38th Conference of the Australian Society of Sugar Cane Technologists (ASSCT 2016)

Makay, Queensland, Australia
27 – 29 April 2016

Editor:

R. C. Bruce

ISBN: 978-1-5108-2359-4
GENERAL SESSION

10.45–11.30  Keynote address: Simon Usher: Who ate all the pies? Creating shared value

Paper  11.30–12.00  Modelling the sugarcane value chain: a real time decision-making tool, by S Norris, C Norris ….. 1

Paper  12.00–12.30  Managing the risk of beneficial re-use of milling by-products, by C Miller, P Brown, J Crane ….. 2

12.30–1.00  Lunch

AFTERNOON SESSION—1.00 pm

AGRICULTURE SESSION
Chair: George Piperidis

Paper  1.00–1.30  Starch accumulation in sugarcane in response to stress, by Priya Joyce, Nirosha Hewage Don, Monica Sousa, Davey Olsen …………………………… 3

Paper  1.30–2.00  Industry perspectives on precision agriculture, by Tony Webster, John Panitz, Troy Jensen, Rob Bramley …………………………………………… 4

Paper  2.00–2.30  Lagoons Creek rehabilitation at Racecourse Mill, by Carissa Mansfield, Scott Hayes-Stanley …….. 5

AGRICULTURE SESSION (Concurrent)
Chair: Phil Ross

Paper  1.00–1.30  Barcoding: a tool to assist the industry to manage insect incursions, by Kathy Braithwaite, Keith Chandler, Nader Sallam …………………………… 6

Paper  1.30–2.00  Effects of Pachymetra root rot and nematodes on some elite sugarcane clones in Australia, by Shamsul A Bhuiyan, Barry J Croft, Eunice Wong, James Ogden-Brown, Michael Turner, Roy Parfitt, Rob Magarey, Judi Bull, Mike Cox ………………………………………………… 7

Paper  2.00–2.30  Pachymetra root rot survey in the Herbert River District 2014–2015, by G Holzberger, RC Magarey, L DiBella, JI Bull, R Nielson …….. 8
MANUFACTURING SESSION
Chair: John Hodgson

Paper 1.00–1.30 A review of the ISSCT Co-Products Workshop held in December 2015, by Bryan Lavarack ............43

Paper 1.30–2.00 Microbial oil production from sugarcane bagasse hydrolysates by oleaginous yeast and filamentous fungi, by FB Ahmad, Z Zhang, WOS Doherty, IM O’Hara ..................44

Paper 2.00–2.30 Modelling the effect of steam economy measures on effluent flows from the raw sugar factory, by PG Wright ........................................45

2.30–3.00 Afternoon tea

AGRICULTURE SESSION
Chair: Barry Salter

Paper 3.00–3.30 Nitrogen accumulation in biomass and its partitioning in sugarcane grown in the Burdekin, by JF Connellan, J Deutschenbaur .................. 9

Paper 3.30–4.00 Spatial analysis of the relationship between nitrogen surplus and yield in sugarcane, by Tony Webster, Rob Bramley, Troy Jensen ..................10

Paper 4.00–4.30 Evaluating remote sensing technologies for improved yield forecasting and for the measurement of foliar nitrogen concentration in sugarcane, by Andrew Robson, Muhammad Moshiur Rahman, Gregory Falzon, Niva Kiran Verma, Kasper Johansen, Nicole Robinson, Prakash Lakshmanan, Barry Salter, Danielle Skocaj ................................................................. 11

Paper 4.30–5.00 Factors associated with excess use of nitrogen in sugarcane crops in selected districts of Kyber Pakhtunkhwa Province, Pakistan, by Faheem Khan, Malcolm Wegener .................. 12

AGRICULTURE SESSION (Concurrent)
Chair: Allan Royal

Paper 3.00–3.30 Seedbed inspections underestimate the overall incidence of ratoon stunting disease, by Anthony J Young .................. 13
Chlorotic streak resistance screening in the Tully district, by RC Magarey, K Sventek, JI Bull, JK Stringer, R Zamora .............................. 14

Chlorotic streak transmission and crop dynamics research, by RC Magarey, K Sventek, JI Bull, KS Braithwaite ........................................ 15

Effects of burning trashes on leaf feeders
Mythimna spp. (Lepidoptera: Noctuidae)
damage in sugarcane fields, by Amin Nikpay .. 16

Fungal partners play their part: arbuscular
mycorrhizae increase sugarcane growth and
decrease canegrub performance, by A Frew, J
Powell, N Sallam, P Allsopp, SN Johnson ...... 17

Spatial distribution of pink stalk borers Sesamia
spp. (Lepidoptera: Noctuidae) in sugarcane
fields in south west Iran, by Amin Nikpay,
Haroldo Xavier Linhares Volpe .....................18

Australian collaboration for development of
detection methods for sugarcane streak mosaic
virus, by EJ Wilson, N Thompson, R Magarey,
EM Achadian, A Kristini, SH Hidayat ..........19

Quantitative polymerase chain reaction for the
detection of Leifsonia xyli subsp. xyli in plant
tissue from sugarcane, by Amanda Johnson .......20

Nutrient uptake mechanisms in YCS affected
sugarcane, by ZA Ostatek-Boczynski, D Olsen,
F Darain, BL Schroeder .............................. 21

MANUFACTURING SESSION
Chair: Jeffrey Snoad

Implementation and review of the SOTrain training
package at Mackay Sugar, by Bryan Lavarack,
Paul Stuart ..............................................46

Human reliability maintenance: sugar milling train-
ing for the future, by Alison Clift, Max Russell . 47

How gorillas innovate: the activities of MIST, by
Bryan Lavarack, Paul Benecke ......................48

Near infrared (NIR) spectroscopic methods for the
rapid analysis of sugar factory products, by
Eloise Keeffe, Stephen Staunton, Joel Simpson,
Peimaneh Lee-Steere, Laura Donnan, David
Donald ..................................................49
Electrocoagulation of impurities in sugar industry process streams, by Lindon Pyle, Darryn Rackemann ........................................... 50

5.00–6.00  Happy hour with the IEE

THURSDAY, 28 APRIL 2016

MORNING SESSION—8.00 am

MANUFACTURING SESSION
Chair: John Hodgson

8.00–9.30  Australian Renewable Energy Agency (ARENA) Workshop

9.30–10.00  Morning tea

10.00–11.30  ARENA Workshop cont’d.

AGRICULTURAL SESSION
Chair: Allan Royal

Posters 11.30–12.00  Using an EM38 (ground conductivity meter) as a co-variable to improve data accuracy in small plot field trials, by Glen Park ......................... 22
Modelling yields in the wet tropics to improve industry planning, by Yvette Everingham, Justin Sexton, Geoff Inman-Bamber, Danielle Skocaj .................................................. 23
Best management practice—improving runoff water quality while maintaining cane productivity, by S Donaldson, K Rohde .............................................. 24
Assessment of nitrification potentials of Biodunder® formulations in combination with nitrification inhibitors, by Richard Brackin ...... 25
Modelling nitrogen release from controlled-release fertilisers in Australian sugar systems, by Zhigan Zhao, Kirsten Verburg ................. 26
Understanding nitrogen release from controlled-release fertilisers, by Tim Muster, Kirsten Verburg, James Mardel, Kathy Wittwer-Schmid, Mike Wong, Keith Bristow, Gordon McLachlan, Zhigan Zhao .............................................. 27
MANUFACTURING SESSION
Chair: John Hodgson

11.30–12.00  Sponsor presentations

12.00–12.30  Sectional AGMs

12.30–1.30  Lunch, including SRA presentation, IEE presentations

AFTERNOON SESSION—1.30 pm

1.30–5.00  Manufacturing and Agricultural Field Tours

6.30–10.30  Conference Dinner

FRIDAY, APRIL 2016

MORNING SESSION—8.00 am

AGRICULTURAL SESSION
Chair: John Agnew

Paper 8.00–8.30  Examination of opportunity for compost to reduce synthetic nitrogen fertiliser requirements of sugarcane and nitrous oxide emissions, by G Kingston, J Biala, S Chapman, W Wang, S Reeves, G Petersen .......................... 28

Paper 8.30–9.00  Controlled release fertilisers—lessons from a review and early results characterising release, synchrony and nitrogen losses, by K Verburg, Z Zhao, JS Biggs, PJ Thorburn .................. 29

Paper 9.00–9.30  The use of targeted extension strategies to improve water quality outcomes in the Herbert sugarcane industry, by Lawrence Di Bella, Dominque O’Brien, Michael Nash, Carla Wagscheidl .......................... 30

MANUFACTURING SESSION
Chair Jeffrey Snoad

Paper 8.00–8.30  Cracking of pre-stressed concrete girders on BL Creek bridge, by David Ruhle .................. 51
Paper 8.30–9.00 Scheduling tools to reduce the cost of cane railway transport, by GA Kent, AJ Pinkney ............... 52

Paper 9.00–9.30 Automation of the Proserpine Mill feeding station, by LG Santarossa, D Van Der Berg, S Ischenko 53

9.30–10.00 Morning tea

AGRICULTURAL SESSION
Chair: Dave McCallum

Paper 10.00–10.30 Optimising productivity and variety recommendations through analysis of mill data, by J Stringer, B Croft, L Di Bella, M Sefton, R Nielson, P Larsen, R De Lai, I Davies .............. 31

Paper 10.30–11.00 The first sugarcane genome assembly: how can we use it? by Karen Aitken, Paul Berkman, Anne Rae ................................................................. 32

Paper 11.00–11.30 Development of a method to impose waterlogging on sugarcane grown in pots, by B Salter, E Kok 33

Posters 11.30–12.00 Understanding the impact of management practices on the soil biological community: the key to restoring the health of Australian sugarcane soils, by Graham Stirling ......................... 34

In-field sugar loss assessments in Mackay, by John Agnew, Dave McCallum, Cam Whiteing ........ 35

Ranking varietal tolerance to canegrub damage, by Keith Chandler, Jillian Jennings, Allen Eaton, Lisa Derby, Alison Jensen ......................... 36

Investigation into the effect of gibberellic acid on cane growth, by Allan Royal ......................... 37

Efficacy of alternative pre-emergent herbicides applied in trash-blanketed ratoons in the wet tropics, by Emilie Fillols, Tim Staier .................38

Management practices to reduce nitrogen losses from cane, by Amanda Elledge, Bruce Cowie ....39

MANUFACTURING SESSION
Chair: Neil Sichter

Paper 10.00–10.30 Sulfite does not react as expected with oxygen in sugar mill boiler systems, by D Rodman, A Banweg, P Hicks ................................. 54
Inside a wet scrubber, by H Ali, AP Mann, F Plaza 55
The cost of wasting energy efficiently, by AP Mann 56
Permeability and diffusivity properties of bagasse stockpiles, by PA Hobson, N McKenzie, F Plaza, A Baker, C East, L Moghaddam …… 57

12.00–12.30 Lunch

AFTERNOON SESSION—12.30 pm

AGRICULTURAL SESSION
Chair: Danielle Skocaj

The fast fluorescence kinetics: a sensitive tool for early detection of water stress in sugarcane, by DJ Olsen, R Shafiei, FC Botha ………………… 40
Genetic variation in transpiration efficiency in sugarcane and its potential impact on yield in rainfed or low irrigation environments, by Chris Stokes, Phillip Jackson, Geoff Inman-Bamber, Prakash Lakshmanan Jaya Basnayake, Sijesh Natarajan ………………………………………… 41
A screen to discriminate the water potential that limits sprouting of different sugarcane genotypes, by Farheen Bhatti, Johann S Pierre, Anne L Rae, Jai M Perroux, Graham D Bonnett 42

MANUFACTURING SESSION
Chair John Hodgson

Effective management of corrective maintenance work during the crushing season, by G Roberts 58
Pan life cycle management, by Robert Iturbe …… 59
Online cleaning of a vertical continuous vacuum pan, by J Wallace, L Rodriguez, B Aspinall …. 60

2.00–2.30 Afternoon tea
2.30–3.15 ASSCT AGM
3.15–4.00 Closing Ceremony