

# the Innovator

The Newsletter from the EH Graham Centre for Agricultural Innovation

AUTUMN 2009 EDITION

CHARLES STURT  
UNIVERSITY



NSW DEPARTMENT OF  
PRIMARY INDUSTRIES

## Message from the Director

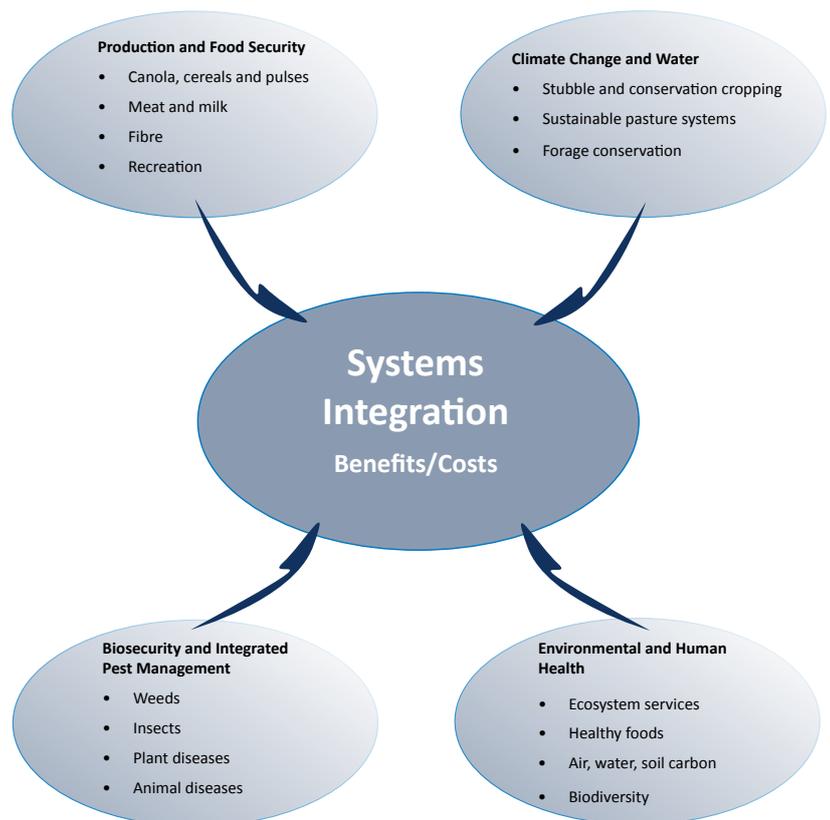
Welcome to the Autumn edition of the Innovator. The Centre has recently broadened its mixed farming research priority areas in order to be more inclusive and we now have four major research areas in line with NSW DPI and CSU priorities. These are: Production and Food Security, Climate Change and Water, Biosecurity and Integrated Pest Management, and Environmental and Human Health. The new priority areas will feature in the Centre's new brochure which is currently being printed and will be displayed on the website very soon.

The Centre's website has had significant upgrades over recent months. A committee of 'web planners' meet on a regular basis to discuss improvements and web content. More news articles are posted and profiles of centre participants are being updated as information comes to hand.

Charles Sturt University is now Australia's leading provider of education in agriculture and related areas, with 2009 having a significant increase in student numbers across all courses. In the School of Agricultural and Wine Sciences, the Bachelor of Science (Agriculture) has experienced an 82% increase in enrolments with over 100 first year students studying by internal and distance education modes – up from 56 students in 2008. In the School of Animal and Veterinary Sciences there has also been a significant increase in student intake into Equine Science and Animal Science courses. In a survey of Agricultural Science students, their main reasons for coming to CSU were "reputation" and "location".

I hope you enjoy this issue, and as always, feedback on this newsletter and our website content is gratefully accepted.

Professor Deirdre Lemerle



Graham Centre Research Priority Areas.



## THIS ISSUE

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## GRDC Award

Dr John Kirkegaard is an Adjunct Professor with Charles Sturt University and is currently supervising two Graham Centre PhD students and is involved in developing collaborative projects with Graham Centre staff. Dr Kirkegaard, a CSIRO principal research scientist, was presented with the Grains Research and Development Corporation (GRDC) 'Seed of Light Award' at the Wagga Wagga GRDC Adviser Update in February. John was presented with the award by Mr David Shannon, GRDC Southern Panel Chair. Mr Shannon said that John's research identifying factors relating to poor performance of canola in southern Australia has been published widely in scientific journals along with providing many articles in rural newspapers and magazines.



*Dr John Kirkegaard (centre) with the 'Seed of Light Award' pictured with (from left) Dr Mark Peoples, David Shannon (GRDC Southern Panel Chair), Andrew Rice and Dr Chris Blanchard (Southern Panel members)..*



*Professor Jim Pratley joins the Rural Research and Development Council.*

## New Advisory Body

Congratulations to **Professor Jim Pratley** who has been invited by the Minister for Agriculture, Fisheries and Forestry, the Hon Tony Burke, to be a member of the newly formed Rural Research and Development Council, an expert group to help maximise the benefit of research and development to rural Australia.

The Council will be the key strategic advisory body on rural research and development, to help ensure research investment is effective and coordinated. The Council which met for the first time in February is chaired by science policy and plant physiology expert Dr Kate Fairley-Grenot. Other Council members are:

Professor Rob Clark AM, Cathy McGowan AO, Mark McHenry, Dr Robert Rose, Chief Scientist Professor Penny Sackett, Dr Frances Shapter, Anne Stünzner and Professor Beth Woods OAM.

The Council will look for opportunities to improve productivity and environmental outcomes right along the value chain, from the paddock to the plate.

## Travel Grants for 2009

The following Graham Centre members were successful in gaining Graham Centre travel grants for 2009. The Centre will offer another round of grants (totalling \$25,000) during June/July this year.

Name	Purpose	Destination	Dates
Melanie Bower, (Hons Student)	Carry out field validation experiments	Can Tho, Vietnam	28 June to late September/early October 09
Edward Clayton	Recent advances in Animal Nutrition in Australia	Armidale, NSW	12 - 16 July 09
Jason Condon	Lead study tour for 3rd yr Ag students, set up Hons project and bolster research networks	Can Tho, Vietnam	28 June - 19 July 09
Philip Eberbach	Collaborative research	IRRI Philippines, NIAS Japan	26 June - 12 July 09
Raf Freire	International Society for Applied Ethology congress	Cairns, Qld	6 - 11 July 09
Jennifer Spinner (PhD student)	Visit collaborators' labs and learn rearing and release techniques	USA, Mexico, Guatemala and Hawaii	13 June - 2 July 09
Stephanie Knott	Recent advances in Animal Nutrition Conference	Armidale, NSW	11 - 16 July 09
Olivia Kvedaras	Parasitoid Wasp Production_Sterile insect rearing.	Mexico, Guatemala and USA	13 June - 2 July 09
Ian Patterson (PhD Student)	World Association of Veterinary Parasitology Conference	Calgary, AB, Canada	8 - 13 August 09
Anna Rathe (PhD Student)	Field work	California, USA	September - December 09 (approx)
David Waters (PhD Student)	Asia Pacific Biochar Conference	Gold Coast, Qld	17 - 23 May 09

## Travel Reports

### 14<sup>th</sup> International Union of Food Science & Technologists Conference, Shanghai, China, 17 – 25 October 2008

#### Dr Samson Agboola, Senior Lecturer in Food Science, School of Agricultural & Wine Sciences, CSU, Wagga Wagga

This conference was well attended by scientists from all over the world. Dr Agboola delivered a presentation on the extraction of polyphenols from yellow field peas and their health-functional properties. In addition, Dr Agboola met several well-known scientists and researchers working in the general area of health-functional foods that may be potential collaborators and joint supervisors for future PhD students.

Samson believes his attendance at the conference to be very useful to his professional development and contribution to the activities of Graham Centre and the University as a whole. The benefits in terms of potential research quantum (publications and income), attraction of new PhD students and better supervision of current ones, plus more international collaboration, are clearly obvious and continue the development of the Healthy Foods Initiative of the Graham Centre.

Following the conference, Samson submitted a research article based on his presentation to *Food Research International*, one of the top journals in the field of food science and technology, for a special issue on pulses (Agboola, S.O.; Mofolasayo, O.A.; Watts, B.M. and Aluko, R.E. 2009. Some functional properties of yellow field pea (*Pisum sativum* L.) seed flours and the in vitro bioactive properties of their polyphenols. *Food Research International* [in review]). Dr Jian Zhao and Dr Agboola have submitted another manuscript on a similar area of study (isolation and antimicrobial properties of Australian eucalypts) to *Food Chemistry*. This manuscript was also based on some of the research findings on display during the conference. (Gilles, M.; Zhao, J.; An, M. and Agboola, S. 2009. Chemical composition and antimicrobial properties of essential oils of three Australian *Eucalyptus* species. *Food Chemistry* [in review]).



Dr Samson Agboola, with the Yang Tze river in background.

## 10<sup>th</sup> World Conference on Animal Production, Cape Town, South Africa, 24 – 28 November 2008

### Dr Michael Friend, Senior Lecturer in Animal Production, School of Animal & Veterinary Sciences, CSU, Wagga Wagga

The World Conference on Animal Production is the major conference of its type internationally, with over 400 delegates from across the globe in attendance. The conference was deliberately non-specific in the type of papers presented – it aimed to bring together scientists from a broad range of disciplines to discuss current and future issues affecting animal production worldwide. The paper Dr Friend presented on EverGraze, which compared the profitability and environmental implications of several livestock systems grazing perennial pastures, was well received and fitted well to the theme of the conference 'New World; Future World'; it dealt with the question of what type of sheep production system is best placed to deal with climate uncertainty.



*A novel approach to hitching a ride in South Africa.  
[Photo: Michael Friend, CSU]*

Highlights of the conference included plenary papers on land tenure policies in Africa, managing resources for sustainable livestock production, physiological limits to production efficiency, and investing in genetics. These presentations, as well as many of the oral presentations and posters, made Michael aware of the current research directions in various countries, and provided valuable contacts, particularly within African countries, which may lead to collaborative research ventures in the future. The conference also enabled him to strengthen existing collaborative links with Professor Graeme Martin from UWA. This specifically identified some potential opportunities for future research, and also enabled discussion around projects proposed by PhD student, Catherine Gulliver.

The conference dinner was also a highlight, having the opportunity to sample some traditional South African cuisine as well as experience some traditional cultural entertainment. A pre-conference safari of the Kruger National Park was a further highlight. The safari enabled Michael to experience some of the issues relating to the management of a large game park, and he plans to incorporate some of the photos and information into teaching undergraduates, particularly in the area of nutrition.

## AGRI-FOOD XV Conference, University of Sydney, 25 – 28 November 2008

### Emeritus Professor Ted Wolfe, CSU, Wagga Wagga

Prof Ted Wolfe attended the Agri-Food XV Conference at the University of Sydney, organised by Associate Professor Bill Pritchard, an economic geographer from the School of Geosciences at Sydney University. An initial preconference tour of the Hawkesbury Harvest network, held on the 24 November was followed by three days of plenary and concurrent sessions plus a busy and enjoyable social program each evening.

The conference dealt with a number of socio-economic issues that are evident in agricultural food chains. In Ted's opinion, these issues extended the thinking of agriculture beyond production and sustainability issues. Many of the topics below are relevant to recent and future funding applications made by the Graham Centre's agricultural systems/extension group, such as 'Improving the socio-economic resilience of mixed farming systems and agricultural communities across a rainfall gradient in southern NSW'. An objective of this group is to ensure that the Graham Centre considers the socio-economic status of producers and the needs of consumers as well as the production and environmental aspects of relevant agricultural industries.

There is considerable intellectual value in attending conferences that are relevant to agriculture but which are outside the mainstream of agricultural science. Even more importantly, there seems to be a strong case in Australia for more interdisciplinary collaboration between social scientists and agricultural/natural scientists. Ted recently reviewed mixed and integrated framing systems for a forthcoming book on Dryland Agricultural Systems (publisher Springer, editors P Tow, I Cooper, I Partridge and C Birch) and concluded that "greater benefits may come from innovation in the economic and social aspects of agriculture, rather than refining the technology of production". His participation in Agri-Food XV reinforced that view. Topics that pertain to the future, such as 'food miles' and 'carbon credits', deserve debate and investigation by interdisciplinary teams.

## Soils Conference 2008, Palmerston North, New Zealand, 1 – 5 December 2008

### Matthew Gardner, PhD Student, CSU, Wagga Wagga & David Waters, PhD Student, NSW DPI, Wagga Wagga

The Soils Conference 2008, a culmination of the New Zealand and Australian Soil Science Societies, was held at Massey University in Palmerston North, New Zealand. The conference was attended by 350 delegates that not only included Australian and New Zealand representatives but delegates from the UK, Denmark, Brazil and Japan. The Graham Centre was represented by four members including Jason Condon, Richard Early, David Waters and Matt Gardner.

Professor Daniel Hillel, from the Centre of Climate Systems Research at Columbia University, delivered the opening plenary lecture, entitled "Homo et Humus". Professor Hillel spoke of the intimacy between humans and soil throughout history, while also highlighting the detachment of people from soils in more recent times as the world population centralises into urban centres. This population centralisation has reduced the level of awareness of people globally to soil mismanagement and their resulting adverse consequences. He also emphasised the importance for soil scientists to have a greater involvement in current world issues such as climate change. This message became a recurring theme throughout other plenary presentations.

Soils and the carbon economy created the most interest and sparked some lengthy debate during these sessions. Whether carbon sequestration will provide a potential benefit or distraction to landholders, as well as the type of accounting systems required was central to this debate. It was suggested by Australian researchers present, that the direct measurement of soil carbon on an annual basis would be the only fair accounting system for landholders. The carbon sessions also discussed how emerging policies would affect major exporting countries such as Australia and New Zealand. Of particular concern is the growing support for product labels to detail carbon emissions emitted throughout the entire supply chain. This concept could be a distinct disadvantage to countries like Australia due to the distances products must be transported in terms of exports, but could improve the competitive advantage of local products over imports.

Other sessions of interest were the soil acidification and the integrated environmental management. The presence, behaviour and management of acid sulphate soils dominated the soil acidification session while the effectiveness and sustainable use of inhibitors to control nitrogen losses were hot topics in the integrated environmental management session.

Field trips conducted mid conference were of excellent quality. One trip on Sustainable Management of the North Island Soft Rock Hill Country, provided excellent detail of soil and landscape management, industry involvement in land management plans and pedology. Local delegates also aided the tour by explaining some of the basic geomorphology of the region throughout the trip. The trip effectively highlighted the extent of soil erosion problems in the region (62,000 landslides reported in 2004 alone) and how the regional council and local timber industries are working together with landholders to develop land management plans at a property scale.

Matt Gardner presented 'The use of acidic subsurface layers to improve nitrogen use efficiency by the inhibition of acidification' at the conference, and this provided a great opportunity for him to develop presentation skills while increasing the profile of the Graham Centre. The opportunity to network and discuss current research with both New Zealand and Australian researchers was utilised by all Graham Centre attendees; in particular, links were made with researchers from Massey University, Agri-research, Adelaide and Melbourne Universities. These links may lead to involvement in joint projects in the future.



*Matthew Gardner, Dr Jason Condon, Richard Early and David Waters at Massey University for the 2008 Soils Conference.*

## 3<sup>rd</sup> International Symposium on Biological Control of Arthropods, New Zealand, February 2009

### Geoff Gurr, Professor of Applied Ecology, School of Agricultural & Wine Sciences, CSU, Orange

The EH Graham Centre travel grant funding supported Professor Geoff Gurr to attend the 3<sup>rd</sup> International Symposium on Biological Control of Arthropods in Christchurch New Zealand in February 2009. The theme was "Maximising success while minimising risk"

At this major international meeting he presented a talk entitled 'Multiple methods deployed to understand the effects of landscapes on natural enemies in Australian agricultural systems' in a session on how biological control operates at the



*Prof Geoff Gurr (left) with PhD students Kris Le Mottee and David Perovic and EH Graham Centre Research Scientist Dr Olivia Kvedaras. Kris and David were two of the three PhDs from Geoff's group to win prizes for their poster papers at the International Symposium for Biological Control of Arthropods in New Zealand, February 2009 [Photo: Catherine Gitau, CSU].*

landscape scale. His second paper, 'Recent advances in conservation biological control: overview' was the opening presentation in a half-day session that he convened. It comprised six other speakers from the USA, Sweden and New Zealand. At the meeting he was invited by Springer's Senior Publishing Editor to produce an edited book based on that conference session. This would be part of Springer's book series 'Progress in Biological Control' (<http://www.springer.com/series/6417>) and, in follow-up correspondence; the Series Editor has lent further support to the idea. Several of the contributors to the conference session as well as other leading researchers in biological control have indicated an interest in contributing chapters to the book should this project go ahead.

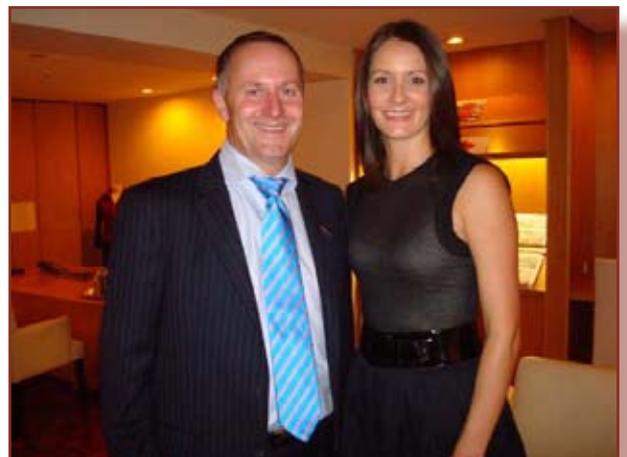
Professor Gurr also presented a poster paper 'Synthetic herbivore induced plant volatiles-a tool for enhancing conservation biological control of crop pests' on behalf of Marja Simpson, one of his Graham Centre PhD students. That was one of three papers by his students to be awarded a prize at the symposium.

A significant benefit of attendance was a strengthening of the link with the New Zealand Centre for Advanced Bio-protection Technologies.

Geoff has now been appointed as supervisor of a new Lincoln University PhD student, Mariska Anderson.

### **Dr Olivia Kvedaras, Research Scientist, NSW DPI, WaggaWagga**

Dr Kvedaras authored/co-authored three papers. Olivia was the first author for a paper on current work conducted through the EH Graham Centre on a complementary, non-chemical control option for Queensland fruit fly, assessing the scope for mass rearing parasitic wasps on irradiated host material as a novel method to separate parasitoids from their fruit fly hosts. In addition, Olivia co-authored (and is a supervisor of the students who presented) two EH Graham Centre affiliated papers; a PhD project looking at native parasitic wasps as a new eradication tool against fruit fly incursion management in Australia and a postdoctorate project looking at silicon and induced plant defences in the horticultural industry, for enhancing natural enemy attraction to pest-infested plants. The symposium and studies Olivia presented were strongly aligned with the Centre's Strategic Research Initiative, Australian Bio-Protection, which utilise non-chemical management techniques that are ecologically-based and novel in order to provide a sustainable approach to pest management within Australia's agricultural crop sector.



*New Zealand Prime Minister, Mr John Key and Dr Olivia Kvedaras in Christchurch, New Zealand.*

### **Jennifer Spinner, PhD Student, CSU, Wagga Wagga**

Jennifer's PhD project aims to produce ecologically-based rearing and release methods for parasitoids of pest fruit flies as an alternative non-chemical control tactic for the control of fruit flies, an important group of pests of horticultural fruit crops. As a result of attendance at this symposium, Jennifer met with some key players in this field of research: Prof. Russell Messing, University of Hawaii, Mānoa and Dr Yael Argov, The Israel Cohen Institute for Biological Control, Plant Production and Marketing Board, Citrus Division, Israel. Formal sessions provided ideas for subsequent parasitoid rearing and release phases of Jennifer's PhD research. Between sessions, Jennifer discussed parasitoid rearing techniques with researchers in this field from Hawaii and Israel, and sought solutions to problems encountered in her parasitoid rearing. These rearing techniques were implemented upon return to Wagga Wagga, with great success. Jennifer's attendance at the symposium made a valuable contribution to the quality of the research conducted during the course of her PhD candidature.

## Visitor - Dr Tanguy Lafarge from IRRI

Dr Tanguy Lafarge, a Senior Scientist from the Crop and Environmental Sciences Division of the International Rice Research Institute (IRRI) visited CSU Wagga and NSW DPI (Wagga Wagga and Yanco) during February to discuss the progress and plans for PhD student, Estela Pasuquin, with Professor Len Wade and Associate Professor Phil Eberbach. He also visited Dr Russell Reinke of NSW DPI Yanco and discussed achievements and current research in rice in Australia. He also presented a seminar and discussed with Director Deirdre Lemerle possible collaboration between EH Graham Centre, IRRI, Philippines and CIRAD, France. (CIRAD is a French agricultural research centre working for international development. Most of its research is conducted in partnership.)



*Dr Russel Reinke, Dr Tanguy Lafarge and Kerry Schirmer at inspect a rice trial at Yanco Agricultural Institute. [Photo: Estela Pasuquin].*

## 2009 Research Centre Fellows

Congratulations to the following CSU academic staff who have been selected as 2009 Research Centre Fellows to continue working on the Graham Centre's research priority areas:

Dr Samson Agboola	healthy food products	Dr Michael Friend	animal nutrition
Assoc Professor Gavin Ash	biological control	Professor Geoff Gurr	bio-protection
Dr Karl Behrendt	bioeconomics	Dr John Harper	weed biology
Dr Chris Blanchard	healthy food products	Professor David Kemp	pasture systems
Dr Kathleen Bowmer	stubble and water use	Dr Stephanie Knott	animal nutrition
Dr Geoff Burrows	weed biology	Dr Gaye Krebs	animal nutrition
Prof Peter Chenoweth	animal reproduction	Mr Jan Lievaart	animal parasites
Dr Remy Dehaan	spatial distribution	Dr Jim Virgona	pasture systems
Assoc Prof Phil Eberbach	stubble and water use	Professor Peter Wynn	animal nutrition

## New People

The Graham Centre welcomes the following new members:

- **Dr Livinus Emebiri** previously worked as a Senior Research Scientist with the Victorian Department of Primary Industries, Horsham, where he conducted pre-breeding research in molecular genetics of barley and wheat. In his current position with NSW DPI, Dr Emebiri undertakes research in cereal germplasm development for profitable and sustainable production of wheat.
- **Dr Trish Holyoake** has a strong track record in research and extension in pig production. She has worked in improving disease surveillance, and developing management strategies to improve performance and fertility in pigs.
- **Dr John Brien** will be helping to review manuscripts and theses and has strengths in agricultural extension.
- Before joining CSU, **Dr Ketema Zeleki** was an Alexander von Humboldt Foundation research fellow at Technical University of Freiberg, Germany. His interests include on-farm water management, irrigation water use efficiency, rainfall climate analysis, use of conservative tracers in soil solute transport, and application of GIS in watershed management.



Dr Livinus Emebiri  
Cereal Geneticist  
NSW DPI



Dr Trish Holyoake  
Technical Specialist (Pigs)  
NSW DPI



Dr John Brien  
Adjunct Professor  
CSU



Dr Ketema Zeleki  
Lecturer Irrigation & Water  
Management, CSU

## New Project

### Quantifying the costs and benefits of NRM targets

Helen Burns, Iain Hume & Janet Walker

The environmental impact of current production-driven agricultural systems is under scrutiny and landholders are being asked to consider the environmental consequences of their management strategies. The project will benchmark 'aspirational' NRM targets (deep drainage, groundcover and soil health) across a range of typical land management practices for the study area<sup>1</sup>, and link these to an economic analysis of enterprise combinations and land management practices.

The cost of farming to manage the natural environment can be high. In a nearby catchment a previous study has shown that changing land use to manage stream salinity meant that some farmers would incur a loss of almost all farm income at moderate levels of management. Farmers in other parts of the catchment were less affected and would lose less than 15% even at high levels of salinity mitigation. This new project will provide the basis to cost some of the ecosystems services of agriculture in the mixed farming zone of southern NSW.



Members of the project team; soil scientist, Dr Iain Hume, and NSW DPI district agronomist based in Albury, Janet Walker, deep core sampling a perennial pasture site for soil testing and characterisation.

Collaboration between the Graham Centre and the Eastern Riverina Landcare Network (ERLN) attracted funding to do the pilot study in the mixed farming zone of southern NSW. This two-year project, funded under the Federal Government's Caring for our Country program, will use a combination of agronomic, soil, economic and climate data to give landholders economic data and NRM outcomes for a range of typical land management practices.

Five activities will be undertaken:

1. Characterise typical land use/management practices ;
2. Characterise typical soil types;
3. Model the economic and environmental impact of different land uses using existing models (a version of the MIDAS<sup>2</sup> model developed for mixed farming in the SW Slopes and a farming system simulation model similar to the APSIM (Agricultural Production Systems Simulator) model applied in the nearby Simmons Creek). Model outputs will be validated by landholders and extension officers;
4. 'Aspirational' NRM targets - deep drainage, groundcover and soil health (as measured by soil carbon levels), to be benchmarked over a range of farming practices/land uses and soil types by on-ground measurement; and
5. On ground results and measurement methods will be communicated to landholders, the community and industry.



This project will provide landholders with the economic data to calculate the consequence of managing to achieve NRM outcomes. Benchmarking and objective, on-ground measurements will also provide the basis to give landholders the skills to measure attainment of NRM targets and a clear and objective pathway to how to achieve them.

The project is overseen by a steering committee, which includes members of the ERLN executive, landholders from the study area and local CMA officers.

<sup>1</sup> The study area comprises 22,500 hectares west of the township of Henty, offering a diverse mix of cropping and livestock enterprises over a range of soil types and topography. It is typical of the diversity of the agricultural landscape of the SW Slopes of NSW.

<sup>2</sup> MIDAS (Model of an Integrated Dryland Agricultural System) is a whole-farm economic model linked to soil types and enterprise options. It identifies the most profitable enterprise mixes, but the model can apply biophysical constraints (eg groundcover or soil carbon targets) to identify the economic impact of changing land management practices.

## Supermarket Botany

A new educational resource called **Supermarket Botany** is now available online through the Graham Centre website. Created by Dr Geoff Burrows and Dr John Harper from the School of Agricultural and Wine Sciences, CSU, the online resource is a fun, colourful and interactive platform for teaching students from primary school through to university about the differences between fruits and vegetables, roots, stems and leaves, and the developmental sequence from flowers to fruits.

The site is full of helpful hints to lead the student to the correct answer and high quality images and labels enable the student to see the evidence. The inspiration for the design of the resource came about after Dr Burrows was asked to do a "hands-on plant demonstration" at the Henty Machinery Field Days in 2008.

Dr Harper was an invited speaker at the *Chemistry and the Biosphere Conference* held in New Zealand in December 2008. His talk entitled "Supermarket Botany, a cure for plant blindness" outlined the experience he and Dr Burrows have had teaching botany and the lack of student's enthusiasm for it, even though it underpinned agricultural sciences and animal life. They found that students became enthusiastic about botany when they developed tutorials on Supermarket Botany, where they showed students common plants they eat, and then revealed what parts of the plants they were.



*Vibrant graphics add interest to the Supermarket Botany online educational resource.*

Supermarket Botany was funded by a Seed Grant from the CSU's Flexible Learning Institute and supported from the Graham Centre.

Further information: Dr Geoff Burrows [gburrows@csu.edu.au](mailto:gburrows@csu.edu.au), 6933 2654 or Dr John Harper [jharper@csu.edu.au](mailto:jharper@csu.edu.au), 02 6933 2837.

## Student News

### 2009 Internships

The Internship Scheme aims to encourage undergraduate students to engage in research undertaken by the Graham Centre. It also enables students to become familiar with the types of projects and potential supervisors available through the Centre.

**David Gale**, a BSc (Agriculture) student was successful in gaining a 2009 Internship and will be working on water interactions (both soil-water and plant water) under the supervision of Associate Professor Phil Eberbach (CSU) and Dr Mark Conyers (NSW DPI).

**Tarnika Wood** was successful in gaining a 2009 Summer Scholarship. Tarnika is undertaking a Bachelor of Forensic Biotechnology degree. She spent a period of ten weeks working on a single project supervised by Dr Thiru Vanniasinkam. Her project title is "Development of novel ELISAs for the diagnosis of equine *adenovirus* infections in horses".

### Research Centre PhD Scholarships

Congratulations to **Patrick McCann**, who has been awarded a 2009 PhD scholarship. Patrick's project will be related to the identification and potential mitigation of male factors causing early pregnancy loss in livestock, particularly pigs. Patrick is supervised by Professor Peter Chenoweth, Professor of Veterinary Reproduction, School of Animal and Veterinary Sciences, CSU.

**Razia Shaik** was awarded her PhD scholarship to conduct research on Australian weed species, with reference to invasive weeds of Australia. Her proposed research topic will involve the study of invasive weed biology and ecology and chemistry of secondary plant products which might contribute to medicinal uses or allelopathy, more so as seen in case of camel melon, a cucurbitaceous weed, which was imported to Australia as a camel feed for desert conditions and is now spreading rapidly all over Australia along with other cucurbits. Razia's supervisor is Professor Leslie Weston, Strategic Research Professor, School of Agricultural and Wine Sciences, CSU.

Both students will commence their projects in the Spring Session.

## PhD Top-Ups

The objective of the Graham Centre's PhD Top-Up Award is to reward high quality students undertaking PhD studies at CSU and to encourage active participation in the Centre, and who have a project broadly aligned to the objectives of the Centre. \$5,000 per annum is awarded to the successful applicant for a period of three years as a stipend. The Centre decided to award two PhD Top-Ups this year, due to the exceptional quality of the applications. Congratulations to:

- **Ian Patterson** ("Defining antigens of *Fasciola hepatica* (liver fluke)) supervised by Professor Terry Spithill (CSU), Dr Jade Forwood (CSU) and Dr Ian Links (DPI).
- **Anna Rathe** ("Risk assessment and biosecurity preparedness for glassy-winged sharpshooter and the plant pathogenic bacterium *Xylella Fastidiosa*") supervised by Dr Leigh Pilkington (DPI) and Professor Geoff Gurr (CSU).

## In The Limelight

### Dr Andrew Mitchell

**Position:** Research Leader Biotechnology

**Organisation:** NSW Department of Primary Industries

#### Career Brief

I trained initially as an insect taxonomist before being awarded a Fulbright Scholarship to study in the USA. I completed a PhD at the University of Maryland working on the molecular systematics of the most diverse and pest-rich family of moths, Noctuidae. This was followed by postdocs at the Smithsonian Institution and University of Alberta, before I got my first real job as Senior Lecturer in the Department of Genetics, University of Natal. I joined NSW DPI in 2004 and moved to Wagga in 2007.

#### Research and Teaching Activities and Interests

##### Research activities

Developing DNA diagnostics ('DNA barcodes') for a range of critters. Also molecular phylogenetics and moth systematics. A new project funded by the Australian Weeds Research Centre will examine 'barcoding' some weed species.

##### Teaching activities

In a previous life I taught bioinformatics, molecular genetics, phylogenetics, insect diversity & classification. Currently I co-supervise postgraduates at CSU and ANU.

#### Professional Links

- Society of Systematic Biologists
- Australian Entomological Society

**A typical day for me includes ...** When I can dodge meetings (not often enough!) I'll be found ripping legs off poor defenseless (dead) insects for DNA analysis or analysing DNA sequence data.



*Andrew Mitchell up close and personal with a bearded dragon.*

**My main project at the moment is ...** DNA barcoding of Australian insect pests (moths, beetles, leafhoppers) and their exotic, potentially invasive, cousins.

**My favourite part of my job is ...** pushing the button to start the first analysis of a new data set, wondering whether you have either discovered a new species or sequenced yourself...

**When I am not in the office I like ...** sex, bugs and rock 'n roll!

**Current CD in my car is ...** Neil Young's 'Ragged Glory'.

## Professor Peter Wynn

**Position:** Professor of Animal Production

**Organisation:** Charles Sturt University

### Career Brief

After graduating from the University of New England with BRurSc, DipED and MRurSc, I undertook PhD studies through University of Sydney, investigating the role of growth hormone in the control of wool growth in Merino sheep. I was awarded a Senior Research Fellowship with the Australian Wool Corporation before taking up a position as Visiting Associate in the Endocrinology and Reproduction Research Branch of the National Institutes of Health, Maryland, USA. I subsequently joined the CSIRO Division of Animal Production as a Research Scientist before being appointed Senior Lecturer in the Department of Animal Science at University of Sydney, and then Associate Professor in the Faculty of Veterinary Science, where I was involved in teaching coordination and research. During this time I undertook studies exploring the role of stress hormones in controlling wool growth as well as endocrine studies of lactation in pigs and sheep. In recent times I have been involved in research projects in the Pork CRC exploring ways of manipulating dietary fats and hormones to program superior growth patterns in growing pigs. I currently lead an ACIAR-funded Australian team to provide dairy extension expertise to the Pakistani dairy industry. I joined the staff of CSU in 2008 where I will continue my research and coordinate the course 'An introduction to Animal Science'.

### Research and Teaching Activities and Interests

#### Research activities

- Endocrine manipulation of growth and physiology in the young pig (Pork CRC)
- Using dietary fatty acids to improve carcass composition and feed conversion efficiency (Pork CRC)
- Improving feed conversion efficiency and carcass composition in barrows (Pork CRC)
- Improving dairy production in Pakistan through improved extension services (ACIAR)

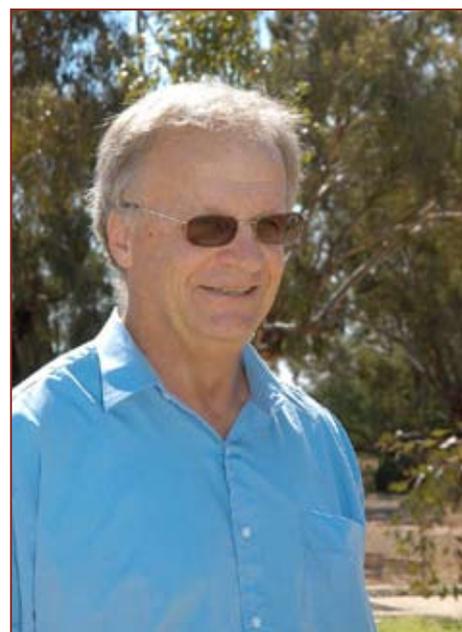
#### Teaching activities

- Course coordinator for 'An introduction to Animal Science'.
- I currently supervises or co-supervises six PhD students.

### Professional Links

- Australian Society of Animal Production
- Nutrition Society of Australia
- Australian Pig Science Association
- Endocrine Society of Australia
- US Endocrine Society

**A typical day for me includes ...** communicating with students, preparing lectures and coordinating research and extension activities.



*Professor of Animal Production, Peter Wynn.*

**My main project at the moment is ...** working with the Pork CRC on improving growth efficiency of pigs and working with the Pakistani dairy industry to improve productivity of small holder dairy farms.

**My favourite part of my job is ...** seeing students achieve in the animal industries after leaving CSU.

**When I am not in the office I like ...** aerobics, walking and coffee.

**Current CD in my car is ...** The Best of Elton John.

## New PC2 laboratory at the School of Animal and Veterinary Sciences

A new PC2 laboratory has recently been commissioned in building 294 on the CSU Wagga Wagga campus. The laboratory provides facilities and a Class II Biosafety cabinet which supports research using genetically modified organisms such as bacteria and yeast expressing recombinant proteins (eg recombinant vaccines).



*The new PC2 laboratory will play an important role in elevating research quality and capacity for Graham Centre participants.  
[Photo: Terry Spithill, CSU]*

## Winter Edition of The Innovator

The Winter Edition of The Innovator will be released early July 2009. Submission of articles for this edition closes on **Friday, 19 June 2009**. Please email articles to Sharon Kiss.

## Secretariat

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