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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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: Mr Neil Sichter

9.30–10.30 Keynote address: Prof Peter Rein: ‘Developing the technology of sugarcane processing in the Australian and world-wide sugar industries’.

10.30–11.00 Official opening of the Industry Equipment Exhibition by Mr Keith Pitt MP, followed by morning tea
Chairman: Stewart Norton

11.00–11.45 Keynote address: Mr Chris Norris: ‘Mechanised sugarcane production: forgotten lessons’

11.45–12.30 Invited speaker: Mr Tom McNeill,
Director, Green Pool Commodity Specialists
‘Fluctuating fortunes—is Australia cost effective?’

12.30–1.30 Lunch
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  Afternoon tea

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** *Happy Hour with IEE*

**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 8.30–9.00 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 cane grubs? by GR Tucker, KJ Chandler, JK Stringer, L Derby, A Eaton, J Jennings, N Matthews .... 121–131

MANUFACTURING SESSION
Chairman: John Hodgson


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 Section AGMs
10.00–10.30 Morning tea

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 Annual General Meeting
12.30–1.30 Lunch

AFTERNOON SESSION—1.30 pm

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Chairman: Brian Robotham

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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
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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 Grieken ........................................... 191

MANUFACTURING SESSION
Chairman: Bruce Tyson

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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 IEE presentations
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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 Afternoon tea

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 4.30–5.00 Pan pitting corrosion, by L Brown, T Hickey 434–445

6.00–10.30 Conference Dinner

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
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


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 IEE presentations
9.30–10.00 Morning tea

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 Closing ceremony
12.00–1.00 Lunch
1.00–4.00 Manufacturing and agriculture field tours