

the Innovator

The Newsletter from the EH Graham Centre for Agricultural Innovation

WINTER 2008 EDITION

CHARLES STURT
UNIVERSITY



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

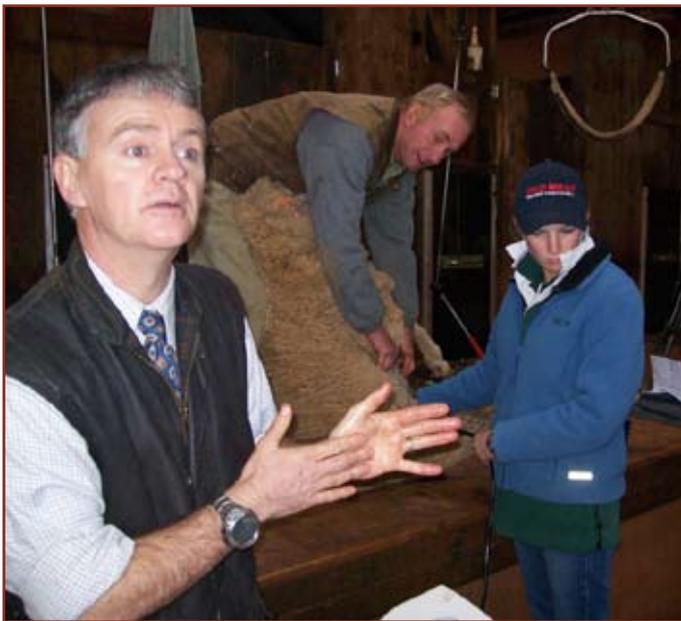
Message from the Director

When the Graham Centre formed three years ago, plant-based research dominated our activities. Since then, the rapid expansion of the CSU School of Animal and Veterinary Sciences means that we are moving toward a more even balance between plant, soil and animal sciences research. This strengthens our capacity to address the challenges and opportunities of adapting to climate change, water scarcity, food and biosecurity issues, and the escalating costs of farm inputs for the mixed farming systems of southern Australia. The contents of this issue reflect this.

Significant rains during the last month have created considerable optimism in the region for grain yields and pasture production. Hopefully sustainable growth will be maintained throughout the season.

Our new PhD students are settling in well and our recent Agricultural Enrichment day attracted students from schools across the region (see page 10). I hope many of you will attend the Riverina Outlook Conference on forage conservation (details on page 2).

Professor Deirdre Lemerle



Dr Scott Norman (left) and Brian Alston (centre) explain the use of ultrasound to examine sheep pregnancy to Riverina students with assistance from Finley High School student, Renee Thompson.

THIS ISSUE

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- CSU Website
- DPI Website

Our Mission

- Create new knowledge that delivers solutions through collaborative and integrated systems research supported by key partners
- Improve delivery of new technologies and information through partnerships with stakeholders and ensuring relevant research activities
- Increase scientific research excellence and capacity through staff and student training

2008 Riverina Outlook Conference

The Climate for Fodder

Using best practice forage conservation to meet future environmental and economic challenges

9.00 am, Thursday 14 August 2008

Charles Sturt University Convention Centre, Wagga Wagga

➤ [Download a program](#)

Hay and silage focus at Riverina Outlook

Climate change and international markets are influencing the demand and supply of conserved fodder in Australia.

Consequences, and strategies to manage the changing markets and to also maximise domestic returns from conserved fodder are the focus of the 2008 Riverina Outlook conference theme - "Climate for Fodder".

To be held at Wagga Wagga on 14 August and hosted by the EH Graham Centre for Agricultural Innovation, the conference program has been developed in response to the increased level of inquiry for up-to-date information on hay and silage production and feeding.

The aim of the event will be to highlight key issues that make the difference between profit and loss from conserved fodder.

Managing risks and the challenges of maintaining livestock production levels in a variable climate make the theme for this conference highly relevant to producers, agricultural advisors, consultants, educators and agricultural industry representatives.

Highlights will be presentations by three producers who have all met the challenges of recent seasons:- Wagga dairy farmer, Glen Jolliffe, Holbrook beef producer Warwick Cookson and Forbes lamb producer Megan Rogers.

The cost is \$30 per delegate, which includes morning tea, lunch and afternoon tea and Conference Proceedings (Pamphlets & CD).



More information

www.grahamcentre.net

Tel: 02 6938 1681

Email: mcrowley@csu.edu.au

Pre-registration not required.

Payment (\$30) accepted on the day by
Cash/Cheque/Credit Card.

Registration is available from 8.15 am with the conference commencing at 9.00 am sharp.

Southern Events Calendar 2008

Date	Event	Details
6 August	Graham Centre/FarmLink/ NSW DPI Field Day "Optimising Production from Canola"	Location: Culcairn, NSW Contact: Helen Burns Ph: 02 6938 1947; Email: helen.burns@dpi.nsw.gov.au
14 August	Graham Centre Riverina Outlook Conference "Climate for Fodder - Using best practice forage conservation to meet future environmental and economic challenges"	Location: Charles Sturt University Convention Centre, Wagga Wagga NSW Contact: Maree Crowley Ph: 02 6938 1681; Email: mcrowley@csu.edu.au
23, 24 & 25 September	Henty Machinery Field Days	Location: Henty NSW
3 - 5 October	Yanco Experiment Farm Centenary Celebrations	Location: Yanco, NSW DPI Agricultural Institute Contact: George Stevens Ph: 02 6951 2652; Email: george.stevens@dpi.nsw.gov.au
16 & 17 October	FarmLink Bus Tour	Location: Southwest Slopes, NSW Contact: Katrina Sait Ph: 02 6924 4633; Email: katrina@farmlink.com.au
3 - 6 November	7th International Safflower Conference	Location: Wine and Food Industry Training Centre, Wagga Wagga NSW Contact: Rodney Mailer Ph: 6938 1818; Email: rod.mailer@dpi.nsw.gov.au

If you have an event you'd like included in this calendar, please email Helen Burns or Sharon Kiss.

Research Management Committee

A new Research Management Committee has been recently formed to develop research initiatives, assist with Centre resource allocation and promote our research outcomes. The committee meets monthly and represents staff at Wagga, Yanco and Orange; members will change every two years.



Dr Edward (Ed) Clayton
Livestock Research Officer
NSW DPI, Wagga Wagga



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



Professor Geoffrey (Geoff) Gurr
Professor of Applied Biology
School of Agricultural & Wine Sciences
CSU, Orange



Professor David Kemp
Professor Farming Systems
School of Agricultural & Wine Sciences
CSU, Orange



Dr Andrew Mitchell
Research Leader, Biotechnology
NSW DPI, Wagga Wagga



Mr John Oliver
Research Leader, Cereal Genetics & Improvement
NSW DPI, Wagga Wagga



Dr Peter Orchard
Manager, Industry Development Pastures
NSW DPI, Wagga Wagga



Professor Terry Spithill
Professor Veterinary Parasitology
School of Animal & Veterinary Sciences
CSU, Wagga Wagga



Dr Mark Stevens
Principal Research Scientist, Director Yanco
Agricultural Institute
NSW DPI, Yanco



Professor Len Wade
Professor of Agronomy
EH Graham Centre for Agricultural Innovation,
Wagga Wagga

New Research Initiative in Animal Parasites

Professor Nick Sangster, Professor of Veterinary Pathobiology, School of Animal & Veterinary Sciences, CSU

Aims

Broadly, the group aims to increase the productivity and sustainability of animal production especially through limiting parasitic diseases of livestock and preventing human disease. This will be achieved through research and educational activities. Solutions will have a whole farm focus linked to impacts of climate change and wildlife reservoirs of disease.

Specifically we aim to:

1. Understand anthelmintic resistance in cattle, sheep and equine parasites through development of diagnostic tests and practical leading to sustainable methods of parasite control.
2. Improve the control of the liver fluke species *Fasciola hepatica* and *Fasciola gigantica* through better diagnostics and control agents.
3. Evaluate the economic costs and risks to human health of infection with cestode parasites including hydatids in sheep, dogs and wildlife.

Background

The team in Animal Parasitology has been built largely through the recruitment of prominent parasitologists to positions in the School of Animal and Veterinary Sciences at Charles Sturt University. Our experience is mainly in helminthology, the study of worm parasites of domestic animals and wildlife.

Nematode parasites are the major cause of disease in the Australian sheep industry and cause significant disease in cattle and in horses. The major challenge in controlling internal nematode parasites of grazing animals is the presence of parasites resistant to anthelmintic treatments. Our challenge is to continue to control parasites by the sustainable use of anthelmintics combined with management of environmental and host factors.

Liver fluke was thought to be an uncommon disease in Australia. However recent abattoir surveys reveal that it occurs in 30% of consignments of sheep in NSW and affects nearly 10% of sheep. The disease costs Australian producers \$90M per annum. Fasciolosis is a major disease in Asia with economic impacts on animal health and production for food and tractive power.

Cestode parasites are surprisingly common in Australian grazing animals. These parasites have two morphologically distinct life cycle stages tapeworms in carnivores such as dogs and fluid-filled cystic stages that cause disease in cattle, sheep and humans. Of most interest is hydatid disease, a dog and sheep parasite that can fatally infect humans. Abattoir surveys show that hydatids are prevalent in 3% of sheep suggesting that humans are at risk from infection. Evidence for high infection rates of other cestode parasites, such as *Cysticercus ovis* are alarming for two reasons. First, they indicate that dog/sheep transmission is common and risk factors for hydatid disease are high. Second, contamination of sheep carcasses with tapeworm cysts is likely to cause future economic and trade losses.



Liver fluke (*Fasciola hepatica*). [Photo: Wikipedia]

Further information: nsangster@csu.edu.au; ph: 02 6933 4107.

Travel Grant Report

Joint Food and Agricultural Organization of the United Nations and International Atomic Energy Agency Research Coordination Meeting - Valencia, Spain, March 2008

Dr Olivia Kvedaras, Research Entomologist, NSW DPI

The purpose of the third "Research Coordination Meeting on Improving Sterile Performance in Fruit Fly Sterile Insect Technique (SIT)", held in Valencia, Spain on 1-5 April 2008, was to provide a forum for the exchange of information on the performance



Delegates from the joint Food and Agricultural Organization of the United Nations and International Atomic Energy Agency Research Coordination Meeting on Fruit Fly, Valencia, Spain, 1-5 April 2008

of sterile fruit flies in SIT programmes. This included ways to increase sterile fruit fly performance, new technologies used to rear out and release sterile fruit flies and development of new technology to deliver performance enhancing components to millions of fruit flies. The quality of the presentations was excellent and new insights concerning improved release technologies and application/inclusion of performance enhancing components were obtained. In addition, a visit to local facilities revealed insightful parasitoid rearing procedures. The meeting allowed extensive discussion with other researchers facing similar issues and will now enable Olivia to make informed decisions on the best approach for integrating relevant findings into her work on sterile fruit fly performance and sterile fruit fly release in New South Wales. This will greatly assist in ensuring market access for the Australian Horticulture Industry to both national and international markets.

New Appointment

Strategic Research Professor – Professor Terry Spithill, School of Animal & Veterinary Sciences, CSU

Part of an interview extracted from ARC/NHMRC Research Network for Parasitology Newsletter, June 2008

Terry works on liver flukes, *Fasciola hepatica* in Australia and Europe and *F. gigantica* in the Middle East and Tropics. He studies the comparative biology of these two parasites; acquired immunity and vaccine development. He also studies malaria.

Terry, tell us about your area of research?

"*Hepatica* is more virulent and can establish in more hosts. Indonesian sheep are immune to *gigantica* but not to *hepatica*. I'm looking at the differences *in vivo* and *in vitro* between the two parasites; studying molecular differences; how they manipulate their host."

"We've discovered differences in gene and protein expression. *Hepatica* produces more superoxide dismutase, a "stress response" protein than *gigantica*."

"Our research question is: why are these two parasites so different? Why do Indonesian sheep express acquired immunity to *F. gigantica* but not *F. hepatica*? We want to look at the mechanism of immunity in cattle in Australia against both parasites and will be looking at host biomarkers associated with resistance as well as biomarkers in the parasite. We will then use RNAi to knock out different parasite defence enzymes to try to define which proteins are important for the parasite's survival."

"Our ultimate aim is vaccine development for cattle in Sudan, Thailand, Indonesia and China against *Fasciola gigantica*. We use cattle as the main economic benefit for producers is to protect cattle and buffalo in these countries. Because of their size and the effects of the flukes on the quality of meat and milk there is most benefit working with cattle - however they are expensive to work with and it is difficult to get funding. The Sudanese and Thai governments and other agencies recognise the benefit and so have provided some funding."



What interests you about working in this area?

"My motivation is working on neglected diseases that have a huge impact on populations. In places like Sudan and Indonesia the farmer's cattle are their pension plan, bank account, dowry. They "trade" in cattle - their wealth is measured in cattle. When these animals get infected with flukes they can lose 15-20% of their body mass, produce less milk and have reduced draught power. The parasite might not kill them, but it makes them less healthy. This is similar to the situation in developing countries around the world. Parasitic infections decrease productivity; we can increase productivity by about 20% just by controlling fluke infections. Flukes are also a problem in western countries. Australia loses about \$90 million per year due to liver fluke. Fluke is also a human disease; in parts of Bolivia 70% of school children are infected with liver fluke (*F. hepatica*). Populations in Egypt, Iran, Portugal, The Mediterranean, Peru and Vietnam are also affected."

Tell us about how you hope your research will develop in the future?

"Deeper understanding of parasite biology and developing new ways to control parasites."

"Large animals respond to juvenile flukes-I want to find out how they kill the parasite. This will inform our vaccine work. We will look at the surface of the juvenile parasite, find out what proteins are on the surface and see what is a target of immunity."

"I also want to continue our initial work in Indonesia to validate a fluke vaccine in large animals and convince a funding body to help fund this work."

"We are applying for a grant for some collaborative work on drug resistance and vaccines in India with Alagappa University's School of Biotechnology to make a combination vaccine against *F. gigantica*."

What has been the highlight of your science career so far?

"Our work in Indonesia showing that sheep acquire resistance to tropical flukes and that we can potentially control *Fasciola gigantica* with vaccines."

"And, at McGill University our work on biomarker in blood human parasites."

"Discovering that an anti-cancer drug is also a very effective anti-malarial drug, and that this may work against several parasites, was also a thrill. The drug's toxicity is minimal; it has been called a "drug of last resort" for cerebral malaria and may be useful when there is no time to check what drug resistant parasites infect the patient - the drug poses a low risk to the patient."

Terry is looking for students to work with him; so contact him if you are interested: tspithill@csu.edu.au; ph 02 6933 2439.

Student News

Postgraduate Lunch 6 June 2008

A recent lunch was held for Graham Centre postgraduate students. Predictions of a looming skills shortage in agriculture are being met head on with 12 new students starting 3 year PhD studies this year with the EH Graham Centre. Postgraduate education is vital to train the next generation of researchers who will be ready to meet the future research and development needs of Australian agriculture.

Boosting the total number of Graham Centre affiliated postgraduate students to approximately 36, the new group of students is focused on the big issues facing Australia today such as food security and biosecurity in the face of climate change and water scarcity. Their



Students gathered for lunch in June, it's hoped regular get-togethers will assist them through their PhD studies..

research projects focus on aspects of animal and crop production, pastures, socio-economic issues relating to the adoption of new technologies and the impact of agriculture on the environment.

The first 2008 gathering of a large group of the Centre's students and was held in June, and it is hoped this regular get together gives students the opportunity to build friendships, discuss their research and share experiences.

The Centre's agricultural research in mixed farming - in both plant and animal sciences - aims to generate new knowledge to underpin the capacity of farmers to manage risk in a changing environment. The skills shortage can be overcome by training undergraduate, postgraduate and, in this case, more PhD students who will generate new knowledge and technology to keep ahead of the rapid changes in agriculture.

While most of the students are based at Wagga Wagga CSU or NSW DPI, other students are also at Orange, CSIRO in Canberra, and at other locations with collaborators.

Our students are working in an established agricultural research environment - in the real world with real researchers - but they also have access to academic support. This provides a unique opportunity for the PhD students as they have access to networking opportunities, research support and the potential for future employment.



Cecile holds up a canola cake sample as her supervisors, Drs Mailer (left) and Agboola (right) look on. [Photo: Michel Dignand, DPI]

Farrer Memorial Travelling Scholarship

Jeff McCormick, PhD Student

The 5th International Crop Science Congress (ICSC) was held in April 2008 on Jeju Island, South Korea. Jeju Island is located off the southern end of the Korean peninsula. For a country which is known more by a television show, agricultural production is still a critical concern due to the unstable regional politics and negative effects of trade liberalisation due to economies of scale. Increases in production have been achieved particularly through the use of glasshouses for horticulture.

PhD Openings in Pest Ecology and Management

- ◆ Biological control of fruit flies (based Wagga Wagga with visit to Hawaii).
- ◆ Biosecurity preparedness for glassy-winged sharpshooter (based Gosford with extended periods in California)
- ◆ Sustainable management of forestry pests (based Orange with helicopter sorties to state forests)
- ◆ Effects of silicon on chemical ecology of grapevine (based Wagga Wagga or Orange)
- ◆ Sustainable management of rice pests (based Vietnam, visits to Laos and Philippines)

All positions have a stipend and generous operating costs for travel etc.

Further information: Geoff Gurr 02 6365 7551;
ggurr@csu.edu.au.

Visiting Intern

A preliminary study on the utilisation of canola cake proteins for human consumption is being conducted between April and August 2008 by Ms Cecile Hoarau, an intern from ESIDAI (University), Reunion Island, under the supervision of Drs Samson Agboola and Rod Mailer of the Graham Centre. The project involves isolation and characterisation of protein extracts from the defatted cake of six canola cultivars and testing their functional properties for use in food systems. The overall objective of the study is to value-add to canola oil by-products.

This is part of our 'Healthy Food Products' research initiative.

PhD student, Jeff McCormick, attended the conference courtesy of the Farrer Memorial Travelling Scholarship to present a poster on dual purpose canola. The conference was attended by 1,400 delegates from around the world to meet and discuss current concerns and opportunities in crop science. The theme of the 5th ICSC was 'Recognizing past achievements, meeting future needs'. Some of the topics presented included nutrient management, crop stress physiology, improvement of crop yield potential and strategies for improving water use efficiency. People came from a broad range of farming systems including subsistence maize in Sub-Saharan Africa, monsoonal rice in Asia, rice/potato rotation in Bangladesh, soybean production in North America and intercropping in China. There were also a number of Australians present. This was a unique opportunity for networking.



Jeff McCormick with the locals on Jeju.
Photo: J McCormick.

Congratulations

Dr Chris Blanchard appointed to GRDC Southern Panel

The Grains Research and Development Corporation (GRDC) has enlisted the talents of CSU's Dr Chris Blanchard by appointing him to its Southern Panel for three years. In



Dr Chris Blanchard (right) with former Honours student, Ben Ovenden.

welcoming Dr Blanchard to the body, Mr David Shannon, Chair of the Panel, said Dr Blanchard brought considerable research credentials to the Panel. Dr Blanchard is one of only two NSW representatives on the Panel which plays a key role in determining the Corporation's research priorities for southern Australia. Dr Blanchard is a senior lecturer with the University's School of Biomedical Sciences, based in Wagga Wagga. He is a graduate of the Australian Rural Leadership Program and has worked on projects in areas such as genetic engineering for virus resistance, food science, phylogenetic analysis and human genetic disease.

Further information: cblanchard@csu.edu.au; ph: 02 6933 2364.

Interesting Articles!

Agriculture - still our most vital challenge

How often do you ask people "who keeps you alive?" and how few reply "agriculture"? It seems that nobody eats food any more nor depends upon the fibres, fuels and medicines that farming provides. The gaps in knowledge can be huge, especially when it is claimed that having faith or a personal trainer is all that is needed. The reasons for this are not too hard to find. Agriculture has been amazingly successful over the past centuries at producing what people need, almost anonymously, such that in developed countries surpluses abound and the expectation is that "milk comes from the fridge". A relatively few provide what the many want and the many, particularly in the developed world, do not have much of an idea of the process of food production. Will these conditions remain? Maybe! Read more ...

Further information: David Kemp dkemp@csu.edu.au; ph 02 6365 7526.

Ongoing challenges for farmers in northern NSW - Your thoughts?

Jeff Esdaile, an agronomist now located at Tamworth, was the Manager of the University of Sydney's Livingston Farm at Moree from 1976 until 2000. In a recent 'case study' chapter that he contributed to a forthcoming book on *Rainfed farming systems**, Jeff raised a series of questions for the future, as follows in this excerpt from his chapter. The questions are framed for northern NSW but many are just as relevant to agriculture in central or southern NSW and Victoria:

"In northern NSW, farmers have achieved productivity and sustainability by a variety of pathways. However, no-tillage is a common ingredient in successful farms. For the future, I pose the following questions to agricultural scientists and farmers:

- Can we continue to upgrade the spraying skills of our farming colleagues, enhance their knowledge of herbicides and how they act, improve their ability to identify weeds and choose the correct combination of herbicides to do the best job?
- Can we reduce the shift towards 'hard-to-kill' weeds, especially perennials and weeds that are resistant to some herbicide groups?
- Can we continue the development of resistant varieties and rotational strategies to control plant diseases, especially those that are persistent in soils or on crop residues?
- Do GM crops have a role to play?
- Can we continue to improve seed drills? We have come a long way since the first deep furrow drill of 1980. However, is there a unit which will handle wet soils, dry soils, heavy residue, sticky soils and obstacles and achieve a good result every time?
- Can we improve nitrogen application systems in conservation farming? How can we efficiently get fertiliser N near the plant, without sacrificing soil moisture and residue cover under a whole range of conditions?
- Can we manage field fauna such as mice, which have habitat and food for most of the year?
- Can we avoid the need for post-harvest tillage for the control of over-wintering pupae of some crop insects? Are there alternative ways?
- Are we doing a good enough job of convincing urban dwellers and media people that conservation farming is environmentally friendly? If not, will this translate into pressure on farmers by way of regulation and other measures?"

Since compiling this list, Jeff has added another question, bearing in mind the recent increases in oil and fertiliser prices:

"With the dramatic increase in the price of nitrogenous fertiliser, can we develop – by the extensive use of pulse crops, leguminous forage species, legume-based pastures and other strategies – an economically profitable and environmentally sustainable rotational strategy for crop production which is independent of inputs from nitrogenous chemical fertiliser?"

Readers, especially farmers from southern and central NSW, are invited to send responses to these questions, additional comments, and questions to Emeritus Professor Ted Wolfe (C/- 58 Henwood Ave, Wagga Wagga 2650, twolfe@csu.edu.au, 02 6922 4347), who will collate the responses for consideration by Graham Centre scientists.

**This book, edited by Philip Tow and Ian Cooper from South Australia with Ian Partridge and Colin Birch from Queensland, will be published by Springer International later in 2008. This excerpt has been included in *The Innovator* with the permission of Jeff Esdaile.*



Agronomist, Jeff Esdaile.

Sowing the seed for a career in agriculture

Identifying animal bones and testing the quality of vegetable oils were just two of the activities offered to approximately 80 Riverina school students who attended this year's Agricultural Enrichment Day in Wagga on Friday, 13 June.

Hosted by the EH Graham Centre for Agricultural Innovation, the day gave students access to some of the state's leading agricultural and veterinary scientists.

Convenor Dr Gordon Murray said, "It's the third year the event has been held and it's growing in popularity, as students have an opportunity to see science in action, giving them an appreciation of the further studies and work options available to them in the agricultural and veterinary science fields."

Students from Years 10 and 11 experienced a variety of hands-on, applied research activities including selecting wheat for disease resistance, sheep breeding, vegetable oil quality assurance, bone identification and laboratory experiments to detect fungi on ryegrass seed.

The day had many benefits for the school students and hopefully it will encourage them to consider a career in agricultural science. Recent studies have shown the agricultural industry is suffering a shortage of graduates. Now, more than ever, we need highly skilled people to tackle the big issues like water scarcity and climate change, which will contribute to a future of healthy agricultural landscapes and resilient rural communities.



Amy McAllister, Renee Thompson and Clare McNamara from Finley High School participated in many hands-on activities at the Agricultural Enrichment Day

Project Update

Developing environmental service policy for salinity and water

Funding Body: Rural Industries Research and Development Corporation (RIRDC)

Project Leader: Dr Tom Nordblom

This project is a three-stage exploration of policies to influence "upstream" land-use options and the subsequent impacts on downstream users of water. It investigates farm-level responses, then watershed-level responses and finally the match with "downstream" demands for environmental services. These services include water-yield and salt-load in Macquarie Catchment, NSW, and BetBet Catchment, Victoria. The third case study aims at lowering saline water tables in the Katanning Catchment, WA.



The three stages of analyses in each case are:

- 1) Farm-level land-use decision analysis, using details of local resource bases (characterising soils, groundwater salinity, current land use) to scope the feasible ranges of change with different policy options.
- 2) Catchment-level consequences examined for localised and aggregate effects under different policy options of farm-level decisions.
- 3) Matching downstream demands for water and water quality with costs of upstream options. Three methods are used to contrast different perspectives on enhancing environmental services: 'experimental economics' in NSW, 'Agent-Based Modelling' in WA and SIF3 results in Victoria.

Stages 1 and 2 of this research are sufficiently complete for Stage 3 to be finalised in the coming months. The final report "Developing Environmental Service Policy for Salinity and Water" is expected in November 2008.

Further information: tom.nordblom@dpi.nsw.gov.au; ph: 02 6938 1627.

In the Limelight

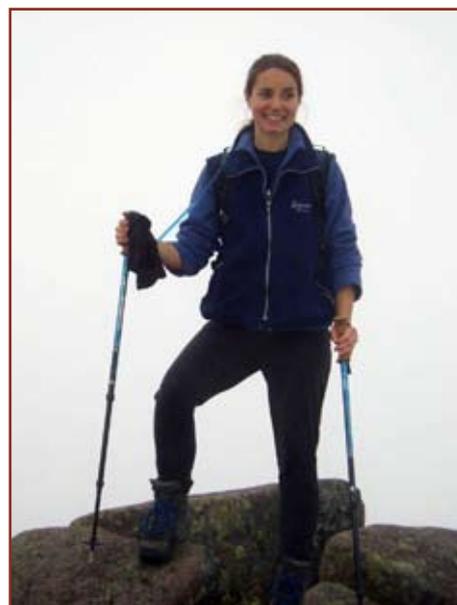
Dr Tiggy Grillo

Position: Lecturer in Parasitology

Organisation: Charles Sturt University, Wagga Wagga

Career Brief

I graduated from Glasgow University Veterinary School in 1999. I worked in a small animal practice for a year before heading back to Glasgow University to do a PhD in the Division of Veterinary Parasitology. During my PhD, I investigated research population genetic differences the parasitic nematode, *Teladorsagia* (Ostertagi) *circumcincta*, which infects sheep and goats. After finishing my PhD, I decided to apply for work overseas, and was delighted to be offered the position here at Charles Sturt University. My interests continue to be in population genetics, host parasite interactions, evolutionary genetics and anthelmintic resistance. I am also interested in sustainable farming, wildlife disease and communication skills.



I joined the CSU Veterinary Science in 2006 and have been a Research Centre Fellow in the Graham Centre in 2007 and 2008. I lecture in veterinary parasitology and am involved in setting up the new teaching curriculum and new molecular laboratories for the School of Animal and Veterinary Sciences. I am a member of the Graham Centre Strategic Research Initiative in Animal Parasites.

Research and Teaching Activities and Interests

Research activities

I am continuing my work on population genetic analysis of parasitic nematodes with a focus on species infecting Australian livestock, anthelmintic resistance and exploring innovative techniques to identify species and resistance using molecular markers.

Teaching activities

Subject areas I teach include Parasitology, Animal Health and Welfare, Problem Based Learning and Communication Skills Training.

Professional Links

- Registered with the Veterinary Practitioner's Board of NSW
- Member of the Australian Society for Parasitology

I also maintain collaborative links with parasitologists at University of Queensland, CSIRO in Armidale, Western Australia DPI and Melbourne University.

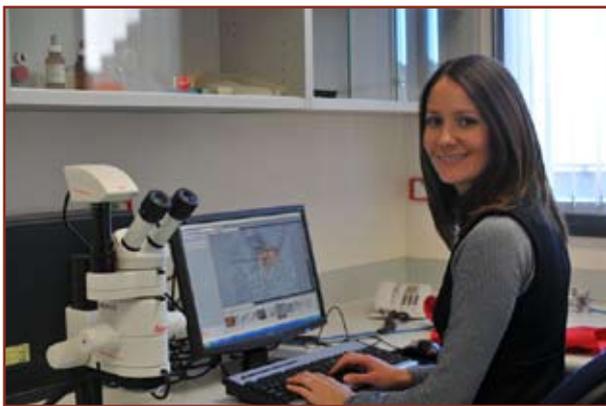
A typical day for me includes ... sorting out timetables, researching information for writing new Problem Based Learning packages involving complex parasite issues, a few meetings about course development, answering student inquiries about parasites and trying to grab a real cup of coffee along the way.

My main project at the moment is ... investigating the population genetic structure.

My favourite part of my job is ... working with all the great people.

When I am not in the office I like ... running, cycling, drinking coffee and heading to the coast with Jason (my better half) to surf.

Current CD in my car would be ... Fun Lovin' Criminals – but Jason has the van most days.



Dr Olivia Kvedaras

Position: Research Entomologist

Organisation: NSW Department of Primary Industries, Wagga Wagga

Career Brief

I am a research entomologist whose PhD with the cotton industry (Australian Cotton Cooperative Research Centre scholarship) on the influence of host plants on the mating behaviour of *Helicoverpa armigera* Hübner was accepted without amendment in August 2003. After spending nearly two years travelling widely in Europe and gaining work experience after the completion of my PhD, I commenced a

postdoctoral fellowship in 2004 with the South African Sugarcane Research Institute and the University of Witwatersrand (Wits). Industry is now recommended to apply silicon (Si) to enhance sugarcane resistance to attack by the stem borer, *Eldana saccharina* Walker.

In December 2006, I was appointed to the NSW Department of Primary Industries at the Wagga Wagga Agricultural Institute. I am responsible for post-production issues pertaining to fruit fly, with particular emphasis on the Queensland fruit fly, *Bactrocera tryoni* Froggatt. I have stimulated significant interest in the Australian and international research community in the potential of Si to manipulate the chemical ecology of insect: plant interactions.

Research and Teaching Activities and Interests

I lead two projects, one which aims to optimise sterile fruit fly releases for improved market access and another national project which aims to optimize a strategic trapping system to provide area-wide freedom from fruit flies. I also collaborate on another two fruit fly projects, one which is looking at developing female lures for fruit flies and one which will lead to specific management recommendations on optimal environmental conditions, release rates and release locations for sterile fruit flies. In addition I supervise a number of postgraduate students including two Masters students, two PhD students and a postdoctoral fellow who work on various topics including fruit fly and their parasitic wasps and the role of Si in insect plant interactions. I am a member of the Graham Centre Australian Bioprotection Strategic Research Initiative.

Professional Links

- Adjunct Lecturer, Charles Sturt University
- Scientific Committee member and Invited Keynote speaker, IV Silicon in Agriculture Conference, Wild Coast, South Africa 26-31 October 2008
- Session Chair for Australian Entomological Society, Orange, Australia 28 September – 1 October 2008
- Australian Bio-Protection Initiative member
- Australian Entomological Society member
- Fruit Fly Research and Technical Team member
- National Fruit Fly Working Group member

A typical day for me includes ... a variation on one of the following: writing and reviewing scientific journal articles, writing reports, conference abstracts and grant proposals, conducting research trials, supervising postgraduate students, attending committee meetings and varied administrative tasks.

My main project at the moment is ... looking at the potential of using 'Chilled adult release' for Queensland fruit fly in a Sterile Insect Technique (SIT) programme.

My favourite part of my job is ... seeing a project get off the ground, obtaining solid results and then writing it up.

When I am not in the office I like to ... travel and experience as much of Australia and the world as possible.

Current CD in my car is ... Snow patrol and Cold play (although the latter is a little mellow for driving).

Spring Edition of The Innovator

The Spring Edition of The Innovator will be released in mid October 2008. Submission of articles for this edition closes on **Friday, 19 September 2008**. Please email articles to Sharon Kiss.

Helens Burns, Research Liaison Officer

Helen joined NSW Agriculture after completing a BScAg degree from UNE, specialising in soil science and agronomy. She was the first district agronomist appointed to Lockhart Agronomy District and was instrumental in guiding the adoption of nitrogen application, conservation farming and alternative crops, with particular emphasis on canola, during the significant advances in information and technology of the 1980s and early 90s.

Family duties caused Helen to change her career path. She has been working at the Wagga Wagga Agricultural Institute since 2002 when she joined the Dairy Australia funded national TopFodder Silage program under the auspices of Dr Alan Kaiser and John Piltz, to develop resources to promote best management practices for silage production and feeding. Helen considers the highlight of this project was the publication of the internationally recognised TopFodder Successful Silage manual and the development of the TopFodder workshops, which continue to run under the NSW DPI Profarm banner.

Since joining the Graham Centre in 2006 Helen has concentrated on developing links with farmers/farmer groups, industry and government agencies with a particular focus on progressing the Graham Centre's research initiatives.



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The E H Graham Centre for Agricultural Innovation wishes to thank our sponsors for the 2008 Riverina Outlook Conference "The Climate for Fodder - Using best practice conservation to meet future environmental and economic challenges" which will be held at the Charles Sturt University Convention Centre on Thursday 14 August 2008.

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