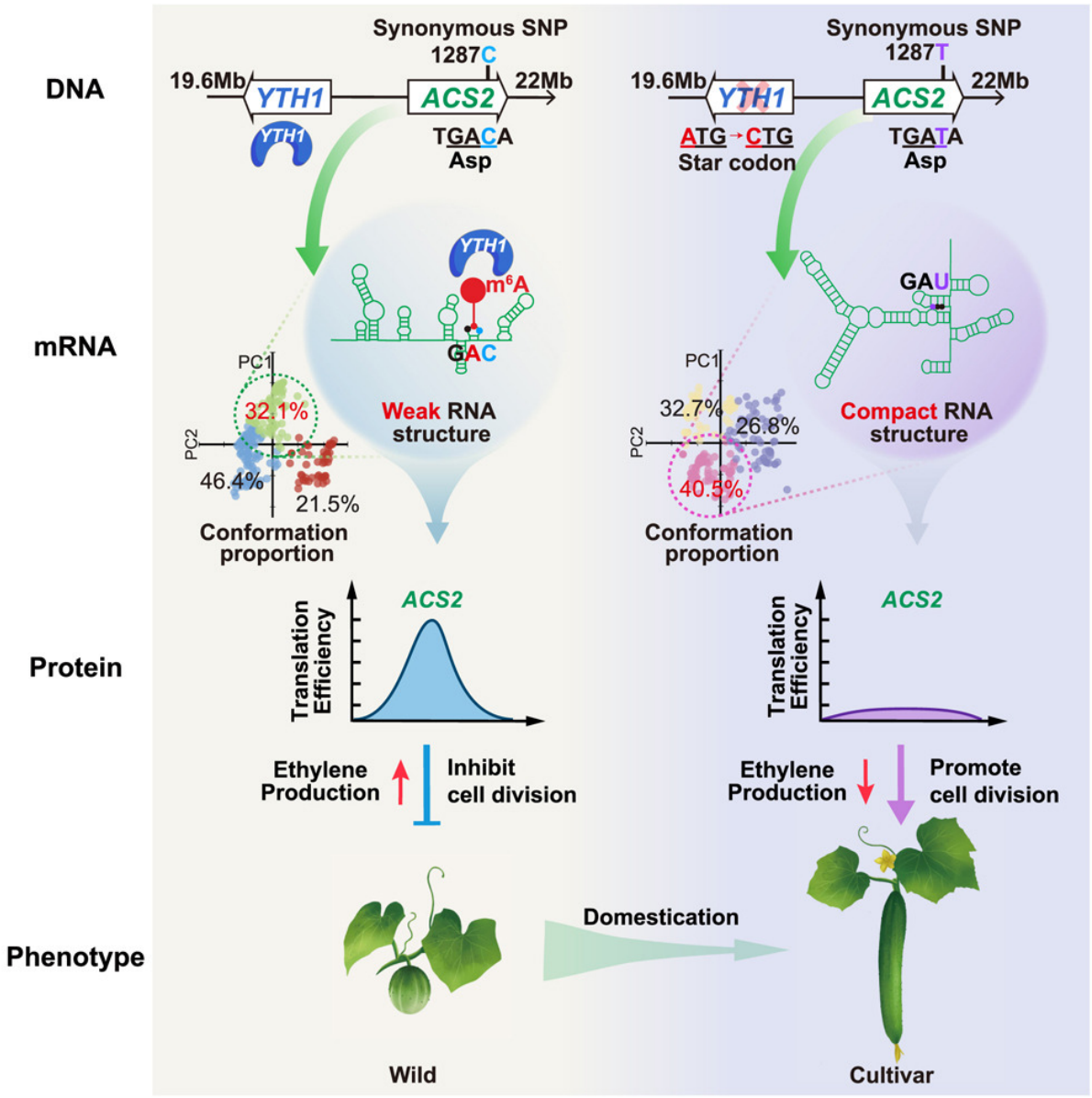
regions. This enhances the production of ACS2. A mutation in the start codon of YTH1 in cultivars reduces its activity, which diminishes this effect.

Genetic experiments have shown that the T-mutant in ACS2 is epistatic and recessive to the YTH1 mutation: when the ACS2 mutation is present, the status of the YTH1 gene has little influence on the fruit phenotype. This interaction suggests that the synonymous mutation plays a central role in the domestication process.

Impact on RNA structure and translation efficiency

Structural analysis revealed that the C to T mutation makes the RNA more compact, which increases the energy required for its opening by the ribosome. This reduces the efficiency of RNA translation into protein. Ribosome profiling data confirmed lower RNA occupancy with the T mutation.

Structural simulations indicated that the conformation of RNA with C is more diverse and includes more open forms, favoring the interaction with YTH1. The T mutation leads to the prevalence of more stable and closed conformations, which make reading difficult.



Consequences for genetic improvement

The discovery highlights the importance of synonymous mutations in plant evolution and domestication. It also shows how small changes in DNA, even without altering proteins, can have large phenotypic effects by influencing epitranscriptomic regulation.

The use of gene editing tools allowed us to reproduce the T mutation and confirm its effect on the fruit phenotype. This paves the way for applications in crop improvement through gene expression engineering at the RNA level.

Further information at doi.org/10.1016/j.cell.2025.06.007

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Fire ban period begins in MT

Famato guides producers on deadlines and care

02.07.2025 | 14:37 (UTC -3)

Famato System

The period of prohibition of the use of fire in the Cerrado and Amazon biomes in Mato Grosso began this Tuesday, July 1st. The measure will continue until November

30th and aims to prevent burning and combat forest fires during the dry season, a critical period for the occurrence of hot spots in the state.

According to the Mato Grosso Agriculture and Livestock Federation (Famato), it is important that producers are aware of the deadlines and current legislation, remembering that in the Pantanal the prohibitive period has been in effect since June 1st and extends until December 31st, 2025.

“It is essential that producers do not confuse the deadlines. In the Pantanal, the prohibition period runs until December, while in the Cerrado and Amazon biomes it runs until the end of November. Famato is advising all rural unions and producers to

strictly follow the legislation and contribute to the prevention of fires, which put human lives, livestock, crops and the environment at risk," highlights Famato's Environmental Analyst, Tânia Arévalo.

During the prohibition period, any authorization for the use of fire in agricultural activities is suspended, even if it is for controlled burning previously licensed by the State Secretariat for the Environment (Sema). Failure to comply with the rules may result in fines and civil and criminal sanctions.

The legislation distinguishes controlled burning, which could be carried out until June 30th with authorization, from forest fires, which are the uncontrolled spread of fire and require immediate combat actions

by specialized agencies. In urban areas, it is worth remembering that the use of fire is prohibited throughout the year.

Famato advises producers to build and maintain firebreaks, review firefighting equipment and maintain trained teams in case of need.

As a preventive measure, the Mato Grosso Fire Department authorized, through Joint Normative Instruction No. 02/2025, that rural producers in the Pantanal build firebreaks with a width of 10 to 20 meters per side, without the need for prior authorization from Sema. However, it is necessary for the producer to make a declaratory act and register it with the Fire Department Command through the website: www.bombeiros.mt.gov.br.

Rural producers with properties in the Cerrado and Amazon biomes must maintain firebreaks with a minimum authorized width of 6 meters.

Another recommendation is that, upon identifying any fire, immediately call the Fire Department on 193. A quick response is essential to prevent the fire from spreading and causing major environmental damage and economic losses.

“In addition to complying with legislation, most rural producers are aware that preventing fires means protecting their property, their neighbors and society as a whole,” said analyst Tânia Arévalo.

For more information, Famato's Environmental Center and the rural unions

in each region are available to guide producers on the prohibition period and good prevention practices.

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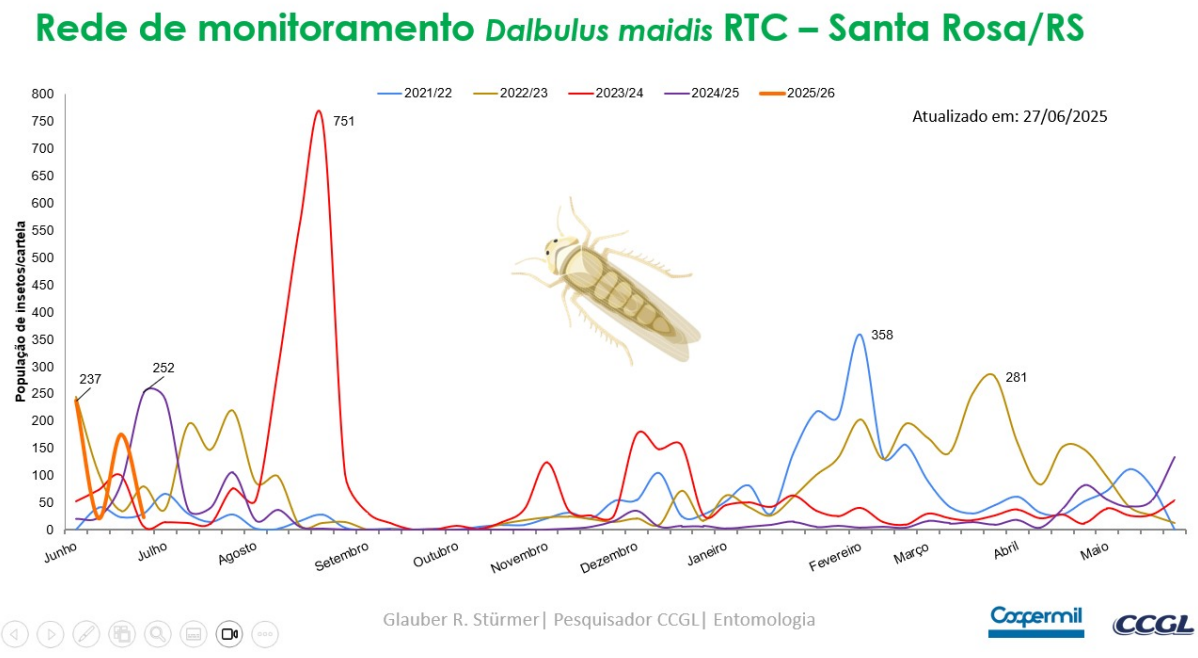
Prediction system anticipates the advance of the corn leafhopper

Tool developed by CCGL researcher allows monitoring of agricultural territory in Rio Grande do Sul

02.07.2025 | 10:45 (UTC -3)

Cultivar Magazine, based on information from Fernanda Campos



Prediction system for the corn leafhopper (*Dalbulus maidis*) was created by

entomologist Glauber Renato Stürmer, from the Rio Grande do Sul cooperative CCGL. The tool covers the entire agricultural territory of Rio Grande do Sul.

With the new model, producers can plan control actions before the pest reaches critical levels. In the last harvest, cold and frost reduced the populations of the leafhopper in the South region. Even so, the warning remains: abandoning monitoring can generate severe losses.

Stürmer recommends maximum attention from the emergence of the plants until the V10 stage of the corn. With only 5% of infestation in the crops, the use of insecticides already becomes necessary. The researcher reports losses of up to 95% in production in Rio Grande do Sul

crops where there was no adequate management of the pest.

In Rio Grande do Sul and Santa Catarina, the presence of corn year-round — including the overlapping off-season — creates an ideal environment for the pest. Populations infected by viruses and bacteria take shelter in green vegetation during the cold weather and migrate to the corn crop at the beginning of the cycle, the plant's most sensitive period.

According to Stürmer, the leafhopper is resistant to cold and does not die at low temperatures. Therefore, additional strategies need to be adopted. Reducing the “green bridge” and choosing more tolerant hybrids can contain the damage. Short-cycle corn with high yield ceilings

tend to be less resistant to the pest.

Glauber Renato Stürmer

With the expected increase in the area cultivated this season, the risk increases. More crops mean more food for the leafhopper. Constant monitoring, mainly through traps, is key to reducing losses.

When detecting harmful populations, adulticide insecticides should be used in the first two applications. From the third application onwards, the focus should also be on the nymphs. Nymphicide insecticides, which act on all stages of the pest, help to break its reproductive cycle. Nymphs feed on the underside of the leaves and ensure the replacement of adults. According to Stürmer, interrupting this cycle is one of the most effective control strategies.

Click here to see the insecticides registered for corn leafhopper control

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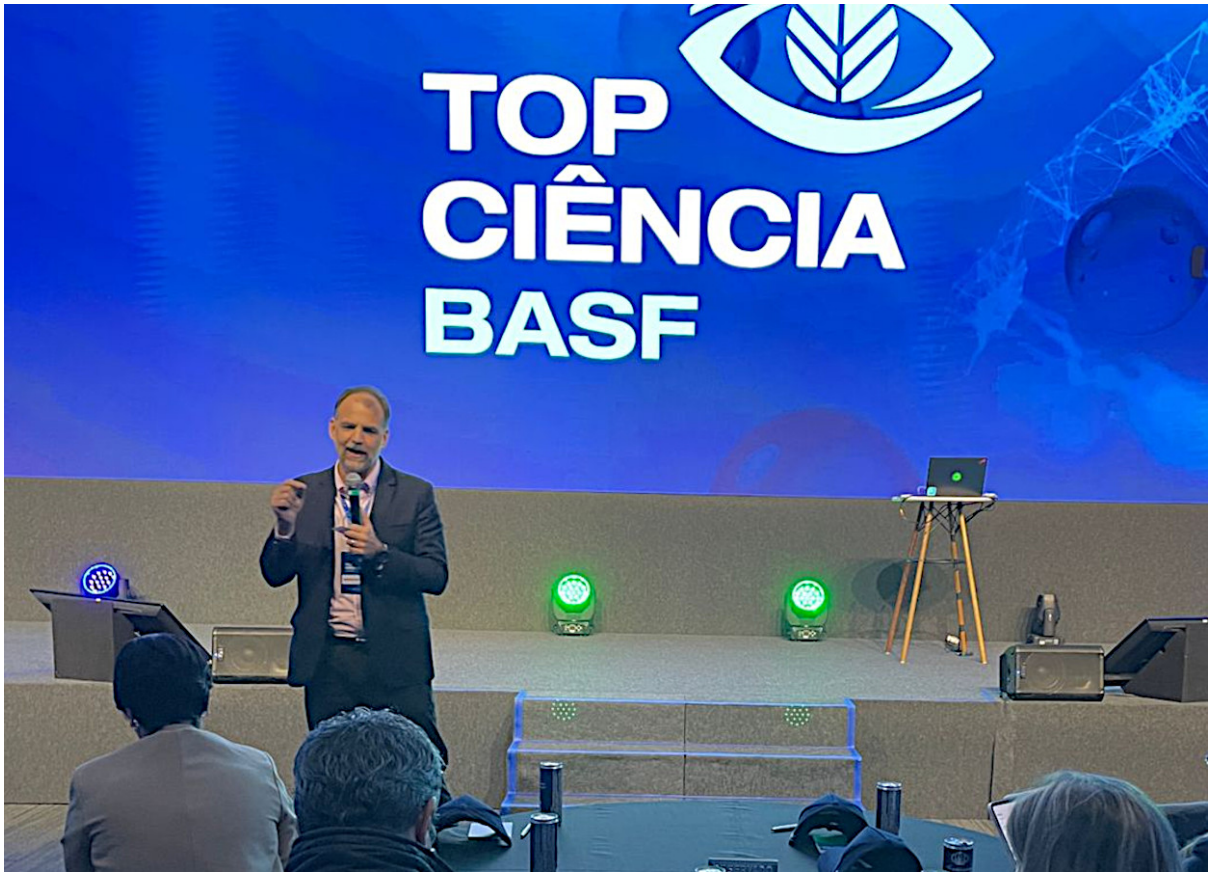
Top Science 2025 brings together experts and farmers

More than 200 researchers and consultants participate in the event promoted by BASF

02.07.2025 | 09:08 (UTC -3)

Cultivar Magazine



Marcelo Batistela

BASF Agricultural Solutions brought together more than 200 experts for another edition of Top Science. The event takes place today and tomorrow. Its focus is on the co-creation of practical solutions for the challenges faced in the field, with the theme: “how industry and the scientific chain can create solutions so that producers can break the productivity barrier”.

The new proposal divides participants into two large groups: researchers and consultants. Each group faces specific challenges in two main categories: production system and basic solutions. The topics range from the ideal time for management to the introduction of technologies that increase production rates.

"Agriculture was not the same as it is today 20 years ago, and it certainly won't be the same in two decades. The challenge is to earn more with less and to be resilient. Agriculture will be one of the solutions to solve some of the world's major problems, and the world cannot be without Brazil. Our challenge will be to combine science and technology to make production systems more resilient, because production challenges are in place and we need to think of solutions together," said Marcelo Batistela, vice president of BASF Agricultural Solutions in Brazil.

The first day was reserved for lectures and presentations. Among the highlights was the launch of the Efficon insecticide, with an unprecedented mode of action in vector control in corn. The agenda also includes

debates on artificial intelligence, productivity and technological innovations. Farmers such as Naomi Ando, ??from Petrolina, and Lucas Barcelos, from Unaí, share management experiences and results obtained with technologies in the field.

On the second day, participants are divided into themed rooms. Researchers and consultants work in groups by crops and input areas. The proposals created will be evaluated by BASF experts. The best initiatives will receive awards in 2026.

Connection between science and field

For BASF, Top Science reinforces its commitment to innovation and support for producers. According to Rafael Milléo, technical relationship manager, the company seeks to connect science,

customers and society. The goal is to improve farmers' results with solutions developed based on real demands in the field.

“Today, we have a more mature portfolio focused on the production system. The proposal of Top Ciência is to connect innovation and practice, ensuring that the solutions have a positive impact on life in the countryside,” said Milléo.

Focus on sustainability and development

In addition to productivity, the event highlights the importance of sustainable practices. BASF integrates seeds, biotechnology, digital tools and

sustainability initiatives in the development of its solutions. Top Ciência thus emerges as a strategic platform to listen to professionals in the field and create solutions that respond to the needs of a sector in constant transformation.

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

Graciela Mognol (in the video above), the company’s marketing director, points out that BASF invests more than €900 million in research every year: “Our goal is to help feed the world. The population is growing, the climate is changing, and labor is becoming scarce. We need to think about agriculture together.”

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

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Beck's acquires corn seed production unit from Syngenta

Acquisition strengthens company's presence in the western United States

02.07.2025 | 08:19 (UTC -3)

Cultivar Magazine, based on information from Hannah Rayl

Beck's announced the acquisition of a corn seed production facility from Syngenta in Phillips, Nebraska (USA). The transaction is expected to close on October 31.

With the new structure, Beck's intends to expand its seed supply and maintain direct service to farmers in the region. The company highlighted that Phillips' strategic location will allow for efficiency gains in seed production and processing, benefiting producers, in addition to strengthening the partnership between the two companies.

The relationship between Beck's and Syngenta includes decades of collaboration on several fronts, such as line development, introduction of genetic traits, production of basic seeds and germplasm licensing.

“Syngenta is recognized as one of the largest global suppliers of genetics and agronomic traits. With this focus, we can take on production services on-site, adding value to farmers and both companies,” said Scott Beck, president of Beck’s.

Syngenta will continue to focus its efforts on genetic research and the development of new technologies. Eric Boeck, the company's regional seed director for North America, said the agreement will allow for better use of the resources of both companies. He also stressed that employees at the unit will have the opportunity to talk to the new management to ensure a smooth transition.

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Macfrut 2026 highlights avocado and mango as protagonists

Event will be held in April and will include sessions to boost business with tropical fruits

01.07.2025 | 16:46 (UTC -3)

Cultivar Magazine, based on information from Elena Vincenzi

Macfrut 2026 will take place between April 21 and 23 at the Rimini Expo Centre in Italy. The date marks an advance compared to previous years, when the event took place in early May.

In the 43rd edition, avocado and mango take center stage. The two tropical fruits, which have been growing in production and global consumption, will be the focus of technical and commercial events and specialized sessions.

The organization created the themed days Avocado Day and Mango Day, with B2B meetings between producers and buyers from all over the world. The proposal aims to foster new business opportunities and facilitate direct contact with the main cultivation and sales centers.

Macfrut president Renzo Piraccini highlights that the sessions will have a comprehensive and concentrated format, allowing participants to explore all the commercial and productive aspects of these fruits in a single day.

Another new feature is the expansion of the Healthy Food Area. The space will be dedicated to fresh and processed foods with high nutritional value, following new consumer trends. Products considered superfoods will be promoted through tastings, demonstrations and meetings aimed at the foodservice sector and distribution.

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FMC strengthens project team in Latin America

José Daniel Fróes Junior will work on innovation and efficiency initiatives in agriculture

01.07.2025 | 15:33 (UTC -3)

Cultivar Magazine

With a solid track record in the agricultural sector, José Daniel Fróes Junior (pictured)

is the new Project Management Specialist for Latin America (Latam Project Management Specialist) at FMC Corporation. He will take up the position starting this July, marking another step in his career in global agribusiness companies.

An agronomist graduated from the Federal University of São Carlos (UFSCar), with an MBA in Business Management from FGV and international experience at the University of Missouri, Fróes Junior has worked for companies such as Eurochem, Nutrien Ag Solutions and Syngenta, where he worked in supervisory and specialist areas for over five years. His specialties include client portfolio management, technical consulting, seed production and leadership of projects focused on

continuous improvement.

In his new role, he will contribute to the development and execution of FMC’s strategic initiatives in Latin America, with a focus on operational efficiency and innovation in the field.

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Study shows effectiveness of oils against fungi in fruits

Natural compounds outperform chemical fungicides in controlling diseases in papaya and orange

01.07.2025 | 15:11 (UTC -3)

Cristina Tordin, Cultivar Magazine edition

Photo: Daniel Terao

Researchers from Embrapa Meio Ambiente (SP) and the State University of Campinas (Unicamp) have shown that essential oils can effectively inhibit fungi responsible for post-harvest losses in papaya and oranges. The effective and natural alternative uses extracts from plants such as oregano, cinnamon bark, rosemary pepper and clove basil.

According to Adriane da Silva, a doctoral student at Unicamp, the tests revealed that four of these oils — oregano (*Origanum vulgare*), cinnamon bark (*cinnamomum cassia*), rosemary-pepper (*Lippia sidoides*) and clove basil (*Ocimum*) - showed strong inhibitory action against the main fungi associated with papaya deterioration, such as *Phoma caricae-papayae*, *alternaria alternata*, *Lasiodiplodia theobromae*,

Colletotrichum gloeosporioides e *Fusarium solani.*

Photo: Daniel Terao

Highly perishable, papaya can lose up to 50% of its production due to fungal diseases that appear after harvest, especially during transportation and storage. In the case of oranges, losses are also significant: losses reach 40%, according to researchers.

The oils were tested in culture media under controlled conditions, and their performance was measured based on the inhibition of mycelial growth of the fungi, explains Silva. The highlight was the rosemary pepper oil, which completely inhibited the growth of all pathogens, even at low concentrations. Oregano and clove basil also showed excellent performance, although with less control over Fusarium solani.

Excellent for saving papaya from fungus

In addition to the initial screening, the researchers sought to understand which chemical compounds were behind the

antifungal action of the most promising oils. Through gas chromatography-mass spectrometry (GC-MS) analyses, the main components responsible for the activity were identified: carvacrol, thymol, ?-cymene and eugenol - all already known for their antimicrobial properties. Cinnamaldehyde, present in cinnamon bark, also stood out for its high antifungal potential.

Minimum inhibitory concentrations (MIC), that is, the smallest amount of oil needed to inhibit the fungus, varied according to the fungus and the compound. Oregano oil, for example, presented an MIC of 0,50 ?L/mL for most pathogens, indicating that even in smaller quantities it presented a high capacity to inhibit the fungi. Clove basil oil was the least effective against *F.*

solani, requiring 2,00 ?L/mL for full control.

Photo: Daniel Terao

Daniel Terao, a researcher at Embrapa, explains that the tests also included the isolated and combined action of the main compounds in the oils. The combination of carvacrol, thymol and eugenol in proportions similar to those found in natural oils resulted in synergistic effects, enhancing the antifungal effect. According to the authors, these compounds act by

destabilizing the cell membrane of the fungi, which leads to the loss of viability and prevents their reproduction.

“In addition to being effective, essential oils have important environmental and health advantages: they are biodegradable, low in toxicity and many are already considered safe for food use by regulatory agencies. Therefore, post-harvest technologies that use these compounds - such as natural coatings applied to the skin of fruits - have gained prominence as sustainable alternatives to conventional fungicides,” he highlights.

Potential for more sustainable food

production

The use of essential oils in food preservation is not new. Several previous studies have already shown the potential of oils such as cinnamon bark, rosemary, pepper, oregano and clove against fungi that attack oranges, avocados, melons, grapes and strawberries. What is new now is the systematic demonstration of their effectiveness against fungi specific to papaya, a fruit that is especially sensitive because it is climacteric - that is, it continues to ripen and breathe after harvest, which favors fungal infections.

The growing interest in healthier foods free from chemical residues is also driving the search for natural solutions in the field and

in industry. Based on the results obtained, the authors of the study highlight that the incorporation of essential oils into the post-harvest management of papaya can reduce losses in the production chain, increase the shelf life of the fruit and promote more sustainable agricultural practices.

For the researchers, the next step involves developing commercial formulations and full-scale testing, including evaluations on fruits stored under market conditions. “Essential oils and their major compounds have the potential to compose a new generation of natural preservatives, with positive impacts for producers, consumers and the environment,” state the authors.

Based on this advance, the study paves the way for the practical application of essential oils in the tropical fruit sector, contributing to cleaner, more efficient agriculture that is connected to the demands for sustainability and food security.

Photo: Daniel Terao

Fungi cause losses of up to 40% in oranges

In the case of oranges, another recent study revealed that extracts from plants such as oregano, cinnamon bark, rosemary pepper and clove basil were effective against two fungi responsible for considerable damage in the citrus production chain: *Penicillium digitatum*, which causes green mold, and *Geotrichum citri-aurantii*, agent of sour rot.

Fungal diseases that attack oranges after harvest are among the biggest causes of losses, compromising up to 40% of production. Currently, controlling these fungi depends on the use of fungicides such as imazalil and thiabendazole, which

have been the subject of questioning due to the environmental risk and the presence of chemical residues in food, in addition to the loss of efficiency in controlling fungi due to continued use of the same molecule. In this context, essential oils are gaining prominence as a safer and more environmentally sustainable solution.

“In laboratory tests, seven essential oils were analyzed for their ability to inhibit the mycelial growth of pathogens. The best results were obtained with the essential oils of cinnamon bark (*cinnamomum cassia*), oregano (*Origanum vulgare*), rosemary-pepper *(Lippia sidoides*) and clove basil (*Ocimum*). Among them, cinnamon bark oil stood out for completely inhibiting the two fungi tested with the lowest dose applied”, highlights Adriane.

In addition to testing the oils in their entirety, the researchers also evaluated mixtures made from the three main chemical constituents of each oil. Among the compounds investigated were cinnamaldehyde (found in cinnamon bark), carvacrol (oregano), thymol (rosemary) and eugenol (clove basil). When combined, these compounds showed a synergistic effect, that is, the combined result was superior to the individual action of the components.

“Cinnamaldehyde, for example, reduced its minimum inhibitory concentration by half when combined with other constituents of cinnamon bark. Similarly, carvacrol and thymol also showed greater efficacy when used together. Minor compounds, such as o-methoxy cinnamaldehyde and

caryophyllene, did not inhibit the fungi in isolation, but enhanced the action of the main compounds when integrated into the mixtures," Terao highlights.

The efficacy of the treatments was measured based on the area under the mycelial growth curve and the diameters of the colonies over nine days of incubation. Statistical analyses indicated significant differences between the treatments, confirming the antifungal potential of the essential oils and their combined formulations.

Essential oils cause structural changes in the hyphae (extensions) of fungi, such as deformations and collapses, suggesting damage to the cell wall and plasma membrane, compromising their

development.

Standardization of essential oils

Terao explains that another relevant point of the research was the finding of chemical variations between different batches of the same essential oil, even when produced from the same plant and by the same supplier. This variability can directly affect the effectiveness of the product, indicating the need for chemical standardization so that the oils can be used safely and effectively in agriculture.

The fungi used in the experiments were isolated from infected oranges harvested from commercial orchards. After extraction

and cultivation in the laboratory, the pathogens were exposed to treatments with essential oils, applied in culture medium. The response of the fungi to the treatment was monitored during the incubation period.

Photo: Daniel Terao

For the researchers, the results reinforce the potential of essential oils as natural substitutes for synthetic fungicides, contributing not only to the reduction of

post-harvest losses, but also to the adoption of more sustainable agricultural practices. “The application of these natural compounds can represent a significant advance in fruit preservation, especially in a context of growing demand for foods free of chemical residues,” state the authors.

The next step, according to the scientists, is to test the effectiveness of the essential oil-based formulations under real conditions of storage and transportation of the fruits, in order to assess their viability for large-scale commercial use. The research is part of a line of investigation aimed at developing clean and effective technologies for food preservation, in line with the requirements of environmental sustainability and food safety.

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UPL launches Nuvita for corn and soybean crops

Product with NPP technology improves nitrogen use and enhances plant nutrition

01.07.2025 | 14:53 (UTC -3)

Cultivar Magazine, based on information from Rafael Iglesias

UPL Ltd. announced the launch of Nuvita, a biosolution designed for corn and

soybean crops. The technology is part of the NPP (Natural Plant Protection) platform, dedicated to biological and natural inputs, and promises significant productivity gains from greater nutritional efficiency of plants.

Developed with robust scientific basis, Nuvita combines carefully selected nutrients and plant extracts. The formula favors the formation of aquaporins – proteins responsible for opening channels in cell membranes –, which increase the absorption and transport of water and nutrients, especially nitrogen.

According to Rogério Castro, CEO of UPL Brasil, the launch seeks to meet the farmer's need to extract maximum yield with the same investment in fertilization.

“Each additional bag makes a difference in profitability. Nuvita delivers greater efficiency in the use of nutrients, which translates into higher productivity,” he highlighted.

The product is applied via foliar application and is highly stable and compatible. The observed agronomic response includes more developed plants and greater conversion of applied fertilizers into effective production. According to Luciane Balzan, Bio & Nutrition marketing manager at UPL, tests showed an average increase of 50% in nitrogen use efficiency in corn.

The results come from studies conducted in more than 18 agricultural regions in Brazil. The assessments measured the nitrogen use efficiency index, considering

the volume of grains produced per kilo of nutrient applied and the reserve in the soil. The improvement in assimilation and conversion favored more productive crops, even in situations of water stress.

“Nuvita represents intelligence applied to plant nutrition. The plant makes better use of available resources, resulting in stronger and more productive crops,” concluded Luciane.

To learn more about UPL's latest releases, click "UPL launches ten agricultural products in one year and reinforces focus on biosolutions".

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Tangerine peel becomes pesticide for small producers

Research in Ecuador shows that ethanolic extract from the fruit controls pests with good efficiency

01.07.2025 | 11:09 (UTC -3)

Cultivar Magazine

Photo: Frank Peairs

Research carried out in Ecuador proposes a low-cost alternative for insect management: the use of ethanolic extract from tangerine peel (*Citrus reticulata* L. var. Clementina) as a botanical pesticide.

During the 2023 rainy season, two types of extract formulation (1,25% and 2,50%) were applied to potato crops (*Solanum tuberosum* L. var. Capiro), being compared with conventional chemical treatments and with an area without application.

The results showed that the 2,50% formulation reduced the populations of pests such as thrips (*Frankliniella occidentalis*) and aphids (Aphididae), achieving performance equivalent to that of synthetic pesticides.

Carrying out the study

The experiment was conducted in randomized blocks with 45 plants per treatment, in three distinct blocks. The extract was applied weekly between days 30 and 105 after planting. Pest assessment included direct inspection of the plants and yellow traps to capture insects.

The 2,50% formulation achieved significant reductions in eggs and nymphs of *Bactericera cockerelli*, besides caterpillars (*Spodoptera frugiperda*). For aphids, the reduction was 52%, a result close to that of the conventional treatment, with 75%. In tests with traps, it was observed that the presence of pests also fell at similar levels

in treatments with extract and synthetic pesticides.

The extract did not affect populations of beneficial insects, such as ladybugs (Coccinellidae), bees (*Apis mellifera*) and wasps. These insects are essential for pollination and biological control.

Potato yield and quality

Post-harvest analysis showed that the yield with the 2,50% formulation reached 73% of the productivity of the plots with chemical management, maintaining similar quality of the tubers. Treatment with extract also reduced the incidence of larvae *Premnotrypes vorax*, a common underground pest in the Andean region.

In terms of visible damage, the harvested tubers showed similar levels between the extract and chemical treatments. Larvae were less frequent in the plots with the 2,50% formulation, although there was no clear statistical difference in relation to those with synthetic pesticide.

Extraction and composition of the extract

The extract was obtained from tangerine peels harvested in the Pimampiro canton. The peels were cut, macerated in 96% ethyl alcohol for 15 hours and processed in a pilot unit with evaporation and recirculation of the solvent. The yield was

9,9% of the peel weight.

Phytochemical analyses revealed the presence of flavonoids, steroids, tannins and compounds with functional groups associated with insecticidal activities, such as limonene. This monoterpene represented approximately 70% of the compounds detected and was identified as the main responsible for the biological action.

Tests with the nematode *Caenorhabditis elegans* indicated low environmental toxicity of the extract. Concentrations similar to those used in the field caused minimal effects on non-target organisms.

More information at doi.org/10.3390/insects16070680

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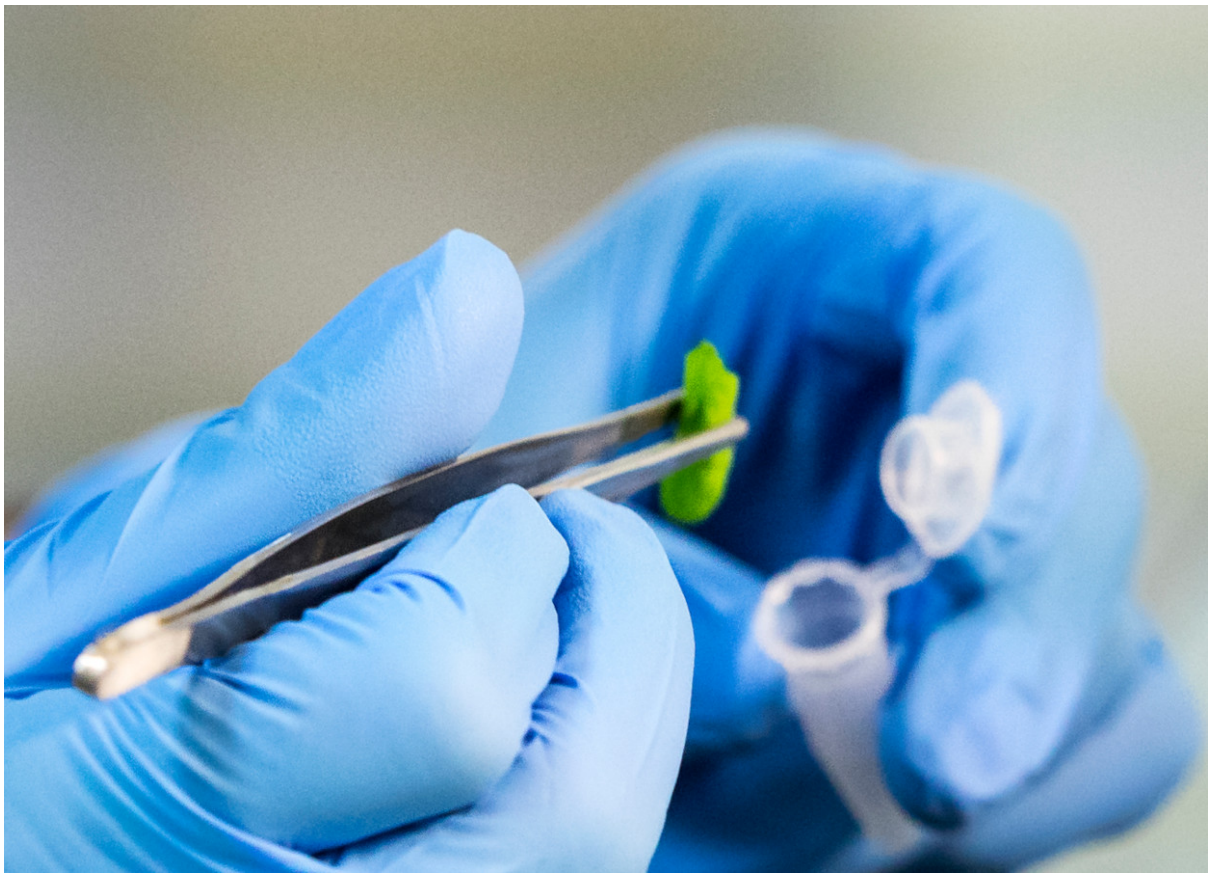
Federal Government publishes decree to reduce pesticide use in Brazil

Program encourages sustainable practices and promotes bioinputs

01.07.2025 | 07:10 (UTC -3)

Cultivar Magazine



The federal government instituted the National Pesticide Reduction Program (Pronara) on Tuesday. The initiative is part of the National Policy for Agroecology and Organic Production (Pnapo) and aims to reduce the use of pesticides in Brazil. Decree No. 12.538, signed on June 30, 2025, came into force with publication in the Official Gazette of the Union.

Pronara establishes guidelines to gradually reduce the use of pesticides. The strategy includes encouraging the adoption of bioinputs, sustainable agricultural practices and healthy food systems.

The policy also seeks to strengthen oversight and monitoring of pesticide use at the federal, state and municipal levels. The production, marketing and use of

bioinputs will become a priority.

Interministerial coordination

According to the text of Decree 12.538/2025, the program will be coordinated by an Interministerial Management Committee. The General Secretariat of the Presidency will be responsible for coordinating the group and promoting social participation in the management of Pronara.

The Ministry of Agrarian Development and Family Farming will work to promote agroecology and organic production. It will also promote differentiated credit via Pronaf, technical assistance and

productive transition in urban, rural and peri-urban areas.

The Ministry of Health will monitor pesticide residues in food, water and the environment. It will also promote information campaigns on the risks of these substances and train health workers.

Actions aimed at the vulnerable population

The Ministry of Development and Social Assistance will support public policies aimed at healthy eating and agroecological urban agriculture. It will also promote educational campaigns and training activities for community leaders and farmers.

The Ministry of Environment and Climate Change will develop guidelines for environmental assessment of pesticides. It will develop specific strategies for vulnerable territories and conservation areas.

Toxicological review and product substitution

Another point presented by the decree is the reassessment of the toxicological risks of already registered pesticides. The work will be coordinated by the Ministry of Agriculture. The agency will also prioritize the registration of bioinputs and low toxicity pesticides.

Among the planned actions is the development of a phytosanitary plan to replace products banned or restricted by international conventions. The ministry will also encourage research into integrated pest management.

The full text can be seen at the link below.

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Ants detect exotic pest on US crops

Researchers demonstrate efficient use of environmental DNA collected by ants to monitor Lycorma delicatula

01.07.2025 | 06:30 (UTC -3)

Cultivar Magazine

Photo: Rhododendrites

Research led by scientists from the United States and Taiwan proposes an innovative technique to identify the presence of the

invasive insect *Lycorma delicatula*, known as the "lantern bug". The method uses ants as "DNA samplers", collecting genetic remains of the insect through the ingestion of substances produced by it.

Lycorma delicatula It is native to Asia and currently threatens crops in the United States. Its sweet secretions, called honeydew, accumulate on tree leaves and attract ants. This substance contains the insect's DNA, which offers an opportunity for identification without the need for direct sighting.

The research validates the use of so-called “ant-derived DNA” (antDNA) as an effective and sensitive means of detection. By analyzing the gut contents of ants, scientists were able to track the presence

of the lantern bug with considerable accuracy and range.

Three experiments

The team performed three tests. The first confirmed the presence of insect DNA in ants collected from infested areas. In the second, they fed ants honeydew containing insect DNA. *L. delicatula*. The DNA remained detectable for at least five days. On the third day, they lured ants using honey baits along transects in infested areas. The samples captured pest DNA at distances of up to 100 meters from the host tree.

The method demonstrated high sensitivity. In areas of medium and high infestation,

the detection rate exceeded 60%. Even in areas with few insects, about half of the samples revealed pest DNA. The ants were easily attracted in less than 30 minutes.

Unlike conventional techniques that require expensive equipment and water or foliage collection, antDNA requires only tubes, cotton wool and honey solution. Sampling does not depend on immediate refrigeration, which makes field work easier.

Ecological and operational advantages

Ants, due to their foraging behavior and ability to store liquids, ingest and retain

honeydew for several days. This content can be shared with other ants in the nest, expanding the detection range. The technique thus allows monitoring larger areas with less effort.

This approach also reduces the impact on the environment by avoiding the removal of vegetation or the use of invasive traps. It also has advantages in regions that are difficult to access, such as mountainous areas or private properties.

The methodology can be adapted to track other honeydew-producing pests. The combination of ant ecology and biotechnology offers a new frontier in environmental monitoring. The study concludes that using ants as genetic sentinels can make surveillance programs

more effective and accessible, helping to contain the spread of pests in vulnerable agricultural territories.

More information at doi.org/10.1002/ps.8814

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LiuGong strengthens team with focus on expansion in Brazil

Mozart Pádua strengthens sales team and Wilson Soler Filho is promoted to new business management

30.06.2025 | 16:44 (UTC -3)

Adriana Roma

Heavy equipment manufacturer LiuGong

has announced changes to its sales structure to support the growth of its operations in Brazil. Mozart Pádua (pictured, left) has been hired as Senior Sales Manager, taking over the areas of bidding, end customers and the Distributor Network. With over 20 years of experience in the machinery, vehicle and truck sectors, Pádua has worked for brands such as John Deere, Hyundai and Volkswagen.

In addition to the new hire, LiuGong has promoted Wilson Soler Filho (pictured, right) to the newly created position of Senior New Business Manager. The executive will now focus exclusively on opening opportunities, developing partnerships and building relationships with stakeholders.

According to the vice president of LiuGong Brasil, Hebert Francisco, the changes aim to strengthen the focus on the customer and expand the brand's strategic presence in the country.

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Importance of genetic resistance against plant nematodes

By Paulo S. Santos, Phytus Staphyt

30.06.2025 | 13:27 (UTC -3)

Soybean crop infested by phytonematodes - Photo: Paulo S. Santos

In order to produce more soybeans under an intensive and highly productive

agricultural system, located in areas with tropical and subtropical climates, an environment with favorable conditions for the occurrence of pests and diseases is observed. Among the various groups of agents that cause injuries to soybean crops, plant-parasitic nematodes have stood out season after season. Distributed throughout all producing regions of Brazil, these microorganisms have caused billions in losses to soybean crops, where currently more than 10 species have the capacity to cause productivity losses for this commodity.

The main species are root lesion nematodes (*Pratylenchus brachyurus*), soybean cyst nematode (*Heterodera glycines*), root-knot nematodes (*Meloidogyne javanica* e *Meloidogyne*

incognita) and the reniform nematode (*Rotylenchulus reniformis*). In recent years, some species have been reported in some regions, such as *Helicotylenchus dihystera* (Spiral nematode), *Scutellonema brachyurus*, *Tubixaba tuxaua* (giant nematode) and *Aphelenchoides besseyi* (green stem nematode).

Despite this number of species emerging, the first nematode species reported in soybean crops in Brazil still pose risks in several regions. In studies carried out by Staphyt, located in Formosa, in the central-northern region since 2019/20, the presence of the root lesion nematode (*Pratylenchus brachyurus*) in more than 75,9% of the soybean samples analyzed in the nematology laboratory, followed by root-knot nematodes (*Meloidogyne*

javanica), with 26,4%, the soybean cyst nematode (*Heterodera glycines*), 17,0%, and the reniform nematode (*Rotylenchulus reniformis*), 5,7%. Another increasing species in this study has been the spiral nematode (*Helicotylenchus dihystera*) with 76,3% presence in the samples analyzed.

These soil microorganisms feed on the root system of plants, causing interference in the physiological processes of the plant, compromising the absorption and translocation of nutrients, thus reducing productivity. The feeding of these microorganisms, when established in the initial stages of seedling development, can also favor the entry of other soil microorganisms such as fungi, further compromising plant development.

Susceptible cultivar (left) and resistant cultivar (right)

Numerous technologies have been developed in recent years to help manage coexistence with these microorganisms. As research on the subject advances, it is shown that, in an integrated manner, it is possible to achieve success in managing and controlling these microorganisms. The main tools currently used are preventive,

cultural (crop rotation with non-host plants, cultivation of antagonist plants), genetic (resistant soybean varieties) and protective practices through the use of nematicides (chemical and biological).

One of the strategies used in management that plays an important role is the use of resistant or moderately resistant soybean varieties, since, in addition to combining practicality and environmental safety, they present efficient control responses, reducing losses in the field, as well as the population density of the species in the soil. As the understanding of the problem advances, it becomes more evident that the management of phytonematodes converges towards coexistence and not eradication, and in this regard it is essential to include genetic control in the

structuring of management.

Choosing a resistant soybean variety associated with the correct identification of the species or race present in the area will provide greater security for the integration of protective tools (nematicides), increasing the spectrum of control. Currently, some soybean varieties are resistant or moderately resistant to root-knot nematodes (*Meloidogyne* spp.), the soybean cyst nematode (*Heterodera glycines*, some races) and the nematode-reniformis (*Rotylenchulus reniformis*) which are of fundamental importance in the management of these species.

Resistance mechanisms to phytonematodes are divided into passive (pre-infection) or active (post-infection)

resistance. The first involves the presence of toxic or repellent substances to phytonematodes; this mechanism can be represented in most non-host plants. The second consists of the plant's ability to react to parasitism through defense mechanisms. The phenotypic expression of plant resistance to nematodes is generally characterized by the hypersensitivity reaction (HR), which consists of the programmed death of cells at the feeding site, thus limiting their development and reproduction.

Behavior of roots of different soybean cultivars in crops infested by root-knot nematodes

Within the MIN (Integrated Nematode Management) structure, well-positioned soybean cultivars change the appearance of the crop, indicating a possible path to assertiveness in varietal choice. The difficulty of varietal choice currently contrasts with the speed of new materials being released, which sometimes do not

provide information related to the reaction of these species of phytonematodes.

The impacts caused by these microorganisms on the roots are reflected in the aerial part of the plants, and are highly variable, depending on factors related to population density, climate factors, as well as those related to the production environment. A priori, this information in the structuring of the MIN involves the possibility of better positioning of the materials in the areas, however, when this tool is positioned incorrectly, on a certain species, the responses end up being disastrous with significant losses.

Therefore, one of the concerns with this management tool (resistant cultivars) is its use in isolation. Adjusting these varieties

with protection tools (chemical or biological nematicides), linked to a rotation system, is practically vital for the success of a medium to long-term management program. In order to be effective, the management of phytonematodes needs to be thought of as part of the production system and not as an isolated crop, thus bringing greater stability to the system as a whole, keeping the phytonematode population at low levels, allowing for good production.

By **Paul S. Santos***, Phytus Staphyte*

Article published in issue 298 of Cultivar Grandes Culturas Magazine

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Study reveals impact of corn production on US economy

Cultivation supports more than 440 thousand jobs and reaches 500 sectors

30.06.2025 | 13:01 (UTC -3)

Cultivar Magazine

In 2024, the cultivation of corn in the United States generated a total economic impact of US$ 123,2 billion. The number represents about 0,17% of the national Gross Domestic Product (GDP), according to a study by the National Corn Growers Association (NCGA). With 14,9 billion bushels harvested and an estimated production value of US$ 64,7 billion, the activity strengthens rural communities and keeps a complex economic chain alive.

In total, the corn production chain supports 441 jobs. These include direct jobs in the fields, jobs at suppliers, and jobs generated by consumption by families linked to the sector. The total wages and income distributed exceeds US$28 billion. The tax authorities collect US$7,3 billion in taxes.

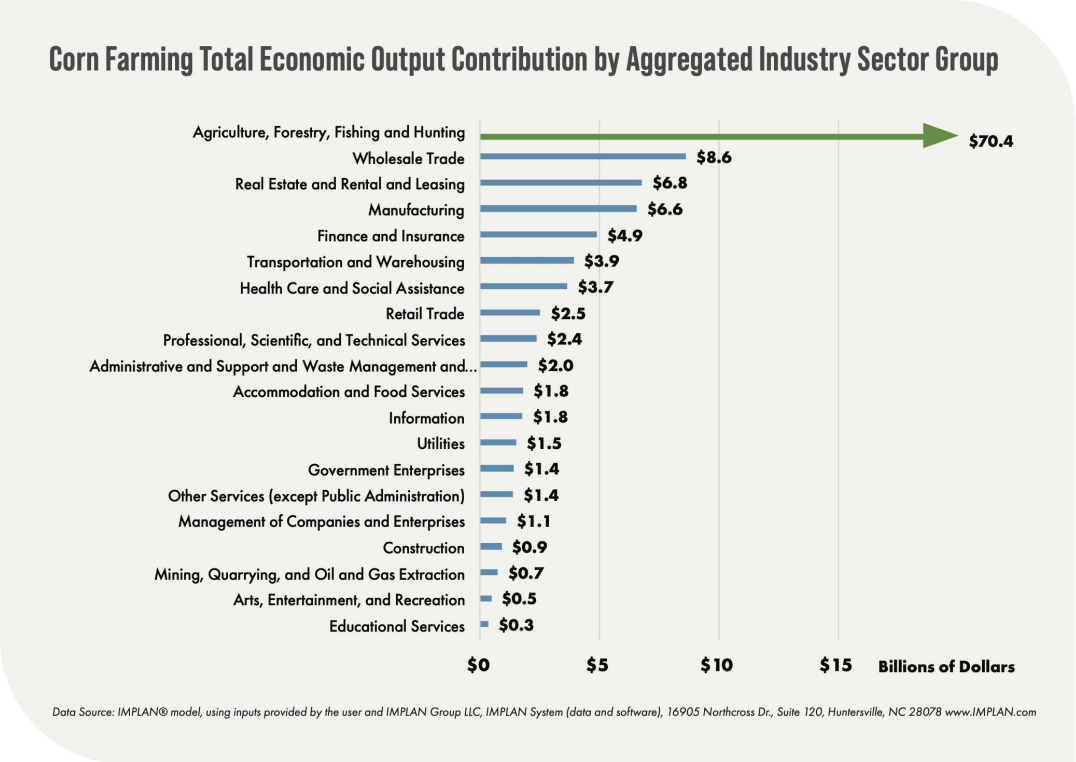
The study also takes into account the indirect and induced effects of corn. Industries such as fertilizers, fuels, machinery, transportation, finance and insurance, for example, account for US$36,1 billion in production. Domestic spending by workers linked to corn injects another US$22,4 billion into the economy.

Illinois, Iowa and Nebraska lead the way

Illinois ranks second in terms of total impact, contributing $18,56 billion and supporting 61,9 jobs. Iowa leads in terms of production volume, generating $19,26 billion in impact and supporting 51,2 jobs. Nebraska contributes $13,2 billion and 27,5 jobs.

Kenneth Hartman Jr., president of NCGA and a producer from Illinois, says the potential for the chain could be even greater. To achieve this, it would be necessary to permanently allow the sale of fuels with 15% ethanol and open new international markets for American corn.

NCGA advocates for legislation in Congress that would allow E15 to be sold year-round. It is also working to secure tax credits for aviation ethanol use. Hartman notes, “The economic value of corn could increase if farmers had full access to the biofuels market and to trade.”



Corn reaches 506 sectors of the economy

Farming directly or indirectly impacts 506 industries in all 50 states. The agricultural sector alone generates $70,4 billion in revenue. Wholesale trade ($8,6 billion), real estate ($6,8 billion), manufacturing ($6,6 billion) and finance ($4,9 billion)

round out the top of the list.

Even states with low production, such as California, are feeling the effects of corn. There, the impact reaches US$3,6 billion — thanks to the strength of the real estate and insurance industries, which absorb the indirect effects of cultivation in other regions.

Next stop: Capitol

In July, state and national NCGA leaders will visit congressional offices to push for the passage of their bills. The goal is to ensure that corn maintains its role as an economic engine and gains new avenues for expansion.

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US Supreme Court hears government in glyphosate case

Decision follows petition filed in April by Monsanto

30.06.2025 | 12:36 (UTC -3)

Cultivar Magazine, based on information from Brian Leake

The U.S. Supreme Court today asked the Solicitor General to present the government’s position in Durnell v. Monsanto. The request stems from a petition filed in April by Bayer subsidiary Monsanto.

The court will consider whether federal pesticide legislation, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), prevents state courts from punishing manufacturers that follow labels approved by the Environmental Protection Agency (EPA).

“We view this step with optimism,” said Bill Anderson, Bayer’s chief executive. He argued that farmers and industries depend on clear federal rules. According to the executive, state decisions contrary to

federal labels turn companies into targets of the “litigation industry” and threaten the food supply.

Division in federal courts

Monsanto points to divergent views among appellate courts. The 3rd Circuit, in Schaffner v. Monsanto, concluded that FIFRA “expressly” bars state actions based on failure to warn. The 9th and 11th Circuits, as well as the Missouri Court of Appeals in Durnell v. Monsanto, have taken the opposite view. The company argues that only the Supreme Court can unify the understanding.

The court will consider the request during the 2025-2026 session. After the opinion of the attorney general, the justices will decide whether to accept the appeal. If this occurs, the trial on the merits could end by June 2026. A decision in favor of the federal pre-issuance thesis would contain much of the action on the herbicide based on glyphosate.

Broad industry support

According to Bayer, 18 entities have filed briefs in support of Monsanto. The Chamber of Commerce warned: “The risks in this case, and others like it, are enormous […]. If the federal pre-release is defeated, manufacturers will face potentially overwhelming liability under

state laws for failing to include warnings prohibited by the federal text.”

Farmers’ organizations such as the American Farm Bureau Federation have argued that “American agriculture cannot function without glyphosate […]. It will wreak havoc on crops and the food supply.”

Bayer Strategy

Anderson said law firms are investing hundreds of millions of dollars to sue the company, even though the EPA and other health agencies have attested to the safety of glyphosate. Bayer plans to settle most of the disputes by 2026. To that end, it supports regulatory measures that would reassert the EPA’s authority over labels.

Eleven state attorneys general have asked the federal agency to make it clear that any different requirements on state labels will make the product “mislabeled.” More than 360 agribusiness associations are echoing the same position. Legislative initiatives in states such as Georgia and North Dakota are already seeking to ensure that federal labeling requirements satisfy local regulations.

Understand the Durnell case

A jury in St. Louis County, Missouri, heard the case in October 2023. It found that Monsanto failed to warn about the risks of glyphosate, awarded $1,25 million in damages and dismissed punitive

damages. The company appealed in August 2024. The appeals court upheld the decision in February 2025. The state Supreme Court appeal was denied on April 1, paving the way for a federal appeal.

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GDM acquires AgReliant Genetics and expands operations in North America

With the purchase of 100% of the North American company, the company strengthens its corn and soy portfolio

30.06.2025 | 08:01 (UTC -3)

Cultivar Magazine, based on information from GDM

GDM has reached an agreement to acquire 100% of AgReliant Genetics, which markets corn and soybean seeds in the United States and Canada. The transaction is subject to approval by regulatory agencies. According to the press release, the deal makes GDM the fourth largest provider of corn genetics in the world.

AgReliant operates in the United States under the AgriGold and LG Seeds brands, and in Canada under the Pride Seeds brand. Founded in 2000 as a joint venture between KWS and Limagrain, the company has one of the largest corn gene banks in North America and the fourth largest corn research program in the world. It also offers sorghum and alfalfa seeds.

With the integration, GDM will operate a combined genetics platform, adding global expertise and innovation to AgReliant's consolidated presence in the North American field. The acquisition includes the rights to corn germplasm. The expectation is to expand the offer of solutions for producers with a more robust and differentiated portfolio.

Ignacio Bartolomé, CEO of GDM, said that the transaction marks an important step forward in the company's growth strategy in North America. According to him, the merger will allow it to drive innovation and increase performance in the field, benefiting producers and partner companies.

Brian Barker, current CEO of AgReliant, will assume leadership of GDM's North American operations upon completion of the acquisition. Philip Chandler will continue to be responsible for GDM's legacy business in the United States.

Completion of the deal is subject to regulatory approvals in the United States, including from the Federal Trade Commission (FTC) and the Department of Justice, as required by the Hart-Scott-Rodino Antitrust Improvements Act of 1976. Until then, GDM and AgReliant will maintain their independent business structures and routines.

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Italian tractor exports and production fall

FederUnacoma points to a 15,1% drop in exports and a 14,5% decline in national production of agricultural machinery in 2024

29.06.2025 | 15:06 (UTC -3)

Cultivar Magazine, based on information from FederUnacoma

Italian exports of agricultural machinery fell by 15,1% in 2024, reflecting weak global demand and a shrinking domestic market. The decline directly impacted production, which fell by 14,5% compared to the previous year. The total value produced in the country reached €14 billion.

During the FederUnacoma annual assembly held in Bologna, President Mariateresa Maschio detailed the scenario. Only the gardening and green space care machinery sector showed growth, of 0,6%, with a value of €905 million.

Tractor production suffers decline

Tractor manufacturing fell 29% to €1,9 billion. Incomplete tractors fell 17% to €1,2 billion. Agricultural machinery and equipment fell 9% to €6,8 billion. Components fell 17,5% to €3,3 billion.

In the domestic market, tractor sales remain low. In 2024, only 15.500 units were registered, one of the worst results in history. Between January and May 2025, 6.729 vehicles were sold, a similar number to the same period in 2024. However, April and May showed growth of 9%, which could signal a possible recovery.

The number of transporters (tractors with loading platforms) increased by 42,1%, with 334 units sold. Telescopic handlers grew by 0,5%, with 409 units. Trailers fell by 2,7%, with 3.181 units. Harvesters saw

a sharp drop of 40%, although they only accounted for 60 vehicles in the period.

Global market shows retraction

The global scenario is no different. In 2024, the number of tractors registered worldwide fell by 8%, totaling 2,03 million. Since 2021, the market has lost around 450 thousand units. The value of sales fell by 10%, to US$ 52 billion.

The main markets recorded a decline. In the United States, sales fell 14% (216 units). In China, the decline was 12% (320 machines). In Turkey, 18% (63). Western Europe fell 8%, with 144 tractors. France fell 6% (34 units) and Germany, 3% (29).

India held up better, with a drop of only 2%, maintaining more than 900 registrations for the fourth year in a row.

Conflicts and instability impact trade

FederUnacoma’s president cited low agricultural profitability, weak global growth and geopolitical tensions as the main causes of the downturn. The war in Ukraine and conflicts in the Middle East have exacerbated price volatility and affected supply chains.

In 2024, the global value of tractor trade fell by 21,7% to $23,8 billion. That of other agricultural machinery fell by 8% to $62 billion. Italian exports followed suit, falling

by 15,1% to €6,8 billion. The trade balance, although positive at €4,9 billion, worsened.

In the first three months of 2025, exports to the US fell by 36,8%, totaling €147 million. As a result, France became the main destination for Italian machinery.

FederUnacoma celebrates 80 years

Founded in 1945, FederUnacoma currently has 360 member companies. The organization operates in 80 countries with missions and fairs. It manages 65 European and international technical groups. It maintains 18 websites and 11 social networks. It has promoted 1.300

events in the last decade and trained more than 4.500 professionals.

The federation organizes the EIMA and Agrilevante fairs, which have grown significantly in attendance in recent years. In 2024, EIMA welcomed 347 visitors. Agrilevante attracted 95 people in 2023.

The institution's activities include defending the sector since the 1950s, including mechanization plans and active participation in European agricultural policies. In 2023, the entity participated in events such as the Doha Agricultural Exhibition and the G7 Agriculture in Syracuse. In 2025, it will be present at the Osaka Expo.

According to director Simona Rapastella, the federation seeks to promote

mechanization as a key element of innovation in the agro-industrial sector. The growing public curiosity about automated equipment shows that the sector has also gained new ground in public opinion.

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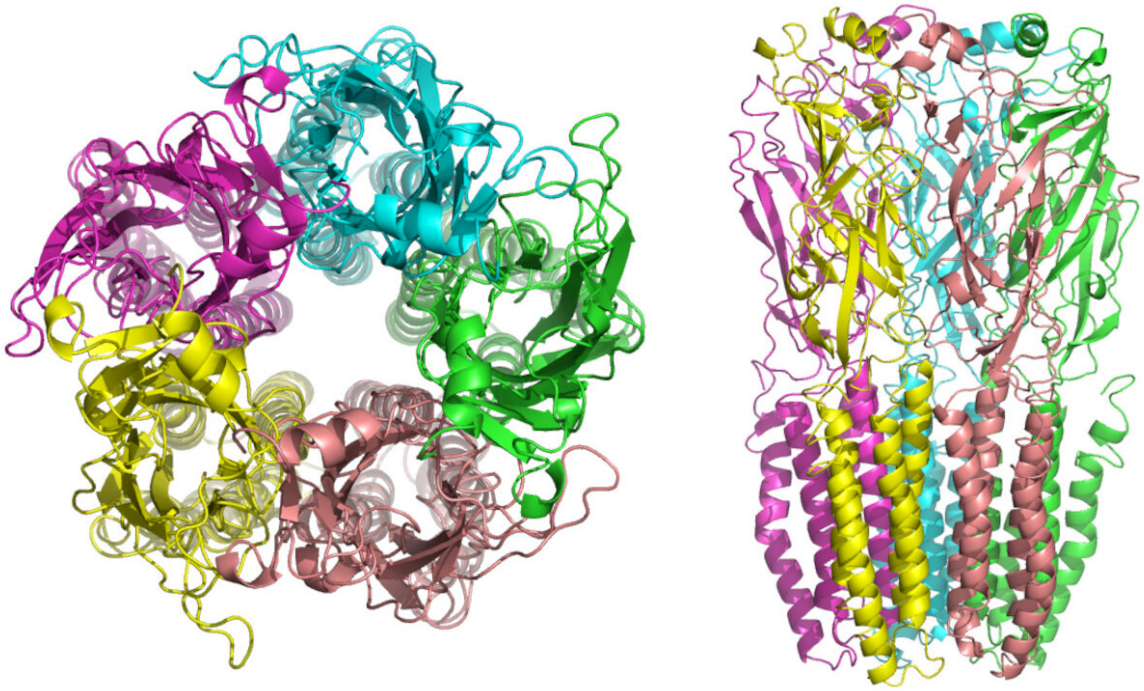
How neonicotinoids reprogram insect neurons

New scientific review finds popular insecticides activate complex intracellular pathways

28.06.2025 | 16:14 (UTC -3)



Nicotinic acetylcholine receptor

A new study details the cellular mechanisms triggered by neonicotinoids, a

widely used class of insecticides. The research, led by Steeve H. Thany, proposes that these compounds go far beyond simply interacting with membrane receptors.

They activate complex mechanisms of intracellular calcium release, influencing neuronal signaling and possibly contributing to resistance in pests.

Calcium releasing receptors

Nicotinic acetylcholine receptors (nAChRs) in insects function as ion channels.

When activated by neonicotinoids, these channels allow the entry of sodium, potassium and, especially, calcium.

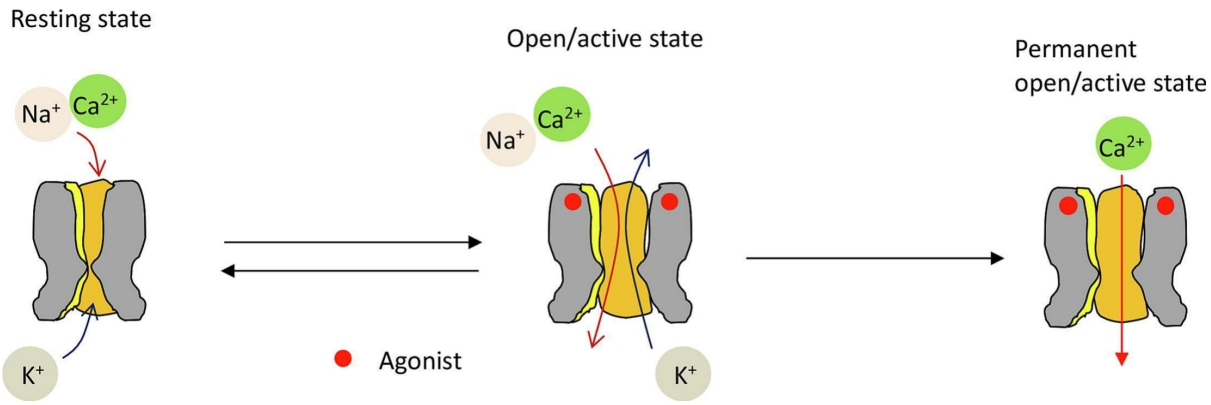
The critical difference compared to the natural neurotransmitter acetylcholine is that the insecticides are not degraded, keeping the channels open for longer. This results in a significant accumulation of calcium inside the cells.

This intracellular increase in calcium triggers a cascade of responses. It includes the activation of kinases such as PKA, PKC, CaMKII and CaMKK, in addition to the mobilization of internal reserves from the endoplasmic reticulum.

The studies used cockroach DUM neurons *American Periplaneta* to observe these effects in real time.

The neonicotinoid clothianidin, for example, induces a significant increase in calcium, accompanied by changes in

membrane potential and neuronal electrical activity.



Variation between compounds and doses

The potency of the effect depends on the type and concentration of the insecticide.

Compounds such as imidacloprid, a partial agonist, activate pathways distinct from those induced by clothianidin, a full agonist.

The concentration also defines which intracellular pathway will be activated: high doses promote cAMP/PKA pathways, while low doses tend to involve PKC or PKG.

The study also suggests that these pathways may be involved in insect resistance to neonicotinoids.

Changes in nAChR subtypes or their phosphorylation sites may interfere with the interaction with kinases, reducing insecticide efficacy. Furthermore, calcium release affects mitochondrial functions, potentially inducing oxidative stress and cellular apoptosis.

Implications for pest control

By understanding these intracellular pathways, it becomes possible to design strategies that enhance the action of insecticides. Combinations with compounds that also increase intracellular calcium - such as diamides - can promote synergism, allowing use in lower doses.

Understanding the specific effects of each substance paves the way for more selective and sustainable products.

According to the author, calcium-regulated pathways are still poorly explored. Future studies should focus on the differential expression of kinases in target tissues and the identification of more sensitive nAChR

subtypes. This could redefine insecticide development, reducing impacts on non-target insects and delaying the emergence of resistance.

More information at doi.org/10.1016/j.pestbp.2025.106532

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