



# SASTA NEWS

Newsletter of the SA Sugar Technologists' Association

NOVEMBER 2010

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## SASTA Gold Medalist: Dr GRE Lionnet

**B**orn and raised on a Sugarcane Island, and armed with some experience in the Mauritian Sugar Plantations, GRE (Raoul) Lionnet arrived in South Africa in 1966 and spent his first three years as a Sugar Technology Student at the Sugar Milling Research Institute (SMRI). After receiving his Sugar Technologist Diploma in 1970 he joined Huletts Research and Development (now Tongaat-Hulett Sugar) as a Development Technician/Snr Development Technician. From 1978 to 1979 he was the Assistant Process Manager (APM) at the Darnall Factory and obtained a BSc Degree in Chemistry and Statistics in 1980.

Dr Lionnet then joined the SMRI in 1980 as a Research Officer/Snr Research Officer in the Processing Division, became Head of the Processing Division in 1990 and finally the Assistant Director of the Institute in 1998. He obtained a Master's degree titled "The Study of the Extraction of Non-sucrose Components of Sugarcane (*Saccharum officinarum*)" in 1985 and a PhD titled "The Incorporation of Impurities into Sucrose Crystals during the Crystallization Process" in 1999 both through the University of Natal (now KwaZulu-Natal). After 22 years at the SMRI, he rejoined Tongaat Hulett Sugar as Process Technologist in the Technical and Engineering Group (TEG) and finally retired in 2009.

Dr Lionnet was a member of SASTA for 36 years, serving on SASTA



Council and on the SASTA Factory Control Advisory Committee (FCAC) from 1990 to 2002. He published 59 SASTA papers including the Annual Review of the Sugarcane Season for 10 consecutive years (1989/90 to 1999/2000), and won the Talbot-Crosbie Award for the best paper during a factory session in 1986 and again in 1989. Dr Lionnet presented seven ISSCT papers and served as the Factory Processing Vice-Chair, Chair and the Deputy Factory Commissioner between 1996 and 2002. He was an ICUMSA Associate Referee (S12) for 4 years prior to becoming the Referee for General Subject 5 (Cane) from 1998 to 2002. He also published a comprehensive set of study notes titled "STEC - Sugar Technology for Students" in 12 Volumes (1999).

Dr Lionnet was an enthusiastic sugar technologist at heart and specialized in the extraction of impurities, removal of impurities during clarification, the effect of extraneous matter on all aspects of sugarcane processing, post-harvest deterioration indicators

(e.g. the "ethanol sniffer"), in-depth pan boiling operations and molasses exhaustion. He was particularly apt in the application of statistical design and the distillation of experimental data into a useful form for application in our factories. As such, he was co-author of the Corrected Reduced Boiling House Recovery (CRB) formula (1986) which yields a recovery index independent of cane quality, allowing for inter-factory comparisons. This formula forms part of the SASTA Laboratory Manual and is used extensively in SA, southern Africa and abroad. Amongst many other vital projects, he pioneered the new raw sugar filterability apparatus that is being implemented in the SA industry in the 2010/11 season, in particular at the SA Sugar Terminal for classification of SA export raw sugars.

Most of all, Dr Lionnet was an energetic mentor who gave up much of his time to guide and encourage young technologists in the sugar industry, always willing to pass on his experience and knowledge. He is truly an inspiration to his colleagues all over the world. In addition to the gold medal, Honorary membership of SASTA was awarded to Dr Raoul Lionnet.

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# SASTA CONGRESS 2010

The annual SASTA Congress was held at the Durban ICC from 25 - 27 August 2010. The event was a great success with 515 attending delegates. Whilst most of the delegates were from South Africa (445), Congress was also supported by delegates from other African countries (45) as follows: Zimbabwe (14) Swaziland (12), Kenya (7), Zambia (5), Malawi (3), Tanzania (2) and Mozambique (2). Delegates from other continents/islands totalled 25 (India 7, UK 6, USA 3, Germany 3, Saudi Arabia 2, Mauritius 2, France 1 and Vietnam 1). The Trade Exhibition proved to be popular with 45 stands sold that made for a busy, lively meeting and eating area enjoyed by all delegates.



**Dr Peter Johnston** of the Climate Systems Analysis Group at the University of Cape Town delivered an outstanding keynote address on the very real climate change concerns facing South African agriculture. It was evident from his presentation that current agricultural practices may need a paradigm shift to adapt to changing weather patterns. Another highlight of the Opening Session was the presentation of the SASTA Gold Medal to Dr Raoul Lionnet for his exceptional contribution to SASTA. This was accepted on his behalf by Mr Mano Moodley.

A special session on Diversification was included during the first day with two international speakers well versed in their fields. Dr Peter Rein (private consultant) considered the challenges that diversification in the sugar industry is facing, with the options being ethanol, electric-



**Mr Mano Moodley accepts the SASTA gold medal on behalf of Dr Raoul Lionnet from SASTA president Paul Schorn.**

ity and lignocellulosic energy. Dr Vadim Kochergin (Audubon Sugar Institute, Louisiana State University) discussed the various pathways towards non-ethanol fuels and chemicals and presented various biorefinery options for typical sugar industries. Both agreed that an existing sugar factory is the ideal starting point for a biorefinery but that various integration strategies and economic and environmental challenges will need to be considered and addressed.

The Congress saw over 50 research papers presented in the Agriculture and Factory sessions. A few highlights from the Agricultural papers include the development of a basic Variety Selection Decision Support System. Whilst still undergoing further refinements this tool will be a valuable aid to assist growers with variety selection. Several papers also focussed on sustainability challenges facing small-scale growers. Efforts to improve the financial viability of small-scale farms through debt restructuring were presented as well as strategies to improve financial management for growers. Also of interest was the presentation on the use of a product called 'TwinN' as an alternative source of nitrogen for sugarcane

production. Special mention must be made of Dr Des Conlong's very entertaining and informative 'graveyard shift' presentation.

Highlights from the factory sessions included a paper dealing with banging noises coming from pipes and vessels under pressure. These were shown to mainly stem from water hammer and a range of causes and cures that can be implemented in our factories was illustrated. In an insightful factory operational paper, Maidstone sugar factory staff shared their experiences with recent optimisations that have been achieved at this particular factory. On chemical control, Lola Naidoo from the Sugar Milling Research Institute presented updated progress with the implementation of NIR spectroscopy for rapid analysis of intermediate factory products used for process control. Norman Magasiner presented an interesting paper on corrosion in bagasse- and coal-fired boilers, with special interest in the burning of additional biomass for co-generation. The factory sessions concluded with three papers from the Hulett's Refinery in Rosburgh on refinery optimisations and the application of new technologies.

The Exhibition Networking Open time held during the afternoon of 26 August was a busy event with delegates and invited guests taking the opportunity to interact with exhibitors and find out more about their products and services. Prizes for the best Exhibition stands were also awarded during this time. The award for the best stand went to Adapt IT.

Highly commended certificates were also presented to three stands: Improchem, a double stand shared by SMRI/Bruker/Sugarequip, and a



**Adapt IT awarded best stand.**



double stand shared by Allen Steam Turbines/Weir Power and Industrial/Dawson technology/Turbine Generator Services.



SASTA thanks all delegates, sponsors and exhibitors for participating in the 2010 Congress and looks forward to welcoming all to Congress 2011 which will take place at the ICC from 17 to 19 August 2011.

Seen at Congress 2010 are:



**Vis Pillay (Illovo Eston), Jerry Harilall (Ebony), Thumba Munien (Tsb Sugar) Gavin Smith (SMRI), Jeffery Hoffman (Western States Co) Stefano Gabba and Tony Nadasen (Illovo – Sezela)**



**Bongani Linda (SASA Chairman and grower), Nonhlanhla Linda (grower), Olivia Finnemore (SA Canegrowers), Stuart Ferrer (SA Canegrowers)**



**Tracy Matthews (CTS Amatikulu and Darnall), Couben Goven-der (CTS Eston), Nisha Pillay (CTS Felixton), Terentia Browne (CTS), Predhie Naidoo (CTS)**



**Thulani Masondo, Jay Kuppen, Joy Mngadi, Jay Maharaj (all from SASRI)**

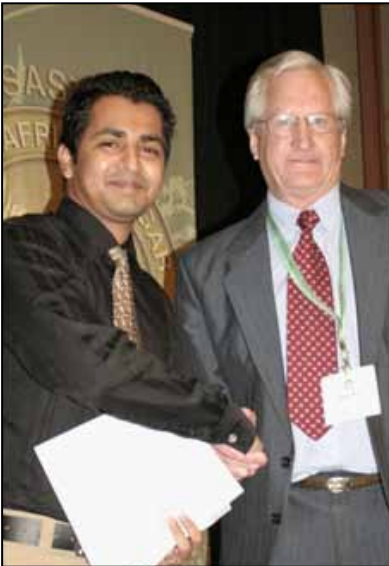
The second SASTA/BNC Industrial golf day was held on 24 August 2010, the day before Congress started, at the Bluff National Park golf course. Fourteen teams entered this very enjoyable day which culminated in the presentation of prizes and trophies of particular note. The coveted first prize floating trophy, which is awarded to the first sugar mill team, this year went to Illovo - Eston Mill. Their team included Anil Singh, Mark Gounder, Vis Pillay and Leo Pillay



**Clive Soji (THS – Maidstone), Phil Nkosi (Illovo), Musawenkosi Cele (CTS Sezela and Mzimkhulu), Bekhi Nzama (Illovo)**

*Submitted by Deborah Sweby, Barbara Muir, Danile Macdonald*

# Awards from Congress 2009: presentations



Zyven Rambakus received the Robin Renton Memorial award from PGBI representative Peter Rein.



Factory poster award: Stephen Walford (Stefana Egli and Bice Martincigh not present)



Kynoch award: Abraham Singels (Michiel Smit, Mike Butterfield, Riekert van Heerden and Maurits van den Berg not present)



Cecil Renaud Factory Award: from left: Steve Peacock, Leon Smith, Dave Love, Dave Muzzell, Paul Schorn



Talbot-Crosbie award: Bryan Barker, Barbara Muir (Gillian Eggleston not present)



Cecil Renaud Agriculture award: Tim Murray (Adey Wynne and Aubrey Gabriel not present) receives the award from SASTA Vice-President, Deborah Sweby



Agriculture poster award: Ruth Rhodes, Rianto van Antwerpen, Tania van Antwerpen, Stuart Rutherford, Sharon McFarlane, Peta Campbell, Des Conlong (Graeme Leslie, Shaun Berry, and Dirk McElligott not present) receive the award from Deborah Sweby (second from right)

The Agriculture student award went to Gudrun Dittrich-Schroder (in absentia).

## Call for Abstracts - SASTA Congress 2011

The 84<sup>th</sup> Annual SASTA Congress will take place from 17 - 19 August 2011 at the International Convention Centre (ICC) in Durban.

The Organisers invite submissions in the following categories:

### Peer reviewed articles

Full Papers

Review Papers

Operational Papers (Factory section only)

### Non-peer reviewed articles

Short Communications (Agriculture section only)

Practical Success Stories (Agriculture section only)

Poster papers

Commercial papers

### Important Deadlines

**Abstracts: 20 January 2011**

**Notification of Abstract acceptance: 28 January 2011**

Abstracts are 250 words maximum and must be submitted online through the SASTA website ([www.sasta.co.za](http://www.sasta.co.za)). The online submission system will open on 1 December 2010.

**Full papers, Review papers, Operational Papers: 18 March 2011**

**Short Communications, Practical Success Stories, Poster paper summaries: 1 April 2011**

All manuscripts must be submitted online through the SASTA website.

The Instructions for Authors (2011 update) is available from the SASTA website ([www.sasta.co.za](http://www.sasta.co.za)).

For information regarding the Trade Exhibition and sponsorship opportunities please contact Deidre Hancke-Haysom at The Conference Company. Ph: +27 31 3039852, email: [deidre@confco.co.za](mailto:deidre@confco.co.za).

For other information please contact the SASTA Administrator at [sasta@sugar.org.za](mailto:sasta@sugar.org.za).

## Benefits and Responsibilities of SASTA Membership

Benefits of being a member of SASTA:

1. **Access to member** prices for:

- Congress
- Workshops/workgroups/roadshows
- Field trips/factory tours
- Lab manual 4<sup>th</sup> edition on CD

(If you had done all 3 events and bought a Lab manual in 2010, you would have saved R455 by being a full member)

2. **Access to interaction** with other members of the sugar industry on a non-political and non-corporate platform, allowing members the freedom to tackle sectional issues on a common platform, which encourages innovation. Many issues and ideas originating from SASTA events have been taken back into the industry structures and progressed.

3. **Access to information**, ideas, technology and networks from various sectors of the sugar industry.

4. Receiving two SASTA Newsletters per year

5. Listing on the SASTA members' electronic address book to receive email notification of sugar industry events and interests from around the world.

6. Eligibility (if Full or Honorary member) to stand for Council and vote for Council members, which affords you input on how the Association is run.

7. Priority access to SASTA events and publications.

8. Eligibility to nominate and be nominated for various SASTA awards.

### Responsibilities of being a member of SASTA:

Please note that this membership is in your personal capacity and thus you are liable for annual membership subscriptions, even if your company has agreed to make payment on your behalf.

It is your responsibility to keep SASTA informed of any change in your address details.

Should you wish to cancel your membership in the future, please let SASTA know in writing or by email.



# SASTA Congress 2010 Prizewinners: Announcement of award winners

## ROBIN RENTON MEMORIAL AWARD/PGBI PRIZE

### Ashiel Jumman

Ashiel, an Agricultural Engineer employed by SASRI, has been working on how best to address the challenges of maintaining crop productivity by appropriate irrigation in the face of increasing electricity tariffs and potential water shortages, both of which impact on grower profitability. He presented one paper ("Deficit Irrigation: A Strategy to Counteract Escalating Electricity Tariffs and Water Shortages") and one poster ("Electricity Tariff Increases: The Impact on Irrigators?") at SASTA 2010, both co-authored by NL Lecler. The paper was presented very confidently and professionally, and Ashiel demonstrated a good appreciation of commercial and management factors affecting irrigation decisions and provided a sound basis for decision-making. Ashiel showed himself to have good leadership potential, and the judges consider him to be a worthy recipient of the award.

## SASTA STUDENT AWARD

### Factory Section: Heidi du Clou

for her paper "An Introduction to Gas Chromatography Mass Spectroscopy for the Structural Elucidation of Polysaccharides from Sugar Processing Streams" (H Du Clou, co-authored By SN Walford). The author presented a well-prepared paper to show how GC-MS techniques can be used to determine the structure and nature of polysaccharides in sugar processing streams. Although the techniques are not new, the author described how this work has included the development of a 'polysaccharide library' that will enable more rapid and complete assessment of polysaccharides in processing streams to determine the cause of high viscosities. The paper was well-researched yet presented in an easy-to-follow manner.

## Agriculture Section: No award made

## KYNOCH PRIZE

**Winners: Sanesh Ramburan, Dirk McElligott and Otto de Haas** for their full paper presentation entitled "Integrating agronomic and economic principles through applications of variety trial data: the Illovo case study" (S Ramburan, DM McElligott and O de Haas). The presentation by Sanesh Ramburan was of an excellent standard and was clear, logical and easy to understand. Sanesh spoke clearly and had the audience's attention throughout the presentation. He made good use of data to illustrate his point and it was relatively easy to follow his conclusions. His paper was well written and well argued.

**Highly Commended in Kynoch category: Neil Miles** for his paper entitled "Challenges and opportunities in leaf nutrient data interpretation" (N Miles). The paper outlined some very difficult concepts surrounding leaf analysis interpretation challenges to the audience in a clear and concise way. The judges thought that this presentation was suitable for a plenary presentation. It was unfortunate that the presentation was not well timed and there was no time for questions and discussion.

## CECIL-RENAUD AWARDS

### Factory Section Winner: Dave

**Love** for his paper "Noises off: banging sounds from pipes and vessels in a sugar factory – causes and cures" (DJ Love). This was an excellent paper dealing with a common problem that has potential serious consequences in a factory. While the well-researched theory was dealt with briefly, the author also used numerous references and examples from outside the industry to clearly illustrate the dangers, causes and solutions. This is likely to be a

standard trouble-shooting paper for many years that should be compulsory reading for factory engineers and safety representatives.

**Highly Commended in factory section: Dave Love** for the paper "Measuring the quantity of incondensable gas removed by a liquid ring vacuum pump". This was another valuable practical paper produced by the author, that will be useful as a reference document for design and trouble-shooting of factory vacuum systems.

**Agriculture section winner: Justin Murray** for "Analysis of small-scale grower returns in Mpumalanga: Tenant farmers or sustainable producers?" (JJ Murray). He covered a pertinent topic for the industry and there was evidence of good statistical analyses and critical thinking. He packaged facts and figures into an interesting story that held the audience's attention throughout the presentation. What struck the audience was the figure of 34% of SSG with a zero balance at the end of the year and this group are totally reliant on industry grants.

## POSTER AWARD

**Agriculture section winner: Ashiel Jumman and Neil Lecler** for "Electricity tariff increases: the impact on irrigators" (A Jumman and NL Lecler). The poster represented a carefully planned and visually effective effort to deal with a very topical issue facing the irrigated regions.

## SUCCESS STORY AWARDS

**Dave Sutherland** for an excellent presentation on on-farm control of *Digitaria abyssinica*. His presentation entitled "A running grass control strategy that is working". His paper clearly presented the problem, approach for control, continual evaluation and refinement of a strategy and finally the presentation of an integrated control system.



## TALBOT-CROSBIE PRIZE

**Winners: Vadim Kochergin, Cy Gaudet and Mike Robert** for their paper "A Juice Clarifier with Turbulence Reduction Devices: Results of First Industrial Trials" (V Kochergin, C Gaudet and M Robert). This well-presented paper used a good theoretical approach to the problem of effective juice clarification as well as practical experimentation to develop a new feed design that is simple and should be able to be retrofitted to existing equipment to derive good benefits.

**Highly Commended in Talbot-Crosbie category: Richard Simpson and Lola Naidoo** for the paper "Using Near Infra Red Spectroscopy for Rapid Quantification of Intermediate Sugar Factory Products" (R Simpson and Y Naidoo, presented by Lola Naidoo). This paper is the culmination of a number of years of work in developing the technique, and demonstrated that it is ready for the South African milling industry to use. The high value to the industry was clearly demonstrated and convincing to the audience, and the sound scientific basis was evident. The paper was very well presented and well received.

## SASTA Essential reading pack

SASTA Council identified a need for newcomers to the sugar industry to have a source of "essential reading" that would help them get to grips with the most relevant information without wading through mountains of literature. SASTA has now placed this "Essential reading pack" on the SASTA website ([www.sasta.co.za](http://www.sasta.co.za)) for free access by all.

The reading pack is separated into Agricultural and Factory publications and includes the latest Annual Reviews of the sugarcane production and sugarcane processing seasons.

You are welcome to refer your new employees to this facility.

# SASTA Council 2010-2011



President: **Gavin Smith**  
(Industry Support Manager, SMRI)



Vice-President:  
**Barbara Muir**  
(Senior Research Officer, SMRI)



**Carel Bezuidenhout**  
(SASRI Research Fellow and Associate Professor, UKZN)



**Stuart Ferrer**  
(Research Economist, SA Canegrowers)



**Warren Lawlor**  
(Tsb International)



**Keith McFarlane**  
(Technical Team Manager, SASRI)



**Adri Mehl**  
(Finance and Admin Manager, SASRI)



**Steve Peacock**  
(Functional Head – Process, TEG, THS)



**Kerry Redshaw**  
(Operations Manager, SASRI)



**Sandy Snyman**  
(Senior Researcher, Biotechnology, SASRI)



**Paul Schorn**  
(Operations Group Leader, TEG, THS)



**Ruth Rhodes**  
(Soil Scientist, SASRI)



**Deborah Sweby**  
(Research Officer, Molecular Biologist, SASRI)



**Danile Macdonald**  
(SASTA Administrator)



# SASTA ROADSHOW 2011



ASTA Council, based on feedback from SASTA members, identified an opportunity to serve its members better by holding a "Roadshow" each year which will highlight a few papers from the annual Congress and bring the information and opportunity for discussion to more people. The papers selected each year will be the presentations from Congress which are most applicable to growers, and which have practical applications in the sugarcane industry. The first of these Roadshows went to Malelane in February 2009. The second Roadshow went to Empangeni on 23 February 2010. **This third Roadshow will be held at Sezela**, hoping to reach growers and agricultural associations' personnel from the South Coast, Lower South Coast and Midlands South regions.

**Date: Wednesday 23<sup>rd</sup> February 2011**

**Time: 09:30-14:00**

**Venue: Sezela Country Club, Sezela**

**Fee: SASTA Members: R50**

This fee covers talks, tea and lunch on the day, and a hard copy of each paper.

**Non-SASTA members: R225.00**

Paying R225 as a non-SASTA members automatically gives you:

A one-year membership of SASTA for 2011 (member rates for Congress 2011)

The chance to listen to eleven presentations that will stimulate and inform you

Tea and lunch on the day

Hard copy of each paper presented

To book a place and receive an invoice, reply to : Danile Macdonald, SASTA, P Bag X02, Mount Edgecombe, 4300. Tel: +27-31-5087543 Fax: +27-31-5087420 Email: [sasta@sugar.org.za](mailto:sasta@sugar.org.za) When booking, please supply the names of delegates (For name badge purposes), their contact phone numbers and email addresses (for communication purposes), postal addresses and VAT registration numbers (if needed for the invoice).

Numbers are limited to 120, and hence committed replies are necessary. "First come (and paid) – First served" basis will apply.

## The proposed programme:

Eighty-fifth annual review of the milling season 2009-2010 (South Coast, Lower South Coast and Midlands South only) **Smith GT**

Review of South African sugarcane production in the 2009-2010 season from an agricultural perspective (South Coast, Lower South Coast and Midlands South only) **Singels A**

The revamped SASRI weather data service **Singels A**

Development of a variety selection decision support system: genotype x environment analysis and system validation. **(Linked with)** Integrating agronomic and economic principles through applications of variety trial data. The Illovo case study. **Ramburan S**

Nutrition of the South African sugar crop: current status and long-term trends **van der Laan M**

Challenges and opportunities in leaf nutrient data interpretation **Miles N**

An applied approach to sugarcane harvest scheduling decision support **Bezuidenhout CN**

A running grass control strategy that is working **Sutherland D**

Integrated weed management for sugarcane field verges **Conlong DE**

Impact of sugarcane thrips on sugarcane yield in field trials by **Mike Way**

