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Cultivar[®] *Semanal*

**Research links
immunity to
nitrogen nutrition**

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Bioinputs market in Brazil could exceed R\$9 billion by 2030

The data was presented by the National Association for the Promotion and Innovation of the Biological Industry

25.02.2025 | 16:16 (UTC -3)

Cultivar Magazine



The bioinputs sector in Brazil continues to expand and could reach a turnover of over R\$9 billion by the end of the decade. The data was presented this Tuesday (25/2) by the National Association for the Promotion and Innovation of the Biological Industry (ANPII Bio) during the 2nd ANPII Bio Market Intelligence Workshop.

The survey indicates that the sector moved R\$5,7 billion in the last harvest, covering an area of ??156 million hectares.

The projection is for a 60% growth by 2030, driven by the increasing adoption of technologies such as nutrient solubilizing inoculants and bioinsecticides. The estimate is that industries in the sector will advance 12,4% per year in the sale of inoculants and 20,4% in the biodefensives

market.

sector expansion

Data collected from 23 companies associated with ANPIL Bio reveal a growth of 4,9% and 12,6% in sales value and an increase of 12,4% and 29,1% in the volume of inoculants and biodefensives sold, respectively.

Although growth is below that recorded in previous years, the sector remains confident.

The beginning of 2025 still presents challenges such as a reduction in purchases, lower profitability for grain producers and credit restrictions.

"The sector remains optimistic, despite the uncertain scenario. The adoption of bioinputs continues to grow, consolidating its relevance", says Anderson Nora Ribeiro, founding partner of 5P2R Marketing de Precisão.



Global leadership

With an 11,3% share of the global bioinputs market, Brazil stands out as one of the main consumers of these products. In segments such as bioinoculants and biodefensives, this rate rises to 12,6%, with a forecast of reaching 16,4% by 2030. This means that one sixth of global consumption will come from Brazilian agriculture by the end of the decade.

The recent approval of the Bioinputs Law, sanctioned in 2024, should further boost this growth by establishing a regulatory framework for the production and commercialization of biological inputs in the country.

"The new legislation should reduce bureaucracy and create incentives for research and development of

multifunctional products," explains Larissa Simon, operations director at ANPII Bio.

Workshop discusses strategies

The 2nd ANPII Bio Market Intelligence Workshop took place on February 24th and 25th, in Campinas (SP), bringing together around 120 participants, including business leaders and industry experts. Among the topics covered: impact of the new legislation, agricultural financing in the context of the 2024/25 Harvest Plan and trends for the biodefensives market.



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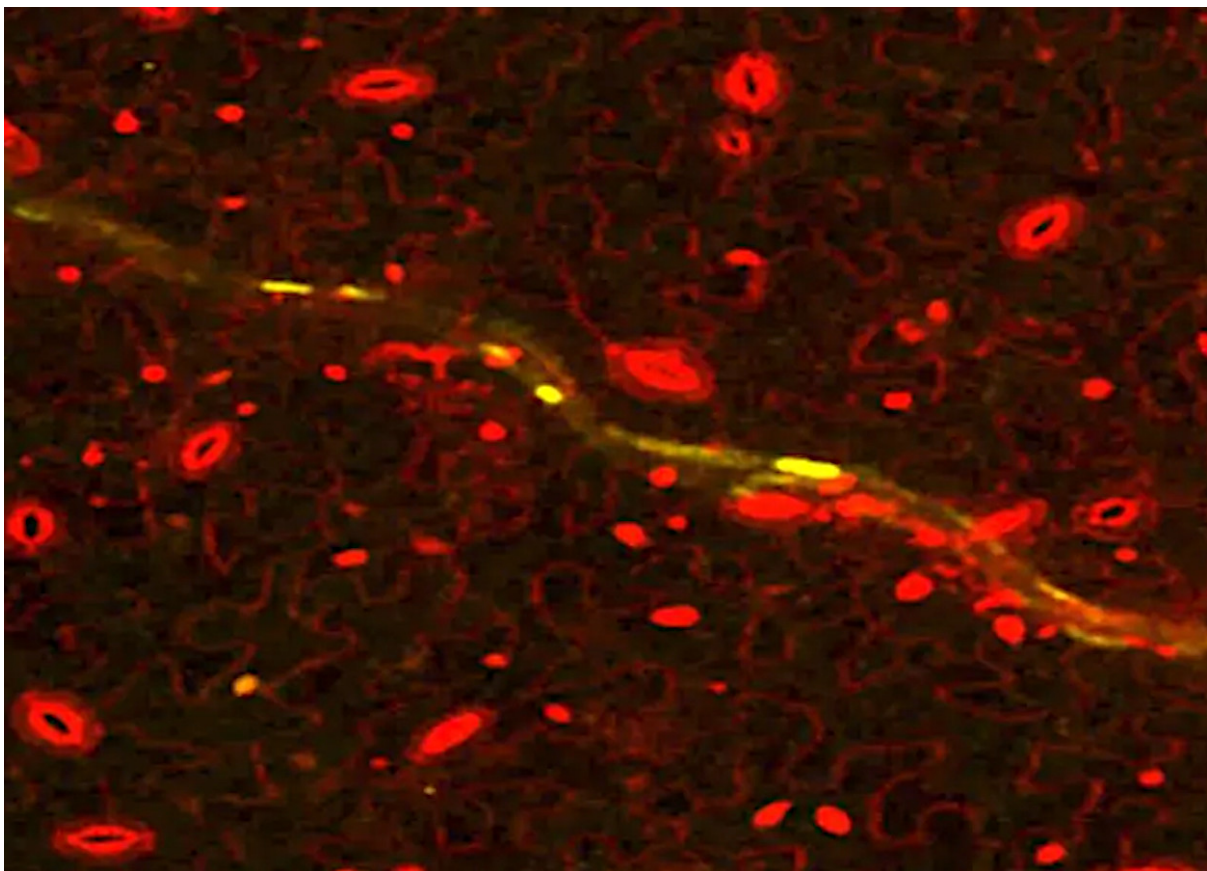
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Research links plant immunity to nitrogen nutrition

Peptides play a role in defense against pathogens

28.02.2025 | 09:37 (UTC -3)

Cultivar Magazine



The researchers were able to show that C-terminal encoded peptides (CEPs) induce resistance to certain bacteria; Under the microscope, one can see how the CEPs (yellow) trigger the expression of immunity genes (yellow) in plant tissue (red) - Photo: Henriette Leicher

Researchers have identified a mechanism that links plant immunity to their nutritional status. The study revealed that C-terminal encoded peptides (CEPs) play a role in pathogen defense by modulating plant immunity based on nitrogen availability.

The discovery could impact agricultural strategies aimed at strengthening crop resistance to diseases without compromising plant growth.

The research was conducted with *Arabidopsis thaliana*, a model plant for genetic studies. Scientists have shown that CEPs, known to regulate root growth and nitrogen demand signaling, also activate immune responses.

The results show that these peptides are essential for resistance against the

bacteria *Pseudomonas syringae* p.v. *tomato*, a common pathogen in agricultural crops.

CEPs interact with specific receptors on the cell surface, such as CEPR1, CEPR2 and RLK7. Activation of these receptors triggers an immune response that includes the activation of protein kinases and the production of ethylene, a plant hormone related to defense.

The study demonstrated that plants with deficiencies in the genes responsible for the production of CEPs or their receptors were more susceptible to infections.

Another relevant finding is that the effectiveness of CEP signaling in plant immunity depends on the nutritional status of the plant. Under conditions of low

nitrogen availability, CEPs amplify the immune response, promoting greater resistance to pathogens.

This effect was not observed in plants grown under normal fertilization conditions, suggesting a specific role for CEP signaling in plant adaptation to nutrient-poor soils.

More information can be found at
doi.org/10.1038/s41467-024-55194-x

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Excessive use of transgenic corn induces resistance in "Diabrotica" spp

Study carried out in the United States indicates a reduction in the effectiveness of technology against the pest

28.02.2025 | 08:41 (UTC -3)

Cultivar Magazine



Diabrotica spp - Photo: John Obermeyer

Analysis of 12 years of data from 10 states in the US Corn Belt indicates that farmers are facing economic losses due to the overuse of genetically modified corn to combat species of the genus *Diabrotica*.

The research, led by entomologist Christian Krupke of Purdue University, indicates that the pest has intensified in the western states of the region, where continuous planting of the grain is more common.

The research analyzed the evolution of the pest scenario since 2004, the year of the large-scale introduction of transgenic corn resistant to *Diabrotica* spp. The study shows that, initially, the use of technology reduced the pest infestation.

However, continued and indiscriminate use has led to the development of resistance to Bt corn, reducing its effectiveness. Since 2009, several field studies have reported cases of resistance in *Diabrotica* spp. to Bt toxins.

According to Krupke, the problem lies in the uniform adoption of Bt corn, even where the pest does not pose a significant threat.

The research also highlights that producers choose seeds with high yield potential, which often come with multiple built-in traits, including pest resistance, even when they are not needed.

The researchers emphasize that increasing pest resistance poses a collective risk.

More information can be found at
doi.org/10.1126/science.adm7634

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Mosaic releases 2024 number

Company ended the year with a net profit of US\$ 175 million

28.02.2025 | 08:05 (UTC -3)

Cultivar Magazine



Mosaic Company reported that its net income in 2024 was \$175 million, representing an 85% drop compared to the

\$1,16 billion obtained in 2023. Revenue also fell 19%, falling from \$13,7 billion to \$11,1 billion.

The company attributed this performance to the drop in potassium and fertilizer prices from Mosaic Fertilizantes, in addition to operational and climate problems that affected production.

Operational challenges impacted phosphate and potash production.

Phosphate production was reduced by 700 tonnes due to weather events and other factors, while potash production fell by 250 tonnes compared to expectations.

Still, the company stated that the recovery of production capacity is already underway and it expects to improve its volumes in 2025.

Consolidated Results:

<i>In millions \$ except as noted below</i>	Q4 2024	Q4 2023	2024	2023
Net Sales (<i>Billions</i>)	\$2.8	\$3.2	\$11.1	\$13.7
Operating Earnings	\$100	\$279	\$622	\$1,338
Selling, General and Administrative expenses	\$113	\$123	\$497	\$501
Net Income	\$169	\$365	\$175	\$1,165
Equity Earnings from Investments	\$9	\$0	\$73	\$60
Adjusted EBITDA ⁽¹⁾	\$594	\$646	\$2,202	\$2,761

Fertilizers and impact in Brazil

Mosaic Fertilizantes, which operates in Brazil, had revenue of US\$4,4 billion in 2024, 22% lower than the previous year. Sales volume fell from 9,7 million to 9 million tons, reflecting lower demand and exchange rate fluctuations. The company reported an improvement in gross margin per ton, from US\$22 to US\$45, driven by operational efficiency measures.

Among the initiatives in Brazil, Mosaic Fertilizantes reduced phosphate rock imports and increased local production, generating savings of US\$35 to US\$40 million per year. Despite this, exchange rate volatility negatively impacted the company's results by US\$35 million in the fourth quarter.

Mosaic Fertilizantes:

<i>In millions \$ except as noted below</i>	Q4 2024	Q4 2023	2024	2023
Net Sales (<i>Billions</i>)	\$1.1	\$1.2	\$4.4	\$5.7
Sales Volumes - million tonnes*	2.2	2.2	9.0	9.7
Finished Product Selling Price	\$486	\$552	\$490	\$587
Gross Margin (GAAP) per tonne	\$46	\$44	\$45	\$22
Operating Earnings	\$79	\$50	\$238	\$75
Segment Adjusted EBITDA ⁽¹⁾	\$82	\$111	\$344	\$327
Adjusted EBITDA per tonne ⁽¹⁾	\$37	\$51	\$38	\$34

*Tonnes = finished product tonnes

Prospects for 2025

Mosaic forecasts a more positive outlook for 2025, driven by the recovery in fertilizer prices and increased global demand. The

company expects phosphate production of between 7,2 and 7,6 million tons and potash production of between 8,7 and 9,1 million tons.

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BASF presents 2024 results

Audited information will be released on March 21

28.02.2025 | 07:40 (UTC -3)

Cultivar Magazine, based on information from Jens Fey



Publication of financial figures of
BASF Group for

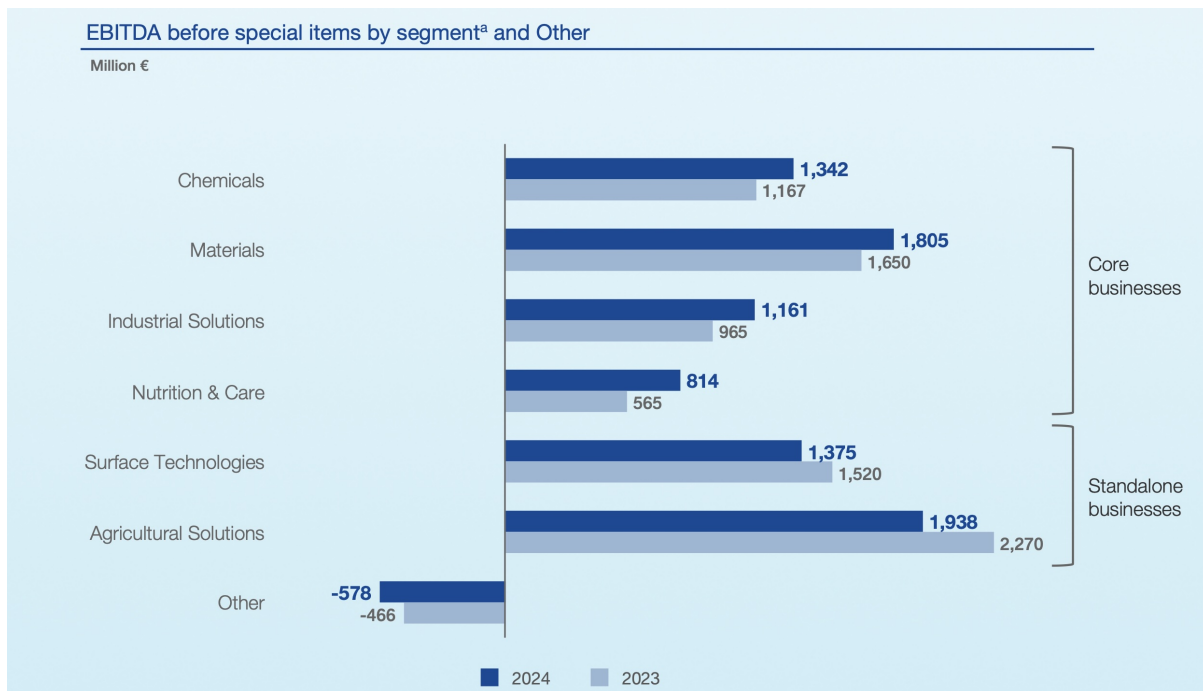
2024

 **BASF**
We create chemistry

The BASF Group reported an increase in EBITDA before special items in 2024, amounting to €7,9 billion. The growth was

driven by the strong performance of the core businesses, which saw an 18 percent increase in EBITDA before special items compared to 2023. The figures were presented today. The audited results will be released on March 21.

The agricultural solutions segment declined, mainly due to difficulties in the glufosinate ammonium market. The company also saw a slight decline in profits from the surface technologies division, influenced by lower precious metal prices and lower sales volumes.



2024 financial results

BASF's total sales in 2024 amounted to €65,3 billion, down from €68,9 billion in the previous year. Despite increased volumes in the core businesses and slight growth in the agricultural segment, the overall decline was attributable to price declines due to competition and currency fluctuations.

BASF's net income rose to €1,3 billion from €225 million in 2023. The increase was driven by equity gains, including the sale of Wintershall Dea assets to Harbour Energy, which generated a gain of €390 million.

Agricultural solutions

The agricultural solutions division reported:

- Sales in Europe fell by €190 million to €2,410 billion due to lower volumes of crop protection products and negative exchange rate effects, particularly against the Turkish lira. Higher prices had a positive effect.
- In North America, sales fell below the previous year's level to €3,897 billion.

The decline was mainly driven by lower prices, especially for glufosinate ammonium. Negative currency effects – in particular against the Canadian dollar and the Mexican peso – also contributed to the sales decline. Sales volumes remained stable.

- In Asia, sales increased by €63 million to €1,135 billion due to volume increases in almost all indications. Negative currency effects, particularly against the Chinese renminbi and the Japanese yen, as well as lower prices hurt performance.
- Sales in the South America, Africa and Middle East region fell by €63 million year-on-year to €2,356 billion. The decline was attributable to negative currency effects, particularly

against the Brazilian real and the Argentine peso, as well as lower prices. Higher volumes in almost all indications had an offsetting effect.

Segment data – Agricultural Solutions

Million €	2024	2023	+/-
Sales to third parties	9,798	10,092	-2.9%
of which Fungicides	3,014	3,047	-1.1%
Herbicides	2,965	3,380	-12.3%
Insecticides	1,102	1,041	5.9%
Seed Treatment	598	662	-9.6%
Seeds & Traits	2,119	1,962	8.0%
Intersegment transfers	50	36	39.1%
Sales including transfers	9,848	10,128	-2.8%
EBITDA before special items	1,938	2,270	-14.6%
Special items in EBITDA	-279	-93	-200.7%
EBITDA	1,659	2,177	-23.8%
EBITDA margin before special items	% 19.8	22.5	-
Depreciation and amortization ^a	675	1,046	-35.4%
EBIT before special items	1,270	1,563	-18.8%
Special items in EBIT	-286	-433	33.9%
Income from operations (EBIT)	984	1,131	-13.0%
Investments including acquisitions ^b	387	353	9.7%
Segment cash flow	1,861	1,746	6.6%
Assets (December 31)	15,377	16,089	-4.4%
Research and development expenses	919	900	2.0%

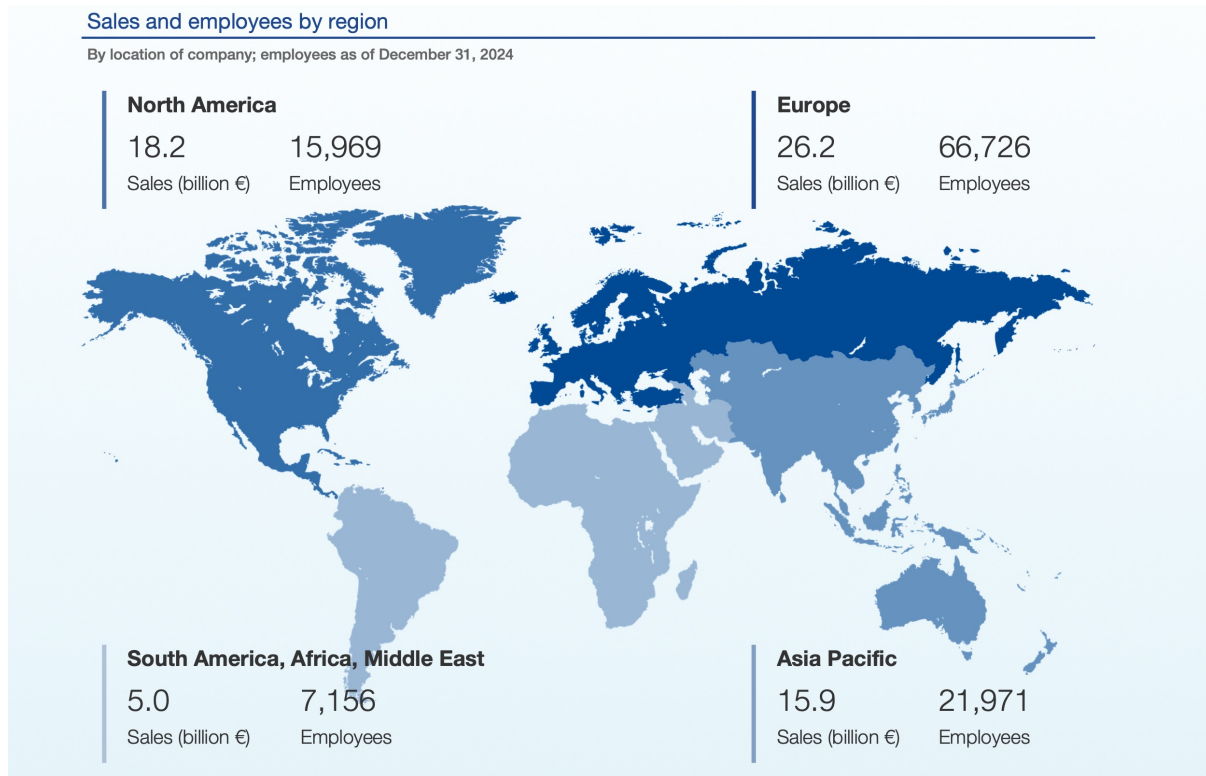
^a Depreciation and amortization of property, plant and equipment and intangible assets (including impairments and reversals of impairments)

^b Additions to property, plant and equipment and intangible assets

Prospects for 2025

For 2025, BASF projects EBITDA before special items of between €8 billion and €8,4 billion. Free cash flow is expected to range between €0,4 billion and €0,8 billion,

taking into account investments of €5,2 billion in fixed assets.



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Leaf microbiota regulates corn growth

Scientists discover genetic mechanism influenced by colonizing microorganisms

27.02.2025 | 14:20 (UTC -3)

Cultivar Magazine



A study by researchers at the University of Nottingham has revealed a genetic circuit

in plants that controls individual leaf growth and allows adaptation to the environment.

Scientists have shown that the microbiota present in the leaves of corn plants plays a fundamental role in leaf development, regardless of soil conditions.

Influence of microbiota

Plant leaves are home to a variety of microorganisms that play essential roles in plant health. These organisms can influence plant metabolism and contribute to plant survival in challenging environments.

The study, led by Professor Gabriel Castrillo, demonstrated that bacteria predominant in young leaves promote the

growth of individual leaves, indicating that the leaf microbiota plays an active role in regulating plant development.

Scientists used RNA analysis to identify the genetic mechanisms involved in this interaction. The results pointed to a genetic circuit linked to plant defense, which regulates the effect of microbiota on leaf growth.

The research also revealed that this mechanism balances the growth of different leaves through differential activation of the trade-off between growth and defense.



Applications for agriculture

Based on these findings, the researchers suggest that optimizing leaf microbiota could be a strategy to enhance plant growth in poor soils without compromising pathogen defense. This could have direct

implications for crop production, especially in regions where water and nutrient availability is limited.

More information can be found at
doi.org/10.1016/j.chom.2025.02.002

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How to increase the productivity of planters in the field

The producer must consider aspects such as the size of the property and type of soil.

27.02.2025 | 09:55 (UTC -3)

Flavia Amarante



The efficient use of planters can increase crop productivity, directly impacting the profitability of rural producers. To help farmers get the best performance from their equipment, Leonardo Plixo, Massey Ferguson product marketing coordinator, clarifies the main questions about using planters and provides guidance to ensure the best use of the machine in the field.

According to the expert, a very common doubt among producers is the difference between a planter and a seeder. The planter is designed for crops that require precise placement of seeds and fertilizers in rows, such as soybeans, corn and cotton. The seeder, on the other hand, is designed for crops with small seeds and higher density, such as wheat and rice.

“The choice between these two types of

equipment depends on the characteristics of the crop and the specific needs of the farm,” says Plixo.

To determine the ideal planter model, the producer must consider aspects such as the size of the property, the type of soil, the desired spacing between rows and the crops to be planted. In smaller areas, compact planters are more suitable, while large properties or challenging terrains require larger or articulated models, which provide greater efficiency. In sloping or uneven terrains, it is essential that the planter has soil copying systems or articulated systems, in addition to appropriate cutting discs and furrowers.

Planting depth and row spacing are factors that also impact productivity. Choosing the

wrong parameters can result in planting failures and compromise production.

Proper spacing between plants ensures that they receive sufficient light and nutrients, and the correct depth favors healthy root development, which is essential for crop growth.

Another key point to ensure good performance in the field is proper care of the seed distribution system. To avoid planting errors or waste, the expert recommends that the dispensers be calibrated correctly and adjusted according to the type of seed and the desired planting density. In addition, the planter should be adjusted according to the technical recommendations for each type of crop. “Before starting planting, preliminary tests in a small area are

always recommended to ensure that all parameters are adequate,” he advises.

One warning is about using the planter on clay soils. According to Plixo, it is possible for the soil to become compacted, which can harm seed germination and root development. To minimize this impact, it is important to use appropriate tires, adjust the machine's pressure according to the type of soil and distribute the planter's weight better, avoiding excessive pressure on the soil.



Leonardo Plixo

Preventative maintenance is another essential aspect for planters to operate efficiently throughout the harvest season. Cleaning after use, lubricating moving parts and checking for wear are important to ensure the machine is working properly. A complete inspection of planters before the harvest season is also essential to

prevent mechanical problems from affecting planting performance.

With the advancement of technology, planters equipped with precision systems contribute to increased productivity.

Technologies such as electric metering, section control and GPS mapping provide greater efficiency in the use of inputs and ensure uniformity in planting, which results in savings in resources, such as seeds and fertilizers, in addition to making the crop more sustainable and profitable.

By choosing the right planter, making the right adjustments and following a preventive maintenance routine, it is possible to obtain better results in the field. “With these practices, the producer increases the efficiency of the planter and ensures better results in the harvest,

increasing the productivity and profitability of their property”, concludes the Massey Ferguson specialist.

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Machinery industry starts 2025 with growth

The sector showed an increase of 19,5% compared to the same period in 2024

26.02.2025 | 16:45 (UTC -3)

Luiz Antonio



The Brazilian machinery and equipment (M&E) industry began 2025 maintaining the signs of recovery observed throughout the second half of 2024, registering growth

in net sales revenue and apparent consumption in January 2025. The sector showed an increase of 19,5% compared to the same period in 2024, reaching R\$20,5 billion in net revenue.

Despite the seasonal decline compared to December 2024, adjusted performance indicated growth of 7,5%. The growth in the domestic market boosted results, with domestic revenue reaching R\$15,6 billion, an increase of 32,3% compared to January 2024.

On the other hand, the sector's exports suffered a significant decline, registering a 22,3% drop compared to the same period of the previous year, totaling US\$ 818 million. The reduction in exports to the United States, Singapore and Mexico was one of the determining factors for this

decline.

Imports grew 19,3% year-on-year, reaching US\$2,7 billion, the highest volume ever recorded for a month of January. China has consolidated itself as the country's main supplier of machinery and equipment, accounting for 36% of imported machinery.

Apparent consumption, an indicator of investment in the economy, grew 37,6% compared to January 2024, reflecting the maintenance of national demand. In addition, the level of occupancy of installed capacity remained stable, while the number of employees in the sector increased by 0,4% compared to December 2024, totaling 400,2 thousand workers.

The data reinforce the recovery trend that began in the second half of 2024 and indicate optimistic prospects for the sector throughout the first half of 2025. Due to the results recorded, the recovery estimate released in January was maintained. The baseline scenario predicts a 3,7% growth in total sales revenue in 2025, which would end a series of three consecutive years of decline.

Tratores + Colheitadeiras

Desempenho

QUADRO GERAL DE MÁQUINAS	(1)	(2)	(2) / (1)	(3)	(4)	(4) / (3)
	jan.24	jan.25	% Var. Interanual 2025/2024	jan-jan - 24	jan-jan - 25	% Var. Acumulado 2025/2024
Venda interna	2.137	3.289	53,9	2.137	3.289	53,9
Exportação	503	247	-50,9	503	247	-50,9
Venda Total	2.640	3.536	33,9	2.640	3.536	33,9

Fonte: DEEE/ABIMAQ.

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Constitutional reform could ban the planting of GM corn in Mexico

Approved by the Chamber of Deputies, the project goes to the Senate

26.02.2025 | 08:08 (UTC -3)

Cultivar Magazine



Mexico's Chamber of Deputies has approved a constitutional reform that bans the planting of genetically modified (GM) corn. The bill will now go to the Senate, where it will need final approval. The measure could generate new friction with the United States, following the recent resolution of a trade dispute over the issue. The information was released by Reuters.

The initiative, introduced by President Claudia Sheinbaum, comes months after a trade disputes panel ruled in December that Mexico's restrictions on imports of genetically modified corn violated the United States-Mexico-Canada Agreement (USMCA).

In response, the Mexican government revoked its restrictions on the import of GM corn for human consumption, livestock and industrial use. However, the new reform inserts into the Constitution a ban on the planting of genetically modified grain.

The proposal was approved with 409 votes in favor and 69 against. With the change, native corn is now officially recognized as an "element of national identity."

The text also determines that any other use of GM corn must undergo evaluation to ensure that it does not pose threats to biosafety, health or the country's biocultural heritage.

Mexico imports about \$5 billion worth of genetically modified corn from the United States annually, mainly for animal feed.

The new reform could create tensions with Washington because it is not limited to planting, but also mentions the use of genetically modified corn.

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Syngenta acquires repository from Novartis

Business allows expansion of research capacity in biologicals

26.02.2025 | 07:31 (UTC -3)

Cultivar Magazine



Syngenta announced the acquisition of Novartis' repository of natural compounds and genetic lines for agricultural use.

Novartis will retain exclusive rights to the repository for pharmaceutical applications.

The transaction includes the transfer of Novartis' natural products and biomolecular chemistry team to Syngenta.

The deal is expected to close on June 1.

With this acquisition, Syngenta gains access to a strategic repository for agricultural research. The company also strengthens its capabilities in bioengineering, data science, fermentation, downstream processing and analytics.

As part of the agreement, Syngenta will lease Novartis's fermentation pilot plant

and scientific laboratories in Basel, Switzerland. The acquisition expands the collaboration between the companies, which began in 2019.

The move follows the inauguration of Syngenta's new biologicals production facility in Orangeburg, South Carolina, United States. This is the company's first industrial plant for the production of biologicals in the country, aimed at meeting the growing demand for sustainable solutions in North and Latin America.

In recent months, Syngenta has entered into several partnerships to accelerate innovation in biologicals and consolidate its position in strategic segments, such as nutrient use efficiency. Recent

collaborations include:

- Provivi: development of pheromone solutions for crop pests in Asia;
- Ginkgo Bioworks: launch of innovative biologicals;
- Intrinsyx Bio: research into nutrient use efficiency;
- Lavie Bio: discovery and development of new bioinsecticides;
- Lithos Crop Protect: pheromone spray for controlling Western Corn Rootworm;
- TraitSeq: Using AI to accelerate the development of innovative biologics.

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ICL sees decline in revenue and profit in 2024

Company expects more favorable market conditions in 2025

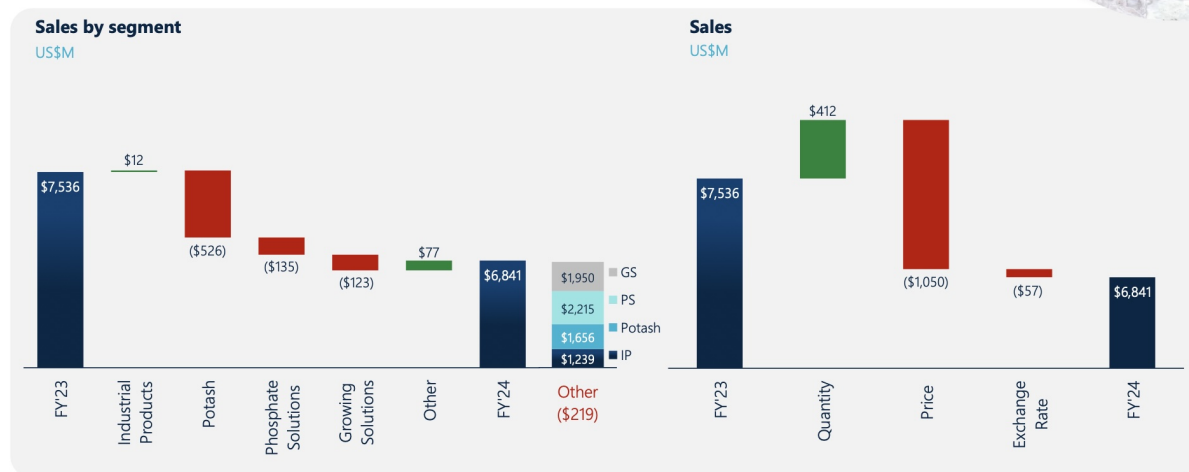
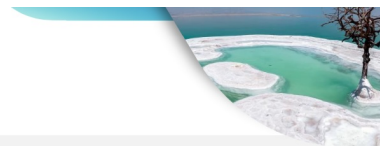
26.02.2025 | 07:08 (UTC -3)

Cultivar Magazine



Full year | 2024

Sales bridge



Notes: Numbers rounded to closest million; Other includes intercompany eliminations.



ICL reported a decline in revenue and profit in 2024, with annual consolidated revenue of \$6,841 billion, down from

\$7,536 billion in 2023. Net profit also fell, totaling \$407 million, compared to \$647 million in the previous year.

The company's adjusted EBITDA was \$1,469 billion in 2024, down from \$1,754 billion in the previous year. Diluted earnings per share were \$0,32, while adjusted earnings per share were \$0,38. The company distributed \$242 million in dividends to shareholders over the year.

In the fourth quarter of 2024, consolidated revenue was \$1,601 billion, slightly below the \$1,690 billion recorded in the same period of 2023. Net income for the quarter was \$70 million, compared to \$67 million a year earlier. Adjusted EBITDA for the quarter was \$347 million, compared to \$357 million in the fourth quarter of 2023.

Operating cash flow for the period was

\$452 million.

ICL CEO Raviv Zoller highlighted that specialty-based segments accounted for 70% of the company's adjusted EBITDA in 2024.

According to him, the company remained focused on cash generation and market expansion in the Industrial Products, Phosphate Solutions and Growth Solutions divisions.

“During 2024, amid persistent declines in potash prices and geopolitical challenges, we achieved strong profitability and cash flow, launched dozens of innovative products, established new global partnerships, broke production records in several locations, completed complementary acquisitions and remained

steadfast in executing cost reduction and efficiency measures,” he said.

For 2025, ICL projects EBITDA for its specialty segments to range between \$950 million and \$1,15 billion. Potash sales are expected to range between 4,5 million and 4,7 million tons. The company expects more favorable market conditions for its main segments next year.

Reconciliation tables

Calculation of adjustments for full year 2024

Adjusted EBITDA <i>US\$M</i>	FY'24	FY'23
Net income	\$464	\$687
Financing expenses, net	\$140	\$168
Taxes on income	\$172	\$287
Less: Share in earnings of equity-accounted investees	(\$1)	(\$1)
Operating income	\$775	\$1,141
Depreciation and amortization	\$596	\$536
Adjustments ⁽¹⁾	\$98	\$77
Adjusted EBITDA	\$1,469	\$1,754

Free cash flow ⁽²⁾ <i>US\$M</i>	FY'24	FY'23
Cash flow from operations	\$1,468	\$1,710
Additions to PP&E, intangible assets and dividends from equity-accounted investees ⁽³⁾	(\$710)	(\$777)
Free cash flow	\$758	\$933

Adjusted NI and diluted EPS <i>US\$M, ex. per share</i>	FY'24	FY'23
Net income, attributable	\$407	\$647
Adjustments ⁽¹⁾	\$98	\$77
Total tax adjustments	(\$21)	(\$9)
Adjusted net income, attributable	\$484	\$715
Weighted-average number of diluted ordinary shares outstanding <i>in millions</i>	1,290	1,291
Adjusted diluted EPS	\$0.38	\$0.55

Net debt to adjusted EBITDA ⁽⁴⁾ <i>US\$M</i>	FY'24
Net debt	\$1,675
Adjusted EBITDA	\$1,412
Net debt to adjusted EBITDA	1.2



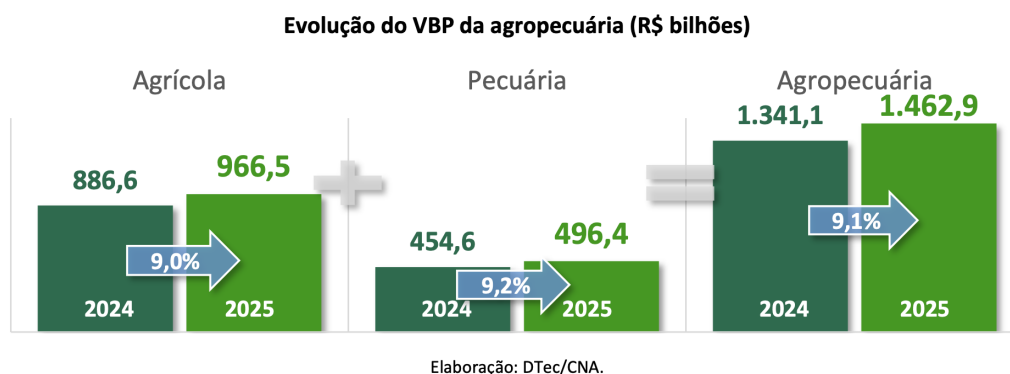
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CNA releases estimate of gross value of agricultural production

For 2025, the forecast is for growth of 9,1% compared to 2024

25.02.2025 | 15:56 (UTC -3)

CNA, Cultivar Magazine edition



The Gross Production Value (VBP) of agriculture and livestock is expected to reach R\$1,46 trillion in 2025, a growth of 9,1% compared to 2024, according to a Technical Communication from the Brazilian Confederation of Agriculture and

Livestock (CNA).

The VBP corresponds to the gross revenue of the primary sector (within the farm gate), considering agricultural production and livestock, based on the average real prices received by producers across the country.

According to the CNA, the estimate for agriculture is recovery due to climate conditions, with an expansion of 9% in 2025 compared to last year, reaching R\$966 billion.

One of the highlights will be soybeans, which should grow 7,3% in revenue. Even with a forecast drop in prices (4,5%), production should increase 12,4%. The oilseed has the largest share in agricultural GVP (37% of the total).

There are also projections of an increase in VBP for corn (17,6%), due to the estimated increase in production (5,46%) and prices (11,6%), as well as for Arabica coffee (42,6%) and Robusta coffee (81,1%), which are experiencing an increase in product value.

Produtos	Produção			Preços Médios Reais			VBP (milhões de reais)		
	Un.	2024	2025	Un.	2024	2025	2024	2025	Δ%
Agricultura							886.594	966.472	9,0%
Algodão (caroço) ^(1; 1)	mil t	5.213	5.297	kg	0,95	1,02	4.974	5.397	8,5%
Algodão (pluma) ^(1; 1)	mil t	3.702	3.762	kg	9,29	9,11	34.380	34.275	-0,3%
Amendoim ^(1; 1)	mil t	734	1.093	kg	4,59	3,88	3.368	4.235	25,8%
Arroz ^(1; 5)	mil t	10.586	11.791	kg	1,97	1,66	20.860	19.596	-6,1%
Banana ^(2; 5)	mil t	6.995	7.115	kg	3,21	2,45	22.420	17.406	-22,4%
Batata ^(2; 6)	mil t	4.508	4.432	kg	5,25	2,26	23.680	10.034	-57,6%
Cacau (amêndoas) ^(2; 1)	mil t	288	300	15 kg	705,71	857,36	13.539	17.145	26,6%
Café arábica ^(1; 6)	mil sacas (60kg)	39.598	34.684	60 kg	1.433,12	2.332,87	56.749	80.914	42,6%
Café robusta ^(1; 6)	mil sacas (60kg)	14.617	17.130	60 kg	1.279,81	1.977,68	18.707	33.878	81,1%
Cana-de-açúcar ^(2; 1)	mil t	706.720	706.891	t	150,20	157,92	106.152	111.634	5,2%
Cebola ^(2; 6)	mil t	1.655	1.670	kg	2,92	1,02	4.839	1.710	-63,7%
Feijão ^(1; 5)	mil t	3.244	3.349	kg	4,39	3,41	14.228	11.432	-19,7%
Fumo ^(2; 8)	mil t	627	773	kg	19,52	21,99	12.230	16.989	38,9%
Laranja ^(2; 6)	milhões de caixas	299	307	cx	79,09	90,33	23.681	27.705	17,0%
Maçã ^(2; 6)	mil t	1.065	1.119	kg	7,60	7,98	8.100	8.932	10,3%
Mamona ^(1; 1)	mil t	87	103	kg	3,92	4,57	341	470	37,7%
Mandioca ^(2; 6)	mil t	19.059	20.288	t	765,04	695,48	14.581	14.110	-3,2%
Milho ^(1; 6)	mil t	115.697	122.017	kg	1,11	1,24	128.208	150.833	17,6%
Sisal ^(2; 1)	mil t	95	94	kg	4,28	4,60	405	431	6,5%
Soja ^(1; 6)	mil t	147.719	166.014	kg	2,26	2,16	334.107	358.479	7,3%
Tomate ^(2; 6)	mil t	4.667	4.490	kg	3,09	2,13	14.411	9.549	-33,7%
Trigo ^(1; 6)	mil t	7.889	9.118	kg	1,46	1,41	11.521	12.850	11,5%
Uva ^(2; 6)	mil t	1.763	2.022	kg	8,57	9,13	15.112	18.469	22,2%

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Cooxupé Superintendent, Mário Panhotta da Silva, dies at age 53

The wake and burial will take place in Guaxupé

25.02.2025 | 15:50 (UTC -3)

Cultivar Magazine



The superintendent of roasting and new business at the Regional Coffee Growers' Cooperative in Guaxupé (Cooxupé), Mário Panhotta da Silva, passed away on the morning of this Tuesday (25/2), at the age of 53. The information was announced by the cooperative.

The wake and burial will take place in Guaxupé, in the south of Minas Gerais.

Mário Panhotta has built a career spanning more than three decades at Cooxupé. He began his career at the cooperative in 1987 as a Classifier, in Carmo do Rio Claro (MG).

He was then promoted to the headquarters in Guaxupé, where he held the positions of domestic market coordinator and commercial division manager. In 2019, he

took over as superintendent of roasting and new business, leading the expansion of the cooperative's roasting industry in the Brazilian roasted and ground coffee market.

Born in Ilha Solteira (SP), Mário Panhotta leaves behind a wife, children, sister and mother.

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Baldan announces new commercial and marketing director

Robson Zofoli has a degree in mechanical engineering

25.02.2025 | 15:44 (UTC -3)

Cultivar Magazine, based on information from Bruno Yahn



Baldan Implementos Agrícolas announced a change in its commercial leadership. Oswaldo Marques leaves the company and Robson Zofoli takes over as commercial and marketing director.

With a degree in mechanical engineering with a focus on product development from the Federal University of Santa Maria and a degree in mathematics and physics from Faculdade Imaculada Conceição, Zofoli developed his career in the agricultural machinery sector. He worked at Jacto, John Deere, AGCO Corporation and Kuhn.

The executive assumes the mission at Baldan of leading the execution of the company's commercial strategy in the coming years, which aims at expansion, innovation and strengthening relationships

with partners and customers in the national and international markets.

For Robson Zofoli, taking on this position represents a great challenge and an opportunity to contribute to Baldan's growth.

"I am very excited about this new stage in my career. Baldan is a reference in the sector and I am confident that we can achieve even more expressive results in the company's four business verticals: soil preparation, planting, spraying and parts", says the executive.

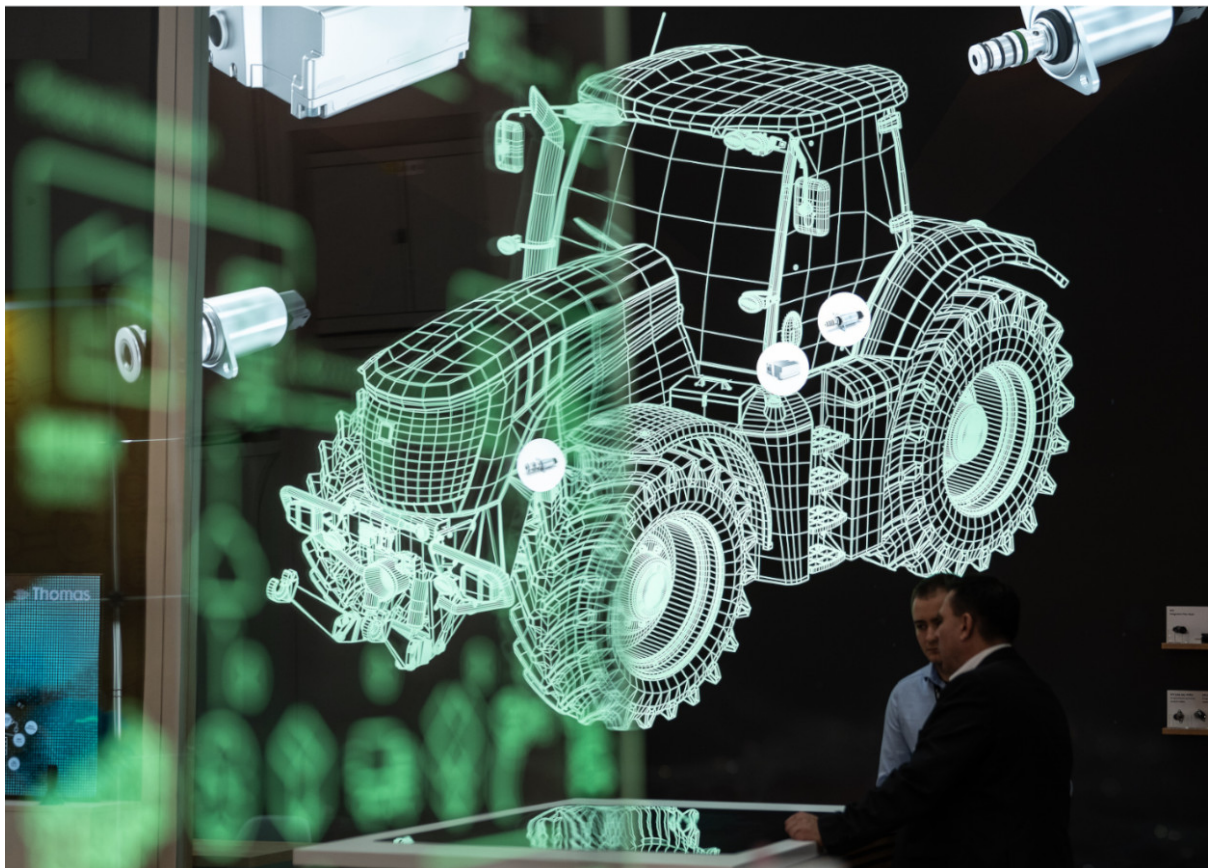
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Agritechnica 2025 presents solutions for digitalization in agriculture

Event takes place from November 9th to 15th in
Hanover, Germany

25.02.2025 | 13:19 (UTC -3)

Cultivar Magazine, based on information from Malene Conlong



Digitalization in agricultural production will be one of the main themes of Agritechnica 2025, the world's largest agricultural machinery fair, which takes place from 9 to 15 November in Hanover, Germany.

The event, organized by the German Agricultural Society (DLG), will highlight digital technologies that increase efficiency, sustainability and productivity. The fair will offer direct access to innovative and connected agricultural systems, reinforcing the impact of digital solutions in the sector.

The practical application of advanced sensors and cloud computing has provided digital solutions for agriculture and the food industry. These technologies help the entire production chain to meet economic

and environmental requirements. This trend is reinforced by recent research in Germany, which shows the increasing use of these solutions in the field.

Increasing use of digital technologies

A survey conducted in 2024 by the digital association Bitkom and the DLG revealed that German farms are increasingly embracing digitalization. Among the respondents, 69% use GPS-controlled agricultural machinery. Furthermore, 36% use variable-rate application for fertilizers and 30% for pesticides. Predictive machine maintenance is adopted by 25% of farms.

Digital technologies in the field range from automated data collection to optimizing rural planning and accounting. The concept of "smart farming" encompasses solutions that automate agricultural tasks and assist in operational decision-making.

Benefits of digital solutions

Digitalization in agriculture offers economic and environmental advantages. Practical examples include:

- Driver assistance systems on combine harvesters that automatically adjust threshing drum spacing and speed according to crop quality.

- NIRS sensors in slurry tanks, which monitor fertilizer composition and optimize crop nutrition.
- Cameras attached to equipment and drones for weed detection, enabling mechanical control or localized application of pesticides.
- Agricultural management information systems (FMIS), which automate the planning, monitoring and optimization of rural activities.
- GPS guidance for machines, saving time and increasing the quality of operations, even at night.
- The automatic application of fertilizers and pesticides according to digital maps allows for more efficient use of

inputs, reducing costs and environmental impacts.

Opportunities and challenges

The Bitkom and DLG survey indicated that 79% of farmers see digitalization as an opportunity. The main benefits include time savings (69%), increased production efficiency (61%) and reduced labor requirements (57%).

However, challenges such as system compatibility and limited connectivity still hinder the expansion of digitalization.

Many farmers face issues with incompatible data standards across manufacturers. In addition, limited mobile

network coverage in rural areas hinders the implementation of real-time digital applications.

Focus on digitalization

Agritechnica 2025 will feature a dedicated space for agricultural digitalization, the “Digital Farming Center,” with interactive demonstrations of robotics, automation, artificial intelligence, drones and precision farming. The “Digital Farm Day” on November 13 will focus on discussing digital solutions and sharing best practices.

With the theme "Touch Smart Efficiency", the event aims to bring farmers and service providers closer to technological innovations and discuss the challenges of implementation in the sector.

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Capal reports record revenue in 2024

Coffee, continuous investments and winter crops boosted results

25.02.2025 | 10:15 (UTC -3)

Cultivar Magazine, based on information from Elton Telles



In a year marked by adverse weather conditions and crop failures, Capal

Cooperativa Agroindustrial achieved record revenue in its 64-year history. The cooperative recorded gross revenue of approximately R\$4,4 billion in 2024, a 12% increase compared to the previous year. Net income also showed significant growth, with a 48% increase, totaling R\$159,7 million.

Despite the difficulties facing the sector, Capal maintained its investments in expansion and innovation. In 2024, more than R\$132 million was invested in improvements to industries and grain storage. The cooperative's CEO, Adilson Roberto Fuga, highlighted the entity's resilience in a period of uncertainty.

“We saw agriculture go through difficult times, with many groups closing down their

activities. But we managed to get through this period and conclude a good year,” he said.

Capal's Chairman of the Board of Directors, Erik Bosch, highlighted that 2024 began with concern, but some segments showed growth, allowing a balance in results.

He also highlighted the importance of maintaining investments and expanding storage capacity. For 2025, Bosch predicts a full harvest and states that the cooperative is prepared to meet demand.

Coffee drives growth

Capal's revenue growth was driven by the coffee sector, which more than doubled in

2024. The volume sold reached 1,1 million bags, an increase of 84% compared to the previous year. According to Fuga, Capal identified a gap in the market, especially in Paraná and São Paulo, and structured its operations to meet this demand.

Another highlight was barley production, which occupied an area of ??15.827,86 hectares and recorded a harvest of approximately 52 thousand tons, an increase of 9% compared to 2023. Other crops, such as corn and sorghum, also had positive performances.

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Researchers identify plant resistant to grassland leafhopper

Two genotypes of this plant, BGP 248 and BGP 344, activate different forms of resistance

25.02.2025 | 08:41 (UTC -3)

Cultivar Magazine, based on information from Gisele Rosso



Photos: Fabricia Torres

Brazilian scientists have discovered that the forage plant *Paspalum regnellii* has a

natural defense mechanism against the grassland spittlebug (*Mahanarva spectabilis*), a pest that causes billions in losses to Brazilian agribusiness.

The research revealed that two genotypes of this plant, BGP 248 and BGP 344, activate different forms of resistance to the insect. The results could boost the genetic improvement of forage grasses and contribute to the sustainability of tropical pastures.

The study analyzed the survival of leafhopper nymphs, the transcriptome of infested roots and the root anatomy of plants. Researcher Bianca Vigna, from Embrapa Pecuária Sudeste, explains that there are plants resistant to traditional leafhoppers of the genera *Gods e*

Notozuliabut Mahanarva spectabilis has become a challenge for several large grasses, such as corn and sugarcane. Thus, the study becomes relevant for the search for sustainable management alternatives.

Genotypes and defense mechanisms

The results indicate that the BGP 344 genotype presents a faster response to leafhopper attacks, with a higher mortality rate of nymphs in the first 21 days. This genotype has greater lignification of the roots, making it difficult for the insect to feed, and activates metabolic pathways linked to the production of defensive

compounds. BGP 248 also demonstrates resistance, but more slowly, indicating different defense strategies.

Brazil, as one of the largest beef producers in the world, depends on improving pastures to ensure the productivity and sustainability of the sector. The development of more resistant cultivars is essential, since chemical control of the leafhopper is unfeasible from an economic and environmental point of view, due to the size of pasture areas in the country.



Potential of native species

Researcher Marcos Gusmão points out that native species, such as *Paspalum regnellii*, are naturally more resistant to grasshoppers. In addition, they have good biomass production and high forage

potential. Embrapa Pecuária Sudeste maintains a *Paspalum* Germplasm Bank, the basis for a genetic improvement program.

Despite the resistance of this species, it is not yet widely used in tropical areas affected by leafhoppers. According to Bianca Vigna, *P. regnellii* has been used as a parent in crosses to generate more productive and resistant hybrids. The research also seeks to identify genes involved in the plant's resistance, paving the way for the use of biotechnology, including gene editing, both for *Paspalum* and other forage grasses.

Currently, the research group is deepening the analysis of the microRNAs involved in the resistance of BGP 344, in collaboration with the State University of Campinas

(Unicamp), within the scope of the Center for Molecular Plant Breeding. Advances in the understanding of these mechanisms may contribute to the development of more effective strategies for the management of tropical pastures.

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3tentos announces 2024 results

Company records net profit of R\$756,4 million
and grows 31,8%

25.02.2025 | 08:18 (UTC -3)

Cultivar Magazine, based on information from Vanessa Teixeira



3tentos ended 2024 with a net profit of
R\$756,4 million, a growth of 31,8%

compared to the previous year. Adjusted EBITDA reached R\$973,6 million, an increase of 101,4%. The adjusted EBITDA margin reached 7,6%, growing 2,2 percentage points. Net Operating Revenue (NOR) totaled R\$12,8 billion, an increase of 42,5% in the period.

According to the company's CEO, Luiz Osório Dumoncel, the year was marked by solid performance, and the outlook for 2025 is positive. He highlighted the company's commercial and industrial expansion, with a focus on business integration.

Dumoncel also highlighted the importance of entering Mato Grosso, which has helped reduce climate risks. In addition, the company began growing canola in Rio

Grande do Sul as an alternative for diversifying the winter harvest.

Better harvests and diversification

In the fourth quarter of 2024, Net Operating Revenue reached R\$3,85 billion, an increase of 27,2% compared to the same period in 2023. The Grains segment was one of the main drivers of this growth, with increased sales of soybeans and wheat, driven by more favorable harvests in Rio Grande do Sul. The Inputs segment also expanded due to the company's increased presence in the market.

The company attributes its performance to the 2023/24 soybean harvest in Rio Grande do Sul, which was better than the previous cycle, in addition to the greater efficiency of the industries, which resulted in an increase in the volumes of soybean meal and biodiesel. All of 3tentos' segments contributed to the revenue growth, mainly with the expansion in the pesticides market, soybean trading and biodiesel.

The company's financial arm, TentosCap, recorded significant growth in 2024. The credit portfolio increased 114% compared to the previous year, reinforcing the company's strategy of financially supporting its customers and expanding its presence in the sector.

Expansion and new investments

3tentos continued to expand its presence in the market in 2024. Seven new stores were opened throughout the year, four in Mato Grosso – in the cities of Confresa, São Félix do Araguaia, Querência and Nova Mutum – and three in Rio Grande do Sul, in Santo Antônio das Missões, Espumoso and Arroio Grande. With this, the company now has a total of 70 units, 58 in Rio Grande do Sul and 12 in Mato Grosso, with 196 sales consultants.

The company is also moving forward with the construction of a corn processing industry in Porto Alegre do Norte (MT).

The project is on schedule and already has

structures ready for grain production.

Em milhares de reais		Δ			Δ	
exceto percentuais e índices	4T24	4T23	% ou p.p.	2024	2023	% ou p.p.
Receita Operacional Líquida	3.853.520	3.029.590	27,2%	12.825.771	8.998.985	42,5%
Lucro Bruto	683.968	426.728	60,3%	2.531.503	1.246.006	103,2%
<i>Margem Bruta (%)</i>	17,7%	14,1%	3,6	19,7%	13,8%	5,9
Lucro Bruto Ajustado¹	728.319	496.606	46,7%	2.164.440	1.230.134	76,0%
<i>Margem Bruta Ajustada (%)</i>	18,9%	16,4%	2,5	16,9%	13,7%	3,2
EBITDA	365.961	145.608	151,3%	1.340.661	499.287	168,5%
<i>Margem EBITDA (%)</i>	9,5%	4,8%	4,7	10,5%	5,5%	5,0
EBITDA Ajustado¹	410.312	215.486	90,4%	973.598	483.415	101,4%
<i>Margem EBITDA Ajustado(%)</i>	10,6%	7,1%	3,5	7,6%	5,4%	2,2
Lucro Líquido	135.908	175.649	(22,6%)	756.365	573.802	31,8%
<i>Margem Líquida (%)</i>	3,5%	5,8%	(2,3)	5,9%	6,4%	(0,5)
Lucro Líquido Ajustado	296.377	153.473	93,1%	673.804	515.768	30,6%
<i>Margem Líquida Ajustada (%)</i>	7,7%	5,1%	2,6	5,3%	5,7%	(0,4)
ROE	20,2%	18,6%	1,6	20,2%	18,6%	1,6
ROIC	24,7%	17,9%	6,8	24,7%	17,9%	6,8

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Frisia Cooperative announces new Board of Directors

The 2024 balance sheet was presented at the AGM last Saturday (22), in Carambeí (PR)

24.02.2025 | 16:41 (UTC -3)

Luis Fernando Duarte



Geraldo Slob, new chairman of the Board of Directors of Cooperativa Frisia; photo: Martha Batista

The Annual General Meeting (AGO) of the Frisia Cooperative, held on Saturday (22),

was marked by emotion and a history of work and dedication in the centennial. The meeting brought together cooperative members and employees at the Frísia Exhibition Pavilion, attached to the Carambeí Historical Park (PR), where the previous year's revenue of R\$5,79 billion was announced. The meeting also had several actions to celebrate the cooperative's 100th anniversary, with the new Board of Directors being officially announced for the 2025-2027 triennium and the new composition of the Fiscal Council being elected.

Last year, Frísia, which has 12 units in Paraná and two in Tocantins, received 826,8 thousand tons of grains in its warehouses; 326,2 million liters of milk produced (reaching the 1 million liters per

day mark for the first time); 27,9 thousand tons of pork; and 73,04 tons of forestry production. The cooperative has 1.077 members (938 in Paraná and 139 in Tocantins) and 1.256 employees.

Even in a year with climate fluctuations and high costs, the cooperative invested R\$53,7 million in improvements to units in Paraná and Tocantins, such as a new inputs office in Carambeí, air-conditioned warehouses in the Seed Processing Units (UBS) in Ponta Grossa and Tibagi (PR) and works on warehouses and grain dryers in Paraíso do Tocantins and Dois Irmãos do Tocantins.

Among the year's novelties is the inauguration of the Cattle Fattening Unit, in Carambeí, an initiative that aims to offer

efficiency and sustainability in the management of beef cattle, with 700 confined animals.

New board



Photo: Martha Batista

At the 2025 AGM, the new board of directors of Frisia was defined for the next three years. They are: Geraldo Slob, as the new Chairman of the Board; Henrique

Degraf, as Vice President of Agriculture; Raphael Cornelis Hoogerheide, Vice President of Dairy Farming; Wilant van den Boogaard, Vice President of Pig Farming; Diego Dijkstra (member of the board); Luiz Henrique de Geus (member of the board); and Roderik Wouter van der Meer (member of the board).

The new president of Frísia, Geraldo Slob, is an agricultural engineer graduated from the State University of Ponta Grossa and has been a cooperative member of the agricultural sector since December 1978. He has served on the Agricultural Committee, Fiscal Council, Board of Directors (since 2019) and held the position of Agricultural Vice President.

The cooperative members present also received a book chronicling the 100 years of Friesland. “Stories that tell the story” is divided into four chapters, each dedicated to a 25-year period (1925-1950, 1950-1975, 1975-2000 and 2000-2025), covering a total of 100 years (1925-2025). In addition to the book, they also received the management report for the year 2024.

Another new feature was the first performance by the Frísia Choir, made up of employees and members, who moved the audience by singing the cooperative's centennial anthem. Members who have been members for 50 years were also honored.

Hen/Stag



Renato Greidanus (left) and Geraldo Slob; photo: Martha Batista

The centenary AGM also saw the farewell of Renato Greidanus as President of Friesland, after 18 years in office. He was honored for his commitment, work and leadership over almost two decades, receiving a trophy, a moving video and the legacy of having actively participated in Friesland's progress, innovation and results.

On Saturday morning, a summary of the actions, projects and investments that he led during his term in office was also presented, such as the industrialization of the cooperative, pioneering work in Tocantins and the intercooperation system.

“I am proud to have been part of the cooperative for 18 years. I have learned a lot during my journey here, always with very good people by my side. This is certainly something fundamental. We cannot build anything if we do not have very good people, very supportive, who know the activities to help in decision-making. I would like to invite our employees, if they could, to come forward and express my gratitude for all their affection. The cooperative is an extension

of our properties and together we can do much more. Together we are stronger”, stated the then president Renato Greidanus.

Finally, José Roberto Ricken, executive president of the Union and Organization of Cooperatives of the State of Paraná (Ocepar), highlighted Greidanus' characteristics at the head of Frísia and reinforced the tributes for the cooperative's centenary, such as an event in July at the Legislative Assembly of Paraná.

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Anfavea appoints Igor Calvet as new CEO

Calvet will replace Márcio de Lima Leite, who led the transition process and will leave office on April 21

24.02.2025 | 14:00 (UTC -3)

Cultivar Magazine



Anfavea 

The National Association of Automobile Manufacturers (Anfavea) has announced Igor Calvet (pictured) as its new CEO,

marking a historic change for the organization. For the first time, the presidency will be held by a market executive, rather than a manufacturer representative.

Calvet will replace Márcio de Lima Leite, who led the transition process and will leave office on April 21. With experience at the Ministry of Development, Industry, Commerce and Services (MDIC) and the Brazilian Agency for Industrial Development (ABDI), Calvet has already served as executive director of Anfavea since 2023.

The appointment reinforces the association's commitment to professionalizing and modernizing governance. According to Calvet, the priority will be to intensify dialogue with the

government and the automotive sector, seeking solutions to industry challenges and strengthening its competitiveness.

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Government announces R\$4 billion to guarantee 2024/2025 Harvest Plan

Provisional measure releases extraordinary credit and avoids interruption of financing to the agricultural sector

24.02.2025 | 10:42 (UTC -3)

Brazil Agency, edition of Cultivar Magazine



Photo: Diogo Zacarias

The Federal Government announced the release of approximately R\$4 billion in extraordinary credit to ensure the continuity of the 2024/2025 Harvest Plan. The measure was taken to avoid the interruption of financing lines to the agricultural sector, even without the approval of the 2025 Budget by the National Congress.

The decision was announced by Finance Minister Fernando Haddad after a meeting with President Luiz Inácio Lula da Silva and the president of the Federal Court of Auditors (TCU), Vital do Rêgo. According to Haddad, the legal solution found allows the resources to be made available immediately, ensuring that rural producers have access to the credit necessary for their activities.

“There is an immediate demand for credit from the Safra Plan. President Lula has determined that there is no time to waste and, therefore, we are adopting this emergency measure to avoid discontinuity in the financing lines. The resources will be normalized this week,” said Haddad.

Fiscal responsibility

The minister emphasized that, although the credit is classified as extraordinary, the measure respects the limits established by the fiscal framework, which means that there will be no additional impact on public accounts. According to him, the alternative was necessary due to the impossibility of implementing the Safra Plan without the approval of the Budget.

“The solution was built within the fiscal framework, as if it had been approved in the Budget. There is no other legal way out, but we managed to accommodate the values ??without compromising fiscal responsibility,” explained Haddad.

Next Steps

The Provisional Measure (MP) that formalizes the release of credit should be published by this Monday (24) in the Official Gazette of the Union. The banks have already been informed of the decision and must resume granting the financing lines immediately.

The agricultural sector is seen as one of the main drivers of the economy in 2025. According to estimates from the Economic

Policy Secretariat of the Ministry of Finance, the segment is expected to grow 6% this year, boosting the national GDP.



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Area treated with pesticides in Brazil grows 9,2% in 2024

Research commissioned by Sindiveg indicates an 8,5% increase in the volume of agricultural pesticides

24.02.2025 | 09:57 (UTC -3)

Wellington Torres



Between January and December 2024, Brazil recorded a 9,2% increase in the

area treated with pesticides, totaling more than 2 billion hectares. The data was obtained from a survey commissioned by the National Union of the Plant Protection Products Industry (Sindiveg) and carried out by Kynetec Brasil. The study points to soybeans as the main crop responsible for this expansion in the use of pesticides.

The research reveals that the volume of agricultural pesticides used to control pests, diseases and weeds grew by 8,5% compared to the same period in 2023. The distribution of this total is made up of herbicides (45%), insecticides (23%), fungicides (23%), seed treatments (1%) and others (8%).

To perform the analysis, the metric called PAT (potential treated area or treated area

per product) was used, which takes into account the number of applications and the number of products in the tank used to control the various pests, diseases and invasive plants. In total, the treated area is represented by soybeans (56%), corn (16%), cotton (8%), pasture (5%), sugarcane (4%), wheat (3%), beans (2%), fruit and vegetables (2%), citrus (1%), coffee (1%), rice (1%) and others (2%).

The market value measured by the price paid by the end consumer reached US\$ 18 billion in 2024, which represents a drop of 10,3% compared to the previous year, when US\$ 21 billion was recorded.

In regional terms, the market value of agricultural pesticides is concentrated mainly in Mato Grosso and Rondônia

(28%), São Paulo and Minas Gerais (18%), Mato Grosso do Sul (15%), Rio Grande do Sul and Santa Catarina (11%), Paraná (10%), Mato Grosso do Sul (8%), Goiânia and Distrito Federal (8%) and other regions (3%). The observed growth is attributed to the greater infestation by pests, such as caterpillars, leafhoppers and whiteflies.

24/25 harvest will maintain high PAT scenario

For the 2024/2025 harvest, the projection is that the area treated with agricultural pesticides will grow by 6%, maintaining the more than 2 billion hectares of the

previous year. This area should be distributed among soybeans (55%), corn (17%), cotton (8%), pasture (5%), sugarcane (4%), wheat (3%), beans (2%), fruit and vegetables (2%), coffee (1%), citrus (1%), rice (1%) and others (1%).

In soybeans, the treated area should grow by 7%, with an emphasis on combating bedbugs (4,9%) and caterpillars (14,6%).

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Soil management for sugarcane

By Sandro Roberto Brancalião, Marcos Guimarães de Andrade Landell and others

24.02.2025 | 08:40 (UTC -3)



The expansion of sugarcane cultivation in areas where soils with a light textured

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

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

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

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

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

Description of activities

The use of ratoon crops, as a way of facilitating the incorporation of fertilizer into

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

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

Operational sequence

The choice of type of preparation will depend on the characteristics of the soil in each location where the management will

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

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

Different grades of grids: light, medium, heavy and super heavy

The certainty that poorly managed soils can irreversibly lose their productive capacities underlies the importance of the resilience of tropical soils. This leads farmers to seek to minimize potential damage that may be caused to soils due to the lack of agronomic care in their use for agricultural production.

Definition and use of conventional preparation

- **Heavy grading:** This same operation must be carried out again in the final phase of conventional soil preparation, with the aim of reducing, as a priority, the size of the blocks left

by previous operations (construction of terraces, subsoiling and plowing, if applicable) and incorporating any crop remains that still remain on the surface of the land.

- **Light harrowing and interaction in management with herbicides:** When used to complement the second heavy harrowing, it is intended to break up the soil, leaving the surface level for furrowing. For the operation to be effective in assisting herbicide products, it must be carried out at most one or two days before furrowing. This is justified because seeds, especially grass seeds, when germinating, send out their root primordia in the direction of the soil

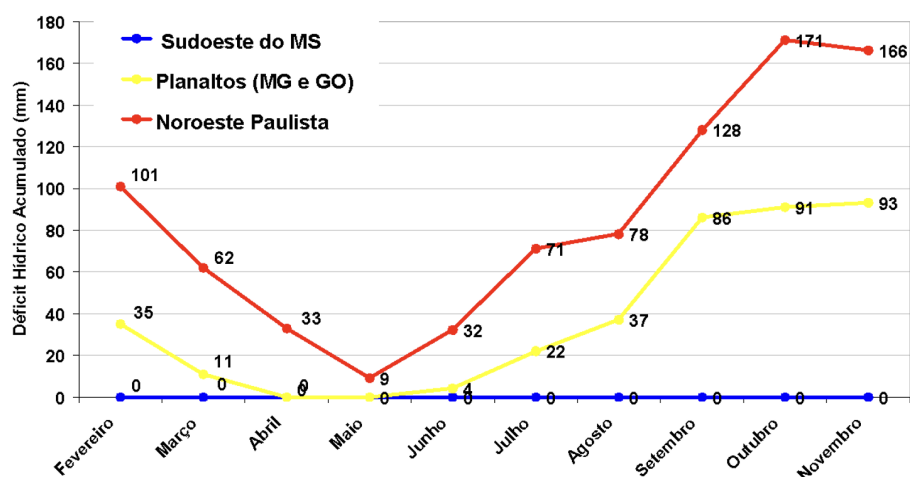
depth and, after one or two weeks, the root absorption products can no longer have the expected effect in controlling weeds. After this time, the roots are no longer within the range of action of the herbicide products and the weeds vegetate without limitations.

Intensive production and mechanization environments

Morphological and, consequently, physical-hydraulic attributes are extremely relevant to the management and conservation of soils in sugarcane cultivation, since, together, they affect the

speed of water infiltration (hydraulic conductivity), its storage capacity, the resistance of aggregates to destabilization, or the stability of aggregates, and the available water.

The average water deficit values ??for some locations in the Center-South region are shown in the figure below. It should also be noted that these deficits are calculated based on monthly data, which significantly mask the real deficits.



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

Third axis matrix

The third axis matrix is ??due to a new strategy developed by the IAC, by bringing the production cycle, that is, the cutting of sugar cane, as another factor, the third, to be added to the production environment and the harvest season, with the objective of minimizing the effects of the water deficit.

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

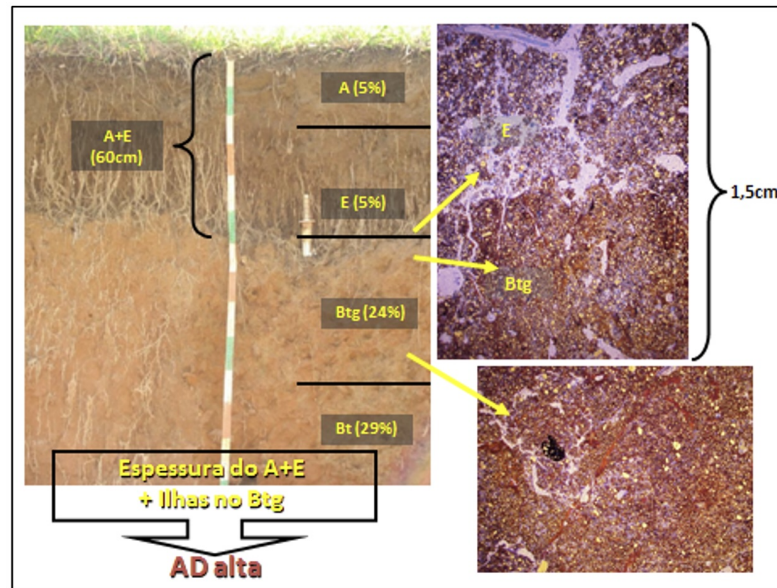
increase in the stalk population in these first cycles.

The question of argisols

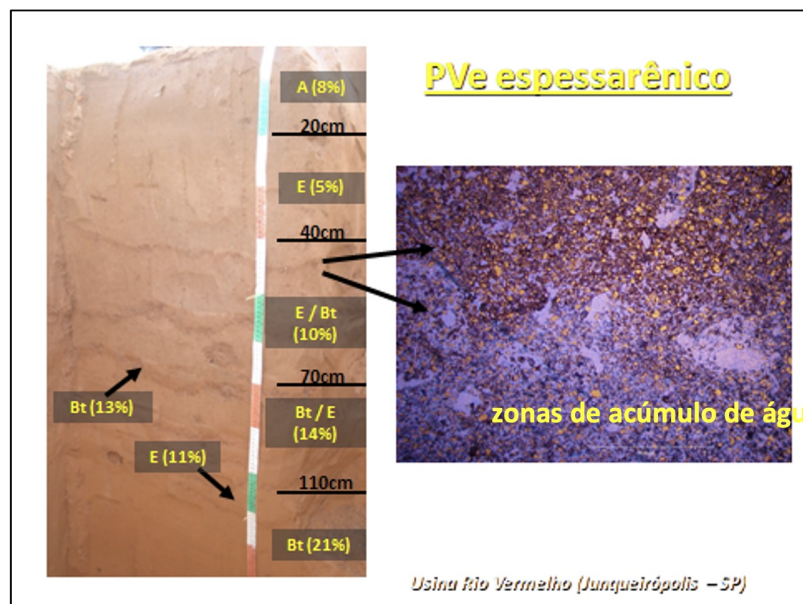
Considering the soils of the western region of São Paulo, they can be defined, in ascending order of susceptibility to erosion: LV ? PV arenic ? PV. Regarding preparation (Table 1), they should be allocated, when necessary, in periods of greater rainfall, allowing the preparation of argisols to be directed to months of less intense rainfall. In regions with more pronounced water deficit, latosols should not receive sugarcane planting in January/February, exceptionally when

eutrophic, since, due to the low CAD and significant development until May/June, even implying the formation of the first internodes, they will be exposed to high water deficits in the middle of the harvest.

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



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



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

It can be seen in the figure below that, between the A + E and Bt horizons, there are medium-textured lamellae (15% to 20% clay), which partially interrupt drainage; in Bt, there are zones of water accumulation, due to structural weakness (average clay content between 15% and 25%), with no continuity of the pores, resulting in high amounts of available water due to the lack of drainage in this Bt horizon, classifying these profiles as high CAD soils and, therefore, their harvest period should be extended, both to the beginning and to the end of the harvest.

It should be remembered, however, that susceptibility to erosion is a function of hydraulic conductivity and the resistance of aggregates to dismantling and washing away by water, and that these argisols are

presented without aggregation in the A horizon (single grains, normally quartz). Thus, although arenic soils present high hydraulic conductivity, only one phase of resistance to erosion requires plant cover to promote the binding of the sand by the root system of this cover (sugar cane ratoons, crotalaria, millet, weeds, etc.), which produces a temporary “structure” sufficient to prevent dismantling and the consequent washing away of individual quartz particles.



(A) soil profile with sandy A horizon; (B) clump of grass supporting the weak structure; (C) volume of soil surrounded by the coiling of the root system of the clump of grass - Photos: Jairo Mazza

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

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CONTACT

editor@grupocultivar.com

comercial@grupocultivar.com