

Institute of Agriculture

Agriculture Science graduates show their talents at the Young Professionals in Agriculture Forum

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The Australian Institute of Agricultural Science and Technology (AIAST) recently awarded top honours for scientific excellence in agriculture to The University of Western Australia (UWA) animal science PhD student, Ms Joanne Elliott, and Department of Agriculture and Food (DAFWA) research officer, Ms Neroli Smith, as joint winners of the Young Professionals in Agriculture award.

Ms Joanne Elliott's presentation tested the hypothesis that piglets reared in Werribee farrowing pens (WFP) would explore more than those in conventional farrowing crates and potentially lead to increased feed intake at weaning.

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photo: Mr Peter Maloney

(L to R): Mr Don Burnside (President, AIAST), Ms Neroli Smith, Ms Chelsea Fancote, Prof Lyn Beazley (Chief Scientist WA, and Prof of Zoology UWA), Ms Joanne Elliott, and Mr Ian Longson (Director General DAFWA).

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Director's column

Prof Kadambot Siddique

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Agriculture and food production systems world wide are experiencing rapid change. The world's population is forecast to rise from six to nine billion by 2050. The growing biofuels industry is expected to use 400 million tonnes of grain per annum by 2020. Currently, world grain stock is at its lowest level ever. The biofuels demand is adding to soaring needs for food and feed worldwide as the population increased and the wealth of countries such as China and India grew.

In the Australian context these changes include increased on-farm costs, bigger, fewer and more sophisticated farms, climate change and high commodity prices. Greater scientific and technical understanding of the value chain may help to capitalise on short and long term opportunities. Global agriculture commodity experts suggest that we are in the early stages of an agricultural rally that could last up to 20 years. Australian farmers are gearing up to capitalise on record prices for farm commodities (especially grains) by increasing the areas under winter crop during the 2008 season. Let us hope for the return of good winter rainfalls during 2008.

The Institute of Agriculture (IOA) kick-started 2008 with the Mike Carroll Memorial Travelling Fellowship award function, the Hector and Andrew Stewart Memorial Public Lecture and delegations from several overseas institutions.

The IOA's External Advisory Board (EAB)



met on 28 March 2008 at UWA. The EAB approved the IOA's strategic plan, which is now available on our website. The EAB endorsed a proposal for the establishment of an "International Centre for Plant Breeding Education and Research" at UWA. The proposal promotes UWA as the primary institution in Australia to revitalise plant breeding education and research. This is in response to a decline that has been noted at the highest levels in Food and Agriculture Organisation of the United Nations (FAO) and leading educational institutions in the USA, Canada and Asia. Work is in progress establishing the Centre by July 2008. The proposed Centre will significantly contribute to the IOA's mandate to integrate agricultural and natural resource management research, education, training and communication across the University.

The EAB also agreed to support the establishment of a UWA Agriculture Foundation within the IOA. The Foundation will provide support to teaching and research in agriculture and related areas at UWA by alumni, individuals, farmers, agricultural industries and business. The Education, Communication and Technology Exchange Program made a presentation on the progress and future directions of the program. Overall, the EAB was pleased with the progress achieved by the Institute since its launch in March 2007.

Recently UWA has made several new appointments relevant to agriculture which includes Professor Tony O'Donnell (Dean, Faculty of Natural and Agricultural Sciences), Professor William Erskine (CLIMA Director), Dr Ken Flower (Lecturer in Production Agronomy and Farming Systems and others (see page 10 in this newsletter).

In early March IOA Program and Deputy Program Leaders undertook a one-day training workshop on leadership development. At his opening address UWA Vice Chancellor Professor Alan Robson emphasised the importance of IOA in enhancing agriculture teaching and research at UWA and the role of program leaders in achieving this. The above workshop provided an opportunity to enhance the capacity of program leaders and deputies to work together effectively, ensuring that the Institute achieves its important mission and objectives. The training was organised by the Organisational and Staff Development Services of UWA.

Once again UWA agricultural graduates showed their talents at the recent Australian Institute of Agricultural Science and Technology (AIAST) 'Young Professionals in Agricultural Forum'. Ms Joanne Elliot and Ms Chelsea Fancote gave excellent presentations and won the first and second prizes respectively. Emeritus Professor Philip Cocks received the prestigious Farrer Medal 2008 for his outstanding contribution to agricultural and natural resource research and leadership. It is also pleasing to note that Mt Barker farmer, Terry Enright, became the first farmer to be awarded an Honorary Doctorate in Agriculture from UWA. Congratulations to all on their fantastic achievements.

IOA has planned several interesting activities during 2008. I recommend visiting our website for more information: www.ioa.uwa.edu.au.

continued from p1 Her Honours research found that piglets in Werribee farrowing pens exhibited 40 per cent more exploratory behaviour than those in farrowing crates, however, piglets in the farrowing crates engaged in more than 50 per cent more feeding behaviour after weaning. Although the WFP encouraged more exploratory behaviour, this did not lead to increased feed intake at weaning and does not provide a solution to the post-weaning growth depression.

Ms Neroli Smith joint first prize winner is currently a research officer with DAFWA's dairy team in Bunbury while also completing an Honours project in meat science at Murdoch University. She manages a sheep meat breeding enterprise and was recognised for her exceptional work on the use of computer tomography to predict composition of live sheep and carcasses. Both winners received \$1000 in prize money.

The second prize and the award for best presentation went to Ms Chelsea Fancote for her UWA animal science fourth year project, "investigation of cattle and sheep performance on saltbush pastures".

DAFWA Director, General Mr Ian Longson, said this year's winners presented scientific research of the highest calibre which would benefit Western Australia's animal industries.



Prof Graeme Martin (Head of School of Animal Biology), Ms Chelsea Fancote, Ms Joanne Elliott and Prof Kadambot Siddique (Director of the Institute of Agriculture)

Photo: Mr Peter Maloney

Mt Barker farmer awarded Honorary Doctorate in Agriculture



Mt Barker farmer Terry Enright became the first farmer to be awarded an Honorary Doctorate in Agriculture from The University of Western Australia (UWA).

Dr Enright, who grows barley, canola and pulses, and grazes sheep and cattle on his Great Southern property, has devoted 25 years to agriculture, natural resource management and research, and has played a leading role in the administration and

strategic direction of agricultural research and education.

Vice-Chancellor, Professor Alan Robson, who is also Hackett Chair in Agriculture at UWA, praised Dr Enright's significant contributions to the University and said he was a very worthy recipient of the Honorary Doctorate.

"Dr Enright has played a major role in the administration of agricultural policy in WA and the promotion of agronomy and has represented the interests of WA growers and state agricultural research institutions in the national research agenda," Prof Robson said. "He was instrumental in establishing a Chair of Agronomy and a lecturer position in Production Agronomy and Farming Systems, in partnership with UWA."

As Chairman of Albany Port Authority from 1993 to 2003, Dr Enright presided over the \$15 million port expansion to accommodate the growing grain and wood-chip industries of the Great Southern.

Dr Enright is a former Chair of the Board of the Grains Research and Development Corporation (GRDC) – he was appointed in 2002 – where he supported international initiatives to conserve genetic resources and established strong links with the international agricultural sector.

He is a past member of the WA State Barley Research Committee (which allocated and administered the research levy paid on all barley grain delivered in WA) and assisted in the development of important new barley varieties by helping establish the barley genetic resources project at UWA.

As a member of the GRDC Western Region Panel from 1991 to 1996, a period of tremendous expansion in agricultural research, he allocated research funds drawn from compulsory levies on all WA broadacre crops. He was Panel Chair from 1996 to 1999.

Dr Enright was on the Advisory Board of the Centre for Legumes In Mediterranean Agriculture (CLIMA) from 1992 to 2000, assisted in the formation of the WA Herbicide Resistance Initiative (WAHRI) within UWA's Faculty of Agricultural Sciences (1998 to 2001) and was a Board member of the Export Grains Centre (EGC), an associated party to UWA-based Canola Breeders WA Pty Ltd.

From 2004 to 2007 he was 'Chair of Chairs' of the Federal Government's rural research and development corporations. He is currently a Board member of Agricultural Research Western Australia (ARWA), Chair of ATSE Crawford Fund WA Committee and a Commissioner on the Export Wheat Commission.

Climate change challenge animal health surveillance

The impact of climate change on animal health surveillance in Northern Europe is posing a challenge to the French Food Safety Authority - this was the message from Dr Michel Pépin during his visit to UWA in early March.

According to Dr Pépin, Project Manager on Emerging Viruses from Agence Française de Sécurité Sanitaire des Aliments (AFSSA - French Food Safety Authority) in Lyon, human health, food safety and animal welfare are of increasing significance to government, industry and the community. Zoonoses, animal diseases that could affect humans, are of particular concern. Research into the role of climate change in the spread into northern Europe of diseases previously considered to only affect equatorial regions is a major focus of the AFSSA, an agency similar to AQIS.

Dr Pépin, whose four week visit was sponsored by DAFWA, is well known in Europe as an authority on sheep and goat diseases. He has extensive experience in animal disease research in a range of species.



(L to R) Dr Michel Pépin with Dr Penny Hawken, Prof Kadambot Siddique and Prof Graeme Martin during his visit to UWA

Recent work has been on the development of a research program on Rift Valley Fever virus and other potential emerging viruses in France and Europe.

"Rift Valley Fever comes from Kenya, spreads throughout Africa and the Arabian Peninsula to Europe because of

the change in climate", Dr Pépin said.

While his work is based on the European context, the lessons learnt could still be applied in Australia especially with concerns about diseases like malaria spreading from north to south.

West welcomes Iranian input to barley breeding

Quantifying how well cereals, such as barley and wheat, can tolerate drought can be a measure of their true value to dryland agricultural systems, such as those in Western Australia and Iran. Some similarities were recently assessed by Iranian PhD scholar Shahab Maddah-Hosseini while in WA on a six month ATSE Crawford Fund training award from August 2007 to January 2008.

In his studies, supervised by the UWA Chair in Agriculture and Director of the IOA, Prof Kadambot Siddique, and CSIRO Plant Industry Principal Research Scientist, Dr Jairo Palta, he found that grain filling in barley varied according to variety under terminal drought conditions.

He saw that photosynthesis of the awns (part of the ear) was greater than that of the flag leaf in some of the Australian barley varieties—Clipper, Corvette, Stirling, Gairdner, Baudin and Vlamingh. These findings have implications for breeding barley cultivars to dryland environments.

UWA's Research Station in Shenton Park has more than 11,000 lines—comprising wild types, landraces, varieties and breeding lines—in its general barley collection. The 30-year-old UWA barley germplasm enhancement project has contributed to the development of several successful barley varieties in WA and nationally, most recently providing parental lines used in the breeding of the malting variety, Vlamingh, launched in February 2006.



(L to R) Iranian PhD student, Mr Maddah-Hosseini, Dr Jairo Palta of CSIRO and Prof Kadambot Siddique of UWA discuss the contribution of awns to grain filling in different barley varieties under terminal drought in the glasshouse at CSIRO.

Mr Maddah-Hosseini visited sites at Geraldton, Morawa, Wongan Hills, Brookton and Merredin in the WA grainbelt, where trials and crops of barley, wheat, legumes and oilseeds were grown. This allowed him to observe field experimental systems and techniques used to evaluate adaptation of barley and wheat genotypes in areas limited by water and nitrogen.

Mr Maddah-Hosseini's discussions and interaction with supervisors, mentors and researchers at CSIRO and UWA would also help him generate new research ideas on drought tolerance of cereals in Iran.

"For Australia, his work will help future barley breeding programs in terms of specifically targeting traits for superior adaptation to drying climatic conditions," Professor Siddique said.

"As his experimental glasshouse data requires further analysis, he will maintain regular contact with his supervisors at UWA and CSIRO."

"Once this analysis is completed, we will help Mr Maddah-Hosseini prepare a manuscript for submission and publication in an international scientific journal", he said.

Farmer insights into UWA Agriculture

Ms Erika von Kaschke Erika.vonKaschke@uwa.edu.au

What makes farmers more excited than seeing great crops grow: envisaging the difference research will make in increasing yields and creating a more profitable and sustainable future.

The Grower Group Alliance (GGA) facilitated a visit of the Holt Rock Group (HRG) to UWA on the 12th of February. According to group coordinator, Ms Sarah Males, the best thing about their visit was that members got to meet researchers one on one and started forming or strengthening their relationships.

"Most of us enjoyed hearing about the different research that is happening. The interaction also has helped us with ideas for research that the HRG could initiate in our area", Ms Males said.

Topics of the day included IOA activities, subsoil constraints, salinity tolerant wheat development, herbicide resistance,

optimising potassium cycling in soils and crops, crop biology, development of perennial and annual legumes, and finally a tour of the lab and glass houses, which most stated as a highlight.



(L to R) Mr Mark Ditchburn, Mr Robbie Trenorden, Mr Clint Couper, Mr Rolf Meeking, Mr Craig Mayfield, farmers from the Holt Rock Grower Group take a closer look at seeds of Australian native legumes.

Farmers particularly enjoyed the subsoil constraints lecture. "The concepts of soil were explained very clearly so that all who attended took something away from the presentation," one farmer noted.

Another area of interest was how chemical resistance occurs in weeds and hearing about the new chemicals being released on the market. In future they would be interested in chickpea trials, ripping and deep placement of lime trial, salt tolerant wheat variety, mustard variety trials, and investigating root zone salinity.

By the end of the day it was clear that these farmers will go home with a renewed vision of better collaboration between farmers and IOA. "Getting an overview of what happens in Agriculture at UWA from the presenters and also the tour of the labs was a real eye opener for all who attended", Ms Males said.

Food Industry Association WA Inc moves to UWA Shenton Park research facilities

Ms Andrea Bertiet Andrea.Berteit@foodindustry.org.au

The Food Industry Association WA Inc (FIA) will soon be moving to UWA's Shenton Park Research Facilities. Incorporated in May 2007, the FIA now represents more than 70 members including the WA Wine Industry Association, the WA Fishing Industry Council, and 75 per cent of the WA food and beverage manufacturing industry.

The FIA was formed by some of WA's food and beverage industry leaders and most active entrepreneurs to become the peak body assisting this State's industry, and to be united in taking up future challenges it faces in a national and global market. It will help shape a business environment that encourages food and beverage industry growth and sustained profitability. Members include Berri Ltd, D'orsogna, Coca Cola Amatil, Harvey Fresh, Anchor Foods and Kailis and France.

The Board of Directors is chaired by Phil Steel, CEO Golden Eggs and other directors are Mr David Lock, CEO of Craig Mostyn, Mr Chris Delima, a director of Hungry Jacks and KFC parent company Competitive Foods, Challenge Australia Dairy Pty Ltd chief executive, Mr Peter Giddy, Mr Brenton



(L to R) Mr P Steel (CEO, Golden Eggs), Mr R Pace (MD, Cannon Foods), Ms A Bertiet, (CEO FIA), Mr P Giddy (CEO, Challenge Dairy), Ms Leanne Wesche (MD Pacco Group), Mr John Helay (Partner, Bruce Harvilah & Assoc.), and Mr G Kuepper (EO FIA).

Cunningham, CEO of Accuweight, Cannon Foods Director, Mr Richard Pace, lawyer, Mr John Healy, and Ms Leanne Wesche, who operates one of WA's largest fruit and vegetable packing houses.

The FIA is headed by Ms Andrea Bertiet, former DAFWA's industry and market development manager. She is supported by a small team of staff including industry consultants. It is planned that through the FIA being hosted by the UWA Institute of Agriculture,

stronger industry linkages can be developed with the University as part of a Memorandum of Understanding that will be discussed between the Association's Board and IOA Director, Professor Kadambot Siddique, in the FIA board meeting on 8 April. The FIA's new location at the Shenton Park research facility, opens up avenues where it could be promoted and developed stronger as an integral part of the University's excellent teaching and research facilities.

"Seeds of Life" breeds new life into East Timorese farms

Adjunct Professor Harry Nesbitt h.nesbit@bigpond.net.au

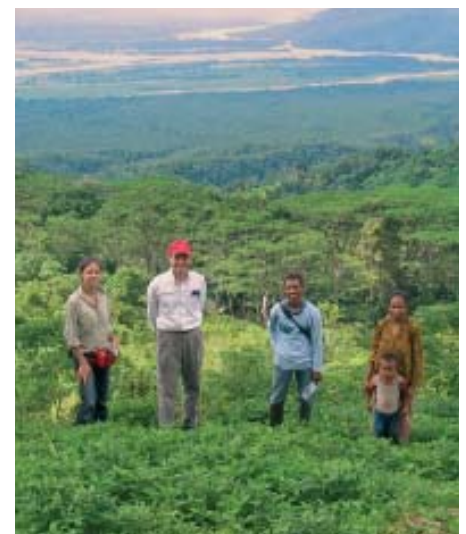
A new peanut variety released by the Seeds of Life (SoL) program in East Timor is being adopted by more than 70 per cent of farmers cultivating it in on-farm trials.

Originally bred by the International Crops Research Institute for Semi Arid Tropics (ICRISAT), the East Timorese variety release committee named the new variety 'Utamua' after one of East Timor's ethnic languages, Makasae. Utamua was initially evaluated on research stations and then compared with one other introduced variety plus the best local variety on farmers fields under farmer conditions.

On-farm demonstration trials (OFDTs) were installed during the wet season of 2005, dry season of 2006 and wet season of 2006 before one of the introduced varieties was released in March, 2007. Some farmers were so enthusiastic about the new variety that they replanted seed harvested from the on-farm trials over expanded areas.

East Timorese farmers grow crops for subsistence rather than sale. Utamua has a large seed, taste good and is very saleable. One farmer said that she hadn't sold any food crops off the farm since the Indonesian time but now with this new, higher yielding peanut variety she will have surplus pods for sale.

In OFDTs, Utamua yields on average 48 per cent more than local varieties. This yield advantage is being replicated over larger areas. It is an exciting result for the Centre for Legumes in Mediterranean Agriculture (CLIMA) managed, Australian Centre for International Agricultural Research (ACIAR) and Australian Agency for International Development (AusAID) funded project. Similar yield advantages are being experienced by other SoL food crops being evaluated in East Timor.



(L to R) SoL Research/Extension advisor Ms Rebecca Andersen; Australian Program Coordinator for SoL, Adjunct Professor Harry Nesbitt; SoL/Ministry of Agriculture and Fisheries research assistant Mr Leandro Pereira and a farmer inspect a newly released variety of peanut growing for third season at a field site in Liqueica, East Timor.

Positive trend in Undergraduate Agricultural Science numbers at UWA

Mrs Christine Richardson Christine.Richardson@uwa.edu.au



The new teaching year commenced on 3 March with a pleasing increase in enrolments in six of the ten undergraduate programs in agriculture and related disciplines when compared with 2007. These numbers are expected to improve further following the mid year intake in July.

Agricultural science and natural resource management programs attract-

ed the greatest enrolments, with good interest in the two economics based programs. Students have also shown a high interest in enrolling in combined degrees; with 20 per cent of the 2008 cohort combining their science degree with commerce, economics or engineering.

The new program in climate studies has only attracted four students in its inaugural year. However, this is not unexpected given approval of the degree was only granted in November 2007.

The **commencing enrolments** for Semester 1, 2008 are compared with full year enrolments for 2006, 2007 and 2008.

PROGRAMS	2006	2007	2008 ¹
Agricultural Economics	3	5	6
Agricultural Science	22	22	19
Animal Science	15	6	9
Climate Studies	-	-	4
Environmental & Resource Economics	6	6	9
Genetics & Breeding	7	6	6
Horticulture	3	3	1
Land Rehabilitation	5	3	2
Landscape Management	4	1	2
Natural Resource Management	11	10	14

¹ Semester 1 commencing students only

Undergraduate Degree Completions 2001 – 2007

PROGRAMS	2001	2002	2003	2004	2005	2006	2007
Agricultural Science	26	17	15	20	24	14	15
Agricultural Science /Economics or /Commence	-	-	-	4	3	5	6
Animal Science	2	4	16	15	18	9	4
Environmental & Natural Resource Economics	-	-	-	-	-	-	1
Horticulture	5	-	-	-	2	2	-
Horticulture & Viticulture	-	3	11	3	5	2	-
Landscape Management	-	8	2	3	-	2	-
Natural Resource Management	19	15	19	18	20	13	10
Viticulture & Oenology	-	-	-	-	-	-	1
Total	52	47	63	63	72	47	37

Completion of undergraduate degrees in agriculture and related disciplines for the six year period from 2001 shows a relatively stable output of graduates over that time period. The greatest numbers of graduates have been in agricultural science and natural resource management, with smaller numbers in horticulture, animal science

and landscape management. UWA graduates are in high demand and the majority receive employment offers as soon as they complete their degrees. A good proportion returns to UWA for their postgraduate studies.



Institute of Agriculture Food and Agriculture Lectures

“Climate change and the failure of our democratic institutions”

Emeritus Professor Philip Cocks

Perhaps the greatest environmental problem of our time is the increase in greenhouse gases leading to global warming and massive climate change. The causes are known, solutions are available, most citizens believe that there must be action and indeed many national governments agree on what measures should be taken. Yet, some key developed nations seem oblivious to the problem. In his seminar Emeritus Professor Phil Cocks will examine the nature of western democracies and how decisions are supposedly based on reasoned debate.

Monday, April 28, 2008 5.15 – 6.15 pm Molecular and Chemical Sciences Lecture Theatre (G.33), UWA Fairway Entrance No. 4 Car Park 14 and 21

Grain farmers with smaller carbon footprint



(L to R): Dr Daniel Carter (DAFWA), Dr Louise Barton (UWA) and Dr Wahidul Biswas (Curtin University of Technology) found that regionally specific data should be used when calculating greenhouse emissions from grain farms.

Grain production is expected to contribute less to greenhouse gas emissions in the grain belt as results from a joint research project between Drs Louise Barton (UWA), Wahidul Biswas (Curtin University of Technology) and Daniel Carter (DAFWA) showed that in successive wheat crops, 0.02% of the nitrogen applied to wheat is emitted as nitrous oxide, which is 50 times less than the international default value.

Greenhouse gases (GHG) emitted from agricultural systems mainly includes carbon dioxide (CO₂), methane (CH₄), and

nitrous oxide (N₂O). 'Life cycle assessment' (LCA) is an internationally recognised way of calculating greenhouse gas emissions from production systems. It adds up the inputs and outputs from a production system, and assesses their potential environmental impacts. Environmental impacts can then be identified at all stages in the production cycle.

"Utilising regionally specific soil N₂O emissions, we calculated 259 kg of CO₂-equ were produced during the production and delivery of one tonne of wheat to port. Carbon dioxide contributed 196 kg (75% of total), CH₄ contributed 8 kg

CO₂-equ (3%) and N₂O contributed 56 kg of CO₂-equ (22%). Using these factors to estimate N₂O emissions from the Western Australian grain-belt doesn't seem to be appropriate and is probably due to differences in N fertiliser management, soil types and climate," Dr Biswas said.

According to Dr Barton, in WA there is great uncertainty surrounding N₂O emissions from the application of N fertiliser to land. Overseas estimates suggest that 1% of all N applied to soil will be emitted as N₂O. Using these factors to estimate N₂O emissions from the Western Australian wheat-belt is not suitable because of differences in N fertiliser management, soil types and climate.

"We recommend the use of regionally specific data for nitrous oxide emissions from land, rather than the international default value when assessing and developing strategies for minimising greenhouse gases from agricultural production systems", Dr Barton said.

After similar findings by the Victorian Government, the Australian default value stands at 0.3%.

The team is funded by the Federal Government's Department of Climate Change and Water, Department of Agriculture and Food Western Australia, Grains Research and Development Corporation. This season, after completing measurements from a canola crop, the research team will start measuring emissions from a lupin crop.

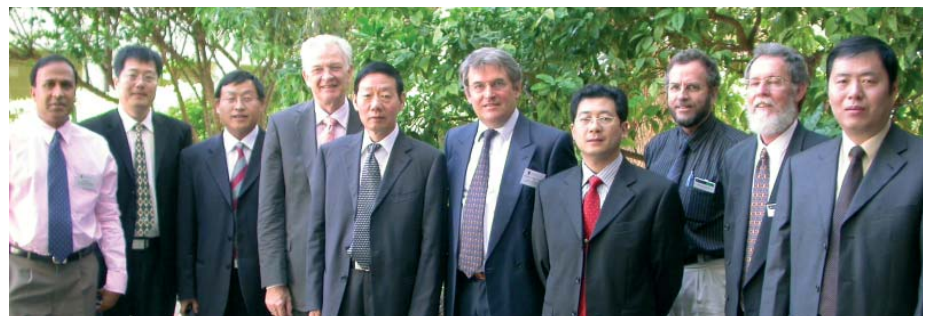
Ties strengthened with Northwest A&F University, China

The IOA strengthened ties with Northwest A&F University (NWAUFU), China during a high level delegation visit to UWA.

In addressing the delegation Prof Hans Lambers, Head of the School of Plant Biology stressed the importance of links with China and the NWAUFU in particular.

The NWAUFU is one of China's most highly regarded national universities and falls directly under the Ministry of Education. It is supported in key projects by the Ministry of Education and is one of only 56 universities in China with a graduate school, and is qualified to enrol international students.

The Chinese delegation said that they were proud of the history of Chinese students doing PhD programs in agriculture at UWA, but would also like to see more Australian agriculture



Prof Sun Wuxue (President), Prof Zongsuo Liang (Dean, College of Life Sciences), Prof YunCheng Liao, and Prof Zheng Shao Feng from NWAUFU visited FNAS. UWA was represented by Prof Kadambot Siddique, Prof George Stewart, Prof Hans Lambers, Associate Prof Wallace Cowling, Associate Prof Martin Barbetti and Dr Guijun Yan.

students studying in China. After 70 years, the university has developed a diverse program and a well-developed discipline structure; teaching and research on dryland farming,

water saving irrigation, wheat breeding, integrated management of soil and water erosion in the Loess Plateau, environmental protection, and biotechnology.

New perennial pasture legumes to enhance biodiversity

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UWA School of Plant Biology researcher Dr Jiayin Pang has been selecting perennial legumes with efficient phosphorus use and studying underlying morphological and physiological mechanisms. Her studies showed that utilization of new perennial legumes could enhance phosphorus (P) use efficiency, reduce phosphorus fertiliser use and enhance biodiversity.

Phosphorus deficiency is one of the main constraints to agricultural production in Western Australia. Although this non-renewable source applied in fertiliser is also extremely efficient, global phosphorus reserves are being depleted while world demand is increasing.

Consequently, research in new perennial legumes that can result in more efficient use is particularly urgent in Australia. One new and exciting approach to these problems involves the inclusion of exotic and Australian native perennial herbaceous legumes in the farming system.

In collaboration with DAFWA and other industry partners (Heritage Seeds, the Chemistry Centre of Western Australia, the Facey Group and Mingenew-Irwin Group), a research group led by Dr Megan Ryan, Prof Kadambot Siddique, Prof Hans Lambers,



Dr Jiayin Pang in a glasshouse with several perennial legume species supplied with different phosphorus sources

A/Prof Mark Tibbett at UWA and Dr Clinton Revell and Dr Mike Bolland at DAFWA are working on the development of novel perennial legumes, funded by Australian Research Council (ARC).

Dr Pang's results to date indicate that several novel perennial legumes showed greater biomass accumulation to the current major perennial legume, lucerne under low phosphorus conditions. Some native legumes needed less P to reach optimum growth than lucerne. Four native legumes among 11 species studied had higher root rhizosphere

carboxylates than lucerne. Use of species that have fast rates of carboxylate exudation is generally recognized to provide greater P availability for plant growth.

Studies on the physiological responses of native perennial legumes to different P sources, and mechanisms to survive dry summer period under low P conditions are currently under investigation.

In future, it would be interesting to explore the possibility of increasing the availability of both water and nutrients through 'hydraulic lift' by deeper roots of some species which are active in the lower, wetter, nutrient-poor soil layers when the nutrient-containing surface layers are dry in dry summer.

The selection and development of new perennial legumes has great potential to transform the nutrient and water use over large areas of agricultural land, reducing recharge to groundwater. The incorporation of perennial species will also reduce soil erosion and acidification. The project will contribute substantially to our understanding of the responses of native perennial legumes to soil P, an essential prerequisite before these species can be utilised to help develop new perennial agricultural systems.

Leadership training leads to excellence

The Institute of Agriculture does not take good leadership for granted. The professional trainers from UWA's Organisational and Staff Development Services held a leadership program on 6 March to ensure that the leaders at the IOA stay on track towards excellence.

The purpose of the training was to enhance the capacity of the Director, Program leaders and deputies as a team. This will culminate in working effectively as a team, and achieving the Institute of Agriculture's objectives.

Leaders had the opportunity to learn from each other and other leaders who operate by influence, and make contact with senior executive and other relevant people external to the faculty and university.

As part of the training, the leaders' framework for innovation and decision-making looked at the way leaders can tailor make decision-making to complex situations. This included theory, exercises, peer discussion and the opportunity to work on current complex issues facing the IOA.

In his opening address, the Vice Chancellor, Prof Alan Robson, said that the IOA is an

innovative concept that ensures that the University has the ability to act in partnership with national and international organizations to address issues critical to the long-term success of agricultural industries and natural resource management.

"This innovative approach places special responsibility on the program leaders and their deputies, who are asked to work in non-traditional ways to make a link between the needs of agricultural industry/community and the research expertise spread throughout the Faculty and University. This requires special leadership skills in influencing, networking, teamwork and community/industry engagement", he said

Participants used a self-assessment questionnaire, DiSC, to examine the preferences each has for leadership, communication and teamwork. In future they could use this knowledge to enhance the way in which they interact with one another as a team and to extend their understanding of how to lead others effectively.

Finally, Prof Peter Klinken (Western Australian Institute of Medical Research), Prof Mark Cassidy (Centre for Offshore Foundation

Systems) and Prof Laurie Faraone (Head of Microelectronics Research Group), leaders who are highly successful at building relationships and winning co-operation, joined the group. They narrated their experience on how to influence when you are not formally in charge of others.



Vice Chancellor, Professor Alan Robson, emphasised the importance of leadership skills within the IOA at UWA.

CLIMA chickpea collaboration with India blossoming

The results from collaborative chickpea research at the International Crops Research Institute for the Semi-arid Tropics (ICRISAT) are meeting expectations. CLIMA will further its collaboration with India after Prof Kadambot Siddique, Assoc Prof Tim Colmer and Mr Geoff Smith (CEO, COGGO) visited ICRISAT in the subcontinent. During their visit the team assessed the progress of various joint projects and had discussions with collaborators.

The physiology and breeding activities of the project are progressing exceptionally well. Numerous cross bred lines (F3 to F5) are in the field. Large numbers of progenies with appropriate maturity (in relation to WA standard cultivars), plant height, ascochyta blight (AB) resistance, (podding and seed characteristics) were observed in the field. "These lines will be further screened for AB in the field at Punjab Agricultural University (PUA) prior to raising in WA quarantine facilities. A number of lines from the project are screened for fusarium wilt tolerance in the field at ICRISAT", Prof Siddique said.

The team visited several farmers near Patancheru district. Chickpea is grown as a sole crop or intercropped with other annual crops. Crops were at maturity and many

farmers have commenced harvesting. Dr Pooran Gaur (Chickpea breeder, CRISAT) said that ICRISAT bred chickpea varieties are rapidly being adopted by farmers in the regions. Together with improved agronomic practices farmers are achieving 1 to 1.8 ton/ha for short duration chickpeas. In addition to this, farmers in other districts where irrigation facilities are available, grow chickpea with supplementary irrigation achieving very high yields of 2 to 2.50 t/ha.

Mr Geoff Smith thanked ICRISAT and project personnel for the outstanding progress made on the project. He said that the project will lead to the release of one or two improved varieties of desi chickpea in WA. The project has also brought together scientists from ICRISAT and WA on salinity and boron toxicity tolerance. Mr Smith also announced that COGGO has approved further two years (2008 and 2009) of funding to PAU through CLIMA to screen chickpea breeding lines from

the project for AB resistance under field conditions.

The breeding component of the project will be formally reviewed by COGGO in January 2009. The project review team will meet in mid January 2009 at ICRISAT's headquarters. The review team will also visit PAU, Ludhiana site following the review. Dr Dyno Keatinge (Deputy Director General Research, ICRISAT) thanked the Australian scientists and COGGO for their collaboration and support.



(L to R) Prof Kadambot Siddique, Assoc Prof Tim Colmer, Dr JS Sandhu (PAU, India), Dr Vincent Vadez (ICRISAT, India), and Dr Lavinder Kaur (PAU, India) inspecting salinity and boron tolerance experiments at ICRISAT, India.

Next generation scientists retreats and grows at Rottnest

The next generation plant scientists and researchers from the UWA School of Plant Biology descended upon Rottnest Island from 3-6 February 2008 at the Kingstown Barrack's Youth Hostel for the annual Rottnest Island Postgraduate Summer School retreat.

This Summer School is a four-day retreat that is unique to the School of Plant Biology. Each year the program includes invited leading guest speakers; lectures about how to attract funding and equity and diversity; student talks; and social activities. This year's line-up included Dr John Evans (Research School of

Biological Sciences, ANU), Prof Howard Choat (School of Marine Biology & Aquaculture, James Cook University), Mr John Brennan (Water Corporation Perth), Prof Robyn Owens (Pro-Vice Chancellor Research and Research Training, UWA), Dr Ed Barrett-Lennard (DAFWA and School of Plant Biology).

"The student talks are the major part of the summer school. It gives students the chance to share their research with one another," Ms Foteini Hassiotou, PhD student and organiser of the retreat said.

Every year the guest speakers award Plant Biology prizes for the best first year and overall

postgraduate talk. This year one of the guest speakers, Prof Robyn Owens, awarded an additional UWA prize for the best presentation to Mr Richard Bennett (evaluation and selection of Cullen species for perennial pastures in WA's graintbelt). Mrs Aneeta Pradhan ('Synthesis of hexaploid *Brassica* from *B. napus* and *B. nigra*') received the prize for best student talk and Mr Sudheesh Manalil got the best first year student presentation award ('Measurement and modelling of herbicide resistance evolution in *Lolium rigidum* at low rates of herbicide application').

Prof Hans Lambers, Head of the School, considers the Rottnest retreat an extremely valuable experience for all postgraduates and staff.

"It is a fantastic opportunity for all our postgraduates to present their work and receive constructive feedback on their presentations. They also learn a lot about what is actually going on in our vibrant School. It's one of those activities in School of Plant Biology that makes me proud. The quality of the talks is getting better every year, and of a level that exceeds what I experience at many international conferences", he said.



ARWA Centre for Ecohydrology to receive centre of excellence funding

Professor Keith Smettem smettem@sese.uwa.edu.au

The Western Australian State Government recently allocated additional funding of \$1.5 million over three years towards their vision to see ARWA (Agriculture Research Western Australia) Centre for Ecohydrology become a 'centre of excellence'. This was backed with further cash and in-kind support of over \$1 million provided by UWA, Edith Cowan University and the Department of Water.

The Centre for Ecohydrology was established twelve months ago as a joint venture between Department of Agriculture and Food Western Australia (DAFWA) and the University. It created a new strategic research partnership, with 12 staff co-located to the campus and involvement of major research groups in Waroona, and Albany, with further input from other regional DAFWA staff.

The initial research program of the centre focused on development and application of adaptive management strategies that seek to balance environment and human needs for water and mitigate downstream impacts of extensive and intensive agricultural activities.

Research Director Prof Keith Smettem and Project Director Dr Neil Coles (DAFWA) said that



The new funding recognises the crucial role that water plays in the survival of ecosystems.

the new funding recognises the crucial role that water plays in the survival of ecosystems and brings together a powerful team of scientists with the capacity to develop sustainable models of water use that balance the needs of the environment, industry, agriculture and domestic supply.

The new funding will be directed towards two mains sectors of ecohydrological research namely evaluating and mitigating impacts

of climate change and water abstraction regimes on agricultural resources and native ecosystems, and modelling impacts of climate change and land management to minimise negative downstream impacts from agricultural activities.

In terms of evaluating and mitigating impacts, this work will focus on understanding native ecosystem response to groundwater abstraction for municipal supply and developing sustainable abstraction regimes using adaptive management. It will aim to understand the response of the mosaic of remnant vegetation and farmland in the dryland agricultural region of Western Australia to variable rainfall and runoff, and to evaluate landscape-scale management options to support ecosystem sustainability coupled with productive agriculture.

By modelling impacts of climate change and land management, the new initiative will bring together modellers from the Department of Water and field scientists from the Centre for Ecohydrology. New research staff will be located at UWA, Edith Cowan University and DAFWA.



New Appointments

New Dean: dedicated scientist with people at heart

Prof Tony O'Donnell was recently appointed as the Dean of the Faculty of Natural and Agricultural Sciences at UWA.

Prof O'Donnell after obtaining his PhD in 1979 from the University of Bristol, joined Newcastle University as a Post-doctoral Fellow during 1979 to 1984. His lecturing career started in 1984 in the Department of Agricultural and Environmental Science at the University of Newcastle-Upon-Tyne. From 1992-1994 he was a Senior lecturer, and in 1996, promoted to Prof in Soil Microbiology and Molecular Ecology. Prof O'Donnell is currently Director of the Institute for Research in Environment and Sustainability.

As a member of the University Research Committee, he was instrumental in the development of a strategic research plan for the University. This involved a major restructuring of the University (from seven faculties and some 70 schools to three faculties and 30 schools).

Since 2001 Prof O'Donnell has been active in the establishment of the Institute for Research on Environment and Sustainability (IRES), the identification and implementation of its research strategy, the design of the building and the reallocation of academic, technical and support staff. IRES was formally launched in 2002 and Prof O'Donnell became its first Director.

Prof O'Donnell currently sits on the UK's Biotechnology and Biological Sciences Research Council grants board for Plant and Microbial Sciences and on their Sustainable Agriculture Advisory Panel. He also sits on the Natural Environment Research Council research advisory panel for the Centres for Ecology and Hydrology (Biodiversity panel). He has previously chaired the grants board of the Finnish Academy of Sciences and holds adjunct Profships in Thailand and Brazil.

Prof O'Donnell is set to take up his position at UWA in early August 2008.

Prof William Erskine, Assistant Director General (Research) at the International Centre for Agricultural Research in the Dry Areas (ICARDA) in Syria for the last seven years, has commenced as Director of the Centre for Legumes In Mediterranean Agriculture (CLIMA) at UWA.

Prof Erskine, completed a Bachelor of Arts in 1973, a Masters of Agriculture in 1976 and a PhD (University of Cambridge, Department of Applied Biology) in 1979. He was a tutor with the Agriculture Faculty of the University of Papua New Guinea, 1973 to 1977; Coultshurst scholar, Department of Applied Biology, Magdalene College, Cambridge, 1978 to 1979; Post-doctoral fellow in lentil breeding at ICARDA, Aleppo, Syria, 1980 to 1981; lentil breeder at ICARDA, 1981 to 1998 and Leader, Germplasm Improvement Program, ICARDA, 1998 to 2000.

Prof Erskine intends to maintain CLIMA's focus on beneficial outcomes for WA legume growers and industry, while improving links to other Australian and overseas legume research groups.



Dr Ken Flower has recently been appointed as a lecturer in the School of Plant Biology at UWA in Production Agronomy and Farming Systems. This position is a joint appointment between the Grains Research and Development Corporation (GRDC) and UWA.

For the past three and a half years, Dr Flower has been the Scientific Officer for the West Australian No-Tillage Farmers Association (WANTFA), where he gained valuable research and extension experience on no-till farming systems. While at WANTFA he established widespread industry contacts and gained appreciation of the issues facing broad-acre agriculture in WA. He managed the technology demonstration site at Meckering and developed a new long term no-till farming systems project that is funded by the GRDC.

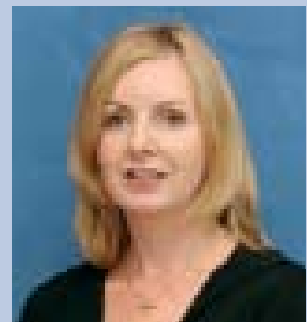
In addition to his UWA commitments, Dr Flower will continue to work with WANTFA to expand the research input on the long term no-till project. Prior to joining WANTFA he was working in Zimbabwe as Head of Agronomy and Plant Physiology for the Tobacco Research Board and then as Technical Manager for a horticultural company exporting fresh vegetables to the UK. Dr Flower did both his MSc in weed science and PhD on computer based agricultural expert systems at the Imperial College, University of London.

Ms Kaye Phillips-Webb has been appointed as WANTFA Communications Manager, based at UWA. She will manage WANTFA's communication activities, the production of the WANTFA newsletter, and events.

A large part of her role includes communications planning, developing and expanding WANTFA's communication and promotional activities, managing the website and developing long term relationships with industry and the media. Kaye will also be working with WANTFA Committee and Industry Partners to promote WANTFA and to achieve their goals.

Tel (08) 64887465, Mobile: 0427 223 395

Email: kaye@wantfa.com.au



Mrs Erika von Kaschke joined the IOA as Communications and Development Officer in February. She is responsible for the development and preparation of the IOA website, annual report and newsletters, organising the Food and Agriculture Lectures, various events and field days.

Erika left the world of journalism in South Africa to discover working in development in Phnom Penh. After working as a consultant for major International Development Organisations like World Wild Life Fund (WWF), she took the position as Regional Communication Officer for Oxfam America. She has experience in media planning, training and liaison; marketing; website development; strategic communications and planning. During her time at Oxfam she completed various videos and new media projects, and was an advisor to the Oxfam International branding team.

E-mail: Erika.vonKaschke@uwa.edu.au

Phone : (08) 6488 3756



Alumni Profiles

Dr Stephen Loss

Fertiliser Services Manager, CSBP Ltd.

Dr Stephen Loss introduced himself by speaking of the final year of his Bachelor of Science in Agriculture (Hons) degree, back in 1985, trying to collect milk from lactating sows so that he could measure its fat content for his honours thesis. "This was no easy task! I had a significant component of agronomy in my undergraduate degree and I was employed by the WA Department of Agriculture, as it was known then, to investigate ways to manage frost damage in cereal crops. This was a three year project funded by the Grains Research and Development Corporation", Dr Loss said.

When the frost project was completed he went back to UWA to undertake his PhD into the effects of lupins on soil fertility, particularly soil acidity. "I was one of Prof Alan Robson's last students, not because I was such a difficult student, but he was going onto bigger and better things within UWA!", Dr Loss said

After completing his PhD, he was employed in various industry funded roles at the Department of Agriculture and the CLIMA. His last job involved developing and promoting production packages for alternative legume crops such as faba bean, chickpeas and lentils. During this time he came across an ancient fertility treatment which involved cooking chickpeas in camel's milk and honey. "My previous experience with milking sows proved useful when it came to acquiring the ingredients for this concoction!", he said

In 1999 he took the plunge into private enterprise and accepted a job managing the field research program for CSBP. He has been with CSBP for the past eight years and, in addition to the field trials, currently oversees soil and plant testing services, satellite biomass imagery and precision agriculture services.

"I enjoyed my seven years at UWA's School of Agriculture and would encourage any person interested in agriculture to consider undertaking study at UWA. The undergraduate course was remarkably diverse and enabled students to specialise in a wide range of areas and end up in obscure careers". Dr Loss speaks highly of the UWA academic staff's passion for their particular field of expertise, and their commitment to teaching others about scientific methods and principles. "The disciplines of practical science, and you couldn't get more practical than agriculture, have served me well throughout my career", he said



Dr Lewis Amollo Metho

Directorate: Research Co-ordination and Technology Development

KwaZulu-Natal Department of Agriculture and Environmental Affairs, South Africa

Dr Lewis Amollo Metho did the BSc Agric. Honours and MSc Agric. degree at UWA from 1983-1987 under the supervision of Dr R H Sedgley and Prof W R Stern. Before taking up a SCAAP/IDAAB award to study at UWA, Dr Metho spent 10 years working as a scientific researcher officer with the Government of Kenya.

Dr Lewis Metho was appointed as Principal Researcher soon after completing his PhD from the University of Pretoria (UP), Department of Plant Production and Soil Science, in 1999. From 2002 to 2005 Dr Metho's career went into top gear. He was promoted from an Assistant Director and Head of Agronomy, Specialist Researcher (2003), Deputy Manager: Research (*Specialist Services*) (2004), to Acting Manager: Directorate, Research Co-ordination and Technology Development in 2005.

Dr Metho's research activities includes crop rotation, involving cereal crops with grain-legumes based systems and conservation tillage practices; biofuels; evaluation of impact of GMOs and biotechnology crops; agrarian revolution and massification projects on poverty alleviation in rural resource-poor communities; Nguni indigenous African (Zulu) livestock breeds revitalization program; sustainable rural development agriculture; and research liaison and collaborations with e.g. Agricultural Research Council (ARC), Farmer Associations, Southern Africa Development Countries (SADC), private agricultural companies, New Partnership in African Development (NEPAD), EU, USAID and CGIAR countries.

In the future Dr Metho hopes to strengthen ties with UWA. "I would like to go on a sabbatical leave at UWA in the not so distant future, so that I can give back what I got from the IOA", he said. For several years, he has been an external examiner in the specialised area of crop production systems in the tropics for both the Universities of Pretoria and KwaZulu-Natal. He is also a permanent member of the South African Society of Crop Production (SASCP) and ARC - National Research Planning Committee on Small Grain Cereals.

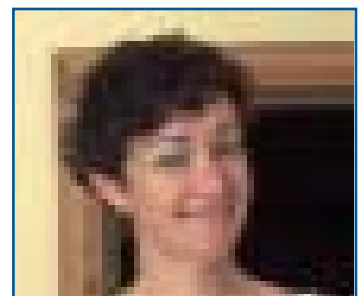


Ms Sue Bestow

Senior Agronomist with Australian Agricultural Crop Technologies in Wee Waa NSW

"My story is a 'how did I get here?' one.... and it does involve UWA agriculture", Ms Bestow introduces herself. After making her career choice with a very lackadaisical attitude (A for agriculture, first in the book at the end of year 12), she had completed her Bachelor of Science in Agriculture (Hons) in no time. She went on and did a Graduate Diploma in Environmental Science at Murdoch.

After a two year stint working as a "greenie" she worked for the Department of Agriculture in Moora and then Geraldton. Working as Agricultural Advisor she describes as "I muddled on, learning quickly from other staff and growers to find that I could actually give some very sound advice". Some years after leaving the Department she met a grower who told her "you made a lot of money for me in those years while you were at the Department, thanks for that". In 1997 consulting drew her to NSW where she remains and works for a small company that specialises in seed production.



"Sustaining productive agriculture for a growing world"

New research projects

Title	Funding Period	Funding Body	Supervisor(s)
"Investigating the role of temperament in the establishment of the ewe lamb bond and lamb survival".	2007-08	Department of Agriculture, Fisheries and Forestry (DAFF)	Ms Samantha Bickell
"Western Australian Herbicide Resistance Initiative- Phase 3	2007-10	Grains Research and Development Corporation	Prof Stephen Powles
"The characterisation of RNA-binding proteins involved in chloroplast RNA editing"	2008-2009	Group of Eight Daad German Research Cooperation	Prof Ian Small, Dr Anne-Laure Chateigner-Boutin, Dr Kristina Kuhn
"Centre of Excellence in Ecohydrology	2008-11	Government of WA	Prof Keith Smettem, Dr Neil Coles

Research & industry recognition

Name	Award
Mr Andrew Broun	Australian Agricultural and Resource Economics Society Honours Thesis prize WA
Emeritus Prof Philip Cocks	Farrer Memorial Medal 2008
Dr Graeme Doole	PhD prize for Australian Agricultural and Resource Economics Society 2008
Ms Joanne Elliott	First prize in Young Professionals in Agriculture award AIAST
Ms Chelsea Fancote	Second prize in Young Professionals in Agriculture award AIAST
Dr Terry Enright	Honorary Doctorate in Agriculture from UWA
Assoc Prof Ross Kingwell	President-elect of Australian Agricultural and Resource Economics Society
Dr Guijun Yan	Faculty of Natural and Agricultural Sciences Excellence in Teaching Award 2007
Ms Megan Chadwick (PhD student, School of Animal Biology) and Mr Weihua Chen (PhD student, School of Plant Biology)	Mike Carroll Memorial Traveling Fellowship 2007

Visitors to Institute of Agriculture

Name of the Visitor	Visitors' organisation and country	Host details	Dates	Host contact Email
Prof.Sun Wuxue, Prof. Zongsuo Liang, Prof.YunCheng Liao, Prof.Zheng Shao Feng	Northwest A&F University, China	Prof. Hans Lambers	17 February 2008	hlambers@plants.uwa.edu.au
Dr Michel Thibier	Conseiller Scientifique, French Embassy	Prof. Graeme Martin	3 March 2008	Graeme.Martin@uwa.edu.au
Adj Prof Julian Cribb	University of Technology Sydney	Prof Kadambot Siddique	7 March 2008	ksiddique@fnas.uwa.edu.au
Dr Michel Pépin	Agence Française de Sécurité Sanitaire des Aliments (AFSSA - French Food Safety Authority)	Prof. Graeme Martin	8 March 2008	Graeme.Martin@uwa.edu.au
Dr. Aris Junaidi	Gadjah Mada University, Yogyakarta, Indonesia	Prof. Graeme Martin	18 March 2008	Graeme.Martin@uwa.edu.au
Dr Sorn San	National Veterinary Research Institute	Prof. Graeme Martin	20 March 2008	Graeme.Martin@uwa.edu.au
Dr Jim Fortune	R&D Consultant, Adelaide	Prof Kadambot Siddique	28 March 2008	ksiddique@fnas.uwa.edu.au
Dr Xiangwen Fang	Lanzhou University, Gansu Province, China	Prof Kadambot Siddique	10 May 2008 to 17 May 2008	ksiddique@fnas.uwa.edu.au
Dr Saleh Bader	Ministry of Agriculture, Iraq	Prof Kadambot Siddique	10 May 2008 to 17 May 2008	ksiddique@fnas.uwa.edu.au
Dr. Sa'ad H. Mohamed	State Board of Agricultural Research, and Baghdad University, Iraq	Prof Kadambot Siddique	2 May 2008 to 21 June 2008	ksiddique@fnas.uwa.edu.au
Mr Raad Hameed	Ministry of Agriculture, Iraq	Prof Kadambot Siddique	2 May 2008 to 21 June 2008	ksiddique@fnas.uwa.edu.au

New MSc and PhD students

Name	Topic	School	Supervisor(s)	Funding Body
PhD Students				
Mr Lalith Suriyagoda	Response of perennial pasture legume <i>Cullen</i> sp., to moisture and soil phosphorus, interaction with non-legumes and modelling physiological processes under field conditions	Plant Biology	Prof Hans Lambers Dr Megan Ryan Dr Michael Renton	SIRF (Federal Govt.) and School of Plant Biology
Ms Eleanor Bradbury	Linking vegetation and plant functional types to site ecohydrology: vegetation types, phenology and growth responses at Telfer, arid Australia	Plant Biology	Dr Erik Veneklaas Dr Tim Bleby	APAI through ARC
Mr Sharif-Ar Raffi	Physiology and genetics of salt and waterlogging tolerance in <i>Hordeum marinum</i> and <i>H.marinum</i> -wheat cytogenetic stocks	Plant Biology	Assoc Prof Tim Colmer	Endeavour IPRS, UPAIS
Mr David Savage	Confidence levels for EPP detection and response to incursion	Plant Biology	Dr Michael Renton Prof Martin Barbetti Mr Bill McLeod (DAFWA)	Plant Biosecurity CRC Scholarship
Ms Rebecca Haling	Root growth in difficult soils	Plant Biology	Prof Hans Lambers	Hackett Postgraduate Scholarship
Ms Padmaja Ramankutty	Developing plant growth models	Plant Biology	Dr Michael Renton	Future Farm Industries CRC
Mr Marcal Gusmao	Adaptation of grass pea (<i>Lathyrus sativus</i> cv. Ceora) to marginal environments: performance under conditions of drought and low phosphorus availability	Plant Biology	Dr Erik Veneklaas, Prof Kadambot Siddique and Adj. Prof Harry Nesbit	ACIAR John Alright Fellowship
Mr Isharudin Md Isa	Erosion and conservation	Earth and Geographical Science	Prof Zed Rengel and Dr Christop Hinz	University Putra Malaysia
Mr Mohammad Azham	Sequestration of carbon in biological and conventional farming systems	Earth and Geographical Science	Prof Zed Rengel and A/Prof Mark Tibbett	Malaysian Government
Mr Adrian Wong	Chemistry of micronutrients in peat soils	Earth and Geographical Science	Prof Zed Rengel	APA
Mr Basu Dev Regmi	Zinc Dynamics in Conventional and Biological Farming Systems	Earth and Geographical Science	Prof Zed Rengel	IPRS
Ms Bingah Hardiputra	Phosphorus fractionation in biological and conventional farming systems	Earth and Geographical Science	Prof Zed Rengel	ARC
Mr Roger Barroga	Cyber communities and agricultural development in the Philippines: Creating new social and economic opportunities for farmers	Earth and Geographical Science	Prof Matthew Tonts Prof Kadambot Siddique	AusAID Australian Leadership Award
Mr Sushil Sood	Biological and chemical constraints in short-term and long-term storage of emu sperm (<i>Dromaius novaehollandiae</i>)	Animal Biology	Dr Irek Malecki, Prof Graeme Martin	IPRS, RIRDC
MSc Students				
Mr Vasanth Kumar Garela	Rapid generation technology for grain legumes (chickpea, field pea)	Plant Biology	Dr Heather Clarke, Dr Janine Croser Prof William Erskine	Self funding
Ms Junko Takahira (GradDipSc)	Flow cytometry to improve prediction of ploidy status in young microspore-derived plantlets of <i>Brassica napus</i>	Plant Biology	Assoc Prof Wallace Cowling Dr Matt Nelson, and Ms Anouska Cousin	Private

Publications Jan-March 2008

Refereed journals

- Barton L, Kiese R, Gatter D, Butterbach-Bahl K, Buck R, Hinz C and Murphy DV (2008). Nitrous oxide emissions from a cropped soil in a semi-arid climate. *Global Change Biology*, **14**, 177–192.
- Colmer TD and Pedersen O. (2008). Oxygen dynamics in submerged rice (*Oryza sativa*). *New Phytologist* **177**: on-line early at New Phytologist website.
- Colmer TD and Pedersen O. (2008). Underwater photosynthesis and respiration in leaves of submerged wetland plants: gas films improve CO₂ and O₂ exchange. *New Phytologist* **177**: 918-926
- Danehlouepour N, Clarke HJ, Yan G, Khan-TN, and Siddique, KHM (2008). Leaf type is not associated with ascochyta blight disease in chickpea (*Cicer arietinum* L.) *Euphytica* DOI 10.1007/s10681-007-9617-x.
- Garg H, Li H, Sivasithamparam K and Barbetti MJ (2008). Cotyledon assay as a rapid and reliable method of screening for resistance against *Sclerotinia sclerotiorum* in *Brassica napus* genotypes. *Australasian Plant Pathology* **37**: 106-111.
- Hoyle FC, Murphy DV and Brookes PC (2008). Microbial response to the addition of glucose in low-fertility soils. *Biology and Fertility of Soils*, **44**: 571 - 579
- Kaur P, Li CX, Barbetti MJ, You MP, Li H and Sivasithamparam K. (2008). First report of powdery mildew caused by *Erysiphe cruciferarum* Opiz ex Junnel on *Brassica juncea* (L.) Czern & Coss in Australia. *Plant Disease* **92**: 650.
- Li CX, Sivasithamparam K, Walton G, Fels P and Barbetti MJ (2008). Both incidence and severity of white rust disease reflect host resistance in *Brassica juncea* germplasm from Australia, China and India, screened using artificial or natural inoculum in field trials as well as in glasshouse trials. *Field Crops Research* **106**: 1-8.
- Li CX, Wratten N, Salisbury P, Burton W, Potter T, Walton GW, Sivasithamparam K, Banga S, Singh D, Liu S, Fu T and Barbetti MJ (2008). Relative responses of *Brassica napus* and *B. juncea* germplasm from Australia, China and India to the Australian races of the blackleg fungus (*Leptosphaeria maculans*). *Australasian Plant Pathology* **37**: 162-170.
- Nasar-Abbas SM, Plummer JA, Siddique KHM, White PF, Harris D, and Dods K (2008). Nitrogen retards and oxygen accelerates colour darkening in faba bean (*Vicia faba* L.) during storage. *Postharvest biology and technology* **47**: 113-118.
- Nasar-Abbas SM, Plummer JA, White PF, Siddique KHM, D'Antuono M, Harris D, and Dods K (2008). Effect of site, harvesting stage, and genotype on environmental staining in faba bean (*Vicia faba* L.). *Australian Journal of Agricultural Research*, **59**: 365–373.
- Vincenot L, Balesdent MH, Li H, Barbetti MJ, Sivasithamparam K, Gout L, Rouxel T. (2008). Occurrence of a new phylogenetic sub-species of *Leptosphaeria biglobosa* in Western Australia. *Phytopathology* **98**: 321- 329.
- Xuanli Ma, Hua Li, O'Rourke, T., Sivasithamparam, K. and Barbetti, M.J. (2008) Co-occurrence of *Aphanomyces euteiches* and *Phytophthora clandestina* in subterranean clover pastures in the high rainfall areas of the lower south-west of Western Australia. *Australasian Plant Pathology* **37**: 74-78.
- You, M.P., Lancaster, B., Sivasithamparam, K. and Barbetti, M.J. (2008). Pathogenicity of different zymogram groups of the root rot pathogen *Rhizoctonia solani* on pasture legumes in Western Australia and implications for rotational crops. *Plant and Soil* **302**: 203-211.

2007 Publications

(All publications listed below were not included in the 2007 IOA newsletters)

Refereed journals

- Blache D, Chagas LM and Martin GB (2007). Nutritional inputs into the reproductive neuroendocrine control system – a multidimensional perspective. In: *Reproduction in Domestic Ruminants* **VI**:123-139. Edited by JI Juengel, JF Murray and MF Smith. Nottingham University Press, Nottingham, UK.
- Barbetti MJ, You MP, Hua Li, Xuanli Ma and Sivasithamparam K (2007). Management of root diseases of annual pasture legumes in Mediterranean ecosystems – a case study of subterranean clover root diseases in the south-west of Western Australia. *Phytopathologia Mediterranea* **46**: 239-258.
- Chateigner-Boutin A-L and Small I (2007). A rapid high-throughput method for the detection and quantification of RNA editing based on high-resolution melting of amplicons. *Nucleic Acids Research* 2007; **35**(17):e114.
- Camacho Ronquillo JC, Pró Martinez A, Becerril Pérez CM, Sandoval BF, Martin GB, Valencia J & Gallegos Sánchez J (2007). Prevention of suckling improves postpartum reproductive responses to hormone treatments in Pelibuey ewes. *Animal Reproduction Science* doi:10.1016/j.anireprosci.2007.06.021
- Cookson WR, O'Donnell AJ, Grant CD, Grierson PF and Murphy DV (2007). Impact of ecosystem management on microbial community level physiological profiles of postmining forest rehabilitation. *Microbial Ecology* **55**: 321-332.
- Cookson WR, Murphy DV and Roper MM (2007). Characterizing the relationships between soil organic matter components and microbial function and composition along a tillage disturbance gradient. *Soil Biology and Biochemistry*, **40**: 763-777
- Cookson WR, Osman M, Marschner P, Abaye DA, Clark I, Murphy DV, Stockdale EA and Watson CA (2007). Controls on soil nitrogen cycling and microbial community composition across land use and incubation temperature. *Soil Biology and Biochemistry* **39**: 744-756.
- Gout L, Kuhn ML, Vincenot L, Bernard-Samain S, Cattolico L, Barbetti M, Moreno-Rico O, Balesdent M-H and Rouxel T (2007). Genome structure impacts molecular evolution at the AvrLm1 avirulence locus of the plant pathogen *Leptosphaeria maculans*. *Environmental Microbiology* **9**: 2978-2992.

2007 Publications continued

Hawken PAR, Evans ACO and Beard AP (2007b) Prior exposure with rams enhances their behavioural interactions with rams but is not a pre-requisite to their endocrine response to the ram effect. *Animal Reproduction Science*: doi:10.1016/j.anireprosci.2007.06.031

Hawken PAR, Evans ACO, Beard AP (2007c) Short term, repeated exposure to rams during the transition into the breeding season improves the synchrony of mating in the breeding season. *Animal Reproduction Science*: 10.1016/j.anireprosci.2007.05.009

Herrmann AM, Clode PL, Fletcher I, Nunan N, Stockdale EA, O'Donnell AG and Murphy DV (2007). A novel method for the study of the biophysical interface in soils using Nano-Scale Secondary Ion Mass Spectrometry. *Rapid Communications in Mass Spectrometry* **21**: 29-34.

Herrmann AM, Ritz K, Nunan N, Clode PL, Pett-Ridge J, Kilburn MR, Murphy DV, O'Donnell AG and Stockdale EA. Nano-scale secondary ion mass spectrometry – a new analytical tool in biogeochemistry and soil ecology. *Soil Biology and Biochemistry* **39**: 1835-1850.

Hoyle FC and Murphy DV (2007). Microbial response to the addition of soluble organic substrates. *Australian Journal of Soil Research*, **45**: 559-567.

Hoyle FC, Murphy DV and Brookes PC (2007). Microbial response to the addition of glucose in low-fertility soils. *Biology and Fertility of Soils*, in press doi: 10.1007/s00374-007-0237-3.

Jones DL and Murphy DV (2007). Microbial response time to sugar and amino acid additions to soil. *Soil Biology and Biochemistry* **39**: 2178-2182.

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Upcoming meetings and events 2008

Institute of Agriculture, UWA

"Frontiers in Agriculture". Post Graduate Showcase
10 June 2008 www.ioa.uwa.edu.au

Institute of Agriculture Open Day, Shenton Park, UWA
8 August 2008 www.ioa.uwa.edu.au

Other National and International Events

1st International Conference on Technologies and Strategic Management of Sustainable Biosystems, Fremantle, WA
6-9 July 2008 www.etc.murdoch.edu.au

Dowerin Field Day, Dowerin, WA
27 - 28 August 2008 www.dowerinfielddays.com.au

WANTFA Spring Field Day, Meckering, WA
9 September 2008 www.wantfa.com.au

12th International Lupin Conference, Fremantle, WA
14-18 September 2008. www.lupins.org

14th Australian Agronomy Conference,
Adelaide Convention Centre, SA
20 - 24 September 2008 www.agronomy.org.au

7th International Safflower Conference, Wagga Wagga, NSW
3-6 November 2008 www.australianoilseeds.com

9th International Conference on Dryland Development.
Bibliotheca Alexandrina, Egypt.
7-10 November 2008 www.icarda.org

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