

ABSTRACT BOOK



**INTERNATIONAL SOCIETY
OF SUGAR CANE TECHNOLOGISTS**

**Reports and Abstracts of the Proceedings
of the XXIX Congress**

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Chiang Mai, Thailand

Edited by
Peter G Allsopp

XXIX CONGRESS PAPERS AND POSTERS

Plenary papers

- Balheiro, de Witte, Weerathaworn - Using production-cost analysis to understand the competitiveness of sugarcane production: a comparison among Thailand, Vietnam, South Africa and Brazil
- Botha - Sugarcane R,D&E: over managed and underperforming?
- Chudasama - Dynamics of the global sugar industry: an overview
- Dubreucq, Rungjang, Sciroth, Fulcrand - Plant phenolics in the sugarcane biorefinery
- Monthienvichienchai - Mitr Phol Group's increasing international experience
- Poggio, Renouf, Schroeder - Balancing profitability and environmental considerations in best practice cane growing
- Qi - Big data science for small farmers: improving resilience to climate change
- van Antwerpen, Ng Cheong, Miles, Gilbert - Strategies for cane production in marginal environments and under more environmental scrutiny

Agricultural Engineering papers

- Erazo, Muñoz, Arévalo - Evaluating a fixed-rate fertilization system in sugarcane
- Jensen, Gobbett, Bramley, Garmendia - A methodology to assess the accuracy and reliability of yield-monitor data
- Khawprateep, Jensen, Schroeder, Eberhard - Influence of yield and other cane characteristics on cane loss and product quality
- Lecler - Projects and strategies to introduce a synergetic controlled-traffic farming system to Zimbabwe
- Merry - Exploring the economic limits of pumping for sugarcane irrigation
- Norris, Basson, Tempel - Assessment of the yield and sugar recovery from green-cane chopper-harvesting and burned-cane hand-cutting for a South African operation
- Norris, Norris - Modelling the sugarcane value chain: an interactive decision-support tool
- Thungsotaron, Usaborisut, Kuson, Kulketwong, Abdullakasim - Measuring the impact of tractor trailers on soil compaction for typical sugarcane-haulage operations in Thailand
- Usaborisut, Oonkong, Srisukajom, Sukcharoenvipharat, Nunnoy - Performance and efficiency tests of an auto-trip subsoiler with different shank shapes
- Whiteing, Giddy, Norris - A cane-loss measuring system for machine-harvested sugarcane

Agricultural Engineering posters

- Bastidas-Obando, Jarmain, Bastiaanssen, Voogt - Measuring the effect of water stress for yield in irrigated sugarcane with a satellite-based system
- Choedkiatphon, Usaborisut, Niyamapa, Bamrungwang - Preliminary performance test of cane-residue incorporator using a powered disc tiller
- Erazo, García, Herrera - Design and implementation of a real-time kinematic network for the sugarcane industry in Colombia

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- Erazo, Ospina, Camacho - Effect of traffic-control strategies for harvesting sugarcane
- Ng Cheong, Teeluck - Development of an irrigation-scheduling software for sugarcane
- Núñez, Palomeque - Sugarcane performance under different row configurations designed to accommodate in-field traffic
- Rahmawan, Wibisono, Rosiawan, Desyosop - Modification of ripener applicators for use by small-scale growers
- Sanches, Magalhães, Franco - Using electromagnetic induction and kriging techniques to develop soil maps with few samples
- Shinde - Performance of a mechanical sugarcane planter developed for Indian conditions

Agronomy papers

- Auzoux, Martine, Poser, Marnotte, Goebel - ECOFI: a new generic database to analyse complex agroecological experimentation
- Castro, Franco, Sanches, Kolln, Magalhães - The best time to apply N-fertilizer in sugarcane ratoons in the Centre South of Brazil
- González, Ferrer, Jiménez, Casanova - Improving the efficiency of the estimation of agricultural and factory yields in Cuba
- Juntahum, Boonlue - Efficiency of arbuscular mycorrhiza fungal inoculation with rock phosphate on soil-available phosphorus, and drought stress, growth and yield of sugarcane under field conditions
- Kamiya, Yatabe, Ando, Ponragdee, Ito, Terajima, Sugimoto - Features of sugarcane yield components of the low-yielding area in northeast Thailand
- Karmollachaab, Bakshandeh, Moradi Telavat, Moradi, Shomeili - Sugarcane yield and ripening response to chemical ripeners
- Li, Yang, Tan, Wang, Yang, Song - Exploitation and application of improved farming-systems technologies in sugarcane production in China
- Martín, Poser, Roussel, Gérardaux, Chopart - Modelling energy cane growth in contrasting environments: calibration and validation
- Mkhaliphi, Dlamini - Increasing sugarcane yields and decreasing inputs for smallholder growers through improvements in irrigation scheduling in Swaziland
- Mañoz, Villegas, Moreno, Posada - Use of cowpea (*Vigna unguiculata*) as a green manure and its effect on nitrogen (N) requirement and productivity of sugarcane
- Ramburan, Tweddle, van Heerden, Ramouthar, Miles - A tool for converting conventional sugarcane trial results into economic terms
- Ramos, Alves Vidal, Ramos, Rossetto, de Lima Nechet - Carbon dioxide enrichment effects on the decomposition of sugarcane residues
- Roa, Cadavid, Muñoz, Chica, Angel - Isolation and preliminary biochemical characterization of nitrogen-fixing bacteria belonging to three genera obtained from sugarcane in Colombia
- Sandhu, Singh, McCray - Use of apparent soil electrical conductivity to improve sugarcane nutrient management in Florida

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- Seechan, Chimnarong, Veerachit, Jiraphattharasiri, Rethinum, Pliansinchai - Historical ENSO-related impacts on sugarcane yields in northeastern Thailand
- Singh, Vivek, Jain, Pastore - Climate-smart agriculture: catalyzing behavior change in sugarcane farmers for water-use efficiency
- Takaragawa, Watanabe, Thanankorn, Nakabara, Kawamitsu - Crop diversity in sugarcane: effect of mixed cultivars on the growth and yield of sugarcane
- Thongponkaew, Chittamart, Tawompruek, Pinjai - Screening of phosphate-solubilizing bacteria from sugarcane rhizospheric soil and their abilities to improve growth and yield of sugarcane

Agronomy posters

- Astanto, Supriyadi, Darma, Andriadi - Cost of weed control - delayed harvesting after ripening and during the dry season on a tropical sugarcane plantation in Indonesia
- Chapanya, Nootas, Ngasan, Muangmontri, Ngamonsai, Rachdawong, Pliansinchai - NIR technique for rapid determination of soil chemical properties in northeastern Thailand
- Chopart - Two high-fibre sugarcane varieties adapted for energy use in Guadeloupe
- Darunsontaya, Jindaluang, Ketrot, Kheoruenromne, Suddhiprakarn - Chemical profiles of sugarcane-growing soils under a moist tropical savanna climate in Thailand
- Haryani, Irfansah, Abdurrachim, Kusuma - Growth and yield of sugarcane with drip irrigation in an Ultisol in Indonesia
- Jindaluang, Darunsontaya, Ketrot, Kheoruenromne, Suddhiprakarn - Effect of deep ploughing on accumulation of organic carbon in soils under sugarcane-cropping practices
- Khandagave - Crop geometry compared with intercropping in sugarcane: an option to increase the income of farmers
- Luanmanee, Paisanchaen, Kongtien - Optimum soil and nutrient management for increasing sugarcane productivity on sandy soils in northeast Thailand
- Mansuy, Marion, Labranic - Cover crops associated with sugarcane to control weeds
- Niamsanit, Milintawisamai, Krumkhatot, Jaisil - Assessment of *Enterobacter oryzae* 3LSO1 and *Stenotrophomonas maltophilia* 5LSO2 for promoting sugarcane growth in the field
- Nootas, Ngasan, Pliansinchai, Rittiron, Surareungchai, Cheunkar - Portable near-infrared (NIR) spectrophotometers for the measurement of sucrose content in cane in the field
- Okada, Ueno, Taira, Watanabe, Kawamitsu - Effects of low temperature and frost damage in winter on sugarcane yield and quality in Japan
- Paillet, Davrieux, Thuriès, Moussard, Azami, Marion - Sugarcane foliar diagnosis with near-infrared spectroscopy: determination of nitrogen and carbon contents
- Palomeque, Núñez - Evaluation of two rotation management strategies on sugarcane production
- Pinna-Cabrejos, Valdivia-Salazar, Valdivia-Vega - Nitrogen fertilization and harvesting age effect on sugarcane thresholds for soil salinity
- Pushpavalli, Balaji, Prakash - Optimization of organic K application (Kash) to sugarcane in comparison with chemical K fertilizer

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- Rossetto, da Silva, Vitti, Piemonte, Dias, Cantarella - Concentrated vinasse applied to ratoon sugarcane: yield and soil fertility
- Shinde - Sugarcane nutrition through drip irrigation
- Sitepu, Suryadarma, Gunito - Selection of a new effective post-emergence mix of herbicides as an alternative to a standard mixture used in Indonesia
- Solomon, Jain, Chaab, Hamdi, Vanden Berghe - Improvement of the sucrose content of early harvested sugarcane using stabilised orthosilicic acid
- Suwanno, Thaymuang, Phankamolsil, Suddhiprakarn - Effect on zinc management on yield and quality of sugarcane
- Tauvoli, Naidu - Routine soil analysis for determining lime requirement: lime buffering capacity as an alternative method
- Veerachitt, Rethinum, Pliansinchai - Monitoring sugarcane growth using high resolution imagery from a UAV
- Watanabe, Takaragawa, Nakabaru, Taira, Ueno, Kawamitsu - Effects of different kinds of K⁺ and Cl⁻ salts on sugarcane growth, quality and ion composition
- Watanarojanaporn, Chantawong, Tipart, Rachadawong, Pliansinchai - Isolation of plant-growth-promoting bacteria and their effect on sugarcane plantlet growth

Breeding papers

- Afghan, Shahzad, Afzal, Iqbal, Shahzad, Wijesuriya - Sugarcane improvement in Pakistan through traditional and modern breeding technologies
- Basnayake, Lakshmanan, Jackson, Chapman, Natarajan - Canopy temperature: a predictor of sugarcane yield for irrigated and rainfed conditions
- Gazaffi, Cursi, Chapola, Santos, Fernandes, Carneiro, Barbosa, Hoffmann - RB varieties: a major contribution to the sugarcane industry in Brazil
- Gravois, Zhou, Hoffmann, Piperidis, Badaloo - Breeding new sugarcane varieties with enhanced ratooning ability
- Huang, Shang, Xu, Wang, Chen, Zhang - Quantitative evaluation of variation in defoliation traits among sugarcane genotypes
- Jackson - What is the optimal selection intensity of seedlings (stage 1) in sugarcane breeding programs?
- Klomsa-ard, Patanothai, Pliansinchai - Selection criteria for sugarcane genotypes in two production systems in Thailand
- Koonjah, Badaloo, Mangar, Beekharri, Dookun-Saumtally - A new and reliable criterion for the identification of early ripening, high-sucrose parent varieties
- Rajeswari, Bharathi, Rao - Use of 'Big Mill' tests in evaluating and promoting new varieties: case example of a Parry India variety
- Rao, Rajeswari, Varatharaj, Lourdasamy - Farmer Acceptance Selection - a participatory approach to selection and technology transfer for new sugarcane varieties

Santichum, Badaloo, Zhou, Labuschagne - Genotype-by-environment interaction, adaptability and stability of biomass sugarcane varieties in Mauritius

Wei, Jackson - Addressing slow rates of long-term genetic gain in sugarcane

Yang, Jackson, Chen, Wei, Wu, Fan - Economic weightings of traits for variety selection in China and the impact of increased mechanisation on selection of varieties

Breeding posters

Guinet-Brial, Bousquet, Darroussat, Fernandez, Daugrois - Visacane, an overview of the distribution of disease-free sugarcane varieties for the last 10 years

Hattori, Tsurumoto, Sakaigaichi, Tanaka, Hayano, Irei - Morphological and physical studies on varietal differences in resistance to wind-caused cane-top breakage in the active growth stage

Heliyanto, Djumali, Sugiyarta - Status of the development of high-yielding sugarcane varieties for rainfed areas in Indonesia

Huang, He, Li, Pan, He, Luo, Qin - Evaluating sugarcane varieties in Guangxi, China

Kuangpatee, Songsri, Jaisil, Jongrunklang - Physiological traits and their contributions to growth in sugarcane clones under drought conditions in northeastern Thailand

Rae, Pierre, Olsen, Perroux - Approaches to analysis of root-system traits in sugarcane

Rajeswari, Raghuraman, Bharathi, Rao - Screening of parental clones for red rot resistance in India

Rodríguez, Puchades, Abiche, Rill, García - SASEL: software for data management generated in the Cuban sugarcane breeding program

Roussel - Evaluation of sugarcane using the direct hydraulic press method

Singh, Gawander, Prasad - Variation among families and expansion of genetic resources in the Fiji sugarcane breeding program

Singh, Singh, Sharma - Variation in sugar content between early and mid-late maturing sugarcane varieties across the crushing period in sub-tropical India

Songsri, Jonglangklang - Participatory selection of elite sugarcane clones in the Northeast of Thailand

Suhanto, Fathir, Zalhindra, Gunito - Performance of potential cultivars at different planting times in Central Lampung, Indonesia

Tahchai, Napa, Jetsada, Prasert, Adul, Sarawut, Tanapon - Evaluation of interspecific hybrids between sugarcane cultivars and *Saccharum spontaneum* for tolerance to water stress

Thong-Chane, Sinama, Boisbineuf, Barau - Are elite sugarcane varieties also good parents in their zone of adaptation?

Tonsomros, Pliansinchai, He - Adaptability of Thai sugarcane varieties in China

Vidal Guerra, Pérez Oramas, Cabrera Miranda, Chinaa Martín, Campo Zabala, Gómez - Status and handling of genetic resources of sugarcane in Cuba

Wang, Tang, Tan, Li, Huang, He - GT44 - a productive variety for Guangxi province, China

Zhou, Yang, Wang, Liang, Tang, Xian, Tan, Deng - Heritability analysis of agronomic traits in sugarcane families

Entomology papers

- Amirieh, Mohammadi, Pakrou - Nitrogen and silicon impacts on the intensity of stem borer damage in sugarcane in Iran
- Atencio, Goebel, Pérez Milián, Rodríguez, Fernández - Yield loss in sugarcane due to *Diatraea tabemella* Dyar (Lepidoptera: Crambidae) in Panama
- Haooonsong, Wangkeeree, Kobori - Integrated management of the vectors of sugarcane white leaf disease in Thailand: an update
- Jatmika, Saeroji - *Aulacaspis tegalensis* (Zehntner) (Hemiptera: Diaspididae) infestations and management in Indonesia
- Kernasa, Uraichuen, Kamata - *Dorysthenes buqueti* (Guérin-Ménéville) (Coleoptera: Cerambycidae) in Thailand: distribution and control with *Metarhizium anisopliae*
- Maneerat, Uraichuen, Suasa-ard - Economic impact of *Cotesia flavipes* (Cameron) (Hymenoptera: Braconidae) for controlling sugarcane moth borers in Thailand
- Martin, Goebel - DECIPESTS, a decision-support system for pest management in sugarcane
- Mouret, Martin, Roux, Goebel - Multi-scale evaluation of the impacts of using *Beauveria* sp. (Ascomycota: Hypocreales) to control the white grub *Hoplochelus marginalis* (Fairmaire) (Coleoptera: Scarabaeidae) in sugarcane – a retrospective review in Réunion
- Prasad, Sallam, Rounds, Gawander - Population dynamics and damage levels of *Rhabdoscelus obscurus* (Coleoptera: Curculionidae) in Fiji
- Salvatore, Isas, del Pilar Pérez, Sosa, Alonso, Romero, Willink, Gastaminza - Incidence of *Diatraea saccharalis* attack on irrigated and nitrogen-fertilized sugarcane in Tucumán, Argentina
- Soti, Tran, Goebel - Potential of remote-sensing images to study the effect of natural vegetation on the spatial distribution of greyback cane grub, *Dermolepida albohirtum*, in Australia
- Vega, Rojas, Regal - Geostatistical tools for the assessment of the incidence of *Diatraea saccharalis* in sugarcane in Cuba

Entomology posters

- Hu, Guan, Xu, Li, Mao, Mao - Development and application of a sprayable slow-release formulation of the sex pheromone of the sugarcane borer *Chilo venosatus* Walker (Lepidoptera: Crambidae)
- Jarnkoon, Tintarasaranaratchasema, Pliansinchai, Rana, Moonrinta, Neelsawat, Dailey - Diagnosing sugarcane insect pests and diseases using mobile applications
- Naidu, Prakash, Padayachi - Management of an isopteran pest, *Coptotermes gestroi*, in the Fiji sugar industry
- Nikpay, Goebel - Major sugarcane pests and their management in Iran
- Pan, Huang, Wei, Shang, Lin, Xin - Distribution and natural parasitism rate of egg parasitoids of sugarcane borers in China
- Pan, Huang, Xin, Wei, Shang, Lin - Occurrence of *Habrobracon hebetor* (Braconidae) in the rearing room of *Coryca cephalonica* used for *Trichogramma* production in China

- Qin, Wei, Song, Luo, Liu, Deng - Efficacy of the ladybird beetle *Cryptolaemus montrouzieri* Mulsant for control of *Saccharicoccus sacchari* (Cockerell)
- Rao, Sankar - Management of sugarcane root grub, *Holotricha serrata* (Fabricius), with an entomopathogenic nematode, *Heterorhabditis indica*, in sugarcane areas of Karnataka, India
- Rao, Sankar - Successful use of the biocontrol agents *Trichogramma chilonis* and *Tetrastichus howardi* in sugarcane in India
- Rodríguez, Fuentes, Lodo, Rodríguez, Álvarez, Jiménez - Impact of the biological control program in sugarcane pest management in Cuba
- Salvatore, Isas, Del Pilar Pérez, Romero, Zossi, Sorol, Willink, Gastaminza - Sugarcane deterioration caused by *Diatraea saccharalis* (Crambidae) in Tucumán, Argentina
- Shang, Huang, Wei, Pan, Lin, Qin - Damage by and occurrence of *Exolontha castanea* Chang (Coleoptera: Melolonthidae) in sugarcane in Guangxi, China
- Tintarasaranaratchaseema, Jarnkoon, Kodsopa, Swangmaneecharern, Pliansinchai - *Metarhizium anisopliae* for controlling termites in sugarcane
- Wangkeeree, Hanboonsong - Bacterial symbionts in a leafhopper vector of sugarcane white leaf and their potential use as biocontrol agents
- Wei, Huang, Pan, Shang, Wang, Qin - Infestations by *Scirpophaga excerptalis* (Walker) (Lepidoptera: Pyralidae) in sugarcane in Guangxi, China

Pathology papers

- Ángel, Victoria, Cadavid, Ángel - The race is on: review, advances and challenges for integrated and sustainable management of sugarcane brown rust and orange rust in Colombia
- Bhuiyan, Croft, Stirling, Jackson, Piperidis, Aitken - Resistance of *Saccharum spontaneum* and its backcross progenies to root-knot and root-lesion nematodes
- Braithwaite, Ngo, Croft, Magarey, Young - Progress in understanding and managing chlorotic streak of sugarcane
- Hourau, Roques, Efile, Adjaro-Luhin, Debibakas, Daugrois - Narrow-sense heritability estimates of resistance of sugarcane to *Sugarcane yellow leaf virus*
- Hoy, Baisakh, Avellaneda, Kimbeng, Hale - Detection, breeding and selection of durable resistance to brown rust in sugarcane
- Joomun, Dookun-Sauntally - Importance of using highly specific and sensitive diagnostics for *Sugarcane yellow leaf virus* in quarantine
- Mollov, Malapi-Wight - Next Generation Sequencing: a useful tool for detection of sugarcane viruses in quarantine programs
- Puchades, La O Hechavarría, Carvajal, Montalván, Rodríguez, Rodríguez, Rodríguez - Multi-environment trials for evaluating resistance to *Sugarcane mosaic virus*
- Putra, Damayanti - Effect of nitrogen and potassium fertilizers, and soil water content on incidence and severity of *Sugarcane streak mosaic virus* (SCSMV) infecting sugarcane

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- Rott, Kaye, Naranjo, Shine, Sood, Comstock, Raid - Controlling sugarcane diseases in Florida: a challenge in constant evolution
- Sood, Glynn, Yang, Wang, McCorkle, Rott, Comstock - Inheritance of resistance to orange rust in sugarcane
- Thompson, Wilson, Magarey, Putra, Hidayat - Development of diagnostic tests for Sugarcane streak mosaic virus
- Viswanathan, Sathyabhama, Malathi, Sundar - Transcriptome analysis of host-pathogen interaction between sugarcane and *Colletotrichum falcatum* by suppression subtractive hybridization and illumina sequencing

Pathology posters

- Aday Diaz, La O Hechavarría, Puchades Izaguirre, Zardón Navarro, Bertani, Mesa Lopez, Rodríguez Lema - Genotyping of *Sugarcane yellow leaf virus* in commercial cultivars and the Cuban germ plasm collection
- Bao, Sun, Li, Duan, Chen, Zhang - Identification and characterization of *Fusarium oxysporum* gx3 causing sugarcane pokkah boeng in China
- Brindha, Viswanathan - *Ab initio* prediction of micro-RNA like structures in sugarcane viruses and their cellular targets
- Klinkong, Patarapuwadol, Reanwarakorn - Development of loop-mediated isothermal amplification (LAMP) assays for rapid detection of sugarcane white leaf phytoplasma
- Lin, Wang, Zhou, Li, Shang, Wei, Pan, Huang - *Fusarium* species associated with sugarcane pokkah boeng in China
- Molina, Ovalle, Peiró, López, Gisbert - *Xanthomonas albilineans* and *Sugarcane yellow leaf virus* (SCYLV) in Guatemala: assessment of methodologies for sanitation of infected sugarcane material
- Pérez, Pérez, La O, Pellón - Sugarcane leaf scald: symptom expression in relation to sucrose content and pathogen population density in the juice of infected stalks
- Prabakaran, Bharathi, Ganapathi, Rao - Production of virus-free seed cane through tissue culture for a three-tier nursery system in India
- Prasanth, Viswanathan, Malathi, Sundar, Tiwari - Identification of candidate secretory effector proteins (CSEPS) genes from *Colletotrichum falcatum* and their role in host-pathogen interaction by comparative modelling
- Rodríguez, Loddo, Alfonso, Rodríguez, Jiménez, Fernández, Gandarilla - Nematodes of sugarcane in Cuba
- Rodríguez, Puchades, Piñón, Acevedo - Studies on sugarcane mosaic in Cuba
- Tiwari, Kumar, Madhupriya, Rao, Sharma - Detection of '*Candidatus Phytoplasma oryzae*' in non-symptomatic sugarcane cultivars in eastern Uttar Pradesh, India
- Wu, Alabi, Damaj, Sun, Mirkov, Fu, Chen, Gao - Prevalence and RT/RNase H genealogy of *Sugarcane bacilliform virus* isolates from China

Molecular Biology papers

- Aitken, Farmer, Berkman, Muller, Wei, Demano, Jackson, Magwire, Dietrich, Kota - Generation of a 345K sugarcane SNP chip
- Botha, Marquardt, Scalia, Waithen-Dunn - Yellow Canopy Syndrome (YCS) is associated with disruption of sucrose metabolism in the leaf
- Lembke, Lee, Andrade, Margarido, Nishiyama, Ferreira, Pandya, Weissmann, Schatz, Davidson, Heckerman, Van Sluys, Souza - Exploring gene expression of the sugarcane genome in all its multiple copies: genome sequence and analysis of an energy crop
- Lin, Wang, Bao, Guo, Powell, Xu, Chen, Zhang - Deciphering the transcriptomic response of *Fusarium verticillioides* in relation to nitrogen availability and the development of sugarcane pokkah boeng disease
- Parmessur, Dookun-Saumtally - QTL mapping for resistance to yellow spot disease in sugarcane clone M134/75
- Riascos, Salazar, Loaiza, Lopez, Espitia, Franco, Victoria - Advances in the utilization of Next Generation Sequencing data in the Colombian sugarcane breeding program
- Song, Chen, Tan, Yang, Li - Molecular cloning of smut-related genes in sugarcane using suppression subtractive hybridization

Molecular Biology posters

- Emam, Sadat, Khodarahmpoor, Noori - Evaluation of resistance to glyphosate in sugarcane cultivar CP48-103 by somaclonal variation via tissue culture
- He, Liu, Liu, Fan, Yu, Weng - Photoautotrophic rooting of sugarcane microshoots
- La O Hechavarría, Puchades Izaguirre, Zardon Navarro, Perez, Casas, Mesa - Detection of resistance-related genes in sugarcane cultivars inoculated with sugarcane mosaic virus
- Liao, Yang, Wang, Huang, Yang, Li - Factors influencing and cell structure changes related to sugarcane stem tip browning in *in vitro* culture
- Luo, Huang, Zhou, Liu, Lin, Lei, Gao, Duan, Yang, Zhang, Zhang, Li - GISH analysis of a hybrid between *Erianthus arundinaceus* and *Saccharum spontaneum*
- Punpee, O'Connell, Robinson, Schmidt, Lakshmanan - Conditional up-regulation of cytokinin increases growth and development of sugarcane during water deficits
- Singh, Singh, Nigam, Sharma - Development, characterization and validation of sugar gene-based SSR markers in sugarcane
- Wang, Yu, Huang, Chen, Deng - Physical localization of 5S rDNA on the chromosomes of *Saccharum spontaneum* of different ploidy
- Yang, Zhou, Chen - DNA methylation in different sugarcane varieties

Factory Engineering papers

- Cobo, Lucuara, Ospina, Montes - Strategies for increasing availability and milling performance at Colombian mills
- Davy, Kent - A classification scheme for wear and corrosion
- da Toit, van der Merwe - Applications of CFD (computational fluid dynamics) modelling on boilers in the sugar industry
- Geyer, Lehnberger - Today's production requirements – how material selection and innovative design contribute to their fulfilment
- Goel, Awasthi, Srivastava - Improved design of a falling-film tubular evaporator with a maintenance-friendly novel juice distributor
- Joshi, Mushrif, Chavan, Goyal - Technologies for exporting electricity of 100 kWh/t of clean cane while producing white sugar: a success story
- Kharbanda, Goel, Kalsi - Six-roll sugarcane mill: mathematical model, finite element analysis and its validation by strain-gauge measurement
- Latifaltojar, Shomeili, Nasirpour - Possibility of increasing sugarcane juice extraction using microwaves
- Lewinski, Grassmann, Fredriksson, Kallin - Trouble shooting of mill operation by analysing the torque distribution between the rollers
- Lopez, Bhosale - Enhancing milling efficiency and throughput through control philosophy - San Diego experience
- Loubser, Foxon, Hocking, Gibson, Mitchell - The process energy value chain
- Sundaram, Nikam Ghadge - The role of the JPMA mill coupling in energy conservation
- van Belzen - Improving engineering project management by using multiple business science models

Factory Engineering posters

- Meyer - Ferritic stainless steel (K39 and K44) for the sugar industry and distilleries
- Nugroho, Margiyono, Qomarudin, Astono - Implementation of an integrated cane-weighbridge and quality-control laboratory information system based on barcodes
- Sakhardande, Kudargi - Development of a two-roller cane mill and its performance at Indian Cane Power Ltd, Karnataka, India
- Verma - Cleaning boiler flue gas through bagasse drying

Factory Processing papers

- Awasthi, Marwaha, Srivastava - An innovative process for producing plantation-white sugar of ultra-low SO₂ content
- Brahim, Lehnberger, Mallikarjun, Nasim, Shah - Further reduction of steam demand at modern cane sugar mills
- Cobo, Pereddo, Gomez, Gil - Water management in the sugar factory: balances and quality in different streams
- Cobo, Rodriguez, Ospina, Gomez, Gil - Evaporation performance: present and future in Colombian sugarcane mills

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- Dani, Sapkal - Guidelines for water conservation and wastewater discharges from sugar mills in India
- Gauche, Belotti, Pelletan - How can numerical models help decision makers and improve existing cane sugar factories?
- Jensen, Davis - Direct clear juice: a summary of experiences gained in the production of clear juice in a sugarcane diffuser
- Joshi, Bhawe, Giramkar - Two-stage decanter operation for treatment of muddy juice
- Kesarwani, Moharana - A cost-effective and more efficient continuous ion-exchange system for raw sugar melt decolorisation
- Kochergin, Alvarez - Ion-exchange softening of clarified juice - results of pilot trials
- Lehnberger, Laue, Mallikarjun, Mubeshi - Improved crystallisation in cane sugar mills with updated strategies and equipment
- Love, Rahiman, Madho - Continuous production of seed crystals using sound-induced nucleation
- Mohan, Bajpai, Singh - Sugarcane juice clarification by distillery fermenter gases
- Mohan, Yadav - Recycling of pan and last-effect vapours by compressing with a mechanical vapour recompressor and use in the first effect of the evaporator set
- Moor - Modern sugar factory equipment for good recoveries, energy efficiency and low costs
- Morgenroth, Singh Bola - Seed-cooling crystalliser technology for improvement of crystal quality and sugar recovery
- Natendranath - Ejector sulphitation of juice and syrup at a cane sugar factory
- Ngasan, Thirivetyan, Suksabye, Leechart, Simaratanamongkol, Piansinchai - Decolorization of filtered liquor using bagasse fly ash at the pilot scale
- Rackemann, Broadfoot - Evaluation of sucrose loss in evaporators for different processing configurations
- Radmehr, Mazuchi - Web-based application for analyzing the operation and optimising processing in sugar mills
- Rein, Getaz, Raghunandan, Du Pleissis, Saleh, D'León - Performance of lamella clarifiers for juice and syrup clarification
- Sanullah, Khan, Mogalle - Managing sugar-mill liquid effluent to zero discharge - a case study of Mehran Sugar Mills Limited
- Schuermann, Timmers, Avram, Morgenroth - Sugar storage in silos
- Tascon, Latorre, Rodriguez, Gil - Overview of crystallization in vacuum pans in the Colombian sugar industry
- Thaval, Broadfoot, Kent, Rackemann - Determining optimum tube dimensions for Robert evaporators

Factory Processing posters

- Agarwal, Yadav - Near-zero effluent discharge from an ion-exchange regeneration process by using a brine-recovery system and fly-ash filter bed
- Bryan, Wilson - Dextran determination in cane juice using the DASA system: the Jamaican experience
- Chen, Katrym, McManus, LePage, Kincaid - Evaporators descaled with EDTA - a season's experience

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- Grossmann, Retzmann - Scales in evaporators of cane sugar factories – economic aspects of their removal and prevention
- Mazuchi, Beheshti, Pakdel - Effect of bagacillo on the colour of clarified juice
- Mueangmontri, Chapanya, Nootas, Ngasan, Pliansinchai - Evaluation of a near-infrared spectrophotometer for determining molasses quality
- Namonsai, Nootas, Ngasan, Sontong, Pliansinchai - Optimization of temperature and pH for improvement of efficiency in the carbonation process
- Ninchan, Vanichsiratana, Sriroth - Comparison of the kinetic behavior of dextranase and pullulanase applied to massecuite A and C
- Phaeon, Thajanya, Sriroth, Pliansinchai - Nanofiltration for improving efficiency of the refined sugar process
- Reichling, Raineri, Richard - Case study: operation of the first Solex sugar cooler with raw sugar and with amorphous sugar
- Saotrong, Sriroth, Ninchan, Khotavivattana, Vanichsiratana - Applications of dextranase in Thai sugar factories
- Saska, Zossi, Sastre, Ruiz - Rapid methods for starch analysis in cane juice
- Saska, Zossi, Sastre, Torres, Ruiz - Modifications of the Robert's method for total soluble polysaccharides in refined and raw cane sugars
- Singh, Chandra, Gupta, Kumar - Application and potential of a pulsed magnetic field in controlling scale formation in cane-sugar processing
- Srivastava, Babu, Chandrasekar, Rao - Process conversion to produce refined sugar in India
- Subodh, Ajay, Anil - Fibre separation from raw juice using a rotary juice screen
- Taira, Ueno, Watanabe, Kawamitsu, Yoshimoto - Non-destructive measurement system for process control using combined spectroscopic data

Coproducts papers

- Bernhardt - Development of a prototype cane-trash burner
- Chandgude, Patil - Intensification of power generation in sugar mills through modernization
- Ito, Mizu, Yatabe, Ikeda - Deodorizing effects of sugarcane extracts: deodorizing activity and active ingredients
- Kumar, Paroha, Mohan - Feasibility of ethanol production in India through alternative feedstocks
- Lavarack - Review of the development of the co-products industry in Australia
- Leaf, Leite - Ethanol as a major coproduct
- Loha, Pruksathom - Research system for the production of high-value chemical compounds from biomass (molasses) feedstock
- Masson, Lejars, Fusillier, Auzoux, Poser - Assessing economic and environmental benefits of dedicated energy cane using a simulation tool: ReefCane®
- Milintawisamai, Saelee, Lautup, Pisetpongsa, Pookun, Panyasit - High-ethanol-producing yeast *Saccharomyces cerevisiae* KCU 6M4.1 for efficient industrial ethanol production

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- Mohan, Srivastava - Graphene oxide from bagasse: synthesis and utilization in carbocatalysis
- Nolasco Junior, Atala, Ambrosio, Yamakawa, Rossell - Implementation of VHG (Very High Gravity) ethanol fermentation in continuous multistage with cell recovery, reactivation and recycling
- Ohara, Kitai, Sugimoto, Hamada, Hidaka, Shioura, O'Hara, Yasuhara - Long-term stability of the inversion process for sugar and ethanol production in an existing Japanese sugar mill
- O'Hara, Rackemann, Moller, Zhang, Plaza, Kitai, Ohara, Yasuhara - Pilot-scale demonstration and economics of the inversion process for sugar and ethanol production
- Phaengthai, Sompugdee, Rachdawong, Pliansinchai - Effect of inorganic salts in molasses on ethanol production using *Saccharomyces cerevisiae*
- Phankamla, Slakkam, Chantarasutti, Kammeng, Leelavatcharamas - An alternative protein source ingredient for Japanese quail feed from molasses fermentation by thermotolerant *Candida* sp. Sbc 06
- Somyanonthanakun, Nakarungsee, Junpirom, Yingsamphancharoen, Thongmee - Development of activated carbon from bagasse for adsorbing heavy metals
- Strümkann, Morgenroth - Challenges in vinasse concentration for miscellaneous downstream applications
- Subramanian, Singla - Development of an efficient slop-fired boiler
- Sundaram, Kulkarni, Rizwan - Diversion of different sugarcane-based feedstocks for ethanol production
- To-on, Utra, Saengsathien - Mechanical properties of lightweight concrete blocks containing bagasse ash
- Umrit, Ganeshan, Mulleegadoo, Dookun-Sauntally - Development of a cost-effective technology for the production of the bioplastic poly-(3-hydroxyalkanoate) from sugarcane harvest residues
- Yamakawa, Atala, Ambrosio, Nolasco Junior, Rossell - Assessment of VHG (Very High Gravity) ethanol fermentation in continuous multistage with cell recovery, reactivation and recycling using a blend of juice and molasses from sugarcane as raw material

Coproducts posters

- Chitprasert, Juttuporn, Rodprapakorn - Ultrasonic-assisted extraction of antioxidants and antimicrobials from sugarcane bagasse
- Furuta, Mitsuura, Ito, Yatabe - Antioxidant effects and taste-improving effects of a sugarcane extract
- Gaur - Alternative treatment technologies for distillery effluent to achieve zero discharge
- Moopram, Subsamran, Mahakhan, Buasri, Vichitphan, Vichitphan, Sawaengkaew - Value addition from the conversion of sugarcane tops and leaf waste to bioethanol
- Nootas, Suwannasarn, Mueangmontri, Pliansinchai - Development of a model to estimate fermentable sugar losses during the storage of molasses
- Rodprapakorn, Chitprasert, Khaibuddee, Khorprasert - Optimization of xylanase production from *Thermobifida fusca* PA 1-1 using delignified sugarcane bagasse
- Sankar, Prakash - Incineration technology for vinasse/spent wash/stillage
- Suwanapetch, Vanichsriratanana - Experimental design for erythritol production

Management papers

- Adendorff, van Heerden, Jumman - Establishing extension services through a research, technology development, extension and grower continuum – a case study
- Athipanyakul - Sugarcane production efficiency of small-scale farmers in Thailand
- Autrey, Lionnet - The ACP Sugar Research Programme: a review of achievements and prospects
- Gheewala, Silalertruksa, Pongpat, Prasara-A, Prapasongsa, Jakrawatana - Sustainability assessment of sugarcane biorefineries to enhance the competitiveness of the Thai sugar industry
- Jumman, Gilbert, Van Heerden, Sandhu - Designing and packaging innovations for easier adoption: what to consider in the research design phase
- Kealley, Quirk - Smartcane BMP – understanding drivers and building momentum for best management practice uptake in the Queensland sugarcane industry
- Leite, Leal, Langa - Sugarcane outgrower schemes in Mozambique: findings from the field
- Mugabira, Chivaka - Productive, unproductive and/or predatory entrepreneurship: a value-chain analysis of institutional reforms in Uganda's sugarcane industry with key insights from South Africa and Kenya
- Nicholson, King - Reality and sustainability: dryland land-reform grower challenges in a changing sugar industry
- O'Shea, Clement - Sugar Research Australia – an evolution in the delivery of RD&E activities to the Australian sugar industry
- Payandi Pillay, Dookun-Saumtally, Saumtally - A demand-driven R&D plan for the sustainability of the Mauritian sugarcane industry
- Prakash, Loze, Shamugha, Lata - Recovery plan for Fiji's sugar sector following Tropical Cyclone Winston
- Rao, Bongane, Nair - Overview and experiences of different cane-management models in different countries
- Viert, Seixas, Slavinski - Evaluation of the Bonsucro calculator as a sustainability performance benchmarking tool in the sugarcane sector
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- Watt, Binedell, Stranack, Baker - Promoting sustainability of sugarcane research, development and innovation in the South African sugar industry
- Yadav, Ohri - Improved performance in sugarcane production and factories of the Co-operative Sector through better management strategies: appraisal of sugar factories located in Uttar Pradesh, India

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- Aguilar-Rivera, Herrera-Solano, Enriquez-Poy, Gomez-Juarez - Sustainable management of inputs and by-products to improve the competitiveness of sugarcane farms in Veracruz, Mexico
- Bryan, Wilson - Ensuring reliability of test results through a quality assurance programme
- He - Approaches to solve the plight of the Guangxi cane-sugar industry in the context of economic transition and international trade
- Pérez Martínez - Development of a web-based application for quality supervision of products marketed by Tecoazúcar
- Ramos Pousa, Delgado Arrieta, Almazán - Technology transfer in the sugarcane industry- the ICIDCA experience
- Raskar, Nikam - Profitability of Indian sugar co-operatives - a case study of Maharashtra State
- Rethinam, Khodphuvien, Praphatharo, Pliansinchai - Leveraging digital trends for information-intensive farm management – a decade of growth for Mitr Phol Sugar, Thailand
- Vanichsriratanana, Khotavivattana, Sriroth - Modification of the sugarcane purchasing system: the Thai experience

Workshop reports

- Autrey, Leal, Hassuani - Review of the ISSCT Co-Products Workshop
- D'Hont, Jackson, Thong-Chane, Barau, Hoarau - Pushing the frontiers of sugarcane improvement: a summary of the joint ISSCT 11th Germplasm and Breeding and 8th Molecular Biology workshops
- Lecler, Norris, Norris - Sugarcane – unlocking its potential as an 'electricity crop'
- Sauntally, Goebel, Sallam, Salvatore, Uraichuen, Way, Garces, Grisham, Thompson, Viswanathan - Enhancing innovative pest and disease management strategies in the sugarcane agrosystem – a report on the combined ISSCT XI Pathology and IX Entomology workshops
- Schroeder, van Antwerpen, Lecler, Gilbert - Sustainable solutions to production constraints – a report on the 2015 ISSCT Agricultural Engineering, Agronomy and Extension workshop
- Steindl, Morgenroth - Factory Commission workshops, August 2014