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Welcome to the ISSCT Bulletin for August 2026, 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

Feature article: The so-called pasture mealybug: A growing concern

by

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What we have previously considered as the pasture mealybug, Heliococcus summervillei Brookes (Hemiptera: Pseudococcidae), has recently attracted increasing attention in some sugar cane producing regions of the Western Hemisphere. This follows initial (and continuous) concerns about its impacts on pasture grasses (Biles et al., 2026; Powell and Hauxwell, 2026; Wilson and Baca, 2026). However, recent work has questioned the identity of this pest in both Australia and the United States. A “new variant”, likely representing an undescribed species, is the dominant type in modern infestations (Schutze 2019; Powell and Hauxwell 2026).

This sucking insect pest is small (adults 2–5 mm, nymphs 0.2–3.0 mm), white, and covered with an untidy waxy fluff (Figure 1). Females turn pink at reproduction and adult males are winged and pink. Unlike many other mealybug species, it appears to be highly mobile; with both nymphs and adult females seen crawling on leaves, stems, and soil surface (Penn, personal observations). The "old variant" pasture mealybug was initially described from Australia, although historical records indicate its presence in Pakistan (Brookes, 1978) and India (Ghosh and Ghose, 1987). The "old variant" was also identified in Puerto Rico in 2019 (Powell and Hauxwell, 2026) and in Barbados in 2020 (Gibbs, 2020). More recently, an unknown variant of the pasture mealybug was detected in Mexico in 2025 (Aca-Martinez et al., 2025), while the "new variant" was first reported in Texas (USA) pastures in the same year (Biles et al., 2026). It has been observed in Louisiana sugar cane in 2025, and since the beginning of 2026, it has been detected across all sugar cane growing locations in Louisiana and Florida. This pest can be found on the aboveground plant material, particularly on the underside of lower leaves and in thatch layers (Hauxwell, 2018; Xu et al., 2024; Powell et al., 2026). In Louisiana and Florida, densities of up to 400 insects per individual leaf have been observed (Wilson and Beuzelin, personal observations).

The host range of this pest encompasses many grass species including sugar cane and common pasture grasses, as well as other crops such as sorghum and weedy grass species such as Johnson grass (Sorghum halepense) (Aca-Martinez et al., 2025; Biles et al., 2026; Powell and Hauxwell, 2026; Powell et al., 2026). Symptoms consistently associated with pasture mealybug infestations in the USA include the rapid yellowing of leaves, with yellowing starting on one side of the midrib or at the tip of the leaf (Figure 2). Highly infested fields have experienced severe stunted growth, intense yellowed canopy followed by early senescence, and more recently, bull shoots have been observed in affected fields (Figure 3).

A small number of Louisiana fields in which mealybugs were documented immediately before the 2025 harvest exhibited rubbery stalks, reductions of as much as 30–50% in total recoverable sugar TRS despite ripener applications and burning before harvest, and severe yield losses (Wilson and Baca, 2026). However, yield losses from what may be the related to "yellow canopy syndrome" have been much lower in Australia, though incidence of this syndrome and pasture mealybugs has not been conclusively established (Xu et al., 2026).

Currently, there is no known economic threshold established for the pasture mealybug. Control measures of this pest are currently being evaluated in both sugar cane and pasture systems, and growers in Louisiana and Florida are currently relying primarily on insecticides containing neonicotinoid active ingredients such as imidacloprid, and the butenolide flupyradifurone as the primary treatment. Recommendations for their use have also been made in Mexico also (Vejar-Cota, 2026). Concerns about potential effects on predatory natural enemies and pollinators, are encouraging researchers to investigate alternative chemistries and biological control options. Foliar insecticide trials in Louisiana and Florida have so far not indicated any product that would fully control this pest immediately following application. The products tested have generally required re-application after several weeks to prevent the continued increase in yellowing symptoms. Soil treatments with products such as imidacloprid at planting or incorporated with fertilizer may offer some benefits (Vejar-Cota, 2026), but these are still under evaluation.

Work in Australia does not indicate a consistent benefit of insecticide treatments for what may be the related to “yellow canopy syndrome” (Olsen and Ward, 2019; Xu et al., 2026). Preliminary trials in Louisiana involving plant growth regulators and other nutrient products to “green-up” the impacted sugar cane fields indicate that harpin protein may increase pasture mealybug populations compared to other treatments such as cobalt and combinations of plant growth regulators, while having little effect on plant metrics (Penn, personal observations).

As this situation is rapidly changing, the authors encourage those interested in the pest to contact them for more up to date information as research progresses.

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At present, the pasture mealybug remains a major concern in some countries and continued exchange of information and collaboration would be essential to develop effective and sustainable management strategies for its control.

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Figures



Figure 1. (A) Pasture mealybug adult females and nymphs (photo by Schyler L. Thibodeaux); (B) adult male pasture mealybug among females and nymphs (photo by Erin C. Powell).



Figure 2. Sugar cane leaf yellowing in (A) Florida and (B) Louisiana following pasture mealybug incidence at even <1 per leaf (photos by Erin C. Powell and Hannah J. Penn, respectively).

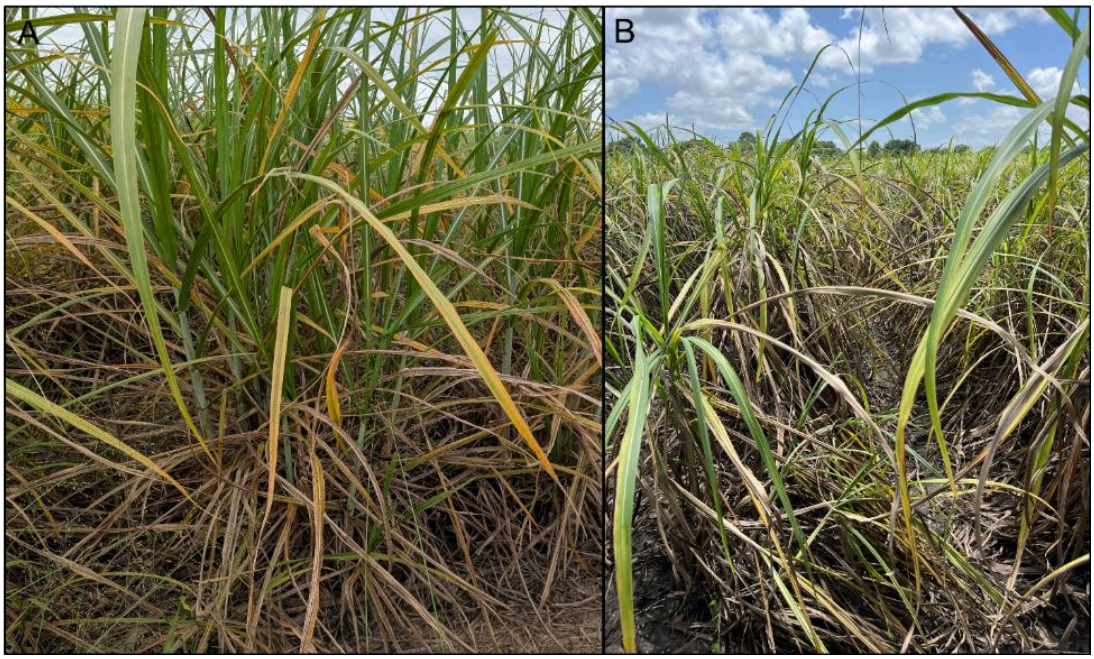


Figure 3. Symptoms in severely infested fields in (A) Florida and (B) Louisiana (photos by Erin C. Powell and Hannah J. Penn, respectively).

Reports on Webinars

Between June and July 2026, the ISSCT Secretariat together with the Biology and Co-Products Commissions, successfully hosted a series of five webinars, that brought together more than 150 researchers, scientists and industry professionals from 26 countries. The webinar series provided a dynamic platform for sharing the latest scientific advances, innovative technologies, and practical solutions to support a more resilient and sustainable sugar cane industry. The report of the Pathology Section Webinar held early in June was published in the June issue of our Bulletin.

Reports of the four webinars held later in June and in July are given below:

- Molecular Biology Section, Chair Dr. John Jaime Riascos Arcos
- Germplasm & Breeding Section, Chair Dr. George Piperidis
- Entomology Section, Chair Mrs. Nalini Behary Paray
- Co-Products Commission, Chair Dr. Giovanna M. Aita

ISSCT Molecular Biology Section Webinar

by

Chair ISSCT Molecular Biology Section
Dr. John Jaime Riascos Arcos
CENICAÑA, Colombia

The ISSCT Molecular Biology Section organized the webinar with as theme: Molecular and Biotechnology Approaches Shaping the Future of Sugarcane on 25 June 2026 as part of the Society's ongoing webinar series, which promote scientific exchange across the international sugar cane research community. This event brought together 35 participants from 17 countries and featured presentations illustrating how molecular and biotechnological approaches are being applied to address challenges across the sugar cane improvement pipeline.

The webinar, chaired by Dr. John Riascos (CENICAÑA, Colombia) featured three speakers representing complementary areas of research. Dr. Sandy Snyman (SASRI, South Africa) presented advances in biotechnology supporting sugar cane improvement, including tissue culture, germplasm conservation, mutation breeding, and genetic transformation. Dr. Jordan Dijoux (eRcane, Réunion Island) discussed recent discoveries on the genetic basis of orange rust resistance using genome-wide association analysis and genomic prediction. Dr. Brennan Hayden (CTC Genomics, Brazil) highlighted the development of biotechnology platforms supporting the commercialization of transgenic sugar cane cultivars and future trait deployment.

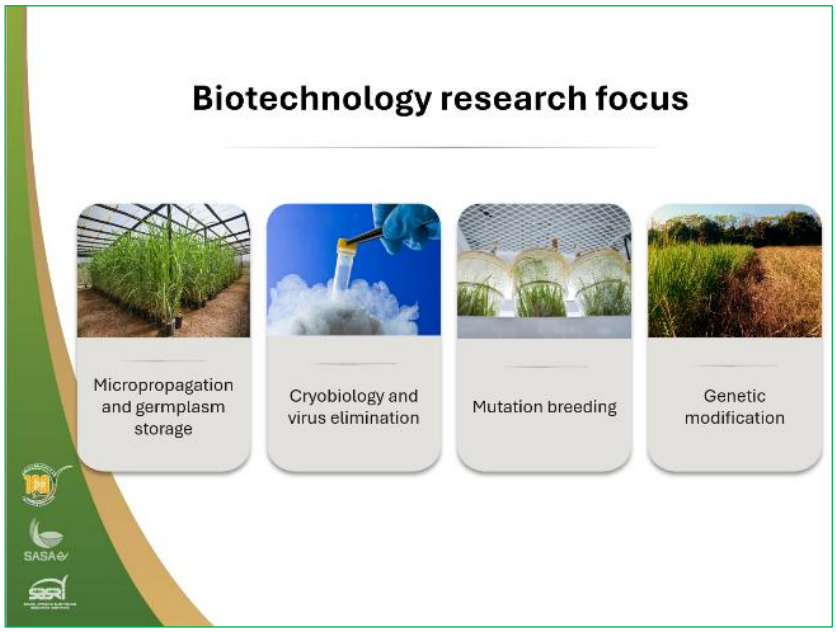
The webinar was opened by Dr. Jean-Claude Autrey, Secretary General ISSCT, and highlighted the continued success of the Society's webinar series as a platform for international scientific exchange. He also encouraged participants to submit abstracts for the forthcoming Joint Germplasm & Breeding and Molecular Biology Workshops to be held in Barbados, in November 2026.

Following the opening remarks, Dr. John Riascos invited each speaker to deliver their presentation, which was followed by a Q&A session.

Dr. Sandy Snyman (SASRI, South Africa) presented an overview of biotechnology applications that support sugar cane improvement, demonstrating how these technologies have become integral components of modern breeding programmes. She highlighted the role of tissue culture, germplasm conservation, pathogen elimination, mutation breeding, and genetic transformation in improving breeding efficiency and in maintaining healthy planting material.

A key component was NovaCane®, SASRI's commercial micropropagation system, which produces approximately 350,000 disease-free in vitro plants annually for South African seed cane programme.

Dr. Snyman also described advances in cryotherapy and osmotherapy for virus elimination, mutation breeding to generate novel genetic variation, and the development of transgenic sugar cane for herbicide tolerance and insect resistance traits.

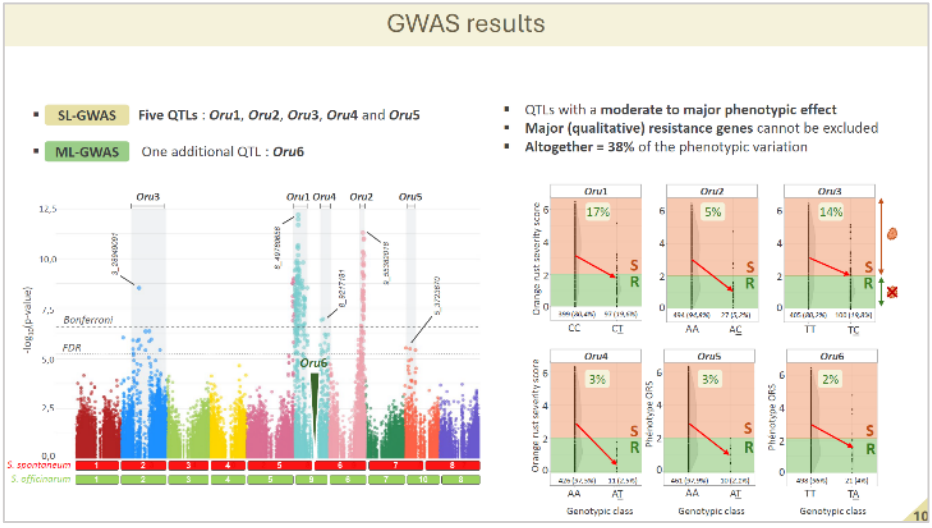


Overview of SASRI's biotechnology platform illustrating the integration of tissue culture, pathogen elimination, mutation breeding, cryopreservation, and genetic transformation within the sugar cane breeding programme

Dr. Jordan Dijoux (eRcane, Réunion Island) presented recent advances in understanding the genetic basis of orange rust caused by Puccinia kuehnii,

resistance in sugar cane through the integration of genome-wide association studies (GWAS) and genomic prediction. Orange rust, remains one of the major diseases affecting sugar cane production worldwide, making the identification of durable resistance an important objective for breeding programmes.

Using a breeding population of 568 genotypes phenotyped under natural disease pressure across three experimental sites, the study identified six genomic regions associated with orange rust resistance. The research also demonstrated genomic prediction of approximately 0.65, highlighting the potential of genomic information to support early-stage selection when phenotypic evaluations are limited. Future work will focus on validating these genomic regions, developing KASP markers for routine marker-assisted selection, and broadening resistance sources through additional Saccharum spontaneum accessions.



Genome-wide association analysis identifying six genomic regions (ORU1–ORU6) associated with orange rust resistance in sugar cane

Dr. Brennan Hayden (CTC Genomics, Brazil) presented CTC's current biotechnology programme and its contribution to the development of next-generation sugar cane cultivars, with long-term objective of doubling sugar cane productivity by 2040 through the integration of conventional breeding with advanced biotechnology platforms.

The presentation outlined the evolution of CTC's transgenic technologies from first generation insect-resistant cultivars to VerdPro2, its second-generation biotechnology platform, which combines insect resistance with herbicide

tolerance within a single commercial product. He also highlighted advances in transformation technologies, vector design and molecular characterization supported by rigorous laboratory, glasshouse and field evaluations to ensure product performance and regulatory compliance.

Looking ahead, Dr. Hayden described ongoing efforts to develop a third generation of biotechnology products incorporating additional agronomic traits, including resistance to other insect pests such as sugar cane weevils. These advances are expected to further expand the range of commercially valuable traits available to growers.



Pests and Physiological traits as new targets for CTC's biotechnology platform

The webinar concluded with a lively panel discussion, involving all three speakers and moderated by John Riascos, providing an opportunity to explore broader issues surrounding the adoption of biotechnology and the future role of molecular tools in sugar cane breeding.

Two important topics discussed were how research organisations can facilitate the adoption of new technologies within breeding programmes and the molecular technologies expected to have greater impact on sugar cane breeding over the coming decade.

Finally, on behalf of the ISSCT Molecular Biology Section, Chair Dr. John Riascos expressed his sincere appreciation to the speakers for sharing their expertise and recent advances in molecular biology and biotechnology for sugar cane improvement. He also thanked all webinar participants for their enthusiastic participation, thoughtful questions, and lively discussions, which contributed significantly to the success of the event. On behalf of ISSCT, Dr. Jean Claude Autrey also conveyed his appreciation to the speakers, participants, and organizers for their valuable contributions and for making the webinar a great success.

ISSCT Germplasm & Breeding Section Webinar

by

Chair ISSCT Germplasm & Breeding Section

Dr. George Piperidis

Sugar Research Australia

This webinar, organized by the ISSCT Secretariat in collaboration with the ISSCT Germplasm and Breeding Section, on 7 July 2026, under the theme Strategies for Accelerated and Precision Breeding featured three presentations. It was chaired by Dr. George Piperidis, and was attended by 37 participants from 18 countries.

SRA predictive breeding technologies

Dr. Sijesh Natarajan from Sugar Research Australia (SRA) presented his research on the integration of drone-based phenotyping and genomics across multiple stages of the SRA sugar cane breeding programme to improve selection efficiency and genetic gains. He explained how sugar cane's complex genome and challenging phenotyping make traditional breeding inefficient, with long breeding cycles of 12-14 years and information arriving late in the pipeline. He detailed the implementation of drones and genomics across different stages of the selection pipeline, and reported prediction accuracies ranging from 0.55 to

0.83, while machine learning approaches achieved 6.5% greater genetic gains than conventional selection methods.

The programme has been scaled up to deploy drones across six breeding stations, conducting approximately 150 flights annually across 50 field trials. Genomics was identified as the technology with the greatest potential to increase genetic gains, although practical implementation is currently focused on Stage 2 clonal assessment trials.

Sensors in sugar cane breeding programmes

Dr. Anna Hale from USDA-ARS presented her work on evaluating small sensors and gadgets in the introgression breeding programme, drawing an analogy with alchemy and cautioning against expecting quick technological solutions to complex breeding challenges. She discussed the challenges and benefits of using the Fieldbook app for digital data collection and portable meters for assessing cold tolerance, highlighting the need for a "bifocal strategy" that combines visual assessment with measurements of latent traits. While some technologies showed potential to improve the breeding efficiency, their successful implementation faced challenges related to technician adoption and practical applications in the field.

However, they can provide valuable information when properly calibrated and integrated into existing breeding programmes.

Greenhouse to field performance study

Dr. James Todd from USDA-ARS presented a pilot study investigating the potential of greenhouse phenotyping to predict seedling performance. He found that while greenhouse ratings could identify poor-performing families, there was a surprising negative correlation between greenhouse vigour and field selection rates. One possible explanation is that greenhouse material included a more diverse and wilder materials that require more selective breeding in the field. The study also revealed some predictive potential of spectral analysis for root growth and identified relationships between greenhouse growth and field height measurements. However, some limitations were observed in the correlation between field measurements and drone-derived measurements. Further greenhouse measurements are planned, together with follow-up assessments of

performance in first-line trials, to further evaluate the potential of these approaches for breeding selection.

Panel Discussion

The discussion explored the application and future potential of emerging phenotyping technologies in sugar cane breeding programmes, with particular emphasis on drone-based phenotyping, handheld Near Infrared (NIR) technology, and genomic selection.

Drone-based phenotyping was identified as the most promising technology for improving the efficiency, speed, and cost-effectiveness of data collection. Its application during the grand growth stage (approximately 4–8 months), supported by multiple flights, was highlighted to improve prediction of breeding traits such as vigour and biomass. However, panellists noted that drones cannot fully replace visual selection, particularly for traits such as sugar content that are not readily captured through aerial measurements. The importance of reliable ground-truth data for calibrating and validating drone-derived measurements was also emphasised, while satellite imagery was identified as a potential future complement.

Handheld and micro-NIR technologies were also discussed as useful tools for rapid assessment of sugar-related traits. Final validation is underway for potential use in first-line trials, though more work is needed to validate its use with degraded sugar. Routine application of micro-NIR over approximately two years has also demonstrated its effectiveness for measuring sucrose content across different regions of the stalk, particularly at the seedling and first clonal stages.

Looking further ahead, the potential for combining genomic selection with high-quality phenotyping to accelerate genetic gains were highlighted. Data collection efficiency, accuracy, and the integration of multiple technologies were identified as key drivers of future progress. Other potentially underutilised technologies, including harvester yield monitors and NIR systems, were also identified as having potential applications in breeding, including cold-tolerance assessment.

Overall, the discussion indicated that no single technology is likely to replace conventional breeding approaches. Instead, the greatest benefits are expected from integrating complementary technologies—particularly drones, NIR, genomics, and conventional visual assessment—to generate more accurate and

comprehensive data while reducing the cost and labour associated with field evaluation.

ISSCT Entomology Section Webinar

by

Chair ISSCT Entomology Section
Mrs. Nalini Behary Paray
Mauritius Sugar Cane Industry Research Institute/MCIA

The ISSCT Entomology Section webinar, chaired by Mrs N Behary Paray, Chair of the Entomology Section, was held on 9th July 2026 under the theme Research advances in the management of sugar cane insect pests. The webinar brought together 26 participants from 13 countries. Dr Jean Claude Autrey, ISSCT General Secretary, opened the webinar by welcoming the participants and highlighting that webinars have become a regular feature of ISSCT activities since their introduction in 2020.

The webinar focused on two economically important groups of insect pest: sugar cane borers and white grubs. Four presentations were delivered, covering recent research advances and innovative approaches to their sustainable management in different sugar cane growing countries:

- *Current advances in management strategies of Diatraea spp.* - Dr. Carolina Camargo Gil (CENICAÑA, Colombia)

An overview of research advances in the IPM of *Diatraea* spp., one of the most important insect pest species in Latin America, was presented. Main priorities are the improvement of sampling methods and biological control through close monitoring of the host-parasitoid associations and establishment of green corridors comprising of a diversity of trees to support natural enemies. Conservation and inundative biological control initiatives resulted in more than 50% borer parasitism. As an integral part to the IPM programme, quantifying

yield losses across varieties and the need for close monitoring of insecticide applications for localised outbreaks were discussed. To further contribute to sustainable IPM, innovative alternatives using *Bacillus thuringiensis* (Bt) proteins and the development of genetically engineered sugar cane varieties with enhanced resistance to borers are currently being explored. Field application of the entomopathogenic/endophytic fungus, Beauveria sp. looks also promising.

- ***Recent Progress in the application of the Sterile Insect Technique (SIT) for sugar cane borers– Mrs. Nalini Behary Paray and Dr. Lawrence Malinga (MSIRI-MCIA, Mauritius/ SASRI, South Africa)***

Recent advances in application of Sterile Insect Technique (SIT) for the management of E. saccharina in South Africa and key research findings over 20 years were presented. Current research focuses on developing pheromone traps for monitoring, conducting pilot studies on field releases of sterile moths and optimizing handling/transport of moths. To further improve SIT, a project with IAEA is on-going for identification of molecular markers for sex determination. Discussions also followed on the integration of SIT into an area-wide IPM programme, its potential for commercialization and application to lepidopteran pest management in Africa and elsewhere.

In Mauritius, views were shared regarding the potential for integrating SIT as a complementary and sustainable tool alongside the well-established biological control programme for the spotted borer, Chilo sacchariphagus. Particular attention was given to the challenges and progress in developing artificial diets for mass production of healthy, fully fit and competitive insects, a major requirement for the successful implementation of SIT.

- ***Management of sugar cane white grubs – Mr. Quentin Macé (TPC Ltd, Tanzania/ CIRAD, France)***

Particular focus was laid on Cochliotis melolonthoides, responsible for serious annual losses estimated at USD 3m at the TPC sugar estate in Tanzania. Interactions among white grubs, soil environment and their natural enemies are being explored as highly alkaline and sodic soils were found to be 3 times

more infested than neutral soils. Promotion of conservation biological control using scoliid wasps, identification of their preferred foodplants, investigation on the potential of the entomopathogenic fungus, Metarhizium, and soil reclamation are some of the coming challenges to manage the pest.

- *Management of sugar cane borers in Louisiana: recent findings – Dr. Blake Wilson (LSU, USA)*

The history and IPM of two stem borer species, Diatraea saccharalis and Eoreuma loftini as the most economically damaging insect pests in Louisiana were reported. From 2000 to 2020, data showed a decline in borer populations and insecticide use. This success was mainly attributed to the adoption of resistant/moderately resistant varieties on an extensive area, reliable scouting, use of selective insecticides and conservation biological control. However, various issues associated with insecticide use have recently been observed. These include reduced efficacy, common multiple applications, increased rates, development of insecticide resistance among borer populations, emergence of new pests in other crop systems and increased area under susceptible varieties. This has necessitated a review of the situation with more emphasis on varietal resistance in breeding programme using marker-assisted selection and biological control through entomopathogenic fungi and releases of parasitoids.

Discussions & Conclusions

The discussions highlighted the need for a more integrated and sustainable approach to sugar cane pest management, with greater emphasis on prevention, monitoring, varietal resistance and biological control, and reduced reliance on conventional insecticides. Participants discussed the potential of SIT, as a complementary tool within area-wide IPM programmes, while recognizing the importance of cost-effective mass rearing systems including the development of nutritious artificial diets for optimal insect quality. The importance of strengthening conservation biological control through the management of pest habitats and identification of appropriate foodplants for natural enemies was also reported. Other emerging approaches, including entomopathogens as biological insecticides and endophytes together with genetic engineering of varieties using Bacillus thuringiensis (Bt) proteins, were recognized as promising

avenues for future research. The discussions further highlighted the importance of adapting pest management strategies to prevailing local conditions, including biotic and abiotic factors (e.g. soil characteristics). For the advancement of research in pest management, the need to strengthen collaboration among researchers at regional and international levels was highlighted. The Mauritian context was cited as several biological control programmes have been implemented successfully for years for major pests through such partnerships. Research collaboration through follow-up discussions may be organized among countries sharing similar pest problems as is the case for Diatraea spp. This leads to suggestions to compile regional data on the pest species and their natural enemy complexes which will facilitate and identify scope for research collaboration.

Overall, the webinar underscored the importance of adopting eco green and more sustainable pest control strategies within an IPM framework across countries and regions. Chemical control, if necessary, should be applied judiciously, targeting localized outbreaks through selective insecticides and appropriate application methods that minimize impact on beneficial and non-target organisms.

The ISSCT webinar provided a valuable platform for interaction, knowledge exchange and sharing of professional experiences among sugar cane entomologists from different countries, highlighting the considerable research efforts and innovative approaches being adopted to address insect pest challenges. The importance of strengthening collaboration and knowledge-sharing among countries and institutions facing similar or closely related pest species was emphasized, as this could help accelerate the development and adoption of effective, sustainable pest management solutions that will ultimately benefit the sugar industry as a whole.

ISSCT Co-Products Commission Webinar

by

Chair ISSCT Co-Products Section
Dr. Giovanna M. Aita
Louisiana State University

The ISSCT Co-Products Commission webinar, "From Sugar Cane By-products to Breakthroughs: Integrated Fuels, Bioproducts, and Carbon Accounting" was held on 28 July 2026. It brought together 21 participants from 10 countries and four speakers from Australia, Thailand and the United States to discuss how sugar cane by-products can be transformed into valuable resources that support a more diversified, sustainable, and economically resilient sugar industry. The webinar explored innovative approaches to valorizing sugar cane by-products, producing high-value bio-based products, developing integrated sugar biorefineries, improving carbon management and strengthening climate-related sustainability reporting.

The presentations demonstrated that by-products such as bagasse, molasses, filter cake, cane residues, and process streams are valuable feedstocks capable of producing functional sugars, specialty ingredients, biofuels, chemicals, and biomaterials. Advances in enzymatic conversion, fermentation, and biorefinery technologies are creating new opportunities for sugar mills to diversify into renewable hydrogen, sustainable aviation fuel, and other low-carbon products while making better use of existing biomass resources and infrastructure.

The webinar also highlighted the importance of improved bagasse management as a pathway to reducing greenhouse gas emissions, supporting bioenergy production, and integrating carbon-removal strategies into sugar cane processing. In addition, practical insights from Australia's mandatory climate-related sustainability reporting demonstrated the growing importance of robust governance, reliable emissions data, effective risk management, and cross-functional collaboration in meeting evolving environmental, social, and governance (ESG) requirements.

A recurring message throughout the webinar was that innovation alone will not be sufficient to drive industry transformation. Continued investment, supportive policies, market development, and collaboration between researchers, industry, and governments will be essential to scale promising technologies from research to commercial applications. Overall, the webinar reinforced that innovation in sugar cane co-products presents significant opportunities to create new revenue streams, improve resource efficiency, reduce environmental impacts, and strengthen the long-term sustainability of the global sugar industry.

The topics discussed were:

1. Sugar Cane By-products, Carbon Management and Emissions Reduction

Dr. Anurag Mandalika (Associate Professor-Research, Louisiana State University, USA) focused on improving the management of sugar cane bagasse to increase its value while reducing greenhouse gas emissions and supporting carbon removal. His presentation examined the environmental impacts associated with conventional bagasse storage, including methane emissions, and assessed alternative pathways that improve biomass utilization through bioenergy production, conversion into higher value bioproducts, and the integration of carbon dioxide removal technologies.

While these approaches offer significant opportunities to reduce emissions and improve resource efficiency, Dr. Mandalika noted that technical complexity, operational challenges, investment requirements, and the need for supportive policy frameworks remain important considerations for large-scale implementation. He emphasized that continued research, investment, and enabling policies will be critical to unlocking the full potential of sugarcane biomass as part of a low-carbon bioeconomy.

2. Revealing the Hidden Wealth in Sugar Factories

Dr. Boontiwa Ninchan (Assistant Professor of Biotechnology and Head of Sugars and Derivatives Analytical Laboratory (SuDAL) at Kasetsart University, Thailand) highlighted the untapped potential of sugar factories by encouraging the industry to view by-products as valuable resources rather than waste. She introduced the concept of "waste anatomy," which involves analyzing the composition and

characteristics of sugar cane by-products to identify the most suitable conversion technologies. Bagasse, molasses, filter cake, cane residues, and wastewater streams were presented as renewable feedstocks that can be transformed into biofuels, chemicals, biomaterials, and other high-value bio-based products.

Dr. Ninchan also demonstrated the versatility of sucrose as a renewable raw material that can be converted through enzymatic and fermentation processes into functional ingredients such as prebiotic sugars, fructo-oligosaccharides, allulose, lactosucrose, and sugar alcohols. She emphasized that while these technologies present significant commercial opportunities, successful implementation depends not only on technical feasibility but also on production costs, existing factory infrastructure, market demand, and supportive regulatory frameworks.

3. Sugar Mills as Integrated Biorefineries

Dr. Gabriel Fraga (Research Fellow, Queensland University of Technology, Australia) presented a vision for transforming conventional sugar mills into integrated biorefineries capable of producing a diverse range of renewable fuels and bio-based chemicals alongside sugar. He explained that sugar mills already possess many strategic advantages, including abundant bagasse supplies, renewable electricity generation, established industrial infrastructure, and access to ethanol, biogas, and renewable carbon sources.

His research explored emerging technologies for producing renewable hydrogen from ethanol and biogas, noting that hydrogen derived from biogas has the potential to become economically competitive at larger production scales through collaboration among neighboring mills. Dr. Fraga also highlighted opportunities to convert bagasse into valuable platform chemicals such as 5-chloromethylfurfural, which has applications in plastics, resins, and renewable fuels. Sustainable aviation fuel was identified as another promising opportunity, although challenges related to feedstock availability, seasonality, production scale, and economics remain to be addressed.

4. Climate-related Sustainability Reporting

Ms. Natasha Mallise (ESG Lead at Makay Sugar Limited, Australia) shared Mackay Sugar's experience in preparing one of Australia's first mandatory climate-related

sustainability reports for a sugar milling company under the Australian Sustainability Reporting Standards (AASB S2). Her presentation outlined the company's approach to climate governance, strategy, risk management, climate-related metrics, and emissions reporting, illustrating how sustainability reporting is becoming an essential component of business management.

Drawing on practical experience, Ms. Mallise highlighted the importance of robust emissions data, effective governance structures, cross-functional collaboration, and early engagement with auditors throughout the reporting process. She also stressed that climate-related reporting should be integrated into broader business planning and risk management, enabling organizations to better manage climate risks, meet regulatory requirements, and strengthen long-term business resilience.

The panel discussion focused on the evolving role of sugar cane within the global low-carbon bioeconomy and the practical pathways for translating research into commercial applications. Participants discussed opportunities to transform sugar cane by-products into renewable fuels, specialty chemicals, biomaterials, and carbon-removal products that can strengthen both industry profitability and environmental performance.

Several common themes emerged throughout the discussion:

- Sugar mills have strong potential to become integrated biorefineries producing multiple high-value products alongside sugar.
- Technically proven innovations now require greater commercial investment and demonstration at industrial scale.
- Feedstock seasonality, production scale, and capital costs remain major barriers to widespread implementation.
- Government policies, incentives, and market development will play an essential role in accelerating adoption of low-carbon technologies.
- Collaboration between researchers, industry, technology providers, and policymakers is critical for moving innovations from laboratory research to commercial deployment.

- Climate-related reporting and ESG requirements are becoming increasingly important drivers of investment, business resilience, and market competitiveness.

The panel concluded that innovation in sugar cane co-products offers significant opportunities to diversify income, improve resource efficiency, reduce emissions, and strengthen the long-term sustainability of the global sugar cane industry. Continued international collaboration through the ISSCT Co-Products Commission will be essential in supporting knowledge exchange and advancing practical solutions for the industry.

Workshops

Workshops https://www.issct.org/activities/workshops/		
Commission/Section, Theme and Venue	Date	Announcement (Click to access)
Agricultural Commission		
Agricultural Engineering & Agronomy	12-15 April 2027	Announcement
Embracing technological advancements and AI to enhance productivity and sustainability		Workshop website
L'Auberge Casino & Hotel Baton Rouge, LA, USA		
Biology Commission		
Germplasm & Breeding/Molecular Biology	9-13 November 2026	Announcement
Developing Climate Resilient Sugarcane		Workshop website
Accra Beach Hotel, Hastings, Christ Church, Barbados, Barbados		
Pathology & Entomology	15-19 March 2027	Announcement
Pushing the frontiers of agroecological management strategies of sugarcane pests and diseases in the context of climate change		Workshop website
Le Récif Hotel, Saint-Gilles-les-Bains, Réunion		
Factory Commission		

Engineering & Processing Cairns, Australia	19 and 20 April 2027	In preparation
Co-products Commission		
Reinventing the sugar industry for next-generation value Khon Kaen, Thailand	6-10 June 2027	In preparation
Management Commission		
Guatemala	January/February 2028 (During XXXIII Congress)	

XXXIII Congress, Guatemala, January/February 2028

The ISSCT XXXIII Congress will take place in Guatemala in January/February 2028 and will comprise Pre and Post Congress Tours as well as Trade Exhibition and social events. You may be accessed the Congress Newsletter 1 through the following link:

https://designrr.page/?id=489090&token=51652552&type=FP&h=5110

The Congress Newsletter 2 will be issued on 1 September 2026.

International Consortium for Sugarcane Biotechnology (ICSB) Opens Applications for the 2027 James E. Irvine Memorial Travel Award

The International Consortium for Sugarcane Biotechnology (ICSB) has invited applications for the 2027 James E. Irvine Memorial Travel Award established in memory of James E. Irvine a world authority on sugar cane physiology and later biotechnology who was one the initiators of the ICSB. The award supports an early-career scientist working in sugar cane biotechnology, genetics, or genomics to attend and present his or her research at the 2027 ICSB Workshop, to be held in conjunction with the Plant and Animal Genome (PAG) Conference PAG 34 - Home in San Diego, USA, from 8–12 January 2027.

The award provides financial assistance for travel, accommodation, registration, and related expenses, with funding of up to US$4,000, depending on the applicant's region.

Applicants should submit an abstract, curriculum vitae, and contact details, to Dr. Nathalie Piperidis at **npiperidis@sugarresearch.com.au** by 5 October 2026. For full eligibility criteria and application details, please contact Nathalie Piperidis.

ISSCT Members are encouraged to share this opportunity with eligible early-career researchers within their institutions.

In Memoriam



Dr. Oscar Agustín Almazán del Olmo
(1940-2026)

The International Society of Sugar Cane Technologists (ISSCT) mourns the passing of Dr. Oscar Almazán del Olmo, who died on 3 July 2026 at the age of 86.

With his passing, the sugar cane world has lost one of its most distinguished scientists, a pioneering researcher in sugar cane Co-Products and derivatives, and a passionate advocate for the diversification and sustainable development of the sugar cane industry.

For much of his remarkable career, Dr. Almazán was associated with the Instituto Cubano de Investigaciones de los Derivados de la Caña de Azúcar - Cuban Institute for Research on Sugarcane Derivatives - (ICIDCA) in Havana, Cuba, where his scientific career was deeply connected to the utilisation and valorisation of sugar cane by-products, including fermentation, single-cell protein, bioethanol, biogas and other avenues for industrial diversification. He played a prominent role in the Asociación de Técnicos Azucareros de Cuba - Association of Sugar Technicians of Cuba (ATAC), serving as its President from 1979 to 1984 and again from 1989 to 2002. He received the award of Doctor Honoris

Causa in Technical Sciences from the Universidad de Oriente, Cuba in 2000. He was also recognised as an honorary member of several sugar technology organisations.

Long before the concepts of the circular bioeconomy and biorefinery became widely established, Dr. Almazán understood the enormous potential contained within the sugar cane plant. He saw sugar cane not simply as a source of sucrose, but as a versatile renewable resource capable of providing energy, food, chemicals, materials and a wide range of other products. His scientific vision helped demonstrate that the future of the sugar industry depended not only on producing sugar efficiently, but also on making intelligent and sustainable use of every part of the crop.

Dr. Almazán's scientific legacy is extensive, spanning more than five decades of research, writing and knowledge sharing on the utilisation of sugar cane and its co-products. His early work in the 1960s focused on fermentation technologies, sugar cane molasses and the production of feed yeast and single-cell protein from residues of the sugar and ethanol industries. These studies reflected his early conviction that materials traditionally regarded as waste could be transformed into valuable products. His landmark contributions to the study and development of sugar cane derivatives established him as an internationally recognised authority in the field. Among his notable publications was Producción de Proteína Unicelular a partir de subproductos de la Industria Azucarera (1982), co-authored with Miguel Klibansky and Miguel Ángel Otero. He was also a principal author of El Bagazo de la Caña de Azúcar: Conocimiento y Potencial, published by ICIDCA, and was associated with the influential Handbook of Sugar Cane Derivatives published in 1988. His extensive scientific contributions also included publications in the Proceedings of the ISSCT, particularly in the field of sugar cane co-products.

His involvement with ISSCT dates back to 1980 when he attended the XVII Congress in the Philippines, during which hosting of the next Congress was entrusted to Cuba. He was the Secretary General Treasurer of that very successful event. He was a member of the ISSCT Executive Committee from 1986-1995, Co-Products Commissioner 1999-2001, ISSCT Councillor for Cuba at the XXV Congress in 2005, and Co-Products Spanish Deputy-Commissioner in 2005-2010. In

recognition of his distinguished services, he was awarded Honorary Life Membership in 1983.



Dr. Almazan (middle) receiving the Centennial medal from the ISSCT Chair Mr. Sanjay Awasthi

At the ISSCT XXXII Centennial Congress held in Colombia in 2025, Dr. Almazan del Olmo received two medals, one as second oldest Honorary Life Member and a second one as being one of the three prominent contributors for the period 2000-2023 for Excellence in Research in Sugar Cane Co-Products.

Dr. Almazan presented papers at five ISSCT Congresses in 1980, 2007, 2010, 2019 and 2023. He was one of the contributors in the ISSCT Centennial Volume, published in 2025, for his contribution in the field of Co-Products for the period 1924-1938. Through his books, scientific papers and numerous contributions to technical conferences, Dr. Almazán helped shape the scientific foundations of sugar cane co-products and industrial diversification. His publications remain an enduring part of his legacy, continuing to serve as a source of knowledge and inspiration for the researchers and technologists who are carrying forward the challenge he championed throughout his career: to extract greater value from sugar cane while using its resources more sustainably.

Dr. Almazán was more than a researcher; he was a mentor and ambassador for the sugar cane industry. His ability to connect scientific research with practical industrial applications, and his willingness to share his knowledge with colleagues around the world, earned him deep respect across the international sugar cane community.

The ISSCT extends its deepest condolences to Dr. Almazán's family, friends and to the many members of the international sugar cane community who had the privilege of knowing and working with him.

Dr. Oscar Almazán del Olmo leaves behind an extraordinary scientific heritage. The sugar cane community has lost a great scientist and a remarkable colleague. His contribution will not be forgotten and he will be missed.

ISSCT Secretariat

Sugar Cane News

Bonsucro strengthens its approach to regenerative agriculture in sugarcane

BONSUCRO The global sugarcane platform	**Bonsucro**	**August 4 2026**	**https://bonsucro.com/bonsucro-approach-to-regenerative-agriculture/**
	Regenerative agriculture is rapidly becoming one of the most important conversations in global agriculture. As one of the world's largest crops, sugarcane has an important role to play in building a more resilient agricultural future. *For decades, sugarcane has been grown as a monoculture, often on the same land. While this has supported production, many producers are now experiencing declining yields, driven by climate change, deteriorating soil health, biodiversity loss and increasing pressure on water resources. In many regions, long-term reliance on pesticides and herbicides has also contributed to soil degradation, affecting productivity over time.*		

AI, broadband and drones: How Chinese digital technologies are reshaping daily life in Africa

XINHUANET	**Xinhua**	**July 30, 2026**	**https://english.news.cn/20260730/14b95bae45054635aa4b3483784aa573/c.html**
	At Fountainhill Estate in South Africa's KwaZulu-Natal Province, Chinese-made agricultural drones are helping farmers spray pesticides and fertilizer across dense sugarcane fields more efficiently than traditional manual methods. *Contractor John Prinsloo, who now provides drone services to 26 nearby farms, said the technology has significantly improved efficiency. "Chinese drone technology has helped us manage crops more precisely," he said.* *Since entering the South African market in 2020, agricultural drones produced by Chinese company XAG have served more than 66,000 hectares. Similar technologies are now operating in rice fields in Mozambique, wheat fields in Ethiopia and vegetable farms in Ghana.*		

China-Myanmar sugar cooperation gains momentum through research, technology and cane trade [China / Myanmar]

	ChiniMandi	**June 18, 2026**	**https://www.chinimandi.com/china-myanmar-sugar-cooperation-gains-momentum-through-research-technology-and-cane-trade/**
	Sugarcane has emerged as a key driver of agricultural cooperation between China and Myanmar, with joint research, technology exchange and expanding cross-border trade strengthening ties between the two countries and supporting growth in the sugar sector. *In southwest China's Yunnan Province, scientists from both countries are working together to improve sugarcane productivity and disease management through research and innovation, Bastille Post Global reported.*		

Maharashtra's AI policy gives boost to sugarcane farming with technology-led solutions [India]

	ChiniMandi	**August 6, 2026**	**https://www.chinimandi.com/maharashtras-ai-policy-gives-boost-to-sugarcane-farming-with-technology-led-solutions/**
	Maharashtra's MahAgri-AI policy is expected to accelerate the adoption of artificial intelligence and precision agriculture in sugarcane cultivation, helping farmers improve productivity, reduce input costs and make farming more sustainable. *The state government has introduced a dedicated Artificial Intelligence (AI) policy to promote the use of technology across sectors, with agriculture identified as a key focus area. The policy encourages the use of AI for weather forecasting, crop management, pest and disease detection, yield estimation and improving*		

KKU Showcases “Smart City & Water Way Watch” Technologies to Office of the Cane and Sugar Board to Elevate Thai Agriculture Through Innovation [Thailand]

	KKU	**August 7, 2026**	**https://www.kku.ac.th/en/303293/**
	The university presented AI-driven water management systems and smart agricultural platforms to support strategic planning, drought mitigation, and sustainable crop management for the Thai sugar cane industry. *On 5 August 2026, between 09:30 and 12:00 hrs, executives, board members, and project development working groups from the Office of the Cane and Sugar Board visited Khon Kaen University. They were welcomed by Assoc. Prof. Supasit Konyai, Ph.D., Deputy Director for Strategic Driving and Digital Transformation at the Office of Academic Service. The delegation toured the Smart City Operational Centre (SCOPC) to study integrated smart city innovations and water resource management frameworks.*		

Drones battle sugarcane pest outbreak across Negros, Panay [Philippines]

	Inquirer.net	**June 15, 2026**	**https://newsinfo.inquirer.net/2246355/drones-battle-sugarcane-pest-outbreak-across-negros-panay**
	The Sugar Regulatory Administration (SRA) has begun drone and manual spraying of insecticides in sugarcane fields in Isabela, Negros Occidental, to contain the spread of the highly destructive red-striped soft scale insect (RSSI). *Sugar Board Member David Andrew Lizares Sanson said on Sunday that spraying operations started last week in several barangays in Isabela and will be expanded to other affected areas across Negros.*		

DOST-backed irrigation, fertilizer technologies help Tarlac sugarcane farmers boost yields ahead of El Niño [Philippines]

	GMA News Online	**July 30, 2026**	**https://www.gmanetwork.com/news/scitech/technology/996782/dost-backed-irrigation-fertilizer-technologies-help-tarlac-**

			sugarcane-farmers-boost-yields-ahead-of-el/story/
	With the country expected to experience a very strong El Niño as early as October 2026, the government is promoting locally developed farming technologies that could help farmers cope with drought while lowering production costs. *Developed through research funded by the Department of Science and Technology (DOST), the Automated Furrow Irrigation System (AFIS) and Nutrio, a microbial-based foliar fertilizer, have enabled sugarcane farmers in Paniqui, Tarlac, to more than double their yields while reducing water and fertilizer use.*		

Latest Research

Uncovering the mechanism of female restitution in sugarcane hybrid

nature

Variations of meiosis, which normally halve genetic complements prior to fertilization, can have profound consequences. For example, whole-genome duplications (polyploidy) have shaped the evolution and diversification of most angiosperm lineages. The century-long success of sugarcane interspecific hybrids has been attributed to unusual female restitution—an unreduced maternal gamete fusing with a normal haploid paternal gamete1,2. Here we generated haplotype-resolved genomes of octoploid Saccharum officinarum LA Purple and decaploid Saccharum spontaneum US56-14-4. Eight F1 hybrids between these species exhibited 2:1 maternal to paternal genomic ratios, with 2 assemblies revealing canonical haploid sets of approximately 40 paternal and approximately 80 maternal chromosomes. The maternal chromosomes comprise 40 pairs of duplicated, partially recombined sister chromatids that retain around 62.5% of maternal genetic diversity, characteristic of second division restitution. Using single-molecule long-read sequencing and a novel algorithm that is broadly applicable to polyploid genomes, we identified two classes of recombination breakpoints, including a previously unrecognized configuration supported by both recombinant and non-recombinant reads, across all hybrids and diagnostic of second division restitution. These findings resolve a century-old cytological debate, add new insights into meiotic variations, and offer a genomic approach to accelerate genetic gain in this globally critical sugar and bioenergy crop.

Published August 5, 2026

> Link

Development of sustainable green geopolymer concrete incorporating sugarcane bagasse ash

scientific reports

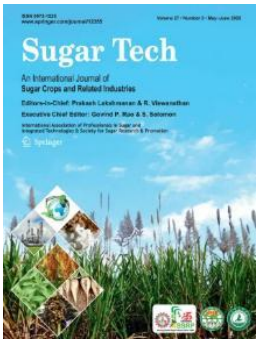
Sugarcane bagasse ash (SCBA) is increasingly being considered as an alternative aluminosilicate source for geopolymer binders. however, limited studies have

comprehensively evaluated the combined effects of high SCBA replacement levels, alkaline activator molarity, thermal performance, microstructural characteristics, and economic feasibility. Therefore, this study investigates the use of SCBA as a partial and near-complete replacement of the total binder in geopolymer concrete. Fifteen mixtures were prepared with SCBA replacement levels of 0, 25, 50, 75, and 95% at NaOH molarities of 12, 14, and 16 M. Fresh, mechanical, durability, thermal, and microstructural properties, along with cost analysis, were comprehensively evaluated. The mixture containing 25% SCBA and activated with 14 M NaOH showed the best overall performance, with a compressive strength of 30.13 MPa, a splitting tensile strength of 3.02 MPa, and a sorptivity of 2.449 × 10^{-3} g/cm·$s^{0.5}$ at 28 days. After exposure to 200 °C, its compressive strength increased by 39.30%, before declining at higher temperatures. Mixtures with higher SCBA contents showed slower strength loss, suggesting improved thermal stability. SEM–EDX observations were consistent with these results, as the optimum mixture showed a dense geopolymeric matrix, while higher SCBA contents and elevated temperatures led to increased porosity and microcracking. The cost analysis also showed that production cost decreased considerably as the SCBA content increased. Overall, the results indicate that moderate SCBA replacement can provide a practical balance between mechanical performance, durability, thermal resistance, and cost, supporting the use of SCBA as a sustainable binder component in geopolymer concrete.

Published July 28, 2026

> **Link**

Evaluating Genotypic Responses of Sugarcane to Potassium Availability: Towards Nutrient-Efficient and Stress-Tolerant Genotypes for Sustainable Production in Yunnan, China

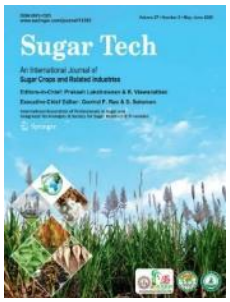


Sugarcane in Yunnan, China, is predominantly cultivated in high-elevation, rainfed systems where water availability mainly limits productivity. Soil potassium (K) plays a key role in drought tolerance, and optimized K fertilization may help mitigate water limitations. However, systematic evaluation of elite genotypes across different potassium fertilizer levels in Yunnan's conditions is lacking. This study evaluated 55 sugarcane genotypes under three K fertilization levels: K0 (0), K1 (180), and K2 (360) kg K_2O ha^{-1}. A composite Z-score index, based on plant height, stalk diameter, and field Brix at 11 months, was used to select 19 representative genotypes for biomass and tissue K analyses. Moderate K (180 kg K_2O ha^{-1}) supported vegetative growth with no gain from higher rates; the highest Brix under K0 was due to biomass dilution effect, not to increased sugar synthesis per plant. Based on the results of plant biomass and tissue K accumulation indices, four distinct genotypic response categories were identified: constitutively K-efficient (YZ151679, FY798, FL41), K-inducible (GL03182, GL05136), K-dependent efficient (YT63-237), and K-utilization efficient (MT70-611). Post-harvest soil analysis revealed that potassium fertilization increased soil pH from 5.11 to 6.65. Soil organic matter exhibited strong positive correlations with available K (r = 0.874) and total N (r = 0.813). Furthermore, total N was positively correlated with available K (r = 0.945), indicating tightly coupled K-N dynamics. These findings provide the first systematic framework for selecting K-efficient parental stocks: constitutively efficient and utilization-efficient genotypes for low-input systems, and K-inducible or K-dependent efficient genotypes for fertilized systems.

Published: August 7, 2026

> Link

Effect of Band Application of Herbicides Integrated with Mulching and Hoeing on Weed Dynamics and Sugarcane Productivity



Field experiment was conducted during the spring season 2021–2022 and 2022–2023 to study the effect of band application of herbicides in combination with mulching or hoeing on weed control in sugarcane. The experiment was investigated in randomized complete block design with twelve weed control treatments which comprised of weedy check, mulching @ 6 t ha^{-1}, hand-hoeings at 45, 75 and 105 DAP (days after planting), metribuzin (blanket) 1400 g ha^{-1} as pre-emergence (PE), metribuzin (band) 560 g ha^{-1} followed by (fb) mulching @ 6 t ha^{-1}, metribuzin (band) 560 g ha^{-1} fb three hand-hoeings, sulfentrazone + clomazone (blanket) 700 + 750 g ha^{-1} as PE, sulfentrazone + clomazone (band) 280 + 300 g ha^{-1} fb mulching @ 6 t ha^{-1}, sulfentrazone + clomazone (band) 280 + 300 g ha^{-1} fb three hand-hoeings, metribuzin 1050 g ha^{-1} + tembotrione 115.5 g ha^{-1} (blanket) as post-emergence (POE), mulching @ 6 t ha^{-1} fb metribuzin 420 g ha^{-1} + tembotrione 46.5 g ha^{-1} (band), metribuzin 420 g ha^{-1} + tembotrione 46.5 g ha^{-1} (band) with three hand-hoeings. Dactyloctenium aegyptium, Echinochloa colona, Cyperus rotundus, Digera arvensis and Convolvulus arvensis were the major weeds in the experimental crop. Pre-emergence band application of sulfentrazone + clomazone 280 + 300 g ha^{-1} fb mulching @ 6 t ha^{-1} was highly effective against the grasses, the only sedge and broad-leaf weeds followed by metribuzin 560 g ha^{-1} with mulching @ 6 t ha^{-1}. Cane yield was the highest (92.4 t ha^{-1}) in sulfentrazone + clomazone (band) 280 + 300 g ha^{-1} fb mulching @ 6 t ha^{-1} with the highest net returns and B:C ratio. Higher cane yield in band application of sulfentrazone + clomazone 280 + 300 g ha^{-1} fb mulching might be attributed to higher tiller population (137.0 thousand per ha), cane length, cane girth, single cane weight (978.8 g) and number of millable canes (96.4 thousand per ha) due to better weed control.

Published August 8, 2026

> Link

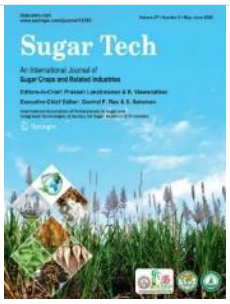
Calcium Dynamics in Sugar Crops: From Root Uptake to Stress Adaptation

Calcium (Ca^{2+}) is a key macronutrient crucial to the growth, development, and stress resilience of sugar crops, such as sugarcane and sugar beet. As a structural element

of cell walls and membranes, Ca^{2+} is also an essential secondary messenger in numerous physiological and signalling processes. This review provides a comprehensive overview of Ca^{2+} dynamics in sugar crops, focusing on its concentration, uptake, and transport mechanisms. Its physiological function ranges from membrane stability to cell extension and enzymatic control, all of which are essential under normal and stress conditions. Ca^{2+} deficiency in sugar crops results in apparent symptoms, such as leaf tip necrosis, impaired root growth, and reduced sugar accumulation, ultimately reducing crop yield and quality. New developments in Ca^{2+} sensor proteins, including calmodulins, calcineurin B-like proteins (CBLs), and CBL-interacting protein kinases (CIPKs), underscore their significance in transducing Ca^{2+} signals under abiotic stress conditions, including drought and salinity. Furthermore, the exogenous application of Ca^{2+}—through soil, foliar, or fertigation methods—has been documented to alleviate stress-induced damage by promoting antioxidative defence, osmotic balance, and nutrient uptake. The facilitatory function of Ca^{2+} in the regulation of stress-responsive genes and enhancing tolerance mechanisms is gaining prominence as a sustainable strategy in sugar crop management. This review seeks to integrate existing research on the physiological, molecular, and agronomic importance of Ca^{2+} with an emphasis on its potential as a strategic tool in promoting abiotic stress resilience in sugar crops under conditions of climate change.

Published July 6, 2026

> **Link**



Enhancing traceability and trust in the sugarcane supply chain using a blockchain-based framework with smart contracts and tokenization

Sugarcane crop is used for making several eco-friendly food products, making it one of the most important crops in the world. Issues in how sugarcane gets from the field to the factory like hidden dealings and fake shortages, really hurt farmers' earnings and even national economies. The way things are currently managed varies a lot in openness, making it tough for authorities to catch illegal exports or guarantee farmers get paid fairly. To tackle these problems, this article suggests a new system built on blockchain technology. It is designed to make the sugarcane supply chain more traceable and trustworthy. We're introducing a special digital currency called Sugar Coin (SC) to follow transactions between everyone involved. Along with this, we have a full system for handling these transactions using smart contracts. We're also using something called Inter Planetary File Systems (IPFS) to securely store private information from farmers and retailers. This helps keep data safe and easily accessible. Tests show that our suggested framework works better than other supply chain projects when it comes to how quickly blocks are processed, how many transactions it can handle, and the costs involved. This research makes the sugarcane world more reliable and open, and it also suggests a lasting economic plan by launching SugarCoin through something called an Initial Coin Offering (ICO).

Published August 4, 2026

> Link

A Survey of Computer Assisted Approaches for Sugarcane Stress Detection and their Management



Agriculture is one of the sources of income for any country. Sugarcane is a tropical plant under agricultural domain, which grows in the field on an annual basis. Its management from germination to maturity stage is required to be focused while it fights with numerous infectious agents. This study is taken care to focus on the computer-based technologies, their intervention in the growth of the crop, their management, and related to identification of the diseases or stress symptoms available on the leaf's surface of sugarcane. There are various sugarcane diseases such as red rot, smut, wilt, grassy shoot, ratoon stunting, yellow leaf, and sugarcane rust etc. This review discussed about computer-based technologies like machine learning models (Support Vector Machine), deep learning models (AlexNet, GoogLeNet, InceptionV3 etc), domain specific models (Reverse Transcriptase- Polymerase Chain Reaction (RT-PCR)), and so on. The assertion is made after research, literature analysis, and discovery that every model has distinctive constraints that must be addressed. Each model in their study is showing their best (in terms of accuracy, precision, and recall), but its real time interventions is not up to mark. This paper also highlighted that how abiotic factors is important while in the growth of sugarcane.

Published May 2026

> Link

Does digital transformation matter to improve sugarcane agroindustry? Techniques, challenges and future trends

Purpose: *This study aims to provide a comprehensive understanding of digital transformation in the sugarcane agroindustry. It critically synthesizes technological, contextual and methodological developments to identify research gaps and proposes a structured agenda to support sustainable and inclusive industrial transformation.*

Design/methodology/approach: *A mixed bibliometric–systematic review approach was conducted using 94 peer-reviewed articles published between 2020 and 2026, retrieved from Scopus and Web of Science. The PRISMA 2020 protocol was applied to ensure transparency and replicability. Bibliometric mapping of 461 unique records was integrated with systematic content analysis and structured through the theory–context–method (TCM) and antecedents–decisions–outcomes (ADO) integrated framework to derive a comprehensive conceptual synthesis.*

Findings: *The review reveals that digital transformation research in the sugarcane sector is dominated by upstream technological applications such as machine learning, deep learning and remote sensing but remains constrained by infrastructural, organizational*

and human-capacity limitations. The integrated TCM–ADO mapping uncovers critical gaps in theoretical coherence, contextual diversity and methodological balance, emphasizing the need for adaptive and socio-technical approaches to digital adoption.

Practical implications: The findings offer a strategic reference for researchers, practitioners and policymakers to improve data interoperability, strengthen digital literacy and promote adaptive decision-support systems that enhance operational resilience and sustainability.

Originality/value: This study provides the first comprehensive review of digital transformation in the sugarcane agroindustry. Unlike previous research that remains fragmented or focused on other crops, it integrates bibliometric, systematic approaches and TCM-ADO to identify key technologies, barriers and future research agenda.

Published July 14, 2026

> **Link**

Events

SASTA	**SASTA Congress** *South African Sugar Technologists' Association* **18-20 August 2026** **Durban, South Africa** > **Link**
Thailand SUGAR Conference 2026	**Thailand Sugar Conference 2026** *Office of The Cane and Sugar Board / Thailand Society of Sugar Cane Technologists / Thai Sugar Millers Corporation Limited (TSMC), with Fireworks Media (Thailand) Co. Ltd* **10-11 September 2026** **Khonkaen International Convention & Exhibition Center, Thailand** > **Link**

Sugar & Ethanol Asia by informa	**Sugar & Ethanol Asia** *Informa* **15-17 September 2026** **Radisson Blu Bangkok Plaza, Bangkok, Thailand** > **Link**
	**Agrotech** *Tecnicaña* **5-6 October 2026** **Cali, Colombia** > **Newsletter** > **Website**
The 12th International Conference of Sugar and Integrated Industries Luxor, Egypt, 7-10 Nov. 2026 Innovation and Sustainability of Sugar Industry	**The International Conference of Sugar and Integrated Industries** *ICSII* **7-10 November 2026** **Luxor, Egypt** > **Link**



Germplasm & Breeding/Molecular Biology Workshop - *Developing Climate Resilient Sugarcane*

ISSCT Biology Commission

9-13 November 2026

Barbados

> **Link**



9th IAPSIT International Sugar Conference 2026

Sugarcane Research Institute, Guangxi Academy of Agricultural Sciences (GXAAS) / International Association of Professionals in Sugar and Integrated Technologies (IAPSIT) / Society for Sugar Research & Promotion (SSRP)

17-20 November 2026

Nanning Hotel, Nanning, Guangxi, P.R. China

> **Link**

	35th International Sugar Organization Seminar *ISO* **1-2 December 2026** **Church House, Westminster, UK** > **Link**
	AFCAS Journée de Rencontre *L'Association Francophone de la Canne à Sucre (AFCAS)* **15 December 2026** **Forum des Images, Paris 1er, France** > **Link**
	Sugarcane ICSB workshop at International Plant and Animal Genome Conference (PAG 34) *Scherago International* **Workshop: 11 January, 8:30am** **Conference: 8-12 January 2027** **San Diego, USA** > **Link**



Pathology & Entomology Workshop - Pushing the frontiers of agroecological management strategies of sugarcane pests and diseases

ISSCT Biology Commission

15-19 March 2027

Réunion Island

> **Link**



Agricultural Engineering & Agronomy Workshop

ISSCT Agricultural Commission

12-15 April 2027

L'Auberge Casino & Hotel Baton Rouge
LA, USA

> **Link**

International Society of Sugar Cane Technologists Founded 1924	**Engineering & Processing Workshop** *ISSCT Factory Commission* **17-23 April 2027** **Australia** > **Link (more information to be included when available)**
ASSCT Australian Society of Sugar Cane Technologists ABN: 11 075 608 098 website: www.assct.com.au ACN: 075 608 098	**ASSCT 2027 Conference** *Australian Society of Sugar Cane Technologists (ASSCT)* **20-22 April 2027** **Cairns Convention Centre, Cairns, Queensland, Australia** **CALL FOR PAPERS:** - 18 October 2026: Submit SYNOPSIS of proposed paper to Editor by e-mail. - 15 November 2026: Submit COMPLETE PAPER to Editor by e-mail. - 31 January 2027: Submit POSTER ABSTRACTS - 15 April 2027 Submit POWERPOINT PRESENTATIONS. > **Link (conference website)** > **Link (call for papers)**
International Society of Sugar Cane Technologists Founded 1924	**Co-Products Workshop** *ISSCT Co-Products Commission* **6-10 June 2027** **Khon Kaen, Thailand** > **Link** (more information to be included when available)

ASSCT AMERICAN SOCIETY OF SUGAR CANE TECHNOLOGISTS	**ASSCT Annual Joint Meeting** *American Society of Sugar Cane Technologists (ASSCT)* **22-24 June 2027** **Hyatt Regency Coconut Point, 5001 Coconut Rd Bonita Springs, FL 34134, United States** > **Link**
8th Edition Sugarex INDONESIA 2027 An International Exhibition of Sugar Companies, Sugar Technology, and Its Supporting Industries	**Sugarex Indonesia 2027** *Fireworks* **10-11 November 2027** **Surabaya, Indonesia** > **Link**
International Society of Sugar Cane Technologists Founded 1924	**Management Workshop** *ISSCT Management Commission* **January/February 2028 (during Congress)** **Guatemala** > **Link** (more information to be included when available)
International Society of Sugar Cane Technologists Founded 1924	**XXXIII ISSCT Congress 2028** *ISSCT & Asociación de Técnicos de Azucareros de Guatemala (ATAGUA)* **January/February 2028** **Comité Permanente de Exposiciones, COPEREX, 8a calle 2-33 zona 9, Ciudad de Guatemala, Guatemala City** > **Link**

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