August 2021

International Society of Sugar Cane Technologists
Founded 1924

Bulletin

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News from ISSCT

Announcement on Workshops

Dear ISSCT Members

We wish to inform you that a virtual meeting of the Executive Committee and TPC was held on Thursday 8 July 2021. The main discussion centered around the holding of the 2021-22 Workshops and the XXXI Congress scheduled for December 2022.

Taking into consideration the:

- High incidence of COVID-19 across continents
- Possible appearance of new variants
- Closure of borders
- Travel restrictions imposed by many countries and the necessity of undergoing quarantine upon arrival at destinations and upon return home
- Low registrations by our members to participate in our workshops owing to the preceding factors

it has been decided to postpone all workshops and possibly hold them within the XXXI Congress in December 2022.

A decision on whether the Congress itself will go ahead in December 2022 will be considered in October 2021 by the Executive Committee and TPC.
One outcome of the meeting was to trial webinars in different disciplines to keep our society active and allowing our members exchange of updated information on technical matters.

Further information will be communicated to you after the next meeting of Executive Committee and TPC scheduled for late October 2021. If you need additional information or clarification, do not hesitate to contact us at issct@intnet.mu

Kind regards

Jean Claude Autrey
General Secretary

Sugar Cane News

First Breeding of Sugar Cane Using CRISPR/Cas9 [USA]

	Technology Networks	**July 13, 2021**	**https://www.technologynetworks.com/genomics/news/first-breeding-of-sugar-cane-using-crisprcas9-350804**

Two recently published innovations by University of Florida researchers at the Department of Energy's Center for Advanced Bioenergy and Bioproducts Innovation (CABBI) demonstrated the first successful precision breeding of sugarcane by using CRISPR/Cas9 genome editing -- a far more targeted and efficient way to develop new varieties.

In the first report, researchers demonstrated the ability to turn off variable numbers of copies of the magnesium chelatase gene, a key enzyme for chlorophyll biosynthesis in sugarcane, producing rapidly identifiable plants with light green to yellow leaves. Light green plants did not show growth reduction and may require less nitrogen fertilizer to produce the same amount of biomass. That study, published in Frontiers in Genome Editing, was led by CABBI researchers Fredy Altpeter, Professor of Agronomy at the University of Florida's Institute of Food and Agricultural Sciences (IFAS), and Ayman Eid, a Postdoctoral Research Associate in Altpeter's lab.

NASA investigating effects of sugarcane burning on air quality in the Glades [USA]

	CBS 12	**July 22, 2021**	**https://cbs12.com/news/local/nasa-investigating-effects-of-sugarcane-burning-on-air-quality-in-the-glades**

NASA invested over a quarter of a million dollars into a research project investigating the air quality in the Glades region and the effects of sugarcane burning on public health.

*The research will be spearheaded by Sheryl Magzamen, a Colorado State University professor who specializes in air quality and public health. Magzamen says she was inspired to submit a research proposal to NASA following an **independent investigation** into sugarcane burning in the Glades by ProPublica and the Palm Beach Post.*

Magzamen says researchers will come to the Glades for burning season and spend about one year studying the effects of sugarcane burning with NASA air quality sensors, tracking the smoke with NASA satellites.

Proposed Louisiana Sugar Refining expansion could boost output of Gramercy plant by 50% [USA]

	The Advocate	**May 14, 2021**	**https://www.theadvocate.com/baton_rouge/news/business/article_0b5e9d7a-b4c3-11eb-8fd1-131e57ec0d7a.html**

Louisiana Sugar Refining is expanding its Gramercy refinery, a move the company said will potentially boost its capacity by 50%.

The expansion would include infrastructure improvements to increase refining capacity, such as producing more value-added products and upgrading packing capabilities. More rail tracks would be added and load-out operations would be expanded to move sugar faster and more efficiently.

Coffee, cane and orange crops at risk as temperatures plunge in Brazil

	Indian Express	**July 30, 2021**	**https://indianexpress.com/article/technology/science/coffee-cane-orange-crops-temperatures-brazil-7430115/**

Temperatures fell in swathes of Brazil on Thursday – with rare snowfall overnight in some places – as a polar air mass advanced toward the center-south of the global agricultural powerhouse, threatening coffee, sugarcane and orange Brazil government warns of frosts in corn and wheat areas crops with frosts.

Unusually cold weather in Brazil has already sent international prices for coffee and sugar higher and Friday was forecast to be the coldest day of the year, according to Marco Antonio dos Santos, a partner at weather consultancy firm Rural Clima.

Brazil biofuel producer Raízen seeks to raise $1.34bn in IPO

	California News Times	**July 16, 2021**	**https://californianewstimes.com/brazil-biofuel-producer-raizen-seeks-to-raise-1-34bn-in-ipo/439757/**

The joint venture between Royal Dutch Shell and Cosan, an energy conglomerate that produces sugarcane-derived biofuels, has reached Real 6.9 billion ($1.34 billion) through a stock market listing that has been ranked as one of Brazil's largest so far this year.

Founded 10 years ago, Raízen is Brazil's fourth-largest company in terms of sales, with approximately 30,000 employees.

In a securities filing on Wednesday, he said he would sell about 8% of the shares through an initial public offering on the B3 Stock Exchange in Sao Paulo.

Beneficiaries of Belle Vue Maurel Blueprint Employees' Site Receive Their Title Deeds [Mauritius]

	AllAfrica	**July 15, 2021**	**https://allafrica.com/stories/202107150788.html**

Some 21 beneficiaries of Belle Vue Maurel Blueprint Employees' Site were handed over their title deeds, yesterday, during an official ceremony organised by Alteo Limited/Terra Milling Ltd in collaboration with the Mauritius Cane Industry Authority (MCIA), at the Club House of Alteo in Union Flacq. Beneficiaries are former employees of the ex-Mon Loisir sugar factory which closed down in 2012.

	In his address, Minister Gobin commended the renewed public-private partnership, which will be beneficial for the Mauritian cane industry. He highlighted that with new bold measures introduced by Government and following consultations with captains of the sector and development partners such as the World Bank, the cane industry still has a bright future ahead.

Sri Lanka plans to export sugar for Rs2,500 a kg after fertilizer ban: Minister

economynext	**Economy Next**	**July 22, 2021**	**https://economynext.com/sri-lanka-plans-to-export-sugar-for-rs2500-a-kg-after-fertilizer-ban-minister-84186/**
	Sri Lanka could export sugar at 2500 rupees a kilogram (about 12 US dollars) after banning agro-chemicals, and also produce 20 percent of the country's organic fertilizer, a minister said. *Farmers will be saved with a superior organic fertilizer produced two state sugar firms, State Minister of Development of Minor Crops including Sugarcane, Maize, Cashew, Pepper, Cinnamon, Cloves, Betel Related Industries and Export Promotion Janaka Wakkumbura said.* *State sugar enterprises were aiming to get an organic certification by 2023 and export sugar at high prices, he said.*		

Increase in ethanol capacities to improve credit profile of sugar mills in FY23: Report [India]

ET Auto.com From The Economic Times	**ET Auto**	**July 20, 2021**	**https://auto.economictimes.indiatimes.com/news/oil-and-lubes/increase-in-ethanol-capacities-to-improve-credit-profile-of-sugar-mills-in-fy23-report/84587088**
	Advancement of Ethanol Blended Petrol-EBP20 along with favourable policies such as remunerative pricing of ethanol, easing of regulations to enable interstate movements as well as relatively relaxed procurement procedures by oil marketing companies (OMCs) have enthused large sugar mills to step up their distillery capacities, ICRA Senior Vice-President and Group Head Sabyasachi Majumdar said.		

Institute sets up mini mill [Fiji]

The Fiji Times	**The Fiji Times**	**July 31, 2021**	**https://www.fijitimes.com/institute-sets-up-mini-mill/**
	The Sugar Research Institute of Fiji (SRIF) has set up a miniature sugar mill to test sugar quality. *Senior technical officer Sailasa Balemailautoka said the miniature mill analysed cane samples from SRIF trials.* *"It provides the necessary information on cane in terms of quality indexes and the sugar content," he said.*		

Dubai Sugar Giant Gets Go Ahead to Build Beet Factory in Spain

Bloomberg	**Bloomberg**	**July 18, 2021**	**https://www.bloomberg.com/news/articles/2021-07-18/dubai-sugar-giant-gets-go-ahead-to-build-beet-factory-in-spain**
	Dubai's Al Khaleej Sugar Co., owner of the world's largest port-based sugar refinery, received the green light to build a factory in Spain, extending its reach beyond the Middle East and North Africa. The company plans to start construction of the plant in Merida next year, said Managing Director Jamal Al Ghurair. The agreement between its subsidiary Iberica Sugar Co. and Spanish authorities was signed on Friday, he said.		

India Sugar Stocks Set To Fall To 4-Year Low On Record Exports - Trade Body

Successful Farming	**Successful Farming**	**July 14, 2021**	**https://www.agriculture.com/markets/newswire/india-sugar-stocks-set-to-fall-to-4-year-low-on-record-exports-trade-body**
	India's sugar inventories have been depleted by 19% and the country could start the 2021/22 marketing year with lowest the stocks in four years after mills exported a record amount in the current year, a leading trade body said on Wednesday. *Lower inventories could support local prices and may reduce exports in the next marketing year from the world's second biggest sugar producer, in turn supporting global prices.*		

Brazilian ethanol pollutes less than assumed – study

The Rio Times	**The Rio Times**	**July 18, 2021**	**https://riotimesonline.com/brazil-news/brazil/brazilian-ethanol-pollutes-less-than-assumed-study/**
	Brazilian ethanol produced from sugarcane is even more sustainable than previously thought, according to a study coordinated by the National Center for Energy and Materials Research. CNPEM researchers, in collaboration with the Agronomy Institute of Campinas (IAC), have developed a new model for calculating the so-called carbon equivalent that considers the specific characteristics of the soil of sugarcane plantations in the country.		

Sugar mills may earn Rs 15,000 crore revenue in 2020-21 from ethanol supply to OMCs [India]

	ET Auto	**July 28, 2021**	**https://auto.economictimes.indiatimes.com/news/oil-and-lubes/sugar-mills-may-earn-rs-15000-crore-revenue-in-2020-21-from-ethanol-supply-to-omcs/84821280**

Sugar mills are likely to earn revenues of about Rs 15,000 crore in the 2020-21 marketing year ending November by selling ethanol to oil marketing companies (OMCs), the government said on Tuesday. In a written reply to the Lok Sabha, Minister of State for Food and Consumer Affairs Sadhvi Niranjan Jyoti said the country is self-reliant in sugar production.

In a normal sugar season (October-September), production of sugar in the country is around 320-330 lakh tonne as against the domestic consumption of 260 lakh tonne, she said.

Due to surplus production, the minister said the ex-mill prices of sugar remain subdued resulting in cash loss to sugar mills. This excess stock of 60-70 lakh tonne also leads to blockage of funds and affects the liquidity of sugar mills resulting in accumulation of cane price arrears of farmers.

Guatemala records a 7.2% reduction in sugar harvest in 2021

	The Rio Times	**July 28, 2021**	**https://riotimesonline.com/brazil-news/mercosur/central-america/guatemala-records-a-7-2-reduction-in-sugar-harvest-in-2021/**

The 2020-2021 sugar harvest in Guatemala closed with a production of 2.56 million metric tons, 7.2% less than the previous season, informed Thursday, the entrepreneurs of that sector of the country. According to the Guatemalan Sugar Producers Association (Asazgua) statistics, the total harvest between 2020 and 2021 was 55,758,979 quintals, some 2.56 million tons.

From taxing salt and sugar to reducing animal proteins: The controversial proposals in the UK's National Food Strategy paper

	Food Navigator	**July 15, 2021**	**https://www.foodnavigator.com/Article/2021/07/15/From-taxing-salt-and-sugar-to-reducing-animal-proteins-The-controversial-proposals-in-the-UK-s-National-Food-Strategy-paper?utm_source=copyright&utm_medium=OnSite&utm_campaign=copyright**

In 2019 the UK government commissioned a review of the country's food system. Today, the results are in – and the far-reaching paper includes some controversial recommendations.

Latest Research

Energycane Yields More Biodiesel at Lower Cost Than Soybeans

Bioenergy from crops is a sustainable alternative to fossil fuels. New crops such as energycane can produce several times more fuel per acre than soybeans. Yet, challenges remain in processing the crops to extract fuel efficiently.

Four new studies from the University of Illinois explore chemical-free pretreatment methods, development of high-throughput phenotyping methods, and commercial-scale techno-economic feasibility of producing fuel from energycane in various scenarios.

The studies are part of the ROGUE (Renewable Oil Generated with Ultra-productive Energycane) project at U of I. ROGUE focuses on bioengineering accumulation of triacylglycerides (TAGs) in the leaves and stems of energycane, enabling the production of much more industrial vegetable oil per acre than previously possible.

Published: 12 July 2021

> **Link**

UF/IFAS study links soil fertility, nutrient loss in organic soils to activity of archaeal microbes

University of Florida scientists have found an explanation for the occurrence of high nutrient loss in the Everglades Agricultural Area (EAA). The discovery will help precipitate new approaches to soil fertility and nutrient retention in this highly coveted agricultural land in South Florida.

The latest study, conducted by assistant professor Willm Martens-Habbena and his team at UF/IFAS Fort Lauderdale Research and Education Center in collaboration with a team at the Everglades Research and Education Center in Belle Glade, demonstrates how the unusually high abundance of microbes known as ammonia-oxidizing archaea (AOA) is the source of a decades-old problem and strong concern among farmers, surrounding communities and scientists alike.

Published: 06 July 2021

> **Link**

Solid-state anaerobic digestion of sugarcane bagasse at different solid concentrations: Impact of bio augmented cellulolytic bacteria on methane yield and insights on microbial diversity

This study investigated the impact of the potential cellulose degrading bacteria that could be bioaugmented in the solid-state anaerobic

digestion (SSAD) of bagasse to enhance the methane yield. The prospective anaerobic cellulose degrading bacteria was isolated from the soil. SSAD experiments were organized with & without bioaugmentation with a substrate total solid (TS) of 25%, 30%, 40% and 50% at an optimized feed to microorganism (F/M) ratio of 1:1. The maximum yield of 0.44 L CH_4/(g VS added) was obtained from bioaugmented bagasse at a TS of 40% whereas it was 0.34 L CH_4/(g VS added) for non-bioaugmented bagasse. The isolated bacterial strain was identified that belongs species Pseudomonas of Gamma Proteobacteria which exhibited good cellulolytic activity. Metagenomic studies found 90% of archaeal microorganisms affiliated to Methanosaeta, a strict acetoclastic methanogen.

Published: 06 July 2021

> **Link**

Effects of Acidic Deep Eutectic Solvents Pretreatment on Sugarcane Bagasse for Efficient 5-HMF Production



In this study, natural deep eutectic solvent (DES) was developed to deconstruct the recalcitrant structure of sugarcane bagasse (SCB) for further 5-hydroxymethylfurfural (5-HMF) production. The properties, structure of DES, and the influence of pretreatment and reaction conditions on SCB were studied. The findings revealed that carboxylic acid DES pretreatment resulted in a substantial decrease of hemicelluloses and lignin.

Published: 22 July 2021

> **Link**

Studies on Performance of Mid-Late Sugarcane Genotypes with Different Fertility and Spacing

IndianJournals.com
A Product of Diva Enterprises Pvt. Ltd.

Main reasons for lower cane yield are lack of high-potential varieties, limited irrigation resources, fertility, lack of awareness of plant geometry and technology. The most important factor is ability of genotypes to efficiently utilize the applied nutrients especially NPK. A field experiment was conducted during 2016-17 at research farm of G.S.S.B.R.I., Seorahi, Uttar Pradesh under AICRP(S). The experiment consisted of twenty eight treatment combinations. Seven genotypes/varieties i.e. V-Bo 155, V2- CoSe 11453, V- CoSe 11454, V4- CoSe 11455 and check varieties V5- Bo 91, V6-CoP 9301 and V7- CoSe 93423, two fertility levels i.e. Fr100 per cent recommended dose of NPK, F-125 per cent recommended dose of NPK and two row spacing i.e. Sr90 cm row spacing and S2-120 cm row spacing were tested in factorial randomized block design with three replications.

Published: 21 June 2021

> **Link**

Effect of dewaxing on saccharification and ethanol production from different lignocellulosic biomass



Dewaxing effects on the pretreatment, saccharification and fermentation are rarely reported due to the low abundance of wax in lignocellulose. This study aimed to investigate the effect of wax removal on saccharification and ethanol yield from lignocellulose by using Rice straw (RS), Napier grass (NG), and sugarcane bagasse (SB). The wax contents of 0.56%, 1.7%, and 0.6% were obtained from RS, NG and SB after the wax extraction, respectively. The alkaline pretreatment was applied in combination with dewaxing to decipher the synergistic effect of these treatments. Dewaxing and alkaline pretreatment of lignocellulosic biomass showed changes in the plant compositions. Removal of wax from RS, NG and SB showed significant changes in the surface morphology and functional groups. A higher yield of sugars and ethanol was observed in dewaxed and alkaline pretreated samples. The ethanol yields of 75.4%, 89.85%, and 74% from RS, NG, and SB were obtained after fermentation, respectively.

To be published: November 2021

> **Link**

Drought stress tolerance mechanisms and breeding effort in sugarcane: A review of progress and constraints in South Africa



Drought stress is a major cause of yield losses in sugarcane production and the frequency of its occurrence in several regions is expected to increase due to climate change. Despite the advancements in conventional breeding and transformation technology, developing sugarcane for drought tolerance remains a major challenge. This is not only due to the complexity of the sugarcane genome but also due to the complexity of the plant responses to water deficit and the difficulty of identifying physiological and morphological traits that can be used for the selection of drought-tolerant varieties suitable for commercial production. This review paper integrates literature on our current understanding of the biological effects of drought stress on sugarcane growth in a way that bridges the signalling networks with physiological and genetical defence mechanisms. Special emphases are given to the technical challenges and prospects associated with the practical application of various breeding techniques used for sugarcane improvement in South Africa such as conventional breeding, transgenic approach and ethyl methanesulfonate induced mutations.

To be published: December 2021

> **Link**

A serial membrane-based process for fractionation of xylooligosaccharides from sugarcane straw hydrolysate



Xylooligosaccharides (XOS) can be obtained from sugarcane straw hydrolyzed liquor (SSHL) after pre-treatment by deacetylation followed by hydrothermal process. The fractionation of low molecular weight XOS (LMW XOS) such as xilobiose (X2) and xilotriose (X3) from high molecular weight XOS (HMW XOS) such as xylotetraose (X4), xylopentaose (X5) and xylohexaose (X6) is a challenge to be overcome for biotechnological applications and functional foods with prebiotic potential. In this study, we proposed and investigated the nanofiltration (NF) membranes technology configured as a serial process for XOS fractionation from SSHL in order to isolate LMW XOS. The first membrane selected was NP030 under optimized conditions of 40 bar, 20 °C and pH 4.6, while the second membrane was TS40 under 20 bar, 50 °C and pH 4.6. The serial membrane-based process was improved by integrating 1-time diafiltration (DF) operation. The performance indices for LMW XOS achieved yield of 46.0%, purity of 20.9% and concentration of 3.7 g/L. It was recognized that membrane processes must be considered as one of the downstream strategies for XOS fractionation.

To be published: 14 July 2021

> **Link**

Events

Florida ASSCT Meeting

American Society of Sugar Cane Technologists

12–13 August 2021

Everglades REC, Belle Glade, FL, USA

> **Link**

2021 SASTA Congress

South African Sugar Technologists' Association (SASTA)

17–19 August 2021

Online

> **Link**

Thailand Sugar Conference / SUGAREX Thailand 2021

Fireworks Exhibitions and Conferences

2–3 November 2021 (Rescheduled)

Khonkaen International Convention & Exhibition Center (KICE)

Khonkaen, Thailand

> **Link**

79th STAI Annual Convention and International Sugar Expo 2021

The Sugar Technologists' Association of India (STAI)

Last week of September 2021

Online

> Link

28ª Feira Internacional da Bioenergia

International Sugar Organization

9–12 November 2021

Sertãozinho, Brazil

> Link

30th ISO International Seminar

International Sugar Organization

23–24 November 2021

East Wintergarden, Canary Wharf, London

> Link

4th Agricultural Engineering, Agronomy and Extension Workshop

International Society of Sugar Cane Technologists, CENICAÑA & TECNICAÑA

22 – 25 November 2021

Cali, Colombia

> Link

Sugar & Ethanol Asia

Informa Connect

1 – 3 December 2021

Bangkok, Thailand (and online)

> Link

11th Annual Africa Sugar Conference

Informa Connect

7–9 December 2021

Uganda

> Link

2022 S.I.T. ORLANDO CONFERENCE

Sugar Industry Technologists

17–19 April 2022

Orlando, Florida, USA

> **Link**

ASSCT Annual Florida and Louisiana Joint meeting

American Society of Sugar Cane Technologists

14-16 June 2022

Hyatt Regency Coconut Point Bonita Springs FL USA

> **Link**

American Sugar Alliance Symposium, Seattle, WA

American Sugar Alliance

29 July- 3 August

Seattle, WA, USA

> **Link**

ISSCT XIII Pathology Workshop [postponed]

International Society of Sugar Cane Technologists, Chacra Experimental Agrícola Santa Rosa and INTA´s Estación Experimental Agrícola Famaillá

Postponed

Salta and Jujuy, Argentina

> **Link**

ISSCT 4th Agricultural Engineering, Agronomy & Extension Workshop [postponed]

International Society of Sugar Cane Technologists,

Postponed

Cali, Colombia

> **Link**