October 2025 International Society of Sugar Cane Technologists Founded 1924 Bulletin

Welcome to the ISSCT Bulletin for October 2025, in which we collect latest ISSCT updates, along with news, research, and past and upcoming events related to sugar cane technology.

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ISSCT News

Message from Prof. Monalisa Sampaio Carneiro, Chair ISSCT Council and Executive Committee, 2025-2028



The Colombian Association of Sugar Cane Technicians (TECNICAÑA), in partnership with the Colombian Sugar Cane Research Centre (CENICAÑA) and the Association of Sugar Cane Growers of Colombia (ASOCAÑA), brilliantly organized the unforgettable and prestigious XXXII ISSCT Centennial Congress, held in August 2025 at the Valle del Pacifico Events Centre in Cali, Colombia. This remarkable achievement was also made possible thanks to the leadership and commitment of the Executive Committee (ExCo) and the Technical Programme Committee (TPC) of ISSCT, whose active participation was fundamental, as well as to the scientific rigor and quality of papers ensured by the Editor. Equally crucial was the dedication of the ISSCT General Secretariat, whose professionalism and efficiency guaranteed the seamless execution of every detail.

This congress marked the centennial celebration of the ISSCT, bringing together 1,150 delegates from 60 countries — scientists, experts, and industry leaders — in an inspiring environment of knowledge exchange and innovation. The trade exhibition featured over 100 leading brands committed to the sustainable development of the sugar cane agroindustry, while the scientific program addressed frontier themes such as Climate and Sugar cane, Artificial Intelligence, and Genomics. Delegates contributed to 169 scientific papers and 107 posters across the five ISSCT Commissions, further strengthening the technical and scientific dialogue that defines our community. One of the most memorable moments was the tribute to the eminent scientists who, over the past decades, laid the foundations of global knowledge on sugar cane. Awards were also presented to the best papers and researchers, recognizing scientific excellence and a steadfast commitment to innovation. The event offered valuable opportunities for learning and exchange during the pre- and post-congress

programs, which included visits to research centres, sugar mills, and a green hydrogen facility. The warm hospitality of our Colombian hosts made this congress truly unforgettable. To all members of the Organizing Committee, we extend our deepest gratitude and recognition.

As ISSCT embarks on its second century, our mission is to look ahead and further strengthen the exchange of knowledge among all stakeholders in the sugar cane value chain — technicians, scientists, managers, and industry leaders. I feel deeply honoured to be the first woman to preside over the ISSCT, and committed to making the Society even stronger and more plural. In an era when information and knowledge are among the world's most valuable assets, the Society will broaden its communication channels, promote webinars on emerging topics, enhance its digital presence, and continue supporting the workshops and congresses that have long defined its legacy.

My vision is to lead our Society toward a future defined by inclusiveness, innovation, and global collaboration, fostering a collective pursuit of technical and scientific excellence in our mission to consolidate ISSCT as a global reference in sugar cane science and technology. This vision is anchored on three strategic pillars: (a) social, environmental, and economic sustainability — search for innovative solutions to address climate change and promote a circular economy; (b) innovation and global integration — advancing biotechnology, artificial intelligence, and digital transformation to connect research, production, and industry worldwide; and (c) empowerment and diversity — encouraging young researchers and amplifying the visibility of women in science, whose contributions continue to strengthen the global sugar cane community.

Participant's Impression: XXXII ISSCT Centennial Congress- Cali, Colombia



Prof. Giovanna M. Aita, Section Chair,
ISSCT Co-Products Commission

Attending the XXXII ISSCT Centennial Congress in Cali was a truly remarkable and enriching experience, both professionally and personally. As a participant in this historic centennial edition of the International Society of Sugar Cane Technologists, I was honoured to be part of a global celebration of one hundred years of innovation, research, and progress in the sugar cane industry.

From the moment I arrived in Cali (my first time in Colombia), the warm hospitality and vibrant culture of this country were immediately felt. Tecnicaña, along with the Colombian organizing committees and volunteers, extended a heartfelt welcome to all attendees, reflecting the warmth and generosity that define the Colombian spirit. Equally essential to the success of the Congress were the ISSCT Secretariat, the Executive Committee, the Technical Program Committee, and the Section Chairs, whose guidance, coordination, and tireless efforts ensured the event upheld the highest standards of scientific and technical excellence. This cultural richness combined with flawless execution made the entire event both professionally rewarding and personally unforgettable.

Pre-Congress Activities: A Powerful Start

The Congress experience began on a high note with the Pre-Congress technical tours, which provided an invaluable opportunity to see Colombian sugar cane

innovation firsthand. Visits to Cenicaña were impressive, allowing participants to explore research and practical advances across a wide range of areas, including sugar cane breeding, crop management, mechanization, precision agriculture, bio-products, and digital technologies, to name just a few. These tours provided rich insight into how Colombia is driving progress in the sugar cane sector through science, technology, and innovation.

Equally enriching were the visits to leading sugar mills and processing facilities in the Valle del Cauca region. These tours offered deep insight into the history, efficiency, sustainability, and technological advancements driving Colombia's sugar cane sector. From field to factory, every step of the value chain was on display, demonstrating the country's leadership in modern, integrated sugar cane production.

Globally Connected and Perfectly Organized

The main congress event was flawlessly executed. Fron registration to venue access, transport coordination to technical support, with every logistical detail managed with professionalism and efficiency. The conference venues were modern, spacious, and equipped to support a wide range of activities, from keynote presentations and technical sessions to poster exhibitions and networking events. The ease with which everything ran is a testament to the dedication and collaboration of the collective organizing and scientific leadership behind the event.

The plenary sessions were a particular highlight, setting the tone for critical and forward-thinking discussions across the global sugar cane community. These sessions addressed some of the most pressing and transformative topics in the field, including climate change, genomics, genetic modification, gene editing, and artificial intelligence. Each presentation offered valuable insights into how these emerging technologies and global changes are shaping the future of sugar cane research, production, and sustainability. The diversity and depth of the plenary topics underscored the Congress's commitment to innovation and to preparing the industry for a rapidly evolving world.

One of the standout elements of the Congress was the launch of the ISSCT Centennial (1924-2024) Volume, a landmark publication that is unique among industrial crop organizations. This commemorative volume not only chronicles the rich history and development of ISSCT over the past one hundred years, but also

highlights the major scientific and technical advances that have shaped the global sugar cane industry. Covering breakthroughs across agriculture, biology, factory processes, co-products, and management, the volume reflects the depth and breadth of innovation that has driven the industry forward science 1924. It stands as a testament to the global collaboration and knowledge exchange that define ISSCT. The creation of this volume was a tremendous collective effort made possible by the dedication of the editors and the many contributors who authored its insightful chapters. In addition to the Centennial book, all participants received a copy of the Reports and Abstract of the Proceedings of the XXXII Centennial Congress, as well as a USB key containing digital access to the scientific and technical material, further enriching the documentation and legacy of this centennial edition.

Excellence in Sugar Cane Science and Innovation

As the leading global platform for knowledge exchange in sugar cane science, the ISSCT Congress delivered a program of outstanding quality and relevance. The oral presentations and scientific posters represented the very latest in global research and innovation. Topics ranged from genetics, plant protection, and irrigation to factory engineering, bioenergy, bio-products, sustainability, and socio-economic development. The quality of the research, the diversity of perspectives, and the active engagement in discussions made every session a valuable learning experience.

Beyond the Booths: An Expo Experience

The exhibition hall was a vibrant hub of technological innovation and industry engagement. Leading companies and institutions from around the world displayed their latest advancements in machinery, processing technology, precision agriculture, and sustainability solutions. It was an excellent space for collaboration between researchers, industry leaders, and innovators.

Recognizing Excellence: Well-Deserved Awards

A particular moving aspect of the congress was the recognition of individuals who have made outstanding contributions to sugar cane science and technology. The award recipients were truly deserving of their honours, and it was deeply moving to witness their achievements celebrated during the centennial. Their work has advanced our understanding, improved practices, and inspired future

generations of sugar cane professionals. It was a privilege to celebrate their achievements in front of an international audience.

Cultural Splendour and Ceremonial Highlights
The opening and closing ceremonies were beautiful and deeply moving. They not only celebrated the centennial milestone of ISSCT but also honoured the spirit of international collaboration and cultural exchange. Traditional Colombian music, dance, and storytelling were interwoven with the formal program, creating memorable moments that reflected the vibrant heart of the host nation.

Post-Congress Activities: Green Hydrogen and Agro-Industrial Innovation
Following the main Congress, a Post-Congress visit to Cartagena was organized by ISSCT and the Colombian organizing committees, offering participants a unique experience of combined technical insights with cultural immersion. Among the highlights was a technical visit to a green hydrogen plant and the Port Area, where attendees gained a deeper understanding of their growing significance and impact on the agroindustry, particularly in relation to sustainability and logistics. This tour provided a memorable conclusion to the Congress, blending professional enrichment with the cultural vibrancy of the city.

A Celebration of Science, Culture, and Community- and A Look Ahead
This congress was the perfect balance between scientific rigor and cultural celebration. The technical presentations, excursions, social events, and networking opportunities allowed participants to experience the beauty, biodiversity, and warmth of Colombia. Cali, with its vibrant energy and deep-rooted traditions, was the perfect host city for this milestone event.

In every sense, the XXXII ISSCT Centennial Congress was a resounding success. It honoured the past, celebrated the present, and inspired the future of the sugar cane industry. I extend my heartfelt gratitude to the organizers, presenters, exhibitors, and the people from Colombia for delivering a world-class event.

A hundred years of innovation, and the journey continues. Thank you, ISSCT!

Looking ahead, I was excited to learn that the next XXXIII ISSCT Congress will be held in Guatemala City in 2028. It will be organized by the Asociación de Técnicos Azucareros de Guatemala (ATAGUA), and I look forward to another opportunity to connect with fellow scientists, technologists, and professionals from around the world as we continue advancing sugar cane research and innovation.

Congratulations to ATAGUA on this well-deserved responsibility and see you in Guatemala!

The Editor's reflections on papers and posters at the Cali Congress



Dr. Peter Allsopp, ISSCT Editor

In the April 2023 ISSCT Bulletin, I reflected on the outcomes and processes for papers and posters at the Hyderabad Congress. Here, I consider the Cali Congress.

Firstly, the good news. The Cali Congress saw almost 300 papers and posters accepted for publication in the Proceedings and for presentation, twice that at the Hyderabad Congress.

An impressive result and the basis for a great Congress in Cali. The behind-the-scenes teamwork was amazing. Thanks especially to the Commissioners and Section Chairs who bore much of the effort in getting the manuscripts reviewed and up to an acceptable standard. The Colombian team ensured that the abstract book was printed and the USB stick was produced well in time for distribution at registration. The novel shape of the USB stick was unique - la caña de azúcar que nos une.

BUT, ….. the editor has the same complaints as he did in 2023.

Firstly, those manuscripts written in good English passed through the process much easier than those written in poor English.

Before submission, authors must have their papers reviewed by colleagues, and, if appropriate, by a person fluent in English. Authors who are not fully conversant

with technical English and the type of sentence construction used in technical papers of the type required by ISSCT must have their paper reviewed by a person fluent in English before emailing their paper to the Editor. If there is any doubt on this point, authors must email their paper to the Editor well before the stipulated deadline.

There is a lot of 'musts' in that paragraph! Although some countries obviously put considerable effort into their submissions, others did not. ISSCT understands that English is not the native language in many of the sugar-producing areas of the world. We do make some allowances for this, but we have limited time and require the authors' assistance to ensure the process runs smoothly.

As previously, it was obvious that many authors had not read the Instructions to Authors sent to them after their submission of an expression of interest, or, if they had, they took little notice. This was particularly noticeable in the layout of lists of references. The Instructions give examples of the required layouts and punctuation – it's not 'rocket science', so there is no excuse for poorly arranged lists. I spent considerable time in filling-in details of many references, time I could have happily used more profitably. If I can use Google to find the details, so can you, the author!

Thirdly, there were several authors who had papers or posters accepted but did not attend the Congress. This shows great disrespect to attending colleagues. At least one of the authors must be a current member of ISSCT before the paper/poster is accepted. Authors should make every effort to present their paper or poster at the Congress. However, if they are unable to attend, they should ensure that someone with a good knowledge of the work can make the presentation on their behalf and answer detailed questions on the contents.

We will call for papers and posters for the 2028 Guatemala Congress in early 2027. Papers

and posters should be of interest to an international audience and should present original data, new concepts, novel analysis, or innovative presentation or interpretation of previously published material. Papers may be of a scientific, economic or technological nature but must not be of an overtly commercial nature or written with inadequate disclosure of relevant information for commercial reasons.

So, start thinking about a submission, now! If I remember one thing from my military training, it was the 6 Ps – proper preparation and planning prevent poor performance.

Presentation of Centennial Medals

As mentioned in the September issue, medals were presented at the Centennial Congress to various members including prominent contributors as designated in the Centennial Volume, to Honorary Life Members, to Past Chairs of Council and Executive Committee, to the Editors and General Secretaries.

Some of the recipients were not present at the Congress and their medals were presented subsequently to them or to their families for those who had passed away. Among them were the following:



Mr. Geoffrey Cleasby (left), Chair XV Congress 1974 and nominated Honorary Life Member in 1983, receiving his Centennial medal from Dr. Muhammad Kadwa, ISSCT Councillor for South Africa. Aged 98, Mr. Cleasby is the seniormost living HLM of ISSCT.



Manoel Régis Lima Verde Leal (right), prominent contributor in Co-Products 2000-2023 and nominated Honorary Life Member in 2019 receiving his medal from Michael Butterfield, Chair TPC 2025-2028.



Victor Mason (right), Past Chair Council and Executive Committee 2005-2007 and nominated Honorary Life Member in 2007, receiving his medal from Geoff Kent, ISSCT Councillor for Australia.

The four children of late Owen Sturgess with Geoff Kent. From left: Jim, Debbie, Shane and Mark. Owen was Chair of Council and Executive Committee 1986-1989 and nominated Honorary Life Member in 1992.



Award to ISSCT



Prof. Monalisa Sampaio Carneiro with the JornalCana Award

The International Society of Sugar Cane Technologists (ISSCT) was deeply honored to receive the MasterCana Award 2025 in the category "Organization of the Year", granted by ProCana Brasil. The ceremony took place on October 20, 2025, in São Paulo, Brazil, during an event organized by the renowned JornalCana, which brought



The Chair of the ISSCT Executive Committee conveying the gratitude of ISSCT at the Award Ceremony

together representatives from sugar mills, consultants, and executives from various companies in the sugarcane and bioenergy sector.

This award stands as a meaningful recognition of the ISSCT's role as a global reference in disseminating technical knowledge and fostering innovation in the sugarcane and bioenergy industries. Our Society has pursued this mission with excellence and dedication. May this distinction inspire us to continue advancing technological innovation and scientific progress, while strengthening international cooperation and promoting the sustainable development of the sugarcane sector worldwide.

The Award ceremony is accessible at: https://www.youtube.com/watch?v=nqvUC5lbelM&t=2769s (timing 45.07 – 46.49).

Workshops 2025-2028

Workshops with specialized themes will be held during the forthcoming inter-congress period as follows:

Section	Venue/Organizer	Theme	Tentative Date
Agricultural Commission			
Joint Agricultural Engineering & Agronomy	Florida, USA		12-15 March 2027
Biology Commission			
Joint Germplasm & Breeding/ Molecular Biology	Barbados	Developing Climate Resilient Sugarcane	February or September 2027

Joint Pathology & Entomology	Réunion	Pushing the frontiers of agroecological management strategies of sugarcane pests and diseases	March 2027
Factory Commission			
Engineering & Processing	Australia	To be determined	2027
Co-products Commission			
Co-Products	Khon Kaen, Thailand		16-19 August 2027
Management Commission			
Management	Guatemala	To be determined	January/February 2028 (During Congress)

Announcements concerning these Workshops will be circulated as from 2026.

Webinars

It is also planned to organize Webinars on strategic initiatives or themes, with one webinar per commission during the first half of 2026.

Survey of Members' Satisfaction and Expectations

The Survey of Members' Satisfaction and Expectations was carried out as planned at the ISSCT XXXII Centennial Congress and until end of September 2025. Some 140 replies have been obtained and their analysis have been initiated. The report

will be completed in November 2025 and will be circulated after consideration by the Executive Committee.

Pathology Newsletter

We are pleased to inform you that the ISSCT Pathology Section is launching its new newsletter to strengthen communication and collaboration among members. This initiative aims to keep the sugar cane pathology community informed of ongoing work, upcoming activities, and opportunities for engagement within ISSCT.

To receive the newsletter, we invite you to sign up via the link: http://eepurl.com/jptNaQ

You can also visit our newly published Pathology Section webpage for more information about our activities and initiatives: https://issct.org/pathology/ We look forward to sharing updates and strengthening our global network of sugar cane pathologists through this new communication platform.

ISSCT strengthens its presence on social media

Over the past years ISSCT has been actively sharing updates and news on its LinkedIn, Facebook, and X pages, reinforcing its commitment to keeping members informed and connected worldwide.

In recent weeks, several posts have highlighted important developments. These include the historic election of Professor (Dr) Monalisa Sampeio Carneiro of Brazil as the first woman to chair the ISSCT Council and Executive Committee, marking a new era of leadership as the Society enters its second century.

ISSCT also announced that the next Congress will be held in Guatemala in January 2028, and to be hosted by the Asociación de Técnicos de Azucareros de Guatemala (ATAGUA). Other posts have featured insights on global sugar production trends for the 2025/2026 season, and recognition of two outstanding scientific papers presented at the ISSCT Centenary Congress in Cali, Colombia in August 2025— one exploring the genetic resistance to orange rust and yellow leaf

diseases, and another on calcium dynamics in sugar cane soils of the northern Cauca Valley in Colombia.

Members and followers are encouraged to visit and follow the ISSCT LinkedIn, Facebook and X pages to stay up to date with announcements, research highlights, and news from the sugar cane sector. Regular posts will continue to share information on workshops, webinars, Commission activities, and opportunities to engage with the global sugar cane community.

Post of Assistant to the Editor

With a view to strengthen the resources of the Secretariat, the ISSCT Executive Committee decided at the XXXII Centennial Congress to create a Post of Assistant to the Editor. The Advertisement is to be found here and the deadline for submission of applications is 31 December 2025.

In Memoriam

It is with great sadness that we have learned that three prominent members of ISSCT have passed away.

They have had distinguished career at the service of their own industry and also at ISSCT. In the case of Dr. Owen Sturgess, although he passed away in 2022, we were unaware of his demise until after the ISSCT XXXII Centennial Congress. Dr. Mike Inkson passed away in 2024 and Prof José Paulo Stupiello soon after the ISSCT XXXII Centennial Congress. Their obituaries which emphasize their remarkable professional track record and contributions to the ISSCT are to be found at the links below:

- Dr Michael Brian Inkson (Mike)
- Owen William Sturgess
- Professor José Paulo Stupiello

Expressions of sympathy on behalf of ISSCT have been conveyed to their relatives.

Sugar Cane News

Hyosung Transitioning Bio-Based Spandex Feedstock from Corn to Sugar

SOURCING JOURNAL	**Sourcing Journal**	**June 16, 2025**	**https://sourcingjournal.com/topics/raw-materials/hyosung-sugarcane-bio-based-spandex-sustainability-1234750562/**
	Hyosung, the world's largest producer of spandex by market share, leaned into sustainable stretch with its bio-based spandex made from dent corn feedstock. Ever since, it has been aiming to increase the content of its regen™ BIO Spandex, and now, it's found a solution in sugar. The sugarcane-based bio-BDO is part of Hyosung's plan to support the textile industry in reducing carbon emissions by moving to more circular business models.		

AI technology can increase sugarcane yield by over 30 per cent: Jayant Patil

ChiniMandi	**ChiniMandi**	**June 6, 2025**	**https://www.chinimandi.com/ai-technology-can-increase-sugarcane-yield-by-over-30-per-cent-jayant-patil/**
	Jayant Patil, MLA and member of the Board of Trustees of the Vasantdada Sugar Institute (VSI), who also chairs the institute's Artificial Intelligence (AI) Committee, has stated that AI is poised to revolutionize the agricultural sector. He emphasized that artificial intelligence will prove highly beneficial for agriculture in the near future.		

Sugarcane: A potential key player in the fight against plastic pollution

LDN LONDON DAILY NEWS	**London Daily News**	**June 11, 2025**	**https://www.londondaily.news/sugarcane-a-potential-key-player-in-the-fight-against-plastic-pollution-2/**
	As Londoners joined the world in marking UN World Environment Day 2025, the urgent call to #BeatPlasticPollution is louder than ever. This year, we turn our attention to an unlikely food commodity: sugarcane. Far beyond its familiar role in sweetening our lives, sugarcane is emerging as a crucial player in the search for sustainable alternatives to fossil fuel-based plastics, thanks to innovative uses of its byproducts in the production of plant-based bioplastics. *As such, companies are already recognising the potential of plant-based materials in contributing to a low-carbon circular economy. Tetra Pak began using biopolymers in 2011, and in 2020 became the first company in the food and beverage industry to source responsibly produced plant-based polymers for its packaging, using the Bonsucro standards for more*		

	sustainable sugarcane. In their 2024 sustainability report, the company reported a 25% reduction in overall value chain GHG emissions, with significant contributors being factory optimisation technology and packaging solutions with a lower carbon footprint.

New Biotech Sugarcane Variety Could Boost Biofuel Yields

	CZ App	**June 19, 2025**	**https://www.czapp.com/analyst-insights/new-biotech-sugarcane-variety-could-boost-biofuel-yields/**
	A new sugarcane variety with a 14% sugar recovery rate, developed through biotechnology in Brazil, could improve biofuel yields from sugarcane, sorghum and other crops. *The SWEET13 gene regulates sugar transport within the plant. The new sugarcane variety has created some excitement in India, where the Vasantdada Sugar Institute is working on a locally adapted version. India's Union Minister is urging the adoption of the variety in Maharashtra district to boost economic output. Currently, the average sugar recovery in Maharashtra is approximately 12.5%.*		

SECLG Breakthrough Turns Sugarcane Waste Into High-Purity Green Hydrogen with Low Tar Emissions

	FuelCellWorks	**July 18, 2025**	**https://fuelcellsworks.com/2025/07/18/energy-innovation/seclg-breakthrough-turns-sugarcane-waste-into-high-purity-green-hydrogen-with-low-tar-emissions**
	A simulation from the University of Johannesburg demonstrates that Sorption-Enhanced Chemical Looping Gasification (SECLG) can convert bagasse—the crushed fibrous residue from 540 million metric tons of sugarcane waste produced annually—into high-purity hydrogen far more efficiently than traditional biomass gasification. Published in Renewable Energy, the model shows the new process delivers hydrogen yields of 62–69%, with tar concentrations under 1 g/nm³ and CO_2 below 1%, significantly reducing unwanted by-products.		

Sugarcane Breeding Institute launches CaneInfo website

	Indian Council of Agricultural Research	**August 1, 2025**	**https://icar.org.in/node/5166**
	Sugarcane Breeding Institute launched CaneInfo website, a database-driven website that delivers timely information on sugarcane to be accessed free of cost anywhere, anytime, by all those involved in sugarcane agriculture, on July 9, 2010. CaneInfo is the culmination of a two-year research project entitled, "Developing a user-centered website on sugarcane production technologies" sponsored by the Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt. of India.		

	Recognizing that only by bringing the user into the development process could the utility of the website be maximized, a series of Focus groups were conducted among the target audience, i.e., the farmers and cane development personnel to identify the users' information needs. Developing a prototype with this information, it was demonstrated to the target audience for evaluation. All these efforts have culminated in the dynamic and demand driven website, CaneInfo available at http://caneinfo.nic.in [website currently unavailable].

SRA opens new sugarcane research facility [Australia]

	Food & Drink Business	**July 21, 2025**	**https://www.foodanddrinkbusiness.com.au/news/sra-opens-new-sugarcane-research-facility**
	Sugar Research Australia (SRA) has officially opened its new Innovative Research & Industry Services (IRIS) Laboratories in Acacia Ridge, Brisbane with an event and facility tour for industry representatives taking place last Wednesday (16 July). *SRA's scientists and technicians advance research and provide essential scientific services to the sugar industry, including Ratoon Stunting Disease (RSD) and disease diagnostics, sugarcane DNA testing, and comprehensive soil, water, and nutrient analysis.*		

Fungus Threatens Sugarcane, Farmers' Futures [Belize]

	Greater Belize Media	**June 30, 2025**	**https://www.greaterbelize.com/fungus-threatens-sugarcane-farmers-futures/**
	It's more than just numbers on a balance sheet; it's the daily bread of hundreds of hardworking farmers. The sugarcane industry is staring down over fifty million dollars in losses, but for the men and women in the fields, the crisis is deeply personal. A silent threat, fusarium, a soil-borne fungus, is spreading fast, slashing yields and leaving farmers unable to repay loans or prepare for the next crop season. *"With a production of eight hundred and eighty thousand tons of cane producing seventy-eight thousand tons of sugar the industry is projected to earn one hundred and ten million dollars, mostly in foreign exchange, representing a significant reduction to fifty-three million from one hundred and fifty-six point five million dollars generated in 2024."*		

Agritech innovation offers cost-effective crop management [South Africa]

	Sowetan Live	**22 July, 2025**	**https://www.sowetanlive.co.za/jobs/2025-07-22-agritech-innovation-offers-cost-effective-crop-management/**
	Nestled in the heart of the KwaZulu-Natal Midlands, Howick-based Field Tech Solutions is redefining agriculture through drone-powered innovation.		

	Founded by Nokuphila Gumede, the company has integrated technology into the agricultural sector through its drone technology. In partnership with Thabiso Sithole and Khanya Nyawo, the company is rapidly becoming a game-changer in precision farming, offering drone-based services tailored to crop spraying, ripening, mapping, and fertilisation.

From Sugar Cane to AI Agents: The Foundational Secret to Thailand's Data Revolution [Thailand]

	CDO Trends	**July 7, 2025**	**https://www.cdotrends.com/story/4621/sugar-cane-ai-agents-foundational-secret-thailands-data-revolution**
	The truth about AI adoption isn't complexity — it's that most companies are building skyscrapers on shaky foundations. While executives chase the latest AI buzzwords, they're sometimes overlooking the reality that determines success or failure: data infrastructure. *At a recent IBM Executive Summit in Bangkok, this reality crystallized through Athikom Kanchanavibhu, executive vice president of digital and technology transformation at Mitr Phol Group — Thailand's sugar, energy, and bio-based products giant. He didn't just talk about AI adoption; he shared insights learned from transforming a traditional agricultural conglomerate into an AI-driven enterprise across a vast network of subsidiaries across nine countries.*		

Latest Research

Efficacy of a fungal decomposer in accelerating sugarcane trash decomposition and soil nutrient enrichment under semi-controlled conditions



India produces more than 100 million tonnes of sugarcane annually, generating vast quantities of lignin-rich crop residue, nearly 70% of which are burned in-situ, contributing significantly to seasonal air pollution and nutrient depletion. While microbial decomposers have been adopted in rice–wheat systems, their potential for accelerating sugarcane trash degradation under conditions mimicking field environments remains underexplored. This study evaluated the efficacy of a PUSA decomposer consortium containing seven lignocellulolytic strains in enhancing the in-situ decomposition of sugarcane trash under semi controlled pot-scale glasshouse conditions simulating field dynamics. A 45-day decomposition trial was conducted via a completely randomized design with three treatments—untreated control (T_1), water plus fermented substrate (T_2), and PUSA decomposer plus substrate (T_3), sampled at Days 0, 15, 30, and 45. Under T_3, soil microbial biomass carbon (SMBC) increased by 47%, available phosphorus increased by 28.7%, potassium increased by 15.1%, and nitrogen increased by 8.7% over the 45-day period. The lignin content decreased by

27.5%, whereas the lignin-to-cellulose (L/C) ratio remained stable at 0.20, indicating the proportionate degradation of structural residues. The soil pH and EC remained within agronomic thresholds. These findings demonstrate the potential of the PUSA decomposer to accelerate lignocellulose breakdown, improve soil fertility, and offer a viable alternative to open burning. Field-scale validation under diverse agroclimatic conditions is recommended to support large-scale adoption.

Published July 2025

> Link

Fermentation of sugarcane bagasse for production of value-added phenolic compounds using potential bacterial strains: A comparative analysis



The present study investigates the potential of bacterial strains, viz., Pseudomonas fragi, Lactobacillus plantarum, and Lactobacillus acidophilus, for the production of phenolic compounds from sugarcane bagasse (SCB). The important bio-transformed phenolic products isolated from the medium were ferulic acid (FA), vanillin and vanillic acid (VA), whose identification and quantification were done by high-performance thin-layer chromatography. Carbohydrate concentration from the de-starched bagasse was also assessed and compared with that of the original (control) bagasse. Results revealed that the utmost FA yield per kg of SCB was 275 mg from Lactobacillus acidophilus, 225 mg from Pseudomonas fragi on the 9th day, and 212 mg from Lactobacillus plantarum on the 12th day of incubation. Likewise, the peak vanillin and VA quantified per ml of fermented extract were 16 mg on 9th and 12th day of incubation, respectively, for Lactobacillus plantarum, 14 mg of vanillin and 13 mg of VA on 9th day for Pseudomonas fragi. However, in Lactobacillus acidophilus 15 mg of Vanillin and 18 mg of VA was recorded on 12th day of incubation.
To compare enzymatic efficiency and structural integrity among ferulic acid esterases (FAEs), a 3D structural model was constructed. We first time demonstrated that the lid domain's structural integrity enhances enzyme efficiency which has been expressed in terms of yield. An ~18 % higher yield of primary phenolic compound was obtained for L. acidophilus with compact FAE lid domain compared to PsfFAE. This finding highlights the metabolic potential of these strains for phenolics production and their relevance in biotransformation processes.

To be published: November 2025, article available now

> Link

Machine learning-driven optimization of pretreatment and enzymatic hydrolysis of sugarcane bagasse: Analytical insights for industrial scale-up

The conversion of sugarcane bagasse (SCB) into fermentable sugars via pretreatment and enzymatic hydrolysis is a promising pathway for biomass valorization. However,

the process's complexity and variable optimization have limited its efficiency. This study introduces an orthogonal experimental design (OED) combined with machine learning (ML) to optimize NaOH-catalyzed Triton-X 100 pretreatment and enzymatic hydrolysis. The optimal pretreatment conditions identified through rule-based ML modeling (100 g/L solid loading, 45 g/L NaOH, 13.8 pH, 200 mL Triton-X 100, 175 °C, and 45 min) resulted in cellulose and hemicellulose recoveries of 88.5 % and 81.8 %, respectively, and a delignification of 92.3 %. The relative errors from experimental validation were 1.42 %, 0.56 %, and 3.55 % for these metrics, respectively. In the enzymatic hydrolysis (50 g/L substrate loading, 6 FPU/g enzyme loading, and 72 h hydrolysis), glucose and xylose yields reached 84.3 % and 63.3 %, with relative experimental validation errors of 1.11 % and 2.26 %, respectively. Key factors included time (26.2 % contribution to cellulose recovery), temperature (37.5 % to hemicellulose recovery), and solid loading (19.6 % to delignification). Substrate loading contributed 45.7 % to glucose and 37.8 % to xylose yields. This ML-optimized approach is projected to generate an additional US$321.45 million in profits by 2025, increasing to US$494.39 million by 2030, while reducing SCB waste by approximately 45 %. These findings highlight the potential of ML to enhance biomass conversion efficiency and accelerate the industrial adoption of bio-based sugar production systems.



Published 15 June 2025

> **Link**

Effects of thiamethoxam insecticide on sugarcane plant growth under chemical ripening at early and late harvest

Chemical ripeners are applied to ensure the quality of the final product in sugarcane production, especially under unfavorable conditions for sucrose accumulation. In addition, bioactivators such as the insecticide thiamethoxam can stimulate plant development. Thus, the application of thiamethoxam to sugarcane regrowth associated with ripener may have phytotonic effects and improve sugarcane quality and yield. The aim of this study was to understand the effects of thiamethoxam foliar application to sugarcane ratoon treated with trinexapac-ethyl as a ripener. Four management strategies (treatments) were introduced and tested in six field experiments conducted across the early and late harvest seasons: no chemical application (control), application of 250 g a.i ha^{-1} trinexapac-ethyl (0.4 L ha^{-1} of commercial product) as a ripener, application of thiamethoxam 100 g a.i ha^{-1} (0.4 kg ha^{-1} of commercial product) as a bioactivator, and application of ripener and bioactivator. Thiamethoxam application increased stalk yield by 14 Mg ha^{-1} compared with the control, and joint application with ripener increased sugar yield by up to 3 Mg ha^{-1} due to an increase in total recoverable sugar (TRS) of up to 11% compared with the control (139.9 kg Mg^{-1}). The increases in biomass in response to thiamethoxam application increased potential energy production (MWh) by 16.8% compared with the treatments without insecticide. The integration of thiamethoxam into sugarcane management enhanced yield, biomass, and energy-related traits without compromising technological quality. When combined with trinexapac-ethyl, it increased sugar yield per hectare. These benefits point to improved land-use efficiency. However, given its classification as a neonicotinoid, further studies are needed to assess long-term safety. Such research is key to aligning productivity with sustainability in sugarcane systems.

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> Link

Directly replanting with GF296 extends the years of ratooning and yield in sugarcane

scientific reports

Sugarcane (Saccharum officinarum L.) is a sugar crop capable of ratoon cultivation, and its ratooning ability directly relates to sugarcane production costs and planting benefits. Sugarcane ridges with missing seedlings and gaps are an important reason for the reduction in the number of effective stalks and the years of ratooning of ratoon sugarcane. Therefore, analyzing the differences and correlations in important agronomic traits during yield formation within ratoon sugarcane populations after replanting treatment is of paramount importance for guiding ratoon cultivation. In this study, the 3rd-year ratoon sugarcane of the main varieties Guiliu 2 (GL2), Guitang 44 (GT44), and Yuetang 00236 (YT236), which are widely cultivated, served as the target population for replenishment. Using stem cuttings of Guifu 98-296 (GF296) as the replanting material, replanting treatment was applied to sugarcane ridges with missing seedlings and gaps in the planting plots of the after mentioned three varieties. Unreplanted populations served as their respective controls (CK). At harvest in the 3rd, 4th, and 5th ratoon years, data on important agronomic traits and sucrose content of the sugarcane populations under the replanting and non-replanting treatments were investigated. An analysis was conducted to ascertain the differences and correlations among agronomic trait indicators. The economic benefits of the replanting treatment and CK were calculated. The findings of the study demonstrated that the number of effective stalks in the replanted populations of GL2, GT44, and YT236 was significantly higher than in the non-replanted control groups (CK), with an increase ranging from 10.72 to 45.26%. The yield of both the replanted and CK groups for GL2, GT44, and YT236 decreased by 9.56–54.14% with prolonged the years of ratooning. Conversely, the yield of the replanted populations increased by 28.19–158.61% over extended ratooning years. Significant variations were observed in plant height, stem diameter, and single-stalk weight among the original ratoon sugarcane varieties (GL2, GT44, YT236) and their respective CK groups across different ratooning years. In the non-replanted groups, the number of effective stalks exhibited a highly significant negative correlation with the years of ratooning (correlation coefficients: GL2: - 0.907, GT44: - 0.931, YT236: - 0.756), and yield also showed a highly significant negative correlation with the years of ratooning (GL2: - 0.915, GT44: - 0.905, YT236: - 0.930). Notably, after replanting, the negative correlation between the years of ratooning and both yield and effective stalk number was eliminated, indicating improved population structure. Furthermore, the replanted GL2, GT44, and YT236 populations exhibited increased economic benefits, with cumulative net income gains over three ratooning seasons of 48,120.80 CNY ha^{-1}, 46,765.80 CNY ha^{-1}, and 42,398.60 CNY ha^{-1}, respectively. In conclusion, GF296 replanting effectively extended the years of ratooning by three years, substantially enhanced economic returns, and is suitable for large-scale implementation. The present study provides a theoretical basis for constructing high-yield populations, maximising ratoon potential, and achieving high-efficiency cultivation.

Published: 8 July 2025

> Link

Circular economy models of sugarcane biorefinery towards carbon neutrality and environmental sustainability

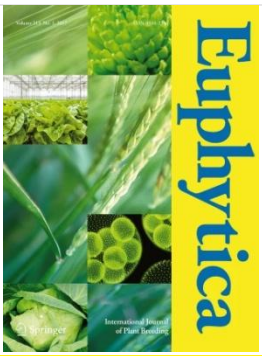


Sugarcane biorefineries convert sugarcane waste into bioproducts, requiring assessment for environmentally viable processing. This study compared the life cycle environmental impacts, environmental damage costs, and circularity of sugarcane biorefinery scenarios: a base case with pre-harvest cane trash burning and sugar and ethanol production; a modified one with improved energy efficiency; and three bioproduct scenarios producing bagasse-based biobutanol or biochar for bioenergy scenario, lactic or acetic acid for biochemicals, and cane trash-derived cellulose nanofibers or soil conditioner for biomaterials. Bioproduct scenarios assumed green cane harvesting. Life cycle assessment followed a cradle-to-gate scope, with a functional unit of 1 t of cane processed (t_c). Damage to human health ranged from 7.72×10^{-4} to 2.85×10^{-3} disability-adjusted life years/t_c; ecosystem from 4.85×10^{-6} to 9.15×10^{-6} species.year/t_c; resource scarcity from 10 to 60 United States dollar 2013/t_c; total damage costs from 2100 to 5410 Thai Baht/t_c, and circularity from 0.44 to 0.52. Bioproduct scenarios, except cellulose nanofibers, had lower environmental damage costs than the base case. Biorefinery circularity aligned closely with the highest-value product in each scenario. Biochemical (lactic acid) was the best overall, with the lowest environmental damage cost and resource scarcity damage, relatively low human health and ecosystem damage, and a high circularity score of 0.5. Biomaterial (Cellulose nanofibers) was the worst due to its highest damage cost from the highest fossil resource scarcity, accounting for over 95 % of resources scarcity damage in all scenarios, and high-water consumption, despite minimum human health damage from the lowest fine particulate matter formation, leading contributor to human health damage mainly from cane burning and biomass electricity, and a high circularity of 0.52. The modified base case was slightly better than the base case across all metrics. Bioproduct scenarios increased circularity; however, higher circularity did not always correlate better environmental performance.

Published: 24 July 2025

> **Link**

Single-step genomic best linear unbiased predictions of sugarcane genotype performance



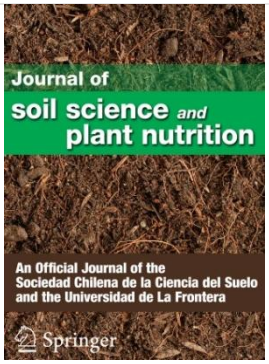
Genomic prediction has the potential to improve genetic progress in sugarcane. However, genomic information may not be available for all phenotyped individuals. The single-step genomic best linear unbiased prediction (ssGBLUP) method can provide an alternative genetic evaluation approach by combining nongenotyped and genotyped individuals. Here, we investigated ssGBLUP for genetic evaluation of a sugarcane population at an early selection stage. The pedigree contained 4450 individuals, of which 3704 were phenotyped and nongenotyped, and 377 were phenotyped and genotyped. We evaluated five models: a pedigree-based (PBLUP-2) and a genomic-

based (GBLUP) model considering only genotyped individuals; a pedigree-based model considering all phenotyped individuals (PBLUP-1); and two ssGBLUP models considering all phenotyped individuals, one using the standard genomic relationship matrix (ssGBLUP-1) and one adjusted genomic relationship matrix (ssGBLUP-2). The models were evaluated in two cross-validation (CV) schemes: validation using genotyped individuals (CV-G) and validation using non-genotyped individuals (CV-NG). In CV-G, we found that ssGBLUP and PBLUP had overall superior performance compared to GBLUP. The two ssGBLUP models evaluated also gave similar performance. For stalk number and stalk diameter, PBLUP showed higher prediction accuracy than ssGBLUP. For CV-NG, we found no significant differences in performance between PBLUP and ssGBLUP models. Our results suggest that genetic evaluation using ssGBLUP models may be an alternative approach for sugarcane. Our results also showed that models including only pedigree information gave relatively high prediction accuracies, suggesting that pedigrees are an important potential source of genetic information, particularly for sugarcane and other crop species with complex polyploid genomes.

Published: 31 July 2025

> **Link**

Impact of Land Use Change From Paddy Rice to Sugarcane Cropping on Quantity and Quality of Soil Organic Carbon



Land use change (LUC) has been shown to have negative impacts on soil organic carbon (SOC) content and quality. Our primary goal was to investigate the impact of LUC from an anaerobic paddy soil to an aerobic upland sugarcane system on SOC changes. Soil samples from a paddy rice system (PRC) and a 17-year chronosequence of an upland sugarcane (SC) ratoon system (SC6, SC13, SC17) was studied the temporal changes (legacy effect) in the quantity and quality of soil organic carbon (SOC) following land use change (LUC). Physical density fractionation and mid-infrared diffuse reflectance Fourier-transformed spectroscopy (midDRIFTS) were used to assess changes in SOC quantity and quality. LUC from PRC to SC led to increase in SOC at the 0–10 cm soil depth (SD) but a decrease in SOC content at depth of 10–100 cm. SOC accumulation was evident in SC6 but declined in SC13 and SC17. The conversion from PRC to SC resulted in an increase in the weight, %C, and $\delta^{13}C$ of the light fraction (LF), but LF weight and %C decreased over time. The particulate organic carbon (POC) content in LF increased after LUC but decreased with increasing time and SD. A transient effect occurs after the conversion from PRC to SC, resulting in changes in the chemical quality of SOC that initially leads to short-term SOC accumulation, followed by a constant decrease over time.

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> **Link**

AI vs. traditional farming: A comparative economic analysis sugarcane production in Pune District of Maharashtra

International Journal of Research in Agronomy

The present study targeted to compare the cost of cultivation, returns, and profitability between AI (Artificial Intelligence) and Non-AI sugarcane farmers in the Pune district of Maharashtra. With the emergence of AI technologies in agriculture such as remote sensing, automated irrigation, disease detection, and yield forecasting farmers have started exploring technology-driven methods to enhance efficiency. This study focused on analysing the differences in cost components including Cost A, Cost B and Cost C between AI and Non-AI adopters. Primary data was collected through structured interviews and surveys. The findings revealed that AI farmers incurred lower variable costs, particularly in labor, fertilizer, and plant protection due to precise input use. Although AI adoption required some initial investment, it significantly reduced operational inefficiencies. On the other hand, Non-AI farmers continued to rely on traditional practices, resulting in relatively higher costs and stagnant productivity. The study also observed that the profitability of AI farmers was comparatively higher due to better input management and increased returns. Therefore, the integration of AI in sugarcane cultivation shows promising results in improving cost-effectiveness and farm income. Promoting AI technologies through farmer training, subsidies, and infrastructure development can play a vital role in advancing sustainable and profitable sugarcane farming.

Published: July 2025

> Link

Events

7th Edition Sugarex INDONESIA 2025
An International Exhibition of Sugar Companies, Sugar Technology, and Its Supporting Industries

SugarEx Indonesia 2025
Fireworks Exhibitions

12-13 November 2025

Surabaya, Jawa Timur, Indonesia

> Link



34th International Sugar Organization Seminar

ISO

2-3 December 2025

Westminster, London, UK

> **Link**

SUGAR INDUSTRY
INNOVATION SYMPOSIUM
and
EXPO

The Sugar Industry Innovation Symposium & Expo 2025 – TUSONGE Edition

Kenya Sugar Board

2-4 December 2025

The Grand Royal Swiss Hotel, Kisumu

> **Link**

Africa Sugar
by informa

Annual Africa Sugar Conference

Informa

14-15 April 2026

Nairobi, Kenya

> **Link**

	SIT Annual Technical Meeting 2026 *Sugar Industry Technologists (SIT)* **19-22 April 2026** **Cincinnati, Ohio, USA** > **Link**
	Annual Conference of the Australian Society of Sugar Cane Technologists (ASSCT) *Australian Society of Sugar Cane Technologists (ASSCT)* **21-24 April 2026** **Mackay, Australia** > **Link**
	American Society of Sugar Cane Technologists (ASSCT) – Annual Joint Meeting *American Society of Sugar Cane Technologists (ASSCT)* **17-19 June 2026** **Sheraton New Orleans** **New Orleans, USA** > **Link**

	**Fenasucro & Agrocana 2026** *American Society of Sugar Cane Technologists (ASSCT)* **11-14 August 2026** **Sertãozinho – SP, Brazil** > **Link**