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**Proceedings
of the
Australian
Society
of
Sugar Cane
Technologists**

2008
TOWNSVILLE
30th Conference

PROCEEDINGS

of the

2008 CONFERENCE

of the

Australian Society

of

Sugar Cane Technologists

held at

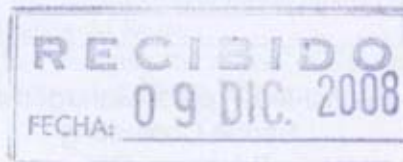
TOWNSVILLE, QUEENSLAND

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THIRTIETH CONFERENCE TOWNSVILLE, 2008

PROGRAM

The Official Opening, Annual General Meeting, General Sessions and all Technical Sessions of the Conference and the Industry Equipment Exhibition will be held at the Townsville Entertainment and Convention Centre, Entertainment Drive, Townsville

TUESDAY, 29 April 2008

Registration at Townsville Entertainment and Convention Centre,
Entertainment Drive, Townsville from 8.00

MORNING SESSION-9.00

Chairman: Professor R Lawn

OFFICIAL OPENING OF THE CONFERENCE

By

SENATOR THE HON JAN McLUCAS

Parliamentary Secretary to the Minister for Health and Ageing

KEYNOTE SPEAKERS

09:30-10:00	Mr Mick Keogh, Executive Director, Australian Farm Institute
10:00-10:30	Mr Scott Spencer, Director-General, Queensland Department of Natural Resources and Water
10.30-11.00	Morning tea
11:00-11:30	Dr Deborah O'Connell, Senior Research Scientist, CSIRO Sustainable Ecosystems
11:30-11:55	Forum: Embracing Change in a Global Environment Chairman: Dr Frikkie Botha
12.00-12.15	Official opening of the Industry Equipment Exhibition
12.15-1.30	Lunch

AFTERNOON SESSION-1.30

GENERAL SESSION

Chairman: Dr G Inman-Bamber

Paper: 1.30-2.00	A review of climate change impact and adaptation assessments on the Australian sugarcane industry, by SE Park	1
Paper: 2.00-2.30	The development of a spatial recording and reporting system for productivity service providers, by J Markley, B Ashburner, M Beech	10
Paper: 2.30-3.00	From victims to victors: understanding and changing the culture of the sugar industry in the Herbert, by I Plowman, A Wood, N Botha, J Coutts	17
3.00-3.30	Afternoon tea	

AGRICULTURE SESSION

Chairman: Dr A Garside

Paper: 3.30–4.00	Implementing sustainable farming practices in the Herbert: the Oakleigh Farming Company experience, by AP Carr, DR Carr, IE Carr AW Wood, M Poggio	25
Paper: 4.00–4.30	Economic evaluation of precision controlled traffic farming in the Australian sugar industry: a case study of an early adopter, by NV Halpin, T Cameron, PF Russo	34

MANUFACTURING SESSION

Chairman: Mr B Edwards

Paper: 3.30–4.00	Cane transport improvements at Mackay Sugar, by D Langham, J Markley	375
Paper: 4.00–4.30	The electromagnetically assisted brake wagon, by LG Santarossa, MS Ingegneri, I Jorgensen	383
4.40–5.40	Presentation of the Sugar Industry Innovator Awards/Research Awards	
5.45	Welcome function	

WEDNESDAY, 30 APRIL 2008

MORNING SESSION–8.00

AGRICULTURE SESSION (Concurrent)

Chairman: Mr E Shannon

Paper: 8.00–8.30	A review of contingency planning and the emergency response to the incursion of sugarcane smut in Queensland, by Trevor G Willcox, Barry J Croft, Mohamed N Sallam, Peter G Allsopp, Bernard J Milford	43
Paper: 8.30–9.00	Sugarcane smut in Queensland, by Barry J Croft, Robert C Magarey, Bruce Quinn, Allan Royal, Ron Kerkwyk	52
Paper: 9.00–9.30	Smut epidemiology studies in the Bundaberg-Isis area in 2006–2007, by RC Magarey, D Denney, BJ Croft, KJ Lonie, TG Willcox	63
Paper: 9.30–10.00	Spore trap detection of sugarcane smut: 12 months experience and outcomes, by RC Magarey, KS Braithwaite, G Bade, BJ Croft, KJ Lonie	72

AGRICULTURE SESSION (Concurrent)

Chairman: Dr A Garside

Paper: 8.00–8.30	Nitrous oxide emissions from sugarcane soils: effects of urea forms and application rate, by WJ Wang, PW Moody, SH Reeves, B Salter, RC Dalal ...	87
Paper: 8.30–9.00	Nitrous oxide emissions from sugarcane soils as influenced by waterlogging and split N fertiliser application, by Diane Allen, Graham Kingston, Heinz Rennenberg, Ram Dalal, Susanne Schmidt	95
Paper: 9.00–9.30	Whole-of-season greenhouse gas emissions from Australian sugarcane soils, by OT Denmead, BCT MacDonald, T Naylor, W Wang, B Salter, I White, S Wilson, DWT Griffith, P Moody	105
Paper: 9.30–10.00	Knowledge of soil biology to reduce nitrogen loss as N ₂ O from sugarcane farming, by K McGrath, R Brackin, P Lakshmanan, P Schenk, S Schmidt	115

MANUFACTURING SESSION

Chairman: Mr L Santarossa

Paper: 8.00–8.30	Evaluation of boiler partial hopper evacuation system at Pleystowe Mill, by Paul Stuart	395
Paper: 8.30–9.00	The effects of gas and air flow distributions on the performance of the Farleigh No. 3 boiler, by AP Mann, R Rasmussen, T Lloyd	403
Paper: 9.00–9.30	Upgrade of Pioneer Mill Boiler No. 2, by M Stirling, K Stanton, GJ Masotti	409
Paper: 9.30–10.00	Important aspects of desuperheater design in power and process applications, by CJ Whitworth, GM Gray	418
10.00–10.30	Morning tea	

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AGRICULTURE SESSION (Concurrent)

Chairman: Mr E Shannon

Paper: 10.30–11.00	Breeding smut-resistant sugarcane varieties in Australia: progress and future directions, by Barry J Croft, Nils Berding, Mike C Cox, Shamsul Bhuiyan ...	125
Paper: 11.00–11.30	Tissue culture and biolistic transformation of new smut resistant sugarcane varieties, by P Joyce, J Brumbley, LF Wang, P Lakshmanan	135
Paper: 11.30–12.00	Yield losses caused by <i>Pachymetra</i> root rot in northern Queensland: 10 years of breeding selection trial data, by RC Magarey, JI Bull	145

AGRICULTURE SESSION (Concurrent)

N SYMPOSIUM

Chairman: Mr G Shannon

10.30–11.00	A policy framework for sustainable fertiliser use and management, by MC Shafron	349
	The reef water quality partnership: a pathway to delivery, by J Waterhouse, R Eberhard	350
	Development of 'ABCD' nutrient management framework for water quality improvement at regional scale, by W Higham, J Drewry, C Mitchel	351
	Farming practices to meet the water quality challenge in the Burdekin region, by SJ Attard, PJ Thorburn, J Biggs, J Kemei, T Anderson	353
11.00–11.15	Discussion	
11.15–11.45	N replacement: a simple approach to improving nitrogen use efficiency in sugarcane, by AJ Webster, PJ Thorburn, JS Biggs, IM Biggs, MF Spillman, SE Park	355
	Nitrogen balances in sugarcane farming systems as affected by nitrogen fertiliser applications, by PJ Thorburn, AJ Webster, JS Biggs	357
	A comparison of different approaches for deriving nitrogen application rates using trial data from Macknade, by BL Schroeder, AW Wood, PW Moody, JH Panitz	359
	The use of replicated strip-trials for demonstrating the effectiveness of different nutrient management strategies for sugarcane, by B Salter, BL Schroeder, AW Wood, JH Panitz, G Park	361
11.45–12.00	Discussion	

MANUFACTURING SESSION

Chairman: Mr P Benecke

Paper: 10.30–11.00	Furfural—a value adding opportunity for the Australian sugar industry, by LJ Watson, CG Connors	429
Paper: 11.00–11.30	Bagasse transport and storage for the Pioneer cogeneration project, by P Trayner	437
Paper: 11.30–12.00	A new beginning for sugar cogeneration in Australia?, by Franz Grasser, Ric Brazzale	449
12.00–12.30	Section AGMs	
12.30–1.30	Lunch	

AFTERNOON SESSION—1.30

AGRICULTURE SESSION (Concurrent)

Chairman: Ms T Anderson

Paper: 1.30–2.00	The role of foreign varieties in the Australian sugar industry, by G Piperidis, MC Cox, N Thompson, BJ Croft	155
Paper: 2.00–2.30	Developing optimal selection systems in sugarcane breeding programs, by Fengduo Hu, Phillip Jackson, Kaye Basford	162
Paper: 2.30–3.00	Relative economic genetic value (rEGV)—an improved selection index to replace net merit grade (NMG) in the Australian sugarcane variety improvement program, by Xianming Wei, Phillip Jackson, Joanne Stringer, Mike Cox	174

AGRICULTURE SESSION (Concurrent)

N SYMPOSIUM

Chairman: Mr G Shannon

1.30–2.00	Research aimed at enhancing nitrogen management guidelines for the Six Easy Steps Program, by AW Wood, BL Schroeder, AP Hurney, B Salter, JH Panitz	362
	Impacts of crop rotation, tillage and N fertiliser applications on cane growth and N dynamics in the Bundaberg region, by MJ Bell, NV Halpin, GR Stirling, PW Moody, AL Garside	364
	Adapting sugarcane nitrogen management practices to take account of legume fallows, by S Park, H Horan, T Webster, I Biggs, J Biggs, P Thorburn	365
	Potential impacts of mill mud on nitrogen fertiliser requirements for sugarcane production, by PJ Thorburn, SE Park, P Bloesch, AJ Webster, HL Horan, IM Biggs, JS Biggs	367
2.00–2.15	Discussion	
2.15–2.45	Emissions of nitrogen gases from sugarcane soils, by OT Denmead, BCT Macdonald, T Naylor, B Salter, S Wilson, DWT Griffith and D Chen	369
	The impact of trash blankets on denitrification, by JS Biggs, PJ Thorburn, ME Probert	370
	Monitoring nitrogen stress in sugarcane: Approaches at the mill using total N by IM Biggs, AJ Webster, PJ Thorburn, S Staunton, JS Biggs	372
	An integrated approach to reducing N inputs in Australian sugarcane farming systems, by N Robinson, A Whan, A Fletcher, K Vinall, R Brackin, P Lakshmanan, S Schmidt	374
2.45–3.00	Discussion	

MANUFACTURING SESSION

Chairman: Mr B Edwards

Paper: 1.30–2.00	Laboratory experiments on billeting sugarcane, by MG Barnes, JG Loughran, BW Lamb	457
Paper: 2.00–2.30	Identification of trash in cane using machine vision, by JR Tulip, WE Moore ...	464
3.00–3.30	Afternoon tea	

AGRICULTURE SESSION (Concurrent)

Chairman: Ms T Anderson

Paper: 3.30–4.00	Sampling statistics and population dynamics of greyback canegrubs in sugarcane fields: a case study, by MN Sallam, PR Samson, GD Puglisi, JI Bull, DA Donald	182
Paper: 4.00–4.30	Dynamics of <i>Pachymetra</i> root rot spore populations in a susceptible crop: a comparison of two contrasting environments, by RC Magarey, JI Bull, KJ Lonie, W Tomasin	193

AGRICULTURE SESSION (Concurrent)

Chairman: Mr E Shannon

Paper: 3.30–4.00	Acquisition of nitrogen by ratoon crops of sugarcane as influenced by waterlogging and split applications, by G Kingston, MC Anink, D Allen	202
Paper: 4.00–4.30	Sustainable sugarcane production systems: reducing plant nitrogen demand, by N Robinson, A Fletcher, A Whan, K Vinall, R Brackin, P Lakshmanan, S Schmidt	212

MANUFACTURING SESSION

Chairman: Mr L Santarossa

Paper: 3.30–4.00	Master data—the backbone of a successful computerised maintenance management system, by I Letizia, K Joyce	477
Paper: 4.00–4.30	Safety in design: current standards for sugar mills, by Stephen Cutting	484
4.30–5.30	Posters	579–603

THURSDAY, 1 MAY 2008

MORNING SESSION-8.00

AGRICULTURE SESSION (Concurrent)

Chairman: Mr R Beattie

Paper: 8.00-8.30	Performance of cultivars on different row configurations, by B Salter, AL Garside, N Berding	220
Paper: 8.30-9.00	Pointers for better farming and research from sugarcane physiology, by NG Inman-Bamber, GD Bonnett, PJ Thorburn, A Garside, N Berding, SJ Attard	231
Paper: 9.00-9.30	The influence of depth and method of cane planting on stool tipping and yield on a red ferrosol at Bundaberg, by AJ Dougall, NV Halpin	241
Paper: 9.30-10.00	Water savings and water accounting in irrigated sugarcane, by NG Inman-Bamber, SJ Attard	251

AGRICULTURE SESSION (Concurrent)

Chairman: Mr R Milla

Paper: 8.00-8.30	Trends in nutrient applications in the Herbert River District from 1996 to 2006, by AW Wood, G Holzberger, RE Kerkwyk, R Dwyer, BL Schroeder	260
Paper: 8.30-9.00	Crop management practices in the Tully and Murray River catchments, by M McMahon, AP Hurney	267
Paper: 9.00-9.30	'SCAMP' and 'SafeGauge for Nutrients': two new decision support tools for minimising off-site movement of nutrients, by PW Moody, D Blogg, J LeGrand, BL Schroeder, AW Wood	276
Paper: 9.30-10.00	Monitoring water quality on farms: the Herbert water quality monitoring project, by AW Wood, TJ Wrigley, KT Phillips, L Mastripolitto, PE Sheedy	285

MANUFACTURING SESSION

Chairman: Mr B Edwards

Paper: 8.00-8.30	Investigation of a mill drive failure, by DN Wainwright, CA Garson	495
Paper: 8.30-9.00	A critique on the wear mechanism of surface engineered sugar mill roller shells, by GD Oliver, VE Buchanan, KO Cooke	501
Paper: 9.00-9.30	The effect of roll diameter on mill capacity, by CA Garson	510
Paper: 9.30-10.00	Development of cleated belt bagasse conveyors, by Bundaberg Walkers Engineering Ltd	517
10.00-10.30	Morning tea	
10.30-11.30	ASSCT AGM	
11.30-12.30	Lunch	
12.30	Agricultural Field Trip	

MANUFACTURING SESSION

Chairman: Mr P Benecke

Paper: 12.30-1.00	Some aspects of calcium phosphate chemistry in sugarcane clarification, by WOS Doherty, DW Rackemann	526
Paper: 1.00-1.30	Evaluation of a magnetic ion exchange (MIEX [®]) resin for decolorisation applications within a raw sugar factory, by Michael G O'Shea, Thomas Dahlke, Stephen P Staunton, Glenn M Pope, Abigail Holmquist	536
2.00	Manufacturing Field Trip	
6.00	BBQ	

FRIDAY, 2 MAY 2008

MORNING SESSION-8.00

AGRICULTURE SESSION (Concurrent)

Chairman: Mr R Beattie

Paper: 8.00-8.30	Dynamics of <i>Pachymetra</i> spore populations: the effects of site and varietal resistance, by RC Magarey, JI Bull, KJ Lonie, W Tomasin	295
Paper: 8.30-9.00	Experience with micropropagated plants of sugarcane in the Herbert, by GJ Shannon, R Pace, LP Di Bella	303
Paper: 9.00-9.30	Yield losses caused by leaf diseases: 1999 and 2003 selection trial analyses, by RC Magarey, JI Bull, WA Tomasin	309

AGRICULTURE SESSION (Concurrent)

Chairman: Mr R Milla

Paper: 8.00-8.30	Evaluation of the automatic base-cutter control system in the Australian sugarcane industry, by M Esquivel, S Marrero, E Ponce, A Guerrero, T Stainlay, J Villaruz, AW Wood, LP Di Bella	322
Paper: 8.30-9.00	Harvest planning for growers, by D Prestwidge, T Stainlay, D Skocaj, L Di Bella, A Higgins	328
Paper: 9.00-9.30	What impact does time of harvest have on sugarcane crops in the Herbert River District?, by LP Di Bella, JK Stringer, AW Wood, AR Royle, GP Holzberger	337

MANUFACTURING SESSION

Chairman: Mr J Venning

Paper: 8.00-8.30	Heat transfer coefficient correlations for Robert juice evaporators, by PG Wright	547
Paper: 8.30-9.00	Low grade fugal pressurised feed system design and operational experiences, by Sean O'Gorman, Rob Attard	559
Paper: 9.00-9.30	Assessment of sugar polarisation using an electrical conductivity method, by JD Snoad	569

9.30-10.00	Morning tea	
10.00-10.30	Address by Hon Craig Wallace MP, Minister for Natural Resources and Water and Minister Assisting the Premier in North Queensland	
10.30-11.30	Closing ceremony	