From the Director

It’s been a busy and rewarding time at the Graham Centre. In July, we launched our Strategic Plan to guide the Centre’s research and graduate training over the next five years. The Centre aims to partner with industry to identify and realise opportunities to improve the profitability and sustainability of our grain and livestock industries. That includes research to increase the value of grains and meat through improvements in processing and market-led product innovation. The new Industry Advisory Panel has also met for the first time and we look forward to working with the eight industry representatives to identify new opportunities for partnerships and engagement to drive innovation throughout the value chain.

Research Centre Fellowships worth almost $500 000 have been awarded to 13 Graham Centre members to build our research capacity, more about this later in the Innovator. Research Pathway Leaders are evaluating the success of the Centre’s internal grant schemes and meetings with pathway members will occur in coming months. The Centre’s been awarded new research grants to investigate induction stress in feedlots, to examine the impact of supplementation of ewes during late pregnancy to reduce hypocalcaemia and to investigate the bioactive compounds in lentils. We are also looking forward to participating in the new Cooperative Research Centres (CRC) for High Performance Soils and Food Agility.

We’ve hosted a diverse range of visitors, from the Marrar Ag n Chat group through to representatives from Texas Tech University, the Institute of Environmental and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences, Gansu Academy of Agricultural Sciences, Dryland Agriculture Institute, International Livestock Research Institute and Grain Growers.

Livestock prices have continued to be strong and it was great to catch up with producers, advisers and industry representatives at the Graham Centre’s sheep and beef forums. Once again the forums were well attended with more than 200 people taking the opportunity to hear presentations about industry developments and research. Feedback from the day showed that producers intended to put something they’d learned from the day into practice on their own farm businesses. Look out for the photos. The days are getting longer and spring is in the air, let’s hope for some timely rain after a dry winter.

Dr Marta Hernandez-Jover
Acting Director
Launch of the Graham Centre Strategic Plan

The Graham Centre’s Strategic Plan was officially launched on Tuesday 18 July in front of members and industry stakeholders. It was an opportunity to reflect on the Centre’s achievements and to set out objectives for future research and partnerships to improve the sustainability and profitability of grain and red meat industries.

Pictured below: 1) CSU Emeritus Professors Ted Wolfe and Jim Pratley; 2) Graham Centre business manager Ms Maree Crowley and Graham Centre Board member Dr Andrew Sanger (NSW DPI); 4) Graham Centre Industry Advisory Panel Chair Ms Diana Gibbs with Managing Director of the AgriFutures Australia Mr John Harvey; 4) Graham Centre Industry Advisory Panel member Mr Chris Mirams and the Fred Morley Centre’s Dr Bruce Allworth; 5) Members of the Functional Grains Centre at the launch of the Strategic Plan, Ms Jo Masters, Dr Vito Butardo Jnr, Ms Michelle Toutounji and Ms Kiara Thompson; 6) The launch of the five-year Strategic Plan brought together Graham Centre members and industry stakeholders to outline the research direction of the Graham Centre.
Awards for Graham Centre researchers

PhD students shine at 3MT

Graham Centre PhD research students have excelled in the Charles Sturt University (CSU) Three-Minute Thesis competition (3MT).

It’s an annual competition where research candidates have just three minutes to present their research, using only one slide.

Ms Cara Wilson won the CSU final with her presentation ‘War on waste: It’s not just plastic bags’ about her research to reduce the multi-million dollar wastage in the beef industry as a result of hydatid disease caused by tapeworm infection (*Echinococcus granulosus*).

The disease is rarely fatal in livestock but contaminated beef product identified at slaughter is either thrown out or downgraded to pet food.

Ms Wilson said, “The annual wastage could, conservatively, be as high as 5,000 tonnes across the Australian beef industry. However, the exact magnitude of that loss is not clear. I hope to estimate the loss as well as the risk factors associated with the infection in beef cattle. My research will identify where infected cattle are coming from which will enable the beef industry to target control strategies.”

Ms Wilson will now go on to represent CSU at the Asia-Pacific 3MT Competition in Queensland in September. Read more about her research on CSU News here. Functional Grains Centre researcher Ms Shiwangni Rao was named runner-up and claimed the people’s choice award for her presentation about research investigating the potential for anti-oxidants found in coloured rice bran to kill cancer cells.

Mr Yuchi Chen was another finalist and his three-minute thesis on panic grass and how this plant can cause liver damage in livestock was also well received by the judges.

More accolades for Professor Bing Wang

Professor Bing Wang from Charles Sturt University’s (CSU) School of Animal and Veterinary Sciences has been recognised for her research through the Graham Centre investigating the role of the micro-nutrients found in milk on the neurodevelopment and cognitive function of piglets.

She presented her research at the Federation of American Societies for Experimental Biology scientific research conference in Lisbon in Portugal where she received an award.

International training opportunity for FGC student

Ms Shiwangni Rao, who is in the second year of her PhD at ARC Industrial Transformation Training Centre for Functional Grains (Functional Grains Centre) has taken part in a training program through the International Rice Research Institute (IRRI) in the Philippines. Ms Rao was awarded a scholarship by the NSW Crawford Fund to attend the three-week IRRI Rice Production to Research Course.

Read more about her work here.
Forum provides paddock to plate advice for sheep producers

Sheep industry research from the paddock to the plate was served up to more than 130 producers at the Graham Centre for Agricultural Innovation’s annual sheep forum on Friday 7 July.

The forum featured presentations from NSW Department of Primary Industries (DPI), Charles Sturt University (CSU) and the industry.

The forum was supported by Australian Wool Innovation Sheep Connect, Meat and Livestock Australia (MLA), NSW DPI, NSW Local Land Services, Rabobank, and CSU.

Presentations can be downloaded here.

1) Megan Rogers, Sheep Connect, Adele Offley, Moses and Son, Grace Cornish, CSU student, Rachael Gawne, Sally Martin Consultants; 2) A highlight of the sheep forum was the interactive panel session where members of the audience asked the speakers questions; 3) Vincent Walsh, ‘Narrangullen’, Wee Jasper, Jim Syman, McMichael and Associates, Tim Kent ‘Merrribindinya’, Bethungra; 4) Sheep forum speakers l-r Dr Edward Clayton, Mr Gordon Refshauge, Ms Helen Burns, Dr Shawn McGrath, Dr Stephanie Fowler, Mr Ben Watts and Mr Bruce Hancock.
Better eating lamb and more feedback for producers

Keynote speaker at the Graham Centre’s sheep forum, Mr Bruce Hancock from the Sheep Cooperative Research Centre (CRC) outlined research across the supply chain to build the industry’s capacity to deliver a good eating experience for consumers.

“The Australian lamb and sheepmeat industry is strongly consumer focused and responds to meat quality market signals and feedback sent down the supply chain,” Mr Hancock said.

He told the forum that processors are looking to make use of new research and technology to measure lean meat yield and eating quality.

“For the past two and half decades we (the lamb industry) have been trading on weight and fat in terms of value based marketing,” Mr Hancock said.

“We will continue to do that but as technologies come on board they will provide an overlay on the pricing grid.”

Mr Hancock said key to that will be the ability to objectively measure lean meat yield at chain speed, in the processing plant.

“Technology that’s here now—is the Dual Energy X-Ray Absorptiometry or DEXA in lamb or if we look to the future, CT scanners are under consideration in Europe, and are used as the ‘gold standard’ of measurement within current Australian research.

“Processors are looking to identify the sweet-spot that optimises both lean meat yield and weight, while maintaining eating quality. The ultimate goal is to have feedback and price signals moving all the way through the lamb value chain,” Mr Hancock said.

“Breed, age, finishing growth pathway, carcass specification and pre-slaughter handling are all important for lamb eating quality.”

Mr Hancock’s tips for sheep producers included seeking carcass feedback on lean meat yield percentage and eating quality, and making use of decision support tools such as Australian Sheep Breeding Values (ASBV’s).

Birds-eye view for producers at sheep forum

The use of drones on farm to map pasture growth, muster sheep and even monitor livestock behaviour was outlined by Mr Ben Watts from Bralca Consulting at the Graham Centre’s sheep forum on Friday.

“I see drones as a farm tool that can be used for remote monitoring that can give us timely information,” Mr Watts said.

“Producers should ask questions before investing in the technology, make sure they know the laws and practice flying drones before using them for work.”

He said as drone technology has developed the price has come down putting it into the reach of farmers.
Digital make-over for landmark agronomy text

An agronomy textbook that’s been a must-read for agricultural science students for almost 40 years has had a digital update for a new generation of students to access free online.

Principles of Field Crop Production was compiled and edited by Charles Sturt University (CSU) Emeritus Professor Jim Pratley.

Professor Pratley said, “When I first began teaching at Charles Sturt University’s predecessor institution, the Wagga Agricultural College, in the 1970s students were learning from American text books because there were no text books about Australian cropping. So I set about writing one.”

The text book was first published in 1980 and five editions later it is now available as an e-book on the Graham Centre for Agricultural Innovation’s website here. “Field crops have been pivotal to the progress of agriculture in this country and that will continue to be the case moving forward,” Professor Pratley said.

“Despite the advancements in technology and development of new varieties the principles of growing a crop remain the same. The heavy emphasis on principles in the text book provides readers with a good basis to evaluate new crops and varieties and their place in cropping systems.”

Hear more from Professor Pratley here.

Contact Professor Jim Pratley, T: (02) 6933 2862, E: jpratley@csu.edu.au

Keep up to date with the Graham Centre on social media ...

Don’t forget to follow the Graham Centre on Twitter @GrahamCentre

and like us on Facebook https://www.facebook.com/GrahamCentreForAgriculturalInnovation?ref=hl

and on Instagram grahamcentre05
AgriTech Incubator up and running

A goal to spark innovation and economic development in the Riverina is at the heart of the AgriTech Incubator Hub at Charles Sturt University (CSU) in Wagga Wagga. Led by CSU Professor of Food Engineering John Mawson, who’s also Chairman of the Graham Centre Board, the AgriTech Incubator will support the development of startup companies and small- to medium-sized enterprises (SME) by providing access to expertise and University facilities. The project is funded by the NSW Department of Industry and CSU.

The first of the AgriTech Incubator programs began on Monday 31 July and will run for eight weeks concluding with a ‘pitch evening’ by participants on Monday 18 September. The Hub is also the venue for on-campus workshops for groups participating in the 2017 Australian eChallenge - Wool Innovation, a collaboration between Australian Wool Innovation (AWI) and the University of Adelaide - Entrepreneurship, Commercialisation and Innovation Centre.

The AgriTech Incubator Hub is located in the newly refurbished building 6 on the CSU Wagga Wagga campus and is now available to be used as a co-working and meeting space by both Incubator program participants and other regional start-up ventures (at a small cost). Contact project officer Siobhain Howard if you are interested in this opportunity.

Contact: Siobhain Howard, E: sihoward@csu.edu.au

Meteorologist Dean Narramore visited the Centre in August as part of National Science Week events. Aside from entertain us with tales of storm chasing in the United States Dean discussed climate and weather patterns and yes 2017 was an exceptionally dry winter.
The outlook for the beef industry, technology, quality assurance and new research was outlined at the Graham Centre for Agricultural Innovation’s annual beef forum.

Speakers from the industry, NSW Department of Primary Industries (DPI) and Charles Sturt University (CSU) research students gave more than 100 producers and advisers an insight into developments throughout the supply chain.

The event was sponsored by Rabobank, Teys Australia, NSW Local Land Services Riverina, MLA, NSW DPI and CSU.

Is it time to consider forward marketing arrangements in the beef industry?

In his keynote address at the Graham Centre’s beef forum, RaboResearch Food & Agribusiness, senior analyst Mr Angus Gidley-Baird challenged the industry to consider forward marketing agreements.

“Producers need to approach the purchase and sale of livestock in a more sustainable way, making judgements on costs and margins rather than hoping to get the best price on the day,” Mr Gidley-Baird said.

“To date, the use of forward contracts in the Australian beef industry has been very limited. But with a number of changes in the industry and the risk of ongoing volatility now is the time to consider it.”

Forward marketing agreements refer to agreements between parties with vested interests in the supply chain, for the delivery of a physical product at an agreed volume and/or price at some time in the future.

Mr Gidley-Baird said forward marketing is widely used in other industries and would provide an opportunity for producers to plan to manage the price risk and to improve production efficiencies and investments.

“Across the whole supply chain there is a need to show leadership and promote a more collaborative approach that can help minimise volatility, develop specific products and provide security of supply,” Mr Gidley-Baird said.

“A change of mindset is one of the key things needed for the beef industry to embrace forward marketing.”

He cautioned that forward marketing agreements are a marketing tool to be used in conjunction with other methods and will not suit all operators in all situations.

From the speakers

“BeefSpecs tools have the potential to improve market compliance rates worth $50 million per year to the beef industry.” Edwina Toohey, NSW DPI.

“Meat Standards Australia (MSA) is based on two decades of research and 700 000 taste tests by 100 000 consumers in nine different countries.” Sarah Strachan Meat and Livestock Australia.

“Knowledge is power and seeking feedback on carcasses is an opportunity for producers to make better decisions on-farm.” Jasmine Nixon Teys Australia.

“Make use of feedback on carcass performance to improve how cattle are prepared and presented and to make better decisions about future sales.” Geoff Roberts Wingelo Pastoral Company.

“Poorly weaned calves can have serious and sometimes lasting effects on production. The weaning method used by a beef enterprise needs to be adapted to suit individual goals and operations.” Molly Vardanega, CSU Bachelor of Animal Science (Honours).

“Canola meal is an option for supplementing grass-fed beef and is Pasture Fed Cattle Assurance System (PCAS) accredited.” Emma Lynch, CSU Bachelor of Animal Science (Honours).

“Commercial feedlot data shows that Holstein steers consume a lower dry matter intake and can exceed the performance and grading of traditional beef breeds but their dressing percentage is generally lower.” Veronika Vicic, CSU Bachelor of Animal Science (Honours).

Download their full presentations here.
Digital technology and food security at The Crawford Fund conference

The impact of the digital revolution on agriculture and smallholder farmers in developing countries was the focus of the Crawford Fund’s annual conference.

Graham Centre staff and research students attended the two-day event in Canberra on Monday 7 and Tuesday 8 August.

Australian farmers are already reaping the benefits of better use and access to data through mobile phones, apps, drones, sensors, robots, cloud technology and open-source software and the conference discussed how the technology could be used by farmers in developing countries to boost global food security.

The Graham Centre supported two conference scholars this year, PhD students Ms Cara Wilson and Ms Arundhita Bhanjdeo.

Ms Wilson said, “I got so much more out of the Crawford Fund conference than I ever could have expected. It was one of the best I have been to in terms of networking and the presentations provided at both the conference and the scholar days were interesting and valuable. Being paired up with a mentor who could introduce us to people from all walks of life was a fabulous way to network.

“I was so inspired by some of the people I met, particularly Dr Lindiwe Majele Sibanda who presented the Sir John Crawford Memorial Address at the networking dinner on the opening night. The conference opened so many doors for me that I was not even aware of. I would recommend this conference to anyone and hope that I can attend this conference in the years to come. I would like to thank the Graham Centre and the Crawford Fund for this wonderful opportunity.”

Other Graham Centre members, Professor Jim Pratley, Adjunct Research Professor Deirdre Lemerle, Ms Toni Nugent and PhD students Mr Thomas Williams and Ms Shumaila Arif also attended the conference.

Mr Williams said, “The Crawford Fund Conference draws many delegates from political and research backgrounds. It is here, you realise there are a great number of people working in areas of research for development and food security. Their passion and knowledge in these areas was evident in every presentation. Exposure to a great group of researchers in Australia working in international agriculture development is something that I appreciated.”

Read more on the blog here.

The Crawford Fund is a non-profit, non-government organisation that works to raise awareness of the benefits to Australia and developing countries from international agricultural research, commissions studies on research policy and practice, and arranges specialist training activities for developing country scientists.

Advocating for evidence based policy making

Science, technology and its role in government policy was on the agenda when Graham Centre researcher, Associate Professor Shokoofeh Shamsi attended the annual Science meets Policymakers event in Canberra last month. Scientists from various disciplines met with representatives from government departments to network and discuss how policy is developed. Professor Shamsi said, “I was able to speak with senior policymakers about my field of parasitology, in particular my research into carp parasites in Murray Darling Basin and seafood safety. I firmly believe in the need for evidence based policy and this was an opportunity to talk about how my research can add to the decision making process.” Professor Shamsi from Charles Sturt University’s (CSU) School of Animal and Veterinary Sciences was sponsored by the Australian Society for Parasitology to attend the event.

Contact: Associate Professor Shokoofeh Shamsi, T: (02) 6933 4887, E: sshamsi@csu.edu.au
When parasitologists get together

Parasitologists, old and new, from Charles Sturt University’s (CSU) School of Animal and Veterinary Sciences attended the annual meeting of the Australian Society for Parasitology held in Leura in the Blue Mountains in June. Graham Centre PhD students Mr Thomas Williams (intestinal parasites of water buffalo) and Ms Cara Wilson (hydatid disease in beef cattle), CSU PhD student and Mr Xavier Roca (parasites of seafood in Spain) CSU Bachelor of Animal Science (Honours) student Ms Annabel Stoddart (parasites of freshwater fish in Murray Darling Basin) and Master of Animal Science student Monica Dickson (Australian chefs and parasites in seafood) did a great job presenting their research. Associate Professor Shokoofeh Shamsi chaired the education symposium session in which she had a joint presentation with CSU Professor Barney Dalgarno on contemporary digitally enabled higher education pedagogies in teaching veterinary parasitology. “Charles Sturt University students also voluntarily helped at the registration desk and coordinated the smooth running of the presentations and events during the whole conference. They showed a high level of professional behaviour and leadership skills,” Professor Shamsi said.

Contact: Associate Professor Shokoofeh Shamsi,
T: (02) 6933 4887, E: sshamsi@csu.edu.au

Science and art collide to explore parasites and health

The mere thought of head lice or roundworm can be enough to make you scratch but it’s hoped a painting on display in Wagga Wagga will encourage people to look at parasites in a different light. Graham Centre researcher and member of the Council of the Australian Society for Parasitology, Associate Professor Shokoofeh Shamsi (pictured with Christine Bolton from Wagga Wagga City Library), has been involved in bringing the painting ‘Gula Guri mayin’ to the Wagga Wagga City Library. Read more. Photo courtesy of Wagga Wagga City Council.
Twilight Weed and Crop Walk

Featuring Graham Centre and CSU research funded by:

- Grains Research and Development Corporation
- Meat and Livestock Australia
- Australian Wool Innovation

Affiliated partners of Syngenta, CSIRO, University of Adelaide, AGT, NuSeed, Pacific Seed and NSW DPI

**Featured Trials include:**

- Long-term mixed farming rotations for weed seedbank suppression
- Weed suppression and drought tolerant annual and perennial legumes and pasture mixes
- Weed suppressive wheat and barley cultivars
- Barley grass management in lucerne pastures
- New release of herbicide tolerant faba beans

**Tuesday, 12 September 2017**

3.15 - 6PM

Graham Centre Field Site
Corner Coolamon Rd and Prices Road (see map)

Refreshments Available

**For more information contact:**

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<tr>
<th>Dr William Brown</th>
<th>Professor Leslie Weston</th>
<th>Toni Nugent</th>
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<td>Charles Sturt University</td>
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**Links:**

- [www.grahamcentre.net](http://www.grahamcentre.net)
New Industry Advisory Panel

The Graham Centre Industry Advisory Panel (IAP) met for the first time in August. The new panel (l-r) is Mr Murray Scholz, Ms Cindy Cassidy, Mr Andrew Bouffler, Ms Angela Avery, Mr Chris Mirams, Ms Diana Gibbs (Chair), Mr David McKeon and Dr Angus Crossan.

CSU lecturer in farming systems, Michael Campbell (far left), is pictured with representatives from Texas Tech University visiting the Graham Centre in July.
Graham Centre research at 8th World Congress of Allelopathy

Graham Centre research into crop weed suppression, plant interactions and Paterson’s curse has been presented at the 8th World Congress of Allelopathy in France. Held once every three years the conference is organised by the International Allelopathy Society (IAS). More than 150 participants from 28 countries took part in the event at the Villa Mediterranee in the Old Port of Marseille.

Research presentations

Members of the Plant Interactions research group led by Charles Sturt University (CSU) Professor of Plant Biology Leslie Weston presented their research at this meeting. Professor Weston gave two invited presentations; one on bioactive quinones as phytotoxins, antimicrobials and anti-cancer therapeutics and another on the challenges associated with establishment of biserrula and French serradella discussing weed suppression, phytotoxicity and photosensitisation.

PhD student Mr James Mwendwa spoke about weed suppressive wheat outlining the mechanisms associated with suppression, including production of hydroxamic acids. He also presented posters on canola and metabolic profiling of hydroxamic acids in wheat.

PhD student Mr Dominik Skoneczny was awarded a scholarship from University of Aix Marseille to attend the IAS Congress. His oral presentation on metabolic profiling in Paterson’s curse (Echium plantagineum), at home in its native range in the Iberian Peninsula, and away in Australia, was named in the top five in the student oral presentation competition. Mr Skoneczny’s poster on the impacts of plant stress on production of secondary defence metabolites in Paterson’s curse was also in the top five of the student poster competition. Read more about his research here.

Research Associate Dr Xiaocheng (Diego) Zhu also presented a very well received oral presentation on the factors influencing invasion success in Paterson’s curse in Australia, as opposed to the less successful invader, Echium vulgare, or Viper’s bugloss. Dr Zhu has also been elected to serve as member at large from Australia on the IAS executive board, joining Professor Weston who is past President of the Society.

Allelopathy down under

CSU and the Australian National University (ANU) will host the 9th World Congress of Allelopathy in Canberra in 2020. Professor Weston will co-host the meeting with Professor Russ Barrow from ANU.

Contact: Professor Leslie Weston, T: (02) 6933 4689, E: leweston@csu.edu.au

International prize for Paterson’s curse research

The research team also picked up the Grodzinsky Award for the best research publication written over the past three years, in a global competition for best publication in the field of allelopathy. The paper ‘Identification and localization of bioactive naphthoquinones in the roots and rhizosphere of Paterson’s curse (Echium plantagineum), a noxious invader’ was truly a team effort. It was first authored by Dr Zhu (pictured with Professor Leslie Weston), who performed microscopy and physiology experiments. Mr Skoneczny and Dr Paul Weston conducted metabolic profiling while Professor Jeff Weidenhamer, Ashland University, assisted in development of soil microprobes used in this research for profiling shikonins. CSU Professors Geoff Gurr and Leslie Weston and Professor Ragan Callaway from the University of Montana, led the research supported by the ARC Discovery Project examining why Paterson’s curse is such a successful weed invader in Australia.
Fellowships support Graham Centre researchers

The Graham Centre for Agricultural Innovation has announced almost $500,000 in fellowships to support the research of its members.

Acting Graham Centre Director Dr Marta Hernandez-Jover said, “In 2017, 13 fellowships have been awarded, reflecting the diversity of the Centre’s research to make grain and livestock systems more sustainable and profitable throughout the entire production chain.

“Some of the research areas supported by fellowships include biological control of fruit fly, pasture management, immune system development of calves, public health, and lupin products.

The funding will also help build the Centre’s research capacity in the areas of meat science, entomology, biosecurity and food safety while supporting international collaboration.”

The Graham Centre Research Centre Fellowships have been awarded to:

- Dr Angel Abuelo
- Dr Michael Campbell
- Professor John Mawson
- Professor Geoff Gurr
- Professor Jade Forwood
- Dr Olivia Reynolds
- Dr Jane Heller
- Dr Marta Hernandez-Jover
- Dr Jeff McCormick
- Dr Andrew Peters
- Associate Professor Jane Quinn
- Associate Professor Gavin Ramsay
- Dr Paul Weston

The fellowships provide funding for travel, workshops and conferences, publication costs, teaching and research support.

Look out on our Facebook page for profiles of the Graham Centre Research Fellows throughout the year.

Research to boost the immune systems of calves

Boosting the immune systems of calves before they’re even born is the focus of new research through the Graham Centre for Agricultural Innovation.

Dr Angel Abuelo from CSU’s School of Animal and Veterinary Sciences has been awarded a Research Centre Fellowship for a pilot study using molecular biology techniques to examine the pathways involved in immune system development in utero.

“I’ll be investigating how the nutrition and metabolic status of a cow during late pregnancy influences the programming and development of the offspring’s immune system,” Dr Abuelo said.

“A better understanding of the immune system during the early stages of life will help us to develop management practices that producers can implement during gestation to enhance disease resistance.

“This has the potential to improve the health of calves and reduce mortality rates saving producers money and improving productivity.”

Dr Abuelo said the research could also have benefits beyond the farm gate.

“Decreasing the incidence of disease by improving the immunity of a herd should also help producers to reduce the use of antibiotics,” Dr Abuelo said. “This is important in decreasing the development of antibiotic resistant strains of bacteria, which has a significant public health benefit.”

Contact Dr Angel Abuelo, T: (02) 6933 4737, E: aabuelo@csu.edu.au
Dr Susan Orgill

Position: Research Officer - Soil

Organisation: Soil Unit, NSW Department of Primary Industries

Career Brief:
I have worked for NSW DPI since 2005 on a range of soil health projects, working as a researcher with the Soils Unit since 2012. My current research focuses on management strategies to increase carbon in agricultural soil and overcoming soil constraints to pasture production. I completed my PhD through Charles Sturt University (CSU) in 2016 while working full time for NSW DPI, and with two young and energetic boys! My work covers most of NSW with research in extensive grazing systems in the rangelands pasture systems in southern NSW and rotations in the mixed farming zone of central NSW, as well as recently being involved in a ACIAR small research project, led by Dr Jason Condon from CSU, looking at crop diversification in Vietnam. I work closely with producers and farming systems groups to achieve sustainable and profitable agricultural systems through soil management and I’m passionate about teaching producers and kids about soil health.

Research activities:
• Maximising access to the ERF - Rangelands Research Project
• Farm management to increase organic carbon in agricultural soil
• Practical aspects of managing rhizobia and legumes and their relationships with soils

Professional Links:
• Member of the Riverina Branch of Soil Science Australia
• Adviser on the National Soil Carbon Technical Working Group
• Visiting Fellow at ANU
• Full Member of the Graham Centre for Agricultural Innovation

A typical day for me includes:
At the moment, going through maps and models of wind erosion and dust emissions to determine their influence on organic carbon and nutrient stocks.

My main project at the moment is:
Maximising access to the ERF - Rangelands Research Project where we are looking at the opportunities and impact of carbon farming in western NSW.

My favourite part of my job is:
Field work. I really enjoy being in the field with producers and colleagues and trying to piece together what we are seeing above ground with the soil below ground.

When I am not in the office I like:
Bike riding and spending time indulging my inner child with my kids!

When I am driving I like to listen to:
At the moment I’m going through my old CDs; Smashing Pumpkins, Radiohead, Pixies etc., and loving reliving the memories.
Esther Callcott

Supervisors: Dr Abishek Santhakumar (CSU) and Professor Chris Blanchard (CSU)

Thesis title: Therapeutic potential of rice-derived polyphenols on obesity-related oxidative stress and inflammation.

Funding body: ARC ITTC - Functional Grains Centre

Career and studies till now:
- 2015 - Current - PhD candidate, CSU, Wagga Wagga, NSW
- 2016 - Research Assistant, CSU, Wagga Wagga, NSW
- 2010 - 2012 - Regeneus Ltd - Research Scientist (Veterinary Division)
- 2002 - 2012 - North Richmond Veterinary Hospital - Veterinary Nurse
- 2009 - Cert IV Veterinary Nursing, TAFE NSW, Richmond, NSW
- 2005 - 2009 - Bachelor of Medical Sciences (Honours), Macquarie University, Sydney, NSW

Currently studying: Doctor of Philosophy - Biomedical Science

Research Interests: Polyphenols, Rice, Metabolic Diseases, Obesity, Cardiovascular Research

Professional Links
- https://twitter.com/fgc_esther
- https://www.researchgate.net/profile/Esther_Callcott2
- https://au.linkedin.com/in/esther-callcott-52b08a114

A typical day for me includes:
Morning: Emails, coffee, cell culture and experiment set ups, coffee
Midday: Lunch and coffee with the occasional chat
Afternoon: Emails, coffee, experiments, coffee, writing up experiments
Evening: Emails, wine ...

My main project at the moment is:
Organising and running an ex-vivo human clinical trial, testing rice-derived polyphenols on obesity-related oxidative stress and inflammation.

My favourite part of my studies is:
Engaging with colleagues. I love to chat about our work, come up with ideas and collaborate with others. Many hands in research, I believe, leads to good quality research making a significant impact to better our communities.

When I am not studying I like to:
I’m very much a home-body. I love spending time with my kids and husband.
Gardening, I just love being in the garden with the kids and dog growing home-grown produce.
Cooking, I love to bake and try out new recipes.
Socialising with friends over a BBQ in the backyard (my ultimate afternoon).

When I am driving I like to listen to:
It depends, at the moment it is the Moana soundtrack, which is an upgrade from the Wiggles and Dirt Girl World. When I am driving on my own nothing beats a little Fatboy Slim cruising on the highway.
2017 EVENTS CALENDAR

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<th>Date</th>
<th>What</th>
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<th>More information</th>
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<tr>
<td>12 September</td>
<td>Twilight Weed and Crop Walk</td>
<td>Graham Centre Field Site, corner Coolamon Road and Prices Road</td>
<td>Dr William Brown <a href="mailto:wilbrown@csu.edu.au">wilbrown@csu.edu.au</a></td>
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Weed Researchers in France

Australian Plant Interactions Group at 8th World Congress of Allelopathy banquet at Old Fort in Marseille on 28 July. Pictured are Professor Russ Barrow, ANU; Professor Leslie Weston, Mr Dominik Skoneczny, Dr Diego Zhu and Mr James Mwendwa. Read more on page 14.

CONTACTS

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Photo: Emily Malone