

# **37th Annual Conference of the Australian Society of Sugar Cane Technologists**

**(ASSCT 2015)**

**Bundaberg, Queensland, Australia  
28-30 April 2015**

**Editor:**

**R. C. Bruce**

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For permission requests, please contact Australian Society of Sugar Cane Technologists  
at the address below.

Australian Society of Sugar Cane Technologists  
PO Box 5596  
Mackay Mail Centre  
QLD Australia 4741

Phone: (07) 4959 9100  
Fax: +61 7 4959 9100

[assctadmin@ozemail.com.au](mailto:assctadmin@ozemail.com.au)

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**THIRTY-SEVENTH CONFERENCE  
BUNDABERG, 2015**

**PROGRAM**

The Official Opening, Annual General Meeting, and some Technical Sessions of the Conference will be held at Moncrieff Theatre, 177 Bourbong Street, Bundaberg including the Poster Papers. The balance of the sessions will be in the Parish Hall. The Industry Equipment Exhibition will be held in the Civic Centre.

**TUESDAY, 28 April 2015**

Registration at the Moncrieff Theatre from 7.30 am

**MORNING SESSION – 9.00 am**  
Chairman: Mr Neil Sichter

**WELCOME AND OFFICIAL OPENING**  
Councillor Mal Forman  
Mayor, Bundaberg Regional Council

**KEYNOTE SPEAKERS**  
Prof Peter Rein  
Professor Emeritus, Louisiana State University,  
Sugar Industry Consultant

Mr Chris Norris  
Principal Consultant,  
Norris Energy Crop Technology

- |             |                                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 9.15–9.30   | President's address:<br>Mr Neil Sichter                                                                                                     |
| 9.30–10.30  | Keynote address:<br>Prof Peter Rein: 'Developing the technology of sugarcane processing in the Australian and world-wide sugar industries'. |
| 10.30–11.00 | <i>Official opening of the Industry Equipment Exhibition by<br/>Mr Keith Pitt MP, followed by morning tea</i>                               |
|             | Chairman: Stewart Norton                                                                                                                    |
| 11.00–11.45 | Keynote address:<br>Mr Chris Norris: 'Mechanised sugarcane production: forgotten lessons'                                                   |
| 11.45–12.30 | Invited speaker: Mr Tom McNeill,<br>Director, Green Pool Commodity Specialists<br>'Fluctuating fortunes—is Australia cost effective?'       |
| 12.30–1.30  | <i>Lunch</i>                                                                                                                                |

# **AFTERNOON SESSION–1.30 pm**

## **AGRICULTURE SESSION**

Chairman: Neil Halpin

Paper	1.30–2.00	Efficacy of new chemicals to control Pineapple sett rot of sugarcane, by Priyanka Wickramasinghe, Shamsul A Bhuiyan, Barry J Croft ..... 1–7
Paper	2.00–2.30	A statistical approach for identifying important climatic influences on sugarcane yields, by Y Everingham, J Sexton, A Robson ..... 8–15
Posters	2.30–3.00	The effect of minimum tillage on a silt loam soil and zero tillage on a clay loam soil in the Herbert River district, by Glen Park ..... 16
		Assessment of nutrient and sediment mobilisation from a sugarcane cropping soil fertilised with Liquid One Shot®, by Rob Loch ..... 17
		Why changing from district yield potential to block yield potential as the basis for the nitrogen guidelines is not as simple as it sounds, by BL Schroeder, DM Skocaj, B Salter, DV Calcino, JH Panitz, AW Wood, AP Hurney ..... 18
		Does cane yield, influenced by nitrogen fertiliser rates, affect cane loss during cutting? by S Khawprateep, TA Jensen, BL Schroeder ..... 19
		Efficacy of Alion® a new herbicide for managing sugarcane weeds: preliminary results in Iran, by Amin Nikpay, Peyman Sharafizadeh, Mahmoud Pour Mahmoud, Hamid Kord ..... 20
		Factors affecting the distribution of the vine species in sugarcane: results of GIS surveys in Central Queensland, by Emilie Fillols, Vivi Arief, Tim Staier ..... 21
		The dual herbicide sprayer, by Jack Robertson, Allan Blair ... 22
	3.00–3.30	<i>Afternoon tea</i>

## **MANUFACTURING SESSION**

Chairman: Clyde Garson

Paper	1.30–2.00	SOTrain: a new program for training supervisors and operators in Australian sugar factories, by R Broadfoot, M Godat, GA Kent ..... 267–277
Paper	2.00–2.30	Operational manning at Rocky Point Sugar Mill, by B Tyson, OP Thaval, DJ Moller ..... 278–284
Paper	2.30–3.00	Factory remote access using smart devices, by GM Peatey, JF Knight, I Messenger ..... 285–291

## **AGRICULTURE SESSION**

Chairman: John Agnew

Paper	3.30–4.00	Sugarcane productivity response to different fallow and soybean residue management practices in the Bundaberg district, by NV Halpin, W Wang, WE Rehbein, SH Reeves 23–32
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Paper	4.00–4.30	Soybean rotation and crop residue management to reduce nitrous oxide emissions from sugarcane soils, by WJ Wang, NV Halpin, SH Reeves, WE Rehbein, MA Heenan	33–41
Paper	4.30–5.00	Nitrogen dynamics and nitrous oxide emissions in improved sugarcane farming systems, by B Salter, W Wang, B Schroeder, S Reeves	42–52

**AGRICULTURE SESSION (Concurrent)**

Chairman: Andrew Jakins

Paper	3.30–4.00	Effect of silicon fertilisers on sugarcane smut in Australia, by Shamsul A Bhuiyan, Barry J Croft	53–60
Paper	4.00–4.30	Neonicotinoid insecticides provide no practical control of soldier fly, by PR Samson	61–67
Paper	4.30–5.00	Efficacy of flutriafol compared to other triazole fungicides for the control of sugarcane smut, by Shamsul A Bhuiyan, Barry J Croft, Glen R Tucker, Rebecca James	68–75

**MANUFACTURING SESSION**

Chairman: Clyde Garson

Paper	3.30–4.00	Modelling milling train performance, by OP Thaval, GA Kent	292–304
Paper	4.00–4.30	Improving factory performance using an integrated sugar factory model, by AP Mann, OP Thaval, R Broadfoot, J McFeaters	305–315
Paper	4.30–5.00	Some interesting behaviours of prepared cane and final bagasse, by F Plaza	316–327
	5.00–6.00	<i>Happy Hour with IEE</i>	

**WEDNESDAY, 29 APRIL 2015**

**MORNING SESSION–8.00 am**

**AGRICULTURE SESSION**

Chairman: Bernard Schroeder

Paper	8.00–8.30	Effect of sugarcane mulch thickness on emergence of four vine species: results of a pot trial, by Emilie Fillols, Tim Staier	76–83
Paper	8.30–9.00	Fate of granular versus liquid fertilisers applied to soil leaching columns, by P Pittaway, A Melland, G Celotto, J Dowie, G Shannon, L Di Bella	84–90
Paper	9.00–9.30	An innovative framework to implement precision technologies, by AG Garmendia, TA Jensen	91–100

# AGRICULTURE SESSION (Concurrent)

Chairman: Bruce Quinn

Paper	8.00–8.30	suSCon® Maxi Intel for extended control of greyback canegrub in sugarcane, by GR Tucker, KJ Chandler, JK Stringer, L Derby, A Eaton, A Craddock, S Watkins ....	101–111
Paper	8.30–9.00	Are Christmas grubs pests in Southern Queensland sugarcane? by Keith Chandler, Jillian Jennings .....	112–120
Paper	9.00–9.30	Does imidacloprid provide abiotic benefits to sugarcane in the absence of canegrubs? by GR Tucker, KJ Chandler, JK Stringer, L Derby, A Eaton, J Jennings, N Matthews ....	121–131

# MANUFACTURING SESSION

Chairman: John Hodgson

Paper	8.00–8.30	Energy efficiency improvements at Millaquin Mill, by Neil Sichter, Lincoln Williams .....	328–334
Paper	8.30–9.00	Review of the installation of a new set of cooling towers at Farleigh Mill, by Bryan Lavarack, Bruce Stevenson, Robert Rasmussen .....	335–342
Paper	9.00–9.30	Marian secondary juice heater condensate system in 2014, by Paul Stuart, Ken Griffin, Brett Bampton, Mauro Giannangelo .....	343–348
	9.30–10.00	<i>Section AGMs</i>	
	10.00–10.30	<i>Morning tea</i>	

# AGRICULTURE SESSION

Chairman: Graham Kingston

Paper	10.30–11.00	Barriers to adoption of recommended fertiliser practices by sugarcane growers in the wet tropics, by Karen E Benn ....	132–139
Paper	11.00–11.30	An effective approach to delivering sugarcane irrigation extension at Bundaberg based on real time web-based technology, by MG Haines .....	140–149

# AGRICULTURE SESSION (Concurrent)

Chairman: Andrew Dougall

Paper	10.30–11.00	Identification of volatile chemicals that can be used to diagnose ratoon stunting disease, by AZ Berna, XR Wang, J Cassells, B Croft, S Trowell .....	150–157
Paper	11.00–11.30	Insights into the epidemiology of chlorotic streak disease as determined by multiple field assessments, by Anthony Young, Mark Ensbey .....	158–165

# MANUFACTURING SESSION

Chairman: Clyde Garson

Paper	10.30–11.00	Degradation study of a lignin model compound, by DJ Cronin, WOS Doherty .....	349–358
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Paper	11.00–11.30	Limitations of a laboratory scale model in predicting optimal pilot scale conditions for dilute acid pretreatment of sugarcane bagasse, by AA Greenwood, TW Farrell, Z Zhang, IM O’Hara .....	359–366
	11.30–12.30	<i>Annual General Meeting</i>	
	12.30–1.30	<i>Lunch</i>	

## **AFTERNOON SESSION–1.30 pm**

### **AGRICULTURE SESSION**

Chairman: Brian Robotham

Paper	1.30–2.00	A new paradigm for enhanced industry profitability: post-harvest cane cleaning, by CP Norris, SC Norris, GP Landers .....	166–175
Paper	2.00–2.30	Yellow canopy syndrome: a condition of unknown cause affecting sugarcane crops in Queensland, by D Olsen, RC Magaret, L Di Bella, M Sefton, R Milla, N Sallam, K Sventek, D Calcino .....	176–185
Posters	2.30–3.00	Better understanding trait parameters to improve simulations of cultivar yield differences, by J Sexton, Y Everingham ...	186
		Determining economic importance of sugarcane traits in Australian sugarcane breeding program by profit equations, by Xianming Wei .....	187
		Progress in breeding and selection of smut resistant sugarcane varieties in the smutbuster program, by R Cervellin, R Parfitt, M Cox .....	188
		Selecting varieties for better ratooning ability in the southern region, by A Jensen, R Parfitt .....	189
		Review of competition analysis for early-stage clone selection, by A Jensen, R Parfitt, J Stringer, M Cox .....	190
		Key characteristics of improved management practices—a sugarcane grower’s perspective, by Alison Collier, Matthew Thompson, Mark Poggio, Marcus Smith, Martijn van Grien .....	191

### **MANUFACTURING SESSION**

Chairman: Bruce Tyson

Paper	1.30–2.00	Considerations for the design of modern-day laboratories, by TJ Prange .....	367–374
Paper	2.00–2.30	Disaster recovery—Bingera Mill fire, by Robert Zahn, Bill Peterson, Graeme Falla, Philip Cullum .....	375–381
Poster	2.30–2.35	Improving installed sugar process equipment by innovative automation solutions, by Dirk Seebaum, Juergen Knappe ..	406
	2.35–3.00	<i>IEE presentations</i>	

# MANUFACTURING SESSION (Concurrent)

Chairman: Clyde Garson

Paper	1.30–2.00	Insight into developing durable engineering designs from an automotive perspective, by CM Downing .....	382–394
Paper	2.00–2.30	Tractive effort modelling and design of hybrid powertrain for a diesel-hydraulic cane haul locomotive, by BR Sebastian, OP Kenny, R Situ, LG Santarossa .....	395–405
Paper	2.30–3.00	The track occupation problem within cane railways, by Rod Hinschen, Arthur Pinkney .....	407–415
	3.00–3.30	<i>Afternoon tea</i>	

# AGRICULTURE SESSION

Chairman: Barry Salter

Paper	3.30–4.00	The impact of trash and tillage management options and nematicide application on crop performance and plant-parasitic nematode populations in a sugarcane/peanut farming system, by NV Halpin, GR Stirling, WE Rehbein, B Quinn, A Jakins, SP Ginns .....	192–203
Paper	4.00–4.30	Impact of nitrogen inputs to a sugarcane soil on plant-parasitic nematodes and their natural enemies, by GR Stirling, AM Stirling, S Schmidt, N Robinson .....	204–211
Paper	4.30–5.00	Microarthropods as predators of nematode pests in sugarcane soils: literature review and preliminary studies, by M Manwaring, D Walter, GR Stirling .....	212–217

# MANUFACTURING SESSION

Chairman: Clyde Garson

Paper	3.30–4.00	Evaluation of mud filtrate clarification to improve factory performance, by DW Rackemann, CH Bakir, J Edwards, L Cripps, WOS Doherty .....	416–424
Paper	4.00–4.30	Chemical removal of silica scale from plate heat exchangers, by Steve Eastment, Arvind J Lal, Hilary Bartholomew .....	425–433
Paper	4.30–5.00	Pan pitting corrosion, by L Brown, T Hickey .....	434–445
	6.00–10.30	<i>Conference Dinner</i>	

# THURSDAY, 30 APRIL 2015

## MORNING SESSION–8.00 am

# AGRICULTURE SESSION

Chairman: Brad Hussey

Paper	8.00–8.30	New sources of resistance to major diseases from wild relatives of sugarcane, by Barry Croft, Shamsul Bhuiyan, Robert Magarey, George Piperidis, Eunice Wong, Priyanka Wickramasinghe, Judi Bull, Mike Cox, Graham Stirling, John Foreman, Phillip Jackson .....	218–226
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Paper	8.30–9.00	Developing the baseline understanding of the sexual reproduction of sugarcane in farmers' fields, by JS Pierre, GD Bonnett, P Berger, KS Aitken, K Saltonstall, AL Rae .	227–236
Paper	9.00–9.30	Improving selection accuracy in clonal assessment trials by accounting for site variability, by X Wei, J Stringer, B Salter, G Piperidis, B Schroeder .....	237–243

MANUFACTURING SESSION

Chairman: John Hodgson

Paper	8.00–8.30	Design modifications for the new economiser installation at Invicta Mill, by D Burns, G O'Malley .....	446–454
Paper	8.30–9.00	Modification of the distributor air ducting, No. 3 boiler Pioneer Mill, by A Wallwork, L Franklin .....	455–464
	9.00–9.30	<i>IEE presentations</i>	
	9.30–10.00	<i>Morning tea</i>	

AGRICULTURE SESSION

Chairman: Mike Cox

Paper	10.00–10.30	Optimal selection indices in early stage trials in sugarcane breeding programs, by Phillip Jackson, Xian Ming Wei, Felicity Atkin .....	244–251
Paper	10.30–11.00	Measuring population improvement in the SRA sugarcane breeding program, by MC Cox, FC Atkin, X Wei, G Piperidis, RC Parfitt, JK Stringer .....	252–259
Paper	11.00–11.30	Relative performance of clones sourced from local trials versus inter-regional selection trials. by Phil Jackson, Felicity Atkin, Xianming Wei, George Piperidis, Roy Parfitt, Mike Cox .....	260–266

MANUFACTURING SESSION

Chairman: Bruce Tyson

Paper	10.00–10.30	Two roll mill developments, by J Blaik, P Chohan, C Garson, R Modolo .....	465–474
Paper	10.30–11.00	Developing standards for mill rollers, by LG Santarossa, ML Swain .....	475–488
Paper	11.00–11.30	Managing milling train operation and performance, by GA Kent .....	489–497
	11.30–12.00	<i>Closing ceremony</i>	
	12.00–1.00	<i>Lunch</i>	
	1.00–4.00	<i>Manufacturing and agriculture field tours</i>	