



**XXXII
ISSCT
CENTENNIAL
CONGRESS**
CALI - COLOMBIA
Digital - Innovative - Sustainable

INTERNATIONAL SOCIETY OF SUGAR CANE TECHNOLOGISTS

**Reports and Abstracts of the Proceedings
of the XXXII Centennial Congress**



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**22-31 August 2025
Cali, Colombia**



Agriculture



Biology



Factory



Co-products



Management

**Edited by
Peter G Allsopp**



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XXXII CONGRESS PAPERS AND POSTERS

Keynote addresses

Autrey, Saumtally, Dookun-Saumtally - The first 100 Years of the International Society of Sugar Cane Technologists - 1924-2024

Calero, Garcés - Global challenges and opportunities in the sugarcane agroindustrial sector: lessons from Colombia

Plenary papers

Butterfield - Genetically modified sugarcane – history and status

Capellaro Ferreira, Ascencio Monreal, Ignacio - Bonsucro's ClimateCane Tracker, a new tool for setting science-based climate targets in sugarcane production

Fraga - Intelligent control strategies in agro-industrial systems: real-time optimization at Iracema Mill

Hilbert - The Era of AI Agents: the path taken and the course at play

Jones - Genomics and crop improvement: focus on gene editing and its regulation

Poser, Rott, Pilloni, Daugrois, Goebel, Vassal, Christina - Growing sugarcane in Corsica: a promising response to climate change in a Mediterranean environment

Riascos - Genomics in sugarcane breeding: from complexity to opportunity

Salazar, Solís - Climate change and adaptation in the sugar agroindustry: 17 case studies of best practices from Latin America

Souza - The Brazilian sugarcane ethanol contribution to the global climate-change mitigation effort

Agricultural Engineering papers

Angrino Chiran, Munar Vivas, Anderson Guerrero - Use of Synthetic Aperture Radar images to assess soil moisture in cane crops: practical implications in agricultural operation

Arroyo Avilez, Ome Narváez, Rodriguez - A SAFER model for accurately estimating actual evapotranspiration in sugarcane using Sentinel-2

Arroyo Aviez, Sanchez Roncancio, Aguirre Parada, Zapata Gálvez - Optimizing water management to improve crop yield, water productivity, and economic benefit in sugarcane irrigated by a central pivot in the Cauca River Valley, Colombia

Caicedo Angel, García García, Antia Castaño, Díaz Bravo, Narváez - Sectoral collaboration for technological sustainability: The GNSS RTK network in the sugar agro-industry

Chudasama - Challenges farmers face in farming with data

Fandos, Soria, Scandaliaris, Carreras Baldrés, Sanzano - Relationship between sugarcane area zoning by production levels and soil fertility in Tucumán province, Argentina, using geotechnologies

Galeano, Tarapues, Estrada - Quality of mechanized harvesting in the Cauca River Valley

Giraldodo, Rosero, Galeano, Tarapues, Estrada - Performance of the chopper system with different numbers of blades based on the quality of the raw material delivered to the factory

Gómez, Estrada, Sierra, Tarapues, Gil - Chopping quality in harvesting: its relationship with sucrose loss and operational efficiency

Gonzalez-Buritica, Erazo-Mesa - A guide to efficient field designs to maximize sugarcane crop productivity

Gonzalez Buritica, Sanchez Marquina, González Gutiérrez, Ochoa Cortés - A deep-learning approach for in-field estimation of sugarcane weight

Leekar, Jensen, Chumpia, Khawprateep, Schroeder - Potential for the use of machine learning in sugarcane production in Thailand: a review

Lup Haruta, López, De Bernardis - Integration of multispectral and SAR data with machine-learning algorithms for real-time monitoring and forecasting of sugarcane ripening

Mestre-Quereda, Lopez-Sanchez, Mosquera, van der Sande, Hoekman, Noort - Integration of optical and radar satellite images for sugarcane monitoring in the Cauca Valley

Morales, Muñoz, Velazquez, Mera - Data-driven agricultural management and technology use for risk assessment in sugarcane crop management

Munar Vivas, Pedraza Márquez, Rubiano Sanabrá, Anderson Guerrero, Caballero Rodríguez - A digital methodology for soil mapping and assessment to calculate the organic carbon reserve

Noori - Irrigation management strategies for improving water-use efficiency in sugarcane

Norris, Jensen, Whiting - Actual harvester extractor cane loss: the elephant we can no longer ignore

Ortiz, Arroyo, Bolivar, Sanchez - Effect of soil-tillage practices on water use in irrigated sugarcane cultivation

Watanabe, Kawamitsu, Ueno - Smart irrigation systems combined with subsurface drip irrigation improve sugarcane yield and water-use efficiency

Agricultural Engineering posters

Anderson Guerrero, Angrino Chiran, Munar Vivas, Caballero Rodríguez - A methodology to determine the proportion of furrow deformation in newly harvested sugarcane fields

Caballero-Rodríguez, Anderson-Guerrero, Munar-Vivas - Eco-friendly LiDAR drone surveying for sugarcane land-leveling in the Cauca River Valley, Colombia

Caicedo Angel, Antia Castaño, Díaz Bravo, García García - Towards smart agriculture: the role of IoT in agro-industrial sustainability

Carvajal, Cabal, Durán, Rondón - Increasing sugarcane productivity at Hacienda Génova through the implementation of an efficient irrigation system

Clynes, Clynes - Using a portable MicroNIR as a key tool for the sugarcane industry

Durán, Muñoz - Innovations for weed control in organic sugarcane

Giron - Site-specific precision agriculture to improve production in sugarcane

Giron - Correcting furrow shape in sugarcane

Guerrero, Riascos Castro - AI management with the NAX tool for the optimization of sucrose, biomass, soil, and costs at Ingenio Pichichi S.A.

Ortiz, Alarcon-Muriel, Mateus-Rodríguez, Ramos-Cabrera - Mitigating soil compaction during sugarcane ratoons by managing the subsoil under residue retention

Perlaza Penagos, Cardozo Guzmán, Quevedo, Mora, Cuervo, Giraldo - Sucrose losses from the field to the mill in a sugar mill in southwestern Colombia

Tarapues, Galeano, Estrada, Largo, Vélez, Viteri - Good practices in mechanical harvesting: modified discs and base cutting blades

Agronomy papers

Afzal, Ijaz, Ammar - Sustaining sugarcane production in Pakistan through enhancing profitability by intercropping in spring and autumn

Bhagat, Dixit, Sawhney - Agronomic interventions in sub-tropical India for sustainable sugarcane cultivation and farmer empowerment

Christina, Chetty, Viaud, Lizekne, Chevalier, Auzoux, Versini, Naudin, Mansuy - Sustainability of sugarcane intercropping systems: assessment and prospects

Collazos Rivera, Arroyo Avilez, Hincapié Gómez - Evaluation of water quality for irrigation in sugarcane

Dalvi, Kadlag - Advancing sugarcane sustainability: integrating gamma-irradiated chitosan as a tool for climate resilience

Fernandez, Otero - Early-season fall panicum (*Panicum dichotomiflorum*) control and sugarcane tolerance to a premix of atrazine, mesotrione and S-metolachlor

Février, Payet, Nuckhir - Apparent nitrogen recovery of exogenous sources of organic matter in tropical soils: update and new coefficients to improve fertilisation in sugarcane

Herrera-Jiménez, Mateus-Rodríguez - Weed interference in sugarcane crops

- Jiménez-Aguirre, Ramírez, Zamorano-Montañez - Analysis of the diversity and abundance of weeds in sugarcane crops
- Kadwa, Titshall, Nicholson - A simple economic sensitivity analysis of nitrogen application rates: a case study using ratoon trials under irrigated and rainfed conditions in South Africa
- Kaur, Jimenez, Laborde, Sandhu - Effect of trinexapac-ethyl on seedcane quality to improve stand establishment in sugarcane
- Lesmes-Vesga, Sharma, Sandhu, Wright - Evaluation of energycane for biomass accumulation and its ecosystem services on fallow sandy soils
- Martínez Calsina, Sáez, Fontana, Christina, Felipe, Zerrizuela, Gallac, Pérez Gómez, Vallejo, Acreche, Erazzú - Benefits of *Vicia villosa* in intercropping with sugarcane: analysis of spatial arrangement and yield
- Martinez Olaya - Calcium dynamics in sugarcane soils with high magnesium saturation in the northern Cauca River Valley
- Ome Narvaez, Quevedo Amaya, Bedoya Mejía, Mateus Rodriguez, Rosas Daza, Molina Valencia, Castro Leon, Anderson Guerrero - Fertilization Advisory System (SEF 3.0) by Cenicaña: a holistic tool for efficient management of fertilizers
- Palomeque, Silva, Núñez, Sánchez, Martínez - Post-release trials, a strategy to speed up varietal adoption in San Carlos Sugar Mill, Ecuador
- Patiño, Velásquez - Increase in millable biomass through foliar application of gibberellic acid, seaweed, and amino acids in sugarcane
- Preschoux, Chetty, Esther, Mansuy - Good experimental practices in weed research at eRcane: organization and results
- Sánchez Ducca, Sabaté, Barcelló, Tonatto - Tolpyralate: a promising alternative for post-emergent management of bermudagrass (*Cynodon dactylon*)
- Sharma, Lesmes, Wright, Cacho, Quinn, Sandhu - Integrating energycane on marginal lands in sugarcane production systems in Florida
- Singh, Singh, Kumar, Singh - Optimizing sugarcane yield through seasonal planting strategies: a field study in sub-tropical conditions
- Soobadar, Seeruttun, Seechurn - Soil-health status and evaluating the use of soil-health promoters to improve sugarcane productivity in Mauritius
- Sotomayor, Navarro Di Marco, Ludueña, Peña Malavera, Sanzano - Total enzyme activity as a microbiological indicator of soil irrigated with vinasse
- Takaragawa, Shinzato - Intensive use of varietal diversity for managing gaps in sugarcane: attempts and perspectives
- Tonatto, Acevedo, Garolera De Nucci - The carbon footprint of sugarcane cultivation using drip irrigation in Tucumán, Argentina

van Heerden, Hoffman, Botha, O'Neill - Scientific and participatory research strategies towards better sugarcane quality management in South Africa

Vinicio, Francisco, Danniell - Site-specific nitrogen management through measuring soil nitrogen to maximize yield response in sugarcane

Agronomy posters

Alves, Pérez-Oñate, Costa Crusciol, Ferraz de Siqueira, De Campos, De Oliverira Bettini, Garaigire Filho - Optimizing sugarcane physiology and quality with *Ascophyllum nodosum* extract: an effective tool for commercial crop management

Chibarabada, Murahwa - Efficacy of biostimulants on sugarcane growth and yield under saline-sodic conditions in Zimbabwe

Dias Neto, Albiero, Rossetto Use of a Vegetation Activity Index for evaluating commercial-scale treatments in sugarcane

Garolera De Nucci, Tonatto, Gómez, Iñigo Martinez, Feijóo - Water footprint of sugarcane cultivation in Tucumán, Argentina

Ludueña, de Ullivarri, Nuñez, Hidalgo, Romero, Tortora - Soil bioindicators under contrasting sugarcane postharvest residue management systems

Madala, Momotaz, Sandhu - Optimizing sugarcane planting time for enhanced tillering and yields in Florida

Martínez-Rivera, Zamorano-Montañez, Dávila, Jiménez-Aguirre - Effect of three biostimulants on reducing herbicide damage in sugarcane cultivation

Medina, Giardina, Fernández González, Alonso, Romero, Digonzelli - Effects of replanting and the use of an absorbent polymer on sugarcane productivity

Noori, Kahyesh - Effect of suspending irrigation on the quality, quantity and water consumption in early sugarcane varieties in Iran

Patiño, Velásquez - Foliar application of boron and molybdenum on growth and sucrose accumulation in sugarcane variety CC 05-430 in the Cauca River Valley, Colombia

Ramos, Pereira, Rossetto, Folegatti - Impact of pre-harvest burning on the carbon footprint of sugarcane produced in the state of São Paulo, Brazil

Ribeiro, Pissolato, Cruz, Almeida, Silva, Machado - Drought stress 'memory' increases cane yield and juice quality of field-grown sugarcane

Rodríguez-Regal, Lamela-Felipe, Pérez-Herrera, Enrique-Estévez, Puchades-Izaguirre, Viñas-Quintero - Agroclimatic zoning of sugarcane areas in Cuba

Romero, Sanzano, Romero - Optimization of phosphorus management in sugarcane in Tucumán, Argentina: results in plant cane and first ratoon

Rossetto, Dias Neto, Gava, Dias, Foroni - Efficacy of using calcium and magnesium oxides of different granularities in ratoon sugarcane

Seechurn Sookun, Ramchurun, Seeruttun, Gaungoo - Integrating companion leguminous crops in ratoon sugarcane production in Mauritius

Shahvali - Effect of urea fertilization timing and application rates on quantitative and qualitative traits of sugarcane variety CP69-1062

Shinde - Effect of trash mulching on water-use efficiency of sugarcane

Vazquez Lopez, Narendranath, Pablos Reyes, Puchades Izaguirre - Effect of hydrothermal treatments on isolated sugarcane buds

Viñas-Quintero, González-Dominguez, Cobo-Vidal, Rodríguez-Fajardo, Cervera-Duverger - Characterization of the soil degradation factors in areas planted with sugarcane in Cuba

Germplasm and Breeding papers

Aguilar, Saavedra-Diaz, Jaimes, Echeverry - A pathway to molecular sugarcane breeding: implementing genetic associations and genomic prediction

Coto Arbelo, Momotaz, Sandhu, Todd, Davidson, Corak - Genotypic values and genetic gains in sugarcane varieties for sandy soils in Florida, USA

Guerra Guzmán, Salazar Villarreal, García, Viveros, Zapata, Lopez, Silva Aguilar, Riascos - Inbreeding consequences on five sugarcane populations developed by the Colombian sugarcane breeding program

Henriquez, Medina, Costilla, Diaz, Sorol, Ostengo - Evaluation of freeze-damaged indicators in 'TUC' sugarcane varieties in Tucumán, Argentina

Hoarau, Dijoux, Dumont, Barau, Garsmeur, Rio, D'Hont - The major contribution of resistance to orange rust and yellow leaf in modern sugarcane hybrids comes from *Saccharum spontaneum* as evidenced by genome-wide association studies

Lopez Zuniga, Zapata, Guerra Guzman, Gaitan, Bohorquez Carrillo, Martinez Maya, Viveros Valens, Delgado, Salazar Villareal, Riascos - Partitioning sugarcane variance components for sucrose yield in Stage I populations

Manimekalai, Jackson, Aitken, Lakshmanan, Keerthana, Dash, Viswanathan, Mohan Raj, Selvi, Vineeth, Hemaprabha - Genomic selection and GWAS: unlocking the potential for sustainable sugarcane agriculture

Momotaz, Arbelo Coto, LaBorde - Genome size variation in complex sugarcane parental genotypes in United States sugarcane breeding

Ostengo, Sorol, Balzarini - A selection index based on non-sugar compounds of sugarcane juice

Pali, Islam, Hale, Todd, Coto Arbelo, Hulse-kemp, Corak, White, Scheffler, Islam, Tabassum – Measuring Brix directly in the sugarcane stalk with a regenerative plant sensor

Perera, Peña Malavera, Noguera, Racedo, Ostengo - Genetic diversity in EEAOC's germplasm bank and assessment of a core collection

Racedo, Rossi, Peña, Ghio, Henriquez, Díaz, Noguera, Perera, Ostengo - Accuracy of genomic selection in populations of the EEAOC sugarcane breeding program

da Silva Santos, Vieira Manechini, Kantack, Xavier, Carlin Cavalari, Perecin, Marconi, Marconi, Romanel, Rossetto, Pinto - Vegetative indices in early and late flowering sugarcane genotypes assessed by high-throughput phenotyping

Zhou - Genetic control of sucrose content among unselected progeny populations

Germplasm and Breeding posters

Balsalobre, Oliveira, Campana, Barreto, Chapola, Hoffmann, Carneiro - Evaluation of brown and orange rust resistance genes in sugarcane through molecular markers

Barona, Lucumi, Melo - Varietal diversity in sugarcane cultivation: a key factor in productivity sustainability

Di Pauli, Fontana, Lewi, Felipe, Martínez Calsina, Erazzú - In vitro mutagenesis for enhancing genetic variability in Argentinian sugarcane cultivars

Díaz Romero, Figueroa, Diaz, Henriquez, Costilla, Ghio, Racedo, Ostengo - Retrospective analysis of progenitors in the sugarcane breeding program of Estación Experimental Agroindustrial Obispo Colombes from 1998 to 2020

Gazaffi, Nunes, Jacobassi, Chapola, Carneir, Hoffmann - Association between vegetative indices evaluated in a sugarcane breeding population

Ghio, Díaz, Henriquez, Costilla, Ostengo - Yield performance and environmental adaptability of cultivar TUC 03-12 analyzed by two statistical approaches

Henriquez, Diaz, Ghio, Costilla, Diaz Romero, Medina, Figueroa, Ostengo - Impact of sugarcane smut in the EEAOC sugarcane breeding selection process during the last 10 years

Henriquez, Medina, Figueroa, Diaz, Diaz Romero, Costilla, Ghio, Ostengo - The crucial role of the EEAOC breeding program: varietal diversification in the sugarcane area of Tucumán, Argentina in the last 10 years

Jacobassi, Balsalobre, Pinto, Chapola, Hoffmann, Carneiro - A calibration curve for predicting sucrose content of sugarcane using NIR spectroscopy directly in the field

Occhionero, Luz Nanni, Serino - Scaling of temporary immersion systems to produce clean seed cane for northern Argentina

Rodríguez Gross, Puchades Izaguirre, Abiche Maceo, García Pérez - Updating SASEL software: intelligent data management to support the Cuban sugarcane breeding program

Xavier, Carlin Cavallari, Andrade Landell, Rossini Pinto, Rossetto, Guindalini Melloni - Brix and stalk number associated with sugarcane productivity in different edaphoclimatic conditions in Brazil

Yañez Cornejo, Zambrano - Automation of artificial photoperiod in the north of Argentina

Entomology papers

Behary Paray, Conlong - Assessing artificial diets for rearing *Chilo sacchariphagus* Bojer (Lepidoptera: Crambidae) for a sterile-insect technique programme in Mauritius

Budeguer, Enrique, García Degano, Rodriguez, Mocoroa, Hernandez, Gastaminza, Ostengo, Noguera, Perera, Racedo - Transgenic sugarcane expressing insecticidal proteins increases resistance to *Diatraea saccharalis*

Echeverri-Rubiano, Ramírez, Camargo - Dynamics of *Diatraea* spp. and their parasitoids in Colombia: keys for pest management in sugarcane

Goebel, Yana Yana, Ntab, Martin, Sall - Agroecological practices and light trapping of *Eldana saccharina* (Lepidoptera: Pyralidae) as an integrated toolbox in sugarcane in the Senegal River Valley

Lauchande, Malinga, Munyai - Genetically modified sugarcane in combination with sterile insect releases to control *Eldana saccharina*: a shade house trial

Mathonsi, Malinga, Bambo, Hlongwane, Munyai - Selection of an oviposition substrate by females of the sugarcane stalk borer *Eldana saccharina* Walker (Lepidoptera: Pyralidae) for use in the sterile insect technique

Ramírez, Echeverri-Rubiano, Saavedra, Trujillo, Aguilar, Camargo - Unveiling sugarcane resistance to *Aeneolamia varia*: implications for pest management

Rivera-Pedroza, Aya, Sardi-Saavedra, Pérez, Riascos, Camargo - Biological corridors in sugarcane agro-landscapes: a strategy for sustainable pest management and biodiversity conservation

Salvatore, Páez Jerez, Nadra, Isas, Krapovickas - Impact of different cultural practices on the infestation and oviposition of *Diatraea saccharalis* (Lepidoptera: Crambidae) in sugarcane in Tucumán, Argentina

Wilson - Incorporating cultivar resistance into integrated pest management of sugarcane stemborers in Louisiana, USA

Entomology posters

Budeguer, Michavila, Noguera, Chalfoun, Racedo - PSP1 biostimulant enhances sugarcane resistance to *Diatraea saccharalis* under controlled conditions and activates defense signaling pathways

Díaz Huertas, Campo Nuñez - Stalk damage as an indicator of borer infestation and sucrose loss

Macé, Mkwachu, Heuclin, Goebel - Influence of soil conditions on white grub infestations: a case study in northern Tanzania

Martin, Sall, Ntab, Yana, Bardot, Goebel - Identifying reservoirs hosting *Eldana saccharina* (Lepidoptera: Pyralidae), a pest of sugarcane in Senegal

Padilla, Peña Malavera, Rodríguez, Pérez, Ostengo, Chalfoun, Noguera - The biostimulant Howler® as a protectant against *Diatraea saccharalis* in sugarcane field trials

Pérez, Gastaminza, Carabaca, Feiguin, Ferraro - Economic and environmental assessment of chlorantraniliprole and methoxyfenozide for the management of *Diatraea saccharalis* in sugarcane in Tucumán, Argentina

Salvatore, Cabrera, Páez Jerez, Hill, Nadra - Effect of important weeds of sugarcane on the oviposition preference of *Diatraea saccharalis*

Pathology papers

Atiq, Nawaz, Rajput, Matloob, Arshad - Chemical and plant-defense activator-based approaches to combat red rot caused by *Colletotrichum falcatum* in sugarcane

Daugrois, Behou, Kouman, Boua Bomo, Roumagnac, Rott - Is *Aceria sacchari* the most likely vector of sugarcane streak mosaic virus?

Joya, Bertani, Perera, Fajre, Giardina, Noguera - EEAO Vitroplants Project: the importance of phytosanitary diagnosis and its impact on the health status of commercial sugarcane fields in Tucumán, Argentina

McFarlane, Zhou, Erasmus, Trumpelmann, Radzilani, Stranack - Importance of partnerships in monitoring and managing diseases in the South African sugarcane industry

Monachesi, Lobo, Huviene, Joya, Bertani - Status of red stripe disease in Tucumán, Argentina, in the last four years

Rajput, Jan, Atiq, Nawaz, Arshad, Usman, Wahab - Effects of desert phyto-extracts on whip development in sugarcane smut

Rincón, Rincón, Ángel, Trujillo, Riascos, Salazar, Garcés - Genome-wide association analysis for the identification of SNPs related to resistance to orange rust, *Puccinia kuehnii*

Pathology posters

Delgado Padrón, Miranda Cabrera, Puchades Izaguirre - Most feasible diagnostic technique for the detection of *Leifsonia xyli* subsp. *xyli* infecting sugarcane in Cuba

Di Pauli, Canseco, Zalazar, Olmos, Mieja Andrada, Martínez Calsina, Erazzú, Fontana - Genomic insights into new isolates of *Acidovorax avenae* causing red stripe in northwestern Argentina

Díaz, Peña Malavera, Cerviño Dowling, Perera, Noguera - A continuous improvement approach in the production of sugarcane vitroplants at the EEAO

- Díaz, Peña Malavera, Perera, Noguera - Vitro-pathogen control in EEAO's sugarcane micropropagation scheme
- Gañán-Betancur, Rincón, Ángel, Riascos - Monitoring the incidence and distribution of sugarcane smut in Colombian sugarcane fields
- Khan, Abbas, Hassan, Khan - Development of internal transcribed spacer based molecular markers to identify *Colletotrichum falcatum* causing sugarcane red rot
- Lobo, Huvierne, González, Bertani - Current status of sugarcane smut in Tucumán, Argentina - evaluation of genetic resistance and fungicide applications as control strategies
- Miller, Morales, Rollins, Flasco, Gama - Development of a real-time singleplex and multiplex PCR diagnostic assay for detecting sugarcane pathogens and optimization of nucleic acid extraction methods
- Monachesi, Bertani, Debes, Arias - Histological damage caused by *Acidovorax avenae* subsp. *avenae* in sugarcane and the efficacy of a plant defense inducer to control red stripe disease
- Nanni, Funes, Easdale, Capobianco, Serino - Yield indicators affected by ratoon stunting disease in sugarcane varieties planted in northern Argentina
- Puchades Izaguirre, Montalván Delgado, Aday Díaz, Carvajal Jaime, Rodríguez Lema, Rodríguez Regal - Assessment of brown rust and smut resistance trials for rating Cuban commercial sugarcane cultivars
- Rodríguez-Regal, Pardo-Mora, Jiménez-Reyes, Pérez-Herrera, Leyva-Vinaiza, Flores-Rodríguez - Incidence of diseases and animal pests in sugarcane on the Dagoberto Rojas farm, Cuba
- Rodríguez-Regal, Rodríguez-Lema, Puchades-Izaguirre, Casero-Rodríguez, Rodríguez-Carnero, Acosta-González - Sugarcane disease risk assessment in two regions of Cuba
- Rott, Daugrois - *A Guide to Sugarcane Diseases*: new edition
- Snyman, Cele, Ghai - Cryo- and osmo-therapy to eliminate viruses from infected sugarcane
- Soares, Adhikari, Hu, Sood - *Sugarcane mild mosaic virus* in commercial varieties and advanced lines in Florida

Molecular Biology papers

- Aitken, Piperidis, Sun, Hewage Don, Piperidis, Wei - Using the Axiom SNP array for comparative mapping across four Australian sugarcane varieties
- Almeida, Martins, Magalhães Filho, Pires, Landell, Xavier, Machado, Ribeiro - Field-based prediction of sugarcane photosynthesis through environmental inputs
- Enrique, Budeguer, Castagnaro, Ostengo, Noguera - Sugarcane lines expressing the sunflower transcription factor HAHB11 have improved tolerance to abiotic stresses

Garsmeur, Healey, Henry, Aitken, Schmutz, D'Hont - The complex polyploid genome architecture of sugarcane: genome assembly and origin of cultivar R570

Giampaoli, Sosa, Saavedra Pons, Serino - CRISPR/Cas9 mediated homology directed repair enables precise modification in sugarcane *ALS* gene

Joshi, Makhetha, Ghai - Quantification of transgene copies in genetically modified borer-resistant sugarcane

Lin, Chai, Huang, Zhang, Huang, Fang, You, Cui, Wang, Yu, Yao, Zhang - Genetic and hormonal regulation of plant height in sugarcane: QTL mapping and functional insights into gibberellin-driven growth

Londoño, Trujillo-Montenegro, Torres-Bedoya, Espitia-Navarro, Cortes, Duitama, Viveros, López, Aguilar, Riascos - Genetic understanding of drought tolerance in sugarcane

López-Gerena, Prias, Barrios, Ocampo, Jaimes, Salazar, Aguilar, Camargo, Riascos - Sustainable sugarcane: developing varieties resilient to pests and climate change through genetic transformation and genome editing

Peña Malavera, Costilla, Noguera, Castagnaro, Ostengo, Racedo - Association mapping and localization of molecular markers linked to resistance in sugarcane to brown rust

Molecular Biology posters

García, Molina, Di Pauli, Fontana, Martínez Calsina, Erazzú, Acevedo - SNP variability in the sugarcane caffeic acid *O*-methyltransferase (COMT): a key gene for lignin biosynthesis

Huang, Chai, Zhang, Fang, Zhang - ScGID2 regulates gibberellin signaling and stem elongation in sugarcane through interactions with ScGAI and ScASK1

Martins, Laira, Almeida, Pires, Afif, Cabané, Gandin, Ribeiro - Photosynthetic responses of energy cane and sugarcane to ozone

Purankar, Sarode, Devarumath - Molecular analysis of three sugarcane varieties with *in-vitro* induced mutations

Zhou, Mihail, Luo, Sood, Islam, Wang - Morphological, transcriptomic, and metabolomic differences between two sugarcane sister lines with contrasting resistance to orange rust disease

Factory Engineering papers

Awasthi, Goyal - A modern energy efficient sugar complex on 26% steam consumption – concept to commissioning

Awasthi, Tewari, Takroo, Srivastava - Updates to the design of high-pressure traveling-grate boilers to fire challenging biomass and vinasse

Barrera - Valuation of the impact of the use of green-cane harvesting on the back end of bagasse boilers

- Bezuidenhoudt, Gokool, Stevens - Energy savings utilising dimple tube technology
- Camp, Cegel, Pelletan - New trends toward energy savings and cogeneration of electricity for the cane sugar industry
- Chandrasekaran, Gopalakrishnan - Efficiency optimization of a high-pressure co-generation plant at Ponni Sugars Erode, India
- Iqbal, Reyes - Reliable and accurate valve selection for pre-lime and milk of lime
- Kent, Parfitt, Ryan, McKenzie, Plaza - Automatic handling of soft cane in the factory
- Kumar, Kumar, Paroha - An improved electric drive for sugarcane preparation machines
- Montes, Mera, Pineda, Rosero, Gil - Integration of tribological analysis and machine-learning models to increase the useful life of hammers in sugarcane shredders
- Parra Ruiz, Solanki, Vardhan - Enhancing efficiency in the sugar industry: the role of mechanical vapor recompression (MVR) technology in optimizing energy consumption
- Sanchez, Chavarro - Extreme drying of bagasse in a drying mill: new concepts for the future of milling
- Tamak, Vardhan, Mishra, Chauhan - An innovative way for steam economy and capacity expansion by integrating an MVR in an evaporation scheme
- Thaval - Assessing the impact of evaporator station configuration on the feasibility of greenfield cane factory projects
- Vandemoortele, Laurent - Batch pan automation: energy savings and sugar quality improvements
- Verma, Tiwari - Innovative technology based on mechanical vapour recompression for energy-efficient sugarcane processing
- Verma, Verma - Bagasse drying using boiler flue gas – waste heat recovery

Factory Engineering posters

- Bastidas, Villegas, Vidal, Cardona - Revamping cooling water treatment to enhance system integrity at Providencia's Distillery
- Cruz, Franck, Ruiz - Improvements in the heating and evaporator stations in a mill in Tucumán, Argentina
- Cruz, Golato, Zamora Rueda, Casen, Ruiz - Evaluation of fibrous sorghum for as an alternative fuel in bagasse boilers in Tucumán, Argentina
- Gutierrez, Zalazar, Zamora Rueda, Morales, Golato, Ruiz - Characterization of gas ashes from sugar-mill chimneys in Tucumán, Argentina
- Imbachi-Ordonez, Alarcon-Rodriguez, Eggleston, Stewart, Kirby, Rutherford - Application of near-infrared spectroscopy in the Louisiana sugarcane industry

Factory Processing papers

- Alarcon, Larrahondo, Hernandez, Quiceno, Rojas - Industry 4.0-based strategies to reduce the deviation of undetermined losses in sugar and ethanol factories
- Arévalo, Rodríguez, Teuta, Gil - Addressing impurity impacts on sugar production: a comprehensive approach to improve sucrose recovery
- Barrera Atuesta - Energy optimization through cogeneration and trigeneration in a vinasse drying plant
- Broadfoot, Rackemann, Fraga - Profiles of massecuite conductivity and dry substance for controlling A and B massecuite production
- Bruni, Terrell - Application of antimicrobial agents at minimum inhibitory concentration values for optimal control of microbial isolates from Louisiana sugarcane factories
- Calpa, Alvarez, Echeverry, Teuta, Gil - DataCane by Cenicaña: optimization of efficiency and maintenance in sugarcane mills through Industry 4.0
- Charbonneau, Beyerle, Leenhardt, Abril-Lenis - Assessing the carbon footprint of industrial equipment: a case study in cane sugar processing
- Charbonneau, Czelusniak, Leenhardt, Pauwels - An improved process in cane sugar production with a softening ion-exchange step for major gains
- Eggleston, Imbachí Ordóñez, Triplett, Messina - The insoluble form of starch contributes to lower sugar exhaustion from molasses during the manufacture of raw sugar
- Gimbernat, Osuna, Valery - Unleash the power of digital tools: process development and scale-up for chromatography units assisted by Perform 4.0
- Hernández, Rodríguez, Calpa, Luna, Gil - CeniCristal: a tool to enhance sucrose recovery through reliable monitoring of crystal size and growth
- Imbachí-Ordóñez, Alarcon-Rodríguez, Neumann - Evaluation of autofiltration equipment for polarimetric analysis
- Méndez, Gómez, Lopez, Gil Zapata - Direct cane analysis: a comparison of the hydraulic press and wet disintegration methods
- Montes, Gómez, Polanco, Escobar, Gil Zapata - A machine-learning approach for estimating mineral trash in sugarcane processing through turbidity measurements
- Narendranath - Process improvements at a plantation white sugar plant
- Negi, Kumar, Rastogi, Mohan - Efficient sugar production with simultaneous diversion of process intermediates for ethanol production
- Nielsen - ICUMSA® Laboratory Solution Colour versus real-time colour measurement for process control

Nimbalkar, Uphade - Developments in wastewater treatment and reuse in the sugar industry: drivers, challenges and implications

Patil, Chandgude, Rao - A remote monitoring and advisory system

Prieto Correal, Ramos Galeano, Morales, Ramírez Landinez - Reduced microbial sucrose losses in clarification and filtration: improving mud filtration with an innovative cleaning system

Puri, Awasthi, Kesarwani, Goyal - Improvement in recovery and quality of sugar by adopting phosphoflotation decolorization and ion-exchange resin with decanter technology

Renderos - A model for estimating color increase in refined sugar during storage

Singh, Yadav, Garg, Paroha, Gosavi - Clarification of sugarcane juice with sodium metabisulphite

Singh Bola, Morgenroth, Wicht - Pan-operation optimization with an online optical crystallization monitoring system

Terrell, Bruni, Lima - Microbial control from concurrent application of enzymes and antimicrobial agents on sugarcane processing bacteria and exopolysaccharides

Terrell, Lima, Bruni - Applications of machine learning to estimate economic impacts of starch and dextran on sugar manufacturing

Valencia Ramírez - Analytics model for predicting sucrose content in sugarcane using machine-learning techniques

Factory Processing posters

Amaya - White sugar production without the use of decolorizing agents

Charbonneau, Beyerle, Lenhardt, Abril-Lenis - Benchmarking ion-exchange and activated-carbon technologies in a sugar refinery: a new angle of carbon emission

Davis, Mbuthuma - The road to Sugar Factory 4.0

Eggleston, Triplett - Optimized application of dextranase at low doses and retention times to hydrolyse dextran in sugarcane juice

Imbachi-Ordonez, Eggleston - Novel methodology to quantify extraneous matter in shredded sugarcane using near-infrared spectroscopy

Imbachi-Ordonez, Eggleston, Triplett, Goude - New insights on the identification of oligo/polysaccharides causing elongation of raw-sugar crystals

León Ibarra - Efficiently transforming Ingenio Pichichi: the impact of the deaerator on reducing corrosion, increasing boiler feedwater temperature, and enhancing efficiency

Muñoz, Perea, Quiroz, Reyes, Velásquez - Coffee husk as an alternative biofuel for bagasse-fired boilers

Sica, Castro, Baptista - Direct and indirect effects of climate change on sugar quality and storage stability: the case of the Brazilian 2024/25 season

Sorol, Diez, Ruiz, Diez - Optimization of a direct method for quality evaluation in sugarcane and by-products in Tucumán, Argentina

Veerababu, Satish, Muralidhar, Sekar, Gopalakrishnan - Sulphur-free sugar production with diversion of syrup and B-heavy molasses to a distillery - a case study

Coproducts papers

Aita, Moon - Bagasse-derived silver nanoparticles: antimicrobial and antibiofilm properties

Barrera - Value-added products from vinasse

Bastidas, Villegas, Moreno, Jerez - Reducing downtime in ethanol columns: a simulation-based feed strategy

Campo Núñez, Díaz Huertas - Transforming waste into resources: the potential of sugarcane bagasse ash as a sustainable additive in manufacturing ceramic bricks

Cavailles, Vaca-Medina, Wu-Tiu-Yen, Labonne, Evon, Peydecastaing, Pontalier - Influence of twin-screw extrusion pretreatment on the properties of sugarcane bagasse-based materials obtained by thermocompression

Chandgude, Taur, Bhokare, Nandgaonkar - Performance of ethanol blending in diesel engines and its impact on emissions

Donneys, Perea - Roadmap for the production and implementation of green hydrogen in the Colombian sugar industry

Fraga, Atanda, Rackemann - Scaling-up the conversion of sugarcane bagasse to 5-chloromethylfurfural as a platform chemical

Franck Colombres, Feijoó, Garolera de Nucci, Díaz, Cruz - Gasification of harvest residues as a sustainable energy alternative in the sugarcane agroindustry of Tucumán, Argentina

Golato, Kamiya, Ruíz, Avila - Adding alkaline metal oxides to boost the gasification reactions of sugarcane bagasse

Konde, Patil, Behera - Green hydrogen - product diversification opportunities in sugar and allied industries - a techno-economic study

Lavarack - Renewable energy from sugarcane

Lima, White - Spearheading sustainability in sugarcane processing through byproduct conversion into biochar for increased cane yields

Ojeda, Ospina, Arévalo, Gil - Reduction in carbon emissions through the use of bioethanol in turbodiesel engines

Sica, Castro, Baptista - Direct and indirect effects of climate change on sugar quality and storage stability: the case of the Brazilian 2024/25 season

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Ojeda, Ospina, Arévalo, Gil - Reduction in carbon emissions through the use of bioethanol in turbodiesel engines

Orozco Donneys, Otálora Sevilla, Home Saldarriaga - Energy optimization in a sugar alcohol mill to maximize bagasse availability and electricity cogeneration: a case study at Incauca

Ospina, Ojeda, Pantoja, Gil - Technical and environmental impact of combustion of sugarcane harvest residues at an industrial scale

Parrado, Villegas, Serrato - Sugarcane and ethanol co-products for lactic acid production using a native bacterium from a Colombian biorefinery

Santander, Villegas, Gutierrez, Castaño, Campillo-Pedroza - Unveiling microbial diversity with metabarcoding: key to optimizing ethanol production

Saska, Zossi, Coronel, Ruiz - Effect of molasses color on fermentation yield

Shrinivasan, Awasthi, Gopalakrishnan - Ethanol: a game changer in the Indian biofuels industry

Urayayi, Rambwawasvika, Mutatu - Upscaling the production of potassium sulphate from stillage

Wu-Tiu-Yen, Fargues - Valorization of sugarcane stillage by extraction of aconitic acid

Coproducts posters

Jimenez Ortiz, Solarte Rueda, Revelo, Cardozo - Measurement of higher heating value in cane bagasse using NIR spectroscopy in a sugar mill in southwestern Colombia

Konde, Behera, Patil - Opportunities for the production of compressed biogas (CBG) in sugar and allied industries

Lima, Beacorn, Terrel, Bruni - Characterizing sugarcane co-products and their biochars: effects on resulting properties and functionality

Salazar, Parrado, Villegas, Serrato - Culture medium design and kinetics of single-cell protein production from *Candida utilis*

Saska, Ruiz, Zossi - Effect of heating on color and fermentable sugars in final molasses

Shalageh, Darouneh, Rezaee - Production of an octane booster from sugarcane bagasse

Zamora Rueda, Gutierrez, Armella, Morales, Golato, Feijóo, Ruiz - Classifying lignocellulosic biomass from Tucumán for energy production

Management papers

Afghan, Tanveer, Khan - 75 years of the sugarcane sector in Pakistan: milestones, challenges, and transformative prospects

Aguilar-Rivera, Enriquez-Poy - Strategies for the development of sugarcane ecotourism in Veracruz, Mexico

- Barona, Lopez, Lucumi - *Agroportunity*: a tool for field decision-making and its impact on sugarcane production at Riopaila Agrícola and Castilla Agrícola S.A.
- Binedell, Edmonds, Edmonds, Watson, Wilkinson - The value of Communities of Practice within the sugarcane value chain – a case study of SUSFARMS® in South Africa
- Calero, Coral - A successful peace and sustainability laboratory in the Colombian sugarcane agroindustry (dialogue with ethnic and rural communities)
- Chica, Fernández, Caicedo, Garcés - Development of climate-based innovation solutions for a resilient and sustainable sugarcane industry
- Courel, Farrel, Abratte, Pendino - Collaborative innovation in the sugar-energy sector
- Garcés, Amaya, Chica, Posada - The Sugarcane that Inspires Us: innovation for sustainability
- Kohli - Implementation of a whistleblowing policy in Triveni Engineering and Industries Limited for good corporate governance
- Martínez, Urango, Coloma - A reliable journey towards operational excellence in the sugarcane industry: Ingenio Trinidad's case
- Múnera Castañeda, Correa Betancourt, Alarcón Muriel, Gil Zapata - Carbon footprint of sugarcane farming in Colombia: enhancing crop sustainability
- Nicholson - Grower economic data the key to lobbying for grower financial sustainability in times of industry uncertainty and high input costs
- Rivera-Pedroza, Eusse-González, Cárdenas, Garces Obando, Lentijo - Bird conservation and its impact on sugarcane sustainability in the Cauca River Valley, Colombia
- Sawhney, Kohli - Importance of learning and development in the improvement of productivity and employee engagement in Triveni Engineering and Industries Limited
- Tonatto, Garolera De Nucci, Gutierrez, Padovani, Romero - Sustainability studies in small-scale sugarcane growers in Tucumán, Argentina: the GIRSAR Program

Management posters

- Arellano, Popayan - Designing a business model for services required by sugarcane growers in Colombia
- Arenas-Calderón, Garcés-Obando, Valderrama, Arboleda - Inside or outside: when is open innovation relevant to accelerate and scale processes and products?
- Barona, Lucumi, Mina - Administrative Irrigation Control: a tool to reduce water consumption per irrigation event in sugarcane cultivation at Castilla Agrícola S.A.
- Barona, Muñoz, Bedoya - Administrative tools for cost control in sugarcane cultivation at Riopaila Agrícola and Castilla Agrícola S.A.

Feijóo, Tonatto, Garolera De Nucci, Alonso, Romero - Greenhouse gas emissions from agricultural practices in sugarcane: a bioenergy approach in Tucumán, Argentina

Galindo, Solórzano, Rodríguez, Cante - Predicting illegal burnings for effective risk management in the Guatemalan sugarcane agroindustry

Guerrero Ortiz - Opportunities for mechanised operations in sugarcane and their impact on cane yield

Kadwa, Schoeman - Disaster struck: a case study of structure, communication, and data collection from South African sugarcane growers

Loaiza, Hernandez - Waters Funds, a way to become nature positive and ensure sustainability in the sugarcane sector

Ortiz, Burnquist, Sanchez - Evaluation of the efficiency and costs of implementing a sugarcane harvest transportation and logistics system in a sugar mill in eastern Bolivia

Silva-Cerón, Saavedra-García, Galeano-Patiño - Digital channels to identify those interested in adoption of technology

Workshop reports

Beuzelin, Easdale, Camargo, Powell, Behary Paray - Dealing with sugarcane pests and diseases in the context of regenerative agriculture: report on the 2024 ISSCT Entomology Workshop

Butterfield, Piperidis, Mohanraj, Hemaprabha, Cursi, Zhou, Hoarau, D'Hont - Breeding, biotechnology and germplasm utilization for developing climate-smart and resource-use efficient sugarcane varieties: report on the ISSCT 13th Germplasm & Breeding and 10th Molecular Biology Workshop

Daugrois, McFarlane, Bhuiyan, Bertani - Dealing with sugarcane pests and diseases in the context of regenerative agriculture: report on the XIII ISSCT pathology workshop

Eggleston, Singh Bola - Innovations in the sugarcane industry – enhancing sustainability, quality and efficiency: report on the 2024 ISSCT Factory Commission workshop

Lavarack, Wu-Tiu-Yen, Aita - The full valorization of co-products for a sustainable future: report on the 2024 ISSCT Co-products Commission workshop

Sandhu - Towards BCG (Bio-Circular-Green) economy: smart farm to drive economic recovery and sustainable sugarcane industries: report on the 2024 ISSCT Agriculture Commission workshop