



ASSCT 2018 ANNUAL CONFERENCE

Platforms • Synergies • Innovation

AUSTRALIAN SOCIETY OF SUGAR CANE TECHNOLOGISTS



PRESIDENT'S MESSAGE

2018 ASSCT Conference

This year we celebrate 40 years since the Australian Society of Sugar Cane Technologists (ASSCT) was formed. During this period the Australia sugar industry has been recognised as leaders in the development of world best practice in both agricultural and manufacturing production.

The 40th annual ASSCT conference will be held in Mackay from the 18 to 20 April 2018 at the Mackay Entertainment and Convention Centre.

The 2018 conference will see the continuation of 'Sugar week' – a week of sugarcane-related activities. This will comprise a single industry information day on Tuesday 17 April, devoted to training and demonstration of new technologies. The main conference will be held on 18–20 April which will remain the pinnacle of the week, with presentations from leading researchers and technologists, and manufacturing and agricultural tours held on Thursday afternoon 19 April.

It is hoped that Sugar week will continue to develop, providing greater opportunity for industry technologists and industry personnel to interact in areas not directly related to the reporting of research results. An information day exploits the opportunity provided by the gathering of leading technologists from around the country and promises to provide an even better value proposition for those attending the conference.

Our industry continues to face ongoing challenges and the conference theme of 'Platforms, Synergies and Innovation' will provide delegates with an opportunity

to engage on topics that will help us challenge the paradigm of our industry and providing a pathway to success.

Our master of ceremonies for the week is the well-known Scott Hillier from Channel Seven's Creek to Coast program.

Keynote speaker Professor Chris Greig leads the University of Queensland Energy Initiative as well as the Dow Centre for Sustainable Engineering Innovation. Chris will provide us an overview of the energy industry and insight into the future. A second keynote speaker will present on the topic of 'platform' technology in society and potentially in our industry.

The Mackay and Whitsundays region on the central coast is surrounded by rich cane growing land supported by a large manufacturing sector. The region has much to offer visitors, including the Great Barrier Reef and many island resorts. The Whitsundays region is recognised as an international destination of choice for tourists and welcomes visitors with open arms.

An excellent Partner's Program is being arranged by my wife Odette Van der Berg, together with her organising committee. Partners will tour the attractions included in the Mackay and Whitsunday regions. Naturally there will be plenty of time for shopping with some added retail therapy.

The ASSCT executive welcome members, presenters, sponsors, industry equipment exhibitors, growers and millers to what promises to be a great Sugar week.

Danny Van der Berg

2018 ASSCT President

KEYNOTE SPEAKER



Professor Chris Greig

Chris Greig leads both the UQ Energy Initiative and the Dow Centre for Sustainable Engineering

Innovation. Chris is a Chemical Engineer having obtained his degree and PhD at the University of Queensland and is a Fellow of the Australian Academy of Technological Sciences and Engineering.

His 25 year industry career commenced as the founder of a successful process technology and contracting company which was later sold to a major international engineering company. Since then and prior to joining UQ, he held senior project and executive roles in the mining and energy industries internationally.



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Early Bird discount ends 13 March

ASSCT Conference
18–20 April 2018
MACKAY

www.assct.com.au

FINDING COST-EFFICIENT HERBICIDES WITH REDUCED ENVIRONMENTAL IMPACT

SUGARCANE productivity is intrinsically linked to weed management, through direct competition between weeds and cane for water, light and nutrients.

Since 2014, Sugar Research Australia (SRA) has been investigating the efficacy of alternative pre-emergent herbicides to diuron and measuring the impact of runoff in the Wet Tropics cane region.

Selecting the right herbicide for weed management is important to cane growers as it needs to improve productivity and minimise environmental impacts.

SRA agronomist Emilie Fillols said the aim of the research was to assess cost-efficient alternatives to diuron that are more environmentally friendly and comply with the current Great Barrier Reef legislation.

'During field trials, we applied various pre-emergent herbicides to plots just after the cane harvest on green cane trash blanketed ratoons in the Tully, Mulgrave and Mossman area. We also compared the losses of the tested pre-emergent herbicides in runoff using rainfall simulations,' Ms Fillols said.



Sugar Research Australia's rainfall simulator at Aloomba, Far North Queensland

'Results found the commercially available pre-emergent herbicide Bobcat@i-MAXX (imazapic + hexazinone), was as efficient as Barrage (diuron + hexazinone) at the previously registered high rate, while other tested active ingredients like imazapic, isoxaflutole and amicarbazone (pending registration) were effective only on some weed species. All tested herbicides were found in runoff water at levels aligned with their application rate.

'Herbicides applied at lower application rates such as imazapic and isoxaflutole had minimal environmental runoff footprints when compared with diuron. Results showed all tested alternatives were proven more environmentally friendly than diuron,' Ms Fillols said.

Field trial results and outline the benefits of using alternative herbicides to diuron will be presented at ASSCT.

AUSTRALIAN SUGAR INDUSTRY TRAINING MOVES ONLINE

AN ONLINE training and Learning Management System (LMS) is being developed for the Australian sugar industry. The system aims to provide an interactive, affordable and 'one-stop' comprehensive training resource for all Australian sugar activities.

The project led by David Moller from the Queensland University of Technology (QUT) and Bruce King from Sugar Research Institute (SRI), worked with an industry steering committee to review 16 companies that provide LMS platforms.

The LMS platform selected for the Australian Sugar Industry Training (ASIT) system allows users to access a comprehensive set of resources and training courses online and has the capacity for individual milling and agricultural companies to develop their own material for internal training and assessment.

'The ease of configuration has made



Bruce King, SRI (left) and David Moller, QUT

this system usable for the development of industry and company specific training. All access is via the one login using a computer, tablet or smart phone. By placing all training resources into one location and providing interactive learning and assessment for operators it is hoped that this system will increase knowledge in the industry,' Mr Moller said.

'The vision is for the LMS to become a major source of knowledge and training materials for the Australian sugar industry. The LMS can currently be used

to access all of the existing SOTrain modules, SRM modules and SRI videos via one single login.

'New training courses for operators in all processes in sugar milling are currently being developed. Each operator course will provide on-line knowledge and assessment training mapped to the Australian vocation education and training FDF10 competencies at Certificate III level,' Mr Moller said.

In mid-2018 the first FDF10 mapped courses on high grade fuggalling and sugar drying will be available for use on the ASIT system.

This ASSCT paper describes the process used to select the LMS provider, key features of the system and how these features can be effectively utilised by the Australian sugar industry. Contact David Moller david.moller@qut.edu.au or Bruce King b.king@sri.org.au for more information.

SUGAR FROM SPACE: USING SATELLITES TO PREDICT CANE YIELD VARIABILITY

OVER the past decade, historical harvest records and single date SPOT satellite imagery have been used to estimate pre-harvest sugarcane yield at the regional level. However, reliance on a single image means that in some years continued cloud cover and satellite unavailability can prevent the successful capture of a useable image, and a forecast cannot be derived.

To remove this reliance on the single capture, the Agricultural Remote Sensing Team from the University of New England (UNE) have been developing alternative 'time series' yield models for each growing region, using historical Landsat satellite imagery.

UNE research fellow Jasmine Muir said by using historic crop growth trends and matching these trends with annual regional yield, the time series approach has been shown to be more sensitive to seasonal variations in climate and to be less dependent on forecasting yield during the peak growth period i.e. the single capture approach.

The project funded by SRA, aims to develop robust yield forecasting models for the majority of Australian sugarcane growing regions as well as to develop image processing methodologies that allow imagery products to be distributed to all end users.

The team have also been working on developing computational processes that allow for the automatic derivation of crop vigour, and qualitative

foliar nitrogen maps for 98% of the Australian sugarcane industry.

'Maps developed from Sentinel 2 and SPOT imagery will provide industry with a tool that can accurately identify the spatial and temporal variability in crop performance at both the region and block level. With this information varietal and crop class responses can be clearly observed as well as variations in crop vigour resulting from nutritional constraints, irrigation efficiencies and the incidences of pest and disease outbreaks.

'Accurate regional forecasts provided to each mill will also support pre-harvest planning, forward selling and marketing. To achieve all of this, it has been necessary to automate the processing of large volumes of satellite imagery through efficient computing and programming,' Muir said.

During an ASSCT presentation the UNE team will provide an overview of the image processing methodologies and time series yield models developed to date, as well as validation of the accuracies of yield predictions achieved for growing regions in 2017.

“ Maps developed from Sentinel 2 and SPOT imagery will provide industry with a tool that can accurately identify the spatial and temporal variability in crop performance at both the region and block level.

Jasmine Muir, University of New England



Sugar Research Institute's horizontal CVP at Tableland Mill

COMPARING HORIZONTAL AND VERTICAL CONTINUOUS VACUUM PANS

OVERSEAS sugarcane industries are applying steam efficient practices in factory processing to increase value from bagasse – to produce cogenerated power, paper pulp, particle board, biofuels and chemicals.

Many factories have installed falling film evaporators as part of the drive to steam efficiency. Also strong interest is developing in using vertical continuous vacuum pans (CVPs) with mechanical agitation to undertake evaporative crystallisation using low pressure vapour.

QUT Professor Ross Broadfoot said CVPs in Australian factories are of the horizontal layout which provides several advantages over the vertical orientation. However, besides the suitability to readily incorporate mechanical agitation, vertical CVPs provide other benefits such as ease of bypassing a module for cleaning.

With funding from the Sugar Research Institute a team from QUT has been examining the pros and cons of the two continuous pan layouts for Australian factories.

An ASSCT paper outlines how the research considers the implications for steam efficiency, relative crystallisation rates, quality of the size distribution in the product masscutes and ease of operation for the two CVP layouts.

For more information contact Professor Ross Broadfoot: r.broadfoot@qut.edu.au



From left: Research Fellow Jasmine Muir, Associate Professor Andrew Robson and Research Fellow Dr Moshiur Rahman from the Precision Agriculture Research Group at the University of New England

ENABLING DIGITAL AGRICULTURE IN AUSTRALIA

THE USE of digital technology and agricultural data has the potential to transform Australian agriculture and agribusiness. It can aid analysis, provide early warnings, and enable accurate predictions that result in improved productivity.

Currently, however, the regulatory frameworks around data collection, sharing and use in Australia are ad hoc and piecemeal.

In an ASSCT paper, Leanne Wiseman from Griffith University and Jay Sanderson from USC outline the reasons why many farmers are reluctant to share data. These include the lack of transparency around issues such as data ownership, portability, privacy, trust and liability.

These issues were addressed in many of the key findings from the Accelerating Precision Agriculture to Decision Agriculture research project, funded by the Commonwealth Department of Agriculture and Water (as part of the Rural for Profit program) in partnership with all 15 RDCs, including Sugar Research Australia. The summary report also found that better support for digital agriculture could boost production growth to the value of \$20.3 billion, and highlights areas where Australia is lagging behind international competitors in utilising data and digital advancements.

In their ASSCT paper, Wiseman and Sanderson examine how best to facilitate the improved data governance framework needed to support and encourage the use and adoption of digital technology and data sharing for the benefit of all agricultural industries.

‘The key to building trust and confidence in the way farmers approach the management of their agricultural data is to continue the industry wide dialogue that has been facilitated by research conducted as part of the Precision to Decision research project.’

‘For Australian agriculture to unlock its full potential, issues such as data control, access, privacy and security need to be addressed and collaboration across industry sectors enhanced’, Associate Professor Wiseman said.



“ The key to building trust and confidence in the way farmers approach the management of their agricultural data is to continue the industry wide dialogue.

Associate Professor
Leanne Wiseman,
Griffith University



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REGISTRATION

EARLY BIRD DISCOUNT ENDS 13 MARCH

The registration for Full/Associate Members and Delegates of Supporting Members will be \$350 but this increases to \$390 for payments after 13 March 2018.

Life Members registration is \$280 increasing to \$320 after 13 March 2018 and the registration for non-members will be \$400 increasing to \$440 after 13 March 2018.

On-site registration is available at the conference from 7:30am on Tuesday 17 April 2018.

Registration includes entry to all conference sessions, the Welcome Function and Conference Dinner, bus transport for tours, lunch, morning and afternoon tea on Sugar Tuesday, Wednesday and Thursday and morning tea and lunch on Friday. Individual tickets to the ASSCT Welcome Function cost \$60 and Conference Dinner \$100 each.

To register online, visit
www.assct.com.au

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