April 2025 International Society of Sugar Cane Technologists Founded 1924 Bulletin

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

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ISSCT News

ISSCT XXXII Centennial Congress

The preparations for the Centennial Congress and the associated activities were further pursued.

There is a lot of interest from our membership in participating in them. Many members have taken advantage of the Early Bird Registration period which was extended to end March 2025. The programme for the Pre and Post Congress Tours have been finalised. Detailed information may be found the Congress website at https://issctcennial.com/

It is to be recalled that the Pre-Congress Tour which will be held from 22 to 23 August 2025 will consist of two components: Zone 1 - Central and Southern of Valle del Cauca technical and Zone 2 - Northern of Valle del Cauca y Risaralda. For Zone 1 participants should arrive in Cali on 21 August 2025. They will stay in the same hotel for the Pre-Congress and Congress.

For participants having chosen Zone 2, they should either arrive in Cali on 21 August from there they will be transferred to Pereira by road. There will be two trips one in the morning and one in the afternoon. The trip will last three hours. Alternatively, participants may choose to travel directly to Pereira by their own means. On Sunday 24 August the delegates will be taken back to Cali.

The Congress will take place in Cali from 24 to 28 August 2025. On 24 August there will be the Welcoming Cocktail and the Opening of Trade Exhibition. The Opening Ceremony will be held on 25 August and will be followed by plenary and technical sessions over four days with poster sessions. There will be also the social and cultural events as well as programmes for accompanying persons. **Participants attending Congress only should arrive in Cali on 23 August or by mid-day on 24 August 2025.**

The **Post-Congress Tour** will take place from 29 to 31 August 2025 in the Cartagena area in the Caribbean side of Colombia. It will offer to attendees a unique

experience in Cartagena. During the Tour, participants will have technical visits to a Fertilizer Plant and the Port Area, gaining insight into their impact on the agroindustry. Additionally, they will enjoy the paradisiacal Caribbean beaches and Cartagena's historic centre, a city rich in history, culture, and tradition

The Post-Congress Tour includes:
Ground Transportation: From the hotel in Cali to Cali's airport, from Cartagena's airport to the hotel, and for the technical visits.
Meals: Dinner on Friday, snacks and lunch during technical visits, and lunch on Sunday, and Bilingual Guide.

Not included in the registration fee of USD 500 for delegates and USD 450 for Accompanying persons, are flights from Cali to Cartagena- return and accommodation for three nights in Cartagena.

Complete information is available at https://issctcennial.com/postcongress/

Technical Aspects of the Centennial Congress
Just under 300 full texts have been submitted to the Editor, 106 have been finalised, and the remainder are with either the reviewers or, more commonly, with the authors for revision. The finalised texts and the program should be completed by the end of June. The Technical Program will comprise, apart from oral communications and posters presentations, 40 other presentations from the Centennial Volume with 4 presentations for the periods 1924-1938, 1950-1974, 1975-1999 and 2000-2023 for each of the 10 sections of ISSCT. All the texts related to these 40 presentations have been received and reviewed, and most have been formatted for publication.

Plenary Session at the Centennial Congress

Three plenary sessions will be held at Congress on the themes:

Climate Change and Adaptation
Speakers:
Luis Fernando Salazar, UNALA, Guatemala
Glaucia Souza, University of São Paul, Brazil
Marilia Capellaro Ferreira, Bonsucro Limited, UK

Christophe Poser, CIRAD, France

Artificial Intelligence
Speakers:
Martin Hilbert, University of California, USA
Guilherme Fraga, Sãn Martinho, Brazil

Molecular Biology
Speakers:
John Jaime Riascos, CENICAÑA, Colombia
Michael Butterfield, Centro de Tecnologia Canavieira (CTC), Brazil
Michael Jones, Murdoch University, Australia

The plenary sessions will be held from 11 to 12.30 at Congress on Tuesday, Wednesday and Thursday. The presentations will be followed by panel discussions.

Thematic Workshops

The thematic workshops have attracted some 410 participants from 34 countries. Various reports have been included in several issues of the ISSCT Bulletins as follows:

- August 2024: Germplasm & Breeding/Molecular Biology Workshop held from 8 to 12 July 2024, Coimbatore, India
- October 2024: Agricultural Engineering and Agronomy Workshop held from 9 to 22 August 2024, at the Zign Hotel in Pattaya, Thailand
- December 2024: Co-product Commission Workshop held from 16 to 20 September 2024, at the Le Recif Hotel in Saint Gilles, Réunion
- February 2025: Joint workshop of Factory Engineering and Processing was held from 6 to 10 October 2024, at the Hotel Meliá Berlin, Germany

The programmes and abstracts of presentations made at these Workshops were also circulated.

In the present issue focus is on the XIII ISSCT Pathology and XI Entomology Workshops, held in Salta, Argentina from 25 to 27 November 2024

The theme was: "**Dealing with sugarcane pests and diseases in the context of regenerative agriculture**".

The Workshop was held at the COPAIPA Convention Centre in Salta, followed by a two-day field trip to Río Grande, Ledesma, and Seaboard sugar mill areas, and research facilities of INTA Yuto in Jujuy and Chacra in Salta. The workshop focused on dealing with sugarcane pests and diseases in the context of regenerative agriculture. The workshop was well organized by Sociedad Argentina de Técnicos de la Caña de Azúcar (SATCA) with a technical program committee: German Serino, Analia Ruth Salvatore, Cecilia Irene Easdale, Romina Priscila Bertani, Claudia Funes, and Maria Luz Nanni with the help of Isabel Anton. The professionalism and hospitality displayed by the Organising Committee and host were greatly appreciate. The 77 workshop attendees were from 12 countries: Argentina (35), Australia (2), Brazil (17), Colombia (1), Cote D' Ivoire (2), Cuba (2), France (4), Papua New Guinea (1), Reunion Island (1), South Africa (3), USA (8) and Zimbabwe (1). The Pathology component consisted of 20 oral and 22 poster presentations.

A range of themes were covered during the workshop, from an update on the new version of '***A guide to sugarcane diseases***' to IPM that included, breeding for resistance, tissue culture plant production for nurseries, new diagnostic tools using nanoparticles, nanopore technology, NIRS and other technologies, and increasing the accuracy and sensitivity of diagnostic assays. Pathogen diversity, transmission and evolution, and plant damage including cell structure and impact on yield were also discussed. The most cited diseases were ratoon stunt, leaf scald, red stripe, rust, smut, yellow leaf, and mosaic. A section meeting was held on 16 November at the Convention Centre.

The Entomology section consisted of 15 oral and 5 poster presentations. The majority of the presentations addressed the biology and management of *Diatraea* spp. stem borers in the Western Hemisphere. The use of conservation and augmentation biological control, production practices such as fertilization, insecticides, biostimulants, and Bt transgenic technologies was discussed. Other insects covered during workshop presentations were the *Eldana* borer, lesser

cornstalk borer, wireworms, and spittle bugs. Additional topics included yellow canopy syndrome in Australia, as well as the use of eDNA for pest identification, habitat management, and the sterile insect technique.

The booklet of programme and abstracts may be accessed through the following link:
https://issct.org/wp-content/uploads/2024/12/Abstract-book-XIII-Pathology and-XI-Entomology-workshop-2024-final-version.pdf

Photos of the workshop may be found at:
https://drive.google.com/drive/folders/1u41EzPzzQlNsP_4vHzoby8_AUIU9pPG?usp=sharing

Sugar Cane News

Predicting Ag Harvest using ArcGIS and Machine Learning

	Esro ArcGis Blog	**February 28, 2024**	**https://www.esri.com/arcgis-blog/products/arcgis-pro/natural-resources/predict-ag-harvest**

A long time ago… a hunter-gatherer planted a seed in the ground and, thus, agriculture was born.

And ever since then, farmers have been analyzing patterns and drawing their own correlations in an effort to predict and control their crop's performance. For example, the ancient Egyptians carefully planned their planting and harvest around the flooding patterns of the Nile River. Medieval farmers rotated their crops to maximize yield. And within the last few centuries, growers have used tools such as the Old Farmer's Almanac to predict each year's growing season conditions.

As a member of Esri's commercial agriculture team, I decided to run through the exercise of training a machine learning model to forecast sugarcane yield using ArcGIS Pro. The first step to creating a yield forecasting model is to establish which variables you have access to. For this exercise, I used sugarcane field boundaries, historic sugarcane harvest data for my boundaries (7 years), irrigation method, cut stage, regional soil data, climatic data from TerraClimate, and Sentinel-2 multispectral satellite imagery.

Australia Invests $10.4M in Sugarcane Waste-to-Fuel Projects to Cut Aviation Emissions

ESG NEWS	**ESG News**	**February 27**	**https://esgnews.com/australia-invests-10-4m-in-sugarcane-waste-to-fuel-projects-to-cut-aviation-emissions/**
	Australia is investing in sustainable aviation fuel (SAF) with a combined $10.4 million in funding to boost green initiatives at Brisbane Airport. *The Australian Renewable Energy Agency (ARENA) will provide $8 million to technology firm Licella for a feasibility study to build a biorefinery in Queensland. The project, named Project Swift, will convert sugarcane waste into 60 million litres of low-carbon liquid fuels annually, with 40 million litres dedicated to SAF.*		

Recharging Renewables: Tapping bagasse-based cogeneration for better efficiency

RenewableWatch	**RenewableWatch**	**April 1, 2025**	**https://renewablewatch.in/2025/04/01/recharging-renewables-tapping-bagasse-based-cogeneration-for-better-efficiency/**
	Cogeneration (or combined heat and power [CHP]) systems provide steam and power to industrial and other plants throughout the world. Very high efficiency levels, in the range of 75-90 per cent, can be reached, as compared to conventional power plants where the efficiency level is only around 35 per cent. *This is because the low-pressure exhaust steam from the turbine is not condensed, but is recycled back to the factory for process use. The power produced by these cogeneration plants is thus used within the plant as auxiliary consumption, with the surplus being exported to the grid.*		

Brazil's Eike Batista eyes new $500 mln Gulf investment in 'supercane' project

Reuters	**Reuters**	**March 31, 2025**	**https://www.reuters.com/business/energy/brazils-eike-batista-eyes-new-500-mln-gulf-investment-supercane-project-2025-03-31/**
	Brazilian businessman Eike Batista, once the country's richest man, said a Gulf investor will soon announce a $500 million investment in his new project using modified sugarcane to ramp up production of sustainable fuels. *The project, which had already secured $500 million from Sao Paulo-based private development bank Brazilinvest, aims to close another investment of that size this week from a strategic investor in the United Arab Emirates, Batista told Reuters.*		

EID Parry and Boomitra partner to scale regenerative agriculture and carbon finance for sugarcane farmers in India

ChiniMandi	**ChiniMandi**	**March 18, 2025**	**https://www.chinimandi.com/eid-parry-and-boomitra-partner-to-scale-regenerative-agriculture-and-carbon-finance-for-sugarcane-farmers-in-india/**
	Boomitra, a global leader in soil carbon markets and recipient of the 2023 Earthshot Prize, has partnered with EID Parry, one of India's largest integrated sugar producers, to advance sustainable sugarcane farming practices in India. *Together, the organizations will equip farmers with regenerative agricultural tools, improve soil health, and unlock access to carbon finance, aligning with India's goals for climate resilience and agricultural sustainability.*		

AI technology boosting sugarcane yield and efficiency : Harshvardhan Patil

ChiniMandi	**ChiniMandi**	**March 10, 2024**	**https://www.chinimandi.com/ai-technology-boosting-sugarcane-yield-and-efficiency-harshvardhan-patil/** *[Paywall]*
	*The use of **artificial intelligence (AI)** technology in sugarcane farming has led to a 40% increase in yield while also improving sugar recovery rates, according to research findings. AI-driven techniques have also helped conserve water and fertilizers, making farming more efficient.* *National Federation of Cooperative Sugar Factories President Harshvardhan Patil believes AI will revolutionize sugarcane farming, reports Agrowon.*		

Yanmar and JIRCAS Establish Deep-Planting Technology for Enhanced Sugar Cane Yields and Reduced Environmental Impact

YANMAR	**Yanmar**	**April 2, 2025**	**https://www.mynewsdesk.com/yanmar/pressreleases/yanmar-and-jircas-establish-deep-planting-technology-for-enhanced-sugar-cane-yields-and-reduced-environmental-impact-3379101**

	Yanmar Agri Co., Ltd., a subsidiary of Yanmar Holdings, has developed deep-planting cultivation technology to improve sugarcane productivity while minimizing environmental impact. This technology was created in collaboration with the Japan International Research Center for Agricultural Sciences (JIRCAS). Following successful research, Yanmar Agri is now launching full-scale sales of related products.

Thailand unveils smart farming platform powered by AI and IoT

	Nation Thailand	**January 10, 2025**	**https://www.nationthailand.com/news/general/40046572**
	Thailand has unveiled a new smart farming platform, "HandySense B-Farm", which harnesses the power of smart sensors, artificial intelligence (AI) and Internet of Things (IoT) to help farmers control and manage their farms efficiently. *It will help reduce cost and boost the Thai agricultural sector's competitiveness at the global level. HandySense B-Farm was recently launched by the National Electronics and Computer Technology Centre (NECTEC) as part of the digital agriculture promotion policy of the National Science and Technology Development Agency.*		

Vietnam Sugarcane Association calls for revised biomass approach

	Bioenergy Insight	**March 5, 2025**	**https://www.bioenergy-news.com/news/vietnam-sugarcane-association-calls-for-revised-biomass-approach/**
	Australia is investing in sustainable aviation fuel (SAF) with a combined $10.4 million in funding to boost green initiatives at Brisbane Airport. *The Australian Renewable Energy Agency (ARENA) will provide $8 million to technology firm Licella for a feasibility study to build a biorefinery in Queensland. The project, named Project Swift, will convert sugarcane waste into 60 million litres of low-carbon liquid fuels annually, with 40 million litres dedicated to SAF.*		

Latest Research

Performance assessment of a cogeneration system in a sugar cane factory using energy and exergy analysis



Sugar cane is one of the most important industrial crops, providing vital products such as sugar, molasses, and bagasse. The bagasse serves as the primary fuel in cogeneration systems. This paper investigates the energy and exergy efficiencies of the entire sugar production process at the Edfu Sugar Factory in Egypt, including raw juice production, juice heating, evaporation, crystallization, and the performance of boilers, turbines, and de-superheaters. Utilizing actual operational data, the analysis identifies significant energy losses, with the raw juice production (RJP) process experiencing the highest loss at 58,959 kW, followed closely by the boilers at 52,111 kW. As well, the results indicate that boilers account for 78.38 % of the total exergy destruction in the system, revealing critical inefficiencies. Moreover, the overall energy and exergy efficiencies are 87.15 % and 66.45 %, respectively. To address inefficiencies, two modifications were proposed: replacing mechanical turbines in RJP process with direct current (DC) motors, boosting power output by 5500 kW, providing 2000 kW for grid export, and saving 163,200 $ annually; and reducing bagasse moisture by 42 % using flue gas waste heat, increasing boiler exergy efficiency by 3.82 % and overall system efficiency by 3.38 %, saving 29,376 tons of bagasse annually, valued at 763,776 $. This study is novel in its comprehensive analysis of the entire sugarcane production process at the sugar factory, offering practical solutions to mitigate high energy losses and inefficiencies. It provides valuable insights for similar industrial settings, where energy conservation is critical for both economic viability and environmental sustainability.

Published January 2025

> Link

The Effect Of NPK Fertilizer Doses And Biofertilizers On The Growth Of Sugar Cane Chips Bud (Saccharum Officinarum L.) Seedlings



The need of sugar cane for sugar production continues to increase yearly as human population increasing. Based on Central Bureau of Statistics, sugar cane production in Indonesia grew by 3.54% per year. However, this growth is not sufficient to meet the sugar demand of 2.70 million tons. The cause of Indonesia's low sugar production can be seen from the on-farm side, namely seed preparation. Preparing seeds using conventional methods (mules) affects the seeding time because it takes 6 months for one planting period. The experimental design was carried out using the basic pattern of a Completely Randomized Factorial Design consisting of two factors with three replications. Factor I, namely the dose of NPK inorganic fertilizer (16:16:16) and Factor II, namely the dose of Sinarbio biological fertilizer. The results of the research were (1) The interaction between the treatment of NPK fertilizer doses and biofertilizer doses on the growth of sugarcane bud chip seedlings had a significant effect on shoot length and an insignificant effect on the variables number of leaves, stem diameter, number of tillers, root volume, root wet weight and root dry weight. (2) The effect of NPK fertilizer dosage on the growth of sugarcane bud chip seedlings had no significant effect on all observed variables except root wet weight and number of tillers. (3) The effect of

biofertilizer dosage on the growth of sugarcane bud chip seedlings had no significant effect on all observed variables except root volume.

Published: March 2025

> Link

Optimizing algal-bacterial systems for efficient sugar cane wastewater treatment: Pollutant removal and biomass resource recovery



Sugarcane wastewater is highly biodegradable; however, conventional single-treatment processes are constrained by its excessive organic load. Here, we integrated anaerobic acidification with microalgal bioaugmentation to establish an algal-bacterial symbiotic system, leveraging metabolic synergies within functional microbial consortia. The results demonstrate that this system enables the synergistic integration of anaerobic and aerobic bacteria with microalgae, forming a highly efficient metabolic network that enhances water purification. By systematically investigating environmental determinants of water purification and biomass dynamics in conjunction with response surface methodology (RSM), we optimized environmental parameters. The optimized parameters included an aeration rate of 267 mL/min, a light intensity of 6985 lx, and a 12:12 h light–dark photoperiod. Under optimized conditions, the system achieved a COD removal efficiency of 98.56 % and a biomass yield of 3.43 g/L, underscoring dual efficacy in organic load reduction, aeration demand minimization, and resource recovery. This work provides a sustainable approach for treating high-strength sugarcane wastewater through integrated algal-bacterial processes

Published: 7 April 2025

> Link

Renewable and Sustainable Biorefinery: A Patent Review

Biorefineries can refer to forms of fuel production through renewable biomass derivatives, using different structures of lignocellulosic material, such as lignin, hemicellulose, and cellulose. From lignin, we can produce natural binders and adhesives, among other products. With hemicellulose, we can produce emulsifiers, resins, or lubricants, for example. Using cellulose, we can produce fuels, such as ethanol and biodiesel, or even solvents. Fuels from biorefineries can replace, totally or partially, non-renewable fuels that pollute the environment, such as oil. Considering the climate emergency, we are experiencing, the tendency to reduce the availability of oil, and the negative environmental impacts caused by it, fuels obtained through the processing of renewable plant materials present themselves as a good alternative to replacing fossil fuels. Firstgeneration ethanol (1G) can be obtained by fermenting, for

example, sugar cane juice. Secondgeneration (2G) ethanol can be obtained by processing lignocellulosic waste. In this process, there must be pre-treatment and hydrolysis of the biomass before the fermentation and distillation processes. Third-generation ethanol (3G) can be obtained through the fermentation of substrate present in microalgae. Fourth-generation ethanol (4G), in turn, involves the integration of production processes from other generations, increasing the efficiency of 2G and 3G processes for ethanol production.

Objective: *The objective of this study was to investigate the scenario of patent registrations filed both on the Google Patents platform and Espacenet, which proposes the production of fuels from biorefineries, that are renewable and sustainable.*

Published: March 2025

> **Link**

The multi-dimensional environmental impact of global crop commodities

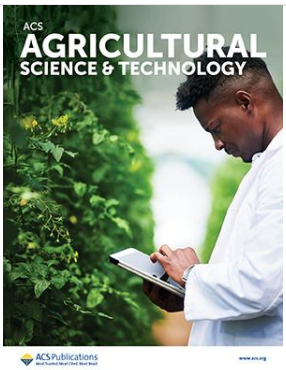
nature sustainability

Agriculture is one of the leading causes of detrimental environmental impacts, including greenhouse gas emissions, biodiversity loss and depletion of freshwater resources. Such impacts can be assessed by environmental sustainability indices; however, limitations in current indicators necessitate the development of more robust and standardized crop-specific environmental sustainability indices. Here we developed the crop environmental sustainability index (PLANTdex), a spatially explicit index (5 arcmin resolution) quantifying crop production's environmental impacts. PLANTdex includes globally standardized indicators of environmental impacts assessing water stress and biodiversity loss via five emissions pathways: greenhouse gas emissions, water consumption, land occupation, and nitrogen and phosphorus fertilizer application. We applied PLANTdex to 16 crops, revealing high variability across production system efficiencies, crop types and local context environmental sensitivities. Globally and nationally, no clear correlation emerged between PLANTdex scores and crop production, but stronger correlations were evident at finer spatial scales and for individual crops. Sugar cane showed the strongest negative correlation (low impacts in high-production areas), while oil palm had the strongest positive correlation (high impacts in high-production areas), highlighting the importance of sub-national, crop-specific assessments. PLANTdex's spatial resolution and crop specificity make it valuable for initiatives such as the Taskforce on Nature-related Financial Disclosures and corporate sustainability strategies.

Published: March 2025

> **Link**

Rapid Analysis of Sugarcane with High Extraneous Matter by Near-Infrared Spectroscopy

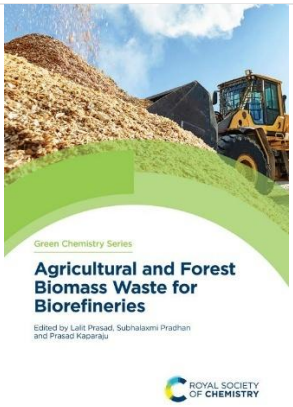


Efficient analysis of sugar cane quality is critical for the global sugar industry, which is valued at approximately $78 billion annually. Near-infrared (NIR) spectroscopy is a rapid, nondestructive alternative for analyzing multiple quality parameters of sugar cane. However, sugar cane with large amounts of extraneous matter (EM)—soil, green and brown leaves, roots, and tops—presents a unique challenge to NIR analysis due to the increased scattering and absorption from the EM, which is becoming increasingly relevant as climate change intensifies rainfall patterns, mechanical harvesting replaces manual methods, and environmental regulations promote green cane harvesting. This study evaluates the potential of NIR spectroscopy as a rapid, nondestructive alternative for analyzing multiple quality parameters of sugar cane with high EM values. Samples of shredded cane, pressed cane, and pressed juice were collected from three Louisiana (LA) sugar factories. Partial least squares regression models with k-fold cross-validation were developed to relate NIR spectra to reference values. The models demonstrated that pressed juice and pressed cane samples yielded the most accurate predictions of Brix, pol, and moisture, outperforming shredded cane samples. These findings support the practical implementation of NIR spectroscopy for the rapid and accurate determination of multiple quality parameters, from sugar cane with high EM.

Published: March 20, 2025

> Link

Implementation of the Biorefinery Concept in Existing Sugarcane Industries



Sugarcane is the most cultivated crop globally. Around 279 million tonnes of solid and liquid waste and byproducts, such as trash, bagasse, mill mud, and molasses, are produced annually by the sugarcane processing industries worldwide. In order to achieve policies and objectives related to the circular bioeconomy and sustainable development, there has been a recent growth in the valorisation of waste and by-products. Converting the existing sugarcane mills to biorefineries will significantly benefit the utilisation of by-products produced. Different technologies can be used to transform these by-products in a sugarcane industry to generate bioenergy, biofuels, and other biochemicals. Molasses falls under the first generation (1G) of waste, whereas second generation (2G) waste includes trash, bagasse, and mill mud. This chapter demonstrates that the sugarcane biorefinery is a highly effective platform for converting the entire lignocellulosic biomass into bioenergy and a range of biobased products.

Published: March 7, 2025

> Link

A Review on the Mechanization of Sugar Cane Harvesting in Brazil

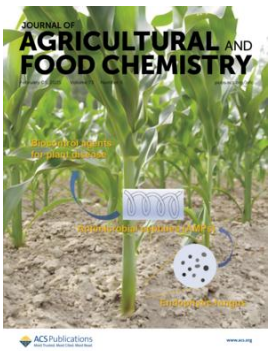


In recent years, the demand of renewable energy has steadily increased. The cultivation of sugarcane as a source of energy supports the production of ethanol. A distinction between green and burned cane harvesting reveals general differences in existing harvest methods and clarifies the necessity of mechanized harvesting. This paper provides a detailed description of the mechanized concept and a holistic view of the entire harvesting chain, enabling a deep understanding of the operating principles. A comparison between Australian and Brazilian regions of cultivation explains differences and emphasizes strengths as well as weaknesses of the current system within the use on Brazilian sugarcane fields. This work aims to give an overview about the currently used mechanized sugarcane harvesting techniques in Brazil and their associated issues, thereby contributing to potential improvements.

Published: January 2025

> **Link**

Deciphering the Genetic Basis of Sugar Cane (*Saccharum spontaneum* L) Root System and Related Traits under Nitrogen Stress through the Integration of Genome-Wide Association Studies and RNA-seq

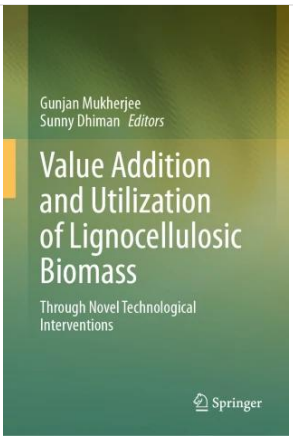


Nitrogen (N) is an essential element for plant growth and development. Identifying functional gene loci associated with nitrogen absorption and utilization in sugar cane can facilitate the development of nutrient-efficient sugar cane varieties. In this study, sugar cane seedlings were subjected to normal and low nitrogen stress treatments within a hydroponic system for the identification of candidate genes related to six root-associated traits using a diversity population of 297 accessions. A total of 262 single nucleotide polymorphisms were found to be significantly associated with the mutation, including 30 stable or pleiotropic loci. The integration of genome-wide association studies and differential gene analysis from RNA sequencing (RNA-seq) identified five key candidate genes. Overexpression of one of them, ScMYB-CC gene, in Arabidopsis significantly affected root growth and development. In summary, the findings of this study provide valuable genetic resources for the breeding of nitrogen-efficient sugar cane varieties.

Published: January 21, 2025

> **Link**

Bioethanol for "Bharat" (India): A Focused Journey Toward Sustainability

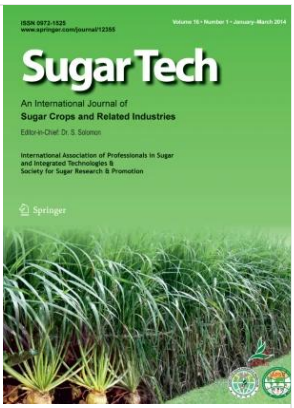


The Indian government has been strengthening its Ethanol-Blended Petrol (EBP) program in an effort to become more self-sufficient in the energy sector in a sustainable manner. Presently, Indian ethanol producers and oil marketing companies (OMCs) are striving to achieve a 20% ethanol blending target nationwide by 2025–2026, which calls for more than 1000 crore liters of ethanol. Apart from being renewable, ethanol when blended with petrol is also a better fuel for the environment than regular fossil-based petrol. Over the past few years, the country has witnessed a notable expansion in the ethanol sector, with over 100 new distilleries, and marked the capacity of 1623 crore liters by 2023–2024. The Indian government's diversification of feedstocks allows producers to ferment ethanol from a variety of sources, including sugarcane juice, syrup, starchy grains like surplus rice, maize, and damaged food grains, in addition to molasses, which was previously the primary raw material for bioethanol production. This allows flexibility for the producers to produce 1G ethanol. The work has also been done and is still being done in the area of 2G ethanol, which uses lignocellulosic feedstocks such as agro-residues to ferment fuel-grade ethanol.

Published: March 29, 2024

> **Link**

Growth Analysis and Simulation Approach for Sugarcane Genotypes Grown Under Different Growing Seasons



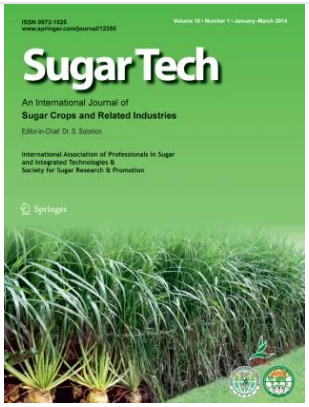
Selecting the appropriate genotypes for various growing seasons and environments could improve sugarcane productivity, and the decision support system for agrotechnology transfer (DSSAT) program offers a tool to decrease time and resources for this process. The objectives of this study were to evaluate the performances of four sugarcane genotypes (Phukeaw 1 (PK1), Phukeaw 2 (PK2), MPT09-296, and Khon Kaen (KK3)) for planting dates of 1 Mar 2020 and 15 Dec 2020, and to calibrate and validate the genetic coefficients of four sugarcane genotypes for the Canegro model. Four sugarcane genotypes were evaluated using a randomized complete block design (RCBD) with four replications in two growing periods from 2020 to 2021 in Chaiyaphum, Thailand. Soil characteristics before planting, crop traits, weather data, and management data were recorded as input for model calibration to determine the genetic coefficients. Low temperatures and solar radiation were associated with low biomass accumulation rates when planting on 15 Dec 2020. KK3 appeared to be a good genotype in terms of total and stalk dry weights at the final harvest. On the 1 Mar 2020 planting date, KK3 showed the highest value of CGR from 4 to 6 MAP and 8–10 MAP, except for the 15 Dec 2020 planting date, where it achieved the highest value of CGR only from 4 to 6 MAP. The calibration results generally showed good accuracy between simulated and observed sugarcane traits, as indicated by d-stat values above 0.8 for all sugarcane genotypes. For model validation using an independent data set, the results revealed fair to good agreement between simulated and observed values for total stalk dry weight, stalk height, and sucrose percentage. This suggests the

model's potential as a tool for evaluating sugarcane genotype performance across different growing seasons.

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> Link

Repurposing Spent Sugarcane Bagasse Biosorbent from Waste Lubricating Oil Spill into Biochar



This research explored the potential of sugarcane bagasse (SGB) as a sustainable biosorbent material for waste lubricating oil spill remediation. Then the study introduces an eco-novel strategy for repurposing expended sugarcane bagasse (SGO) that has been used to clean up lubricating oil into biochar and pragmatically analyzes the impact of sorbed oil on the resulting biochar. A non-electric and low-temperature auto-thermal, top-lit updraft gasifier was employed to carbonize the bagasse feedstocks for 120 min. At peak temperatures of 311 °C and 321 °C, a yield of 31.30% and 23.47 wt.% was recorded for SGB and SGO, respectively. The SEM, FTIR, and BET analyses revealed that the sorbed lubricating oil had some positive impact on SGO. Firstly, the textual profile analysis showed that both biochars are mesoporous, with SGO having a superior surface area of 542.265 m^2/g compared to SGB (527.645 m^2/g). The FTIR analysis also reveals the presence of different O-containing functional groups, with SGO having more carbon networks in these functional groups. The SEM analysis shows that the biochar samples have a heterogeneous mixture of particles with various layered structures, shapes, and sizes. More specifically, SGB has a striated structure with slit-shaped pores, while SGO has a network of blind, open, and closed interconnected pores with a glossily rough structure. The improved SGO biochar exhibits meritorious potential in practical applications like fillers for composite production, and energy storage devices, thus demonstrating an eco-conscious solution for repurposing expended biosorbent and promoting environmental sustainability.

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Events



Geneva Sugar Conference 2025
S&P Global

23 April – 24 April 2025

Geneva, Switzerland

> **Link**

Annual Conference of the Australian Society of Sugar Cane Technologists (ASSCT)
ASSCT

28 April – 2 May 2025

Brisbane, Queensland, Australia

> **Link**

97th SASTA Congress 2025
SASTA

12 August – 14 August 2025

ICC, Durban, South Africa

> **Link**

	Fenasucro & Agrocana *RX Events* **12 August – 15 August 2025** **Centro de Eventos Zanini** **Marginal João Olézio Marques, 3.563** **Chácara Recreio Planalto - Sertãozinho/SP, Brazil** > **Link**
	**ISSCT XXXII Centennial Congress** *International Society of Sugar Cane Technologists / Asociación Colombiana de Tecnicos de la Caña de Azúcar (TECNICAÑA).* **21-31 August 2025** **Centro de Eventos Valle del Pacifico, Cali – Colombia** > **Link**
	ISSCT Management Commission Workshop *International Society of Sugar Cane Technologists* *Call for abstracts* **26-27 August 2025** **Cali, Colombia** > **Link**

11th Edition Sugarex THAILAND 2025	**SugarEx Thailand 2025** *Fireworks Media (Thailand)* **11-12 September 2025** **Khonkaen International Convention & Exhibition Center, Khonkaen, Thailand** > **Link**
7th Edition Sugarex INDONESIA 2025 An International Exhibition of Sugar Companies, Sugar Technology, and Its Supporting Industries	**SugarEx Indonesia 2025** *Fireworks Exhibitions* **19-20 November 2025** **Surabaya, Jawa Timur, Indonesia** > **Link**
	**34th International Sugar Organization Seminar** *ISO* **2-3 December 2025** **Westminster, London, UK** > **Link**