



THE UNIVERSITY OF
WESTERN AUSTRALIA

Achieving International Excellence

Annual Report 2007

INSTITUTE OF AGRICULTURE



Annual Report 2007



Message from the Director

Dear friends and colleagues

It is my great privilege to present to you the first annual report of the Institute of Agriculture. The University of Western Australia has had a long history of teaching and research in agriculture and natural resource management. The Faculty of Agriculture was established formally at the University in 1936. The Institute of Agriculture (IOA) was established in 1938 to provide critical research facilities and staff essential for the effective training of professional agricultural graduates and scientists at the post-graduate level. Formal activities of the IOA discontinued sometimes 1983-84, when School of Agriculture and various discipline groups were formed.

Almost two years ago the University decided to re-establish its Institute of Agriculture to strengthen the cohesion of agriculture teaching and research within and between Faculties. The main objective is to facilitate and lead a more efficient co-ordination of existing strengths of the Faculty of Natural and Agricultural Sciences (FNAS) in teaching and research in agricultural science; strengthening the reputation of the University in agriculture by further enhancing links with industry, farmer groups, the community, national and international organisations. The WA Grower Group Network also operates from the IOA premises.

In August 2006, I was appointed as the Chair in Agriculture and Director of the IOA. Over the last year I have met with a number of individuals and groups within and outside the University, while formulating a frame work and strategic direction of the Institute. A one-day workshop was held on 31st October to discuss the future direction of the IOA. The workshop was attended by 50 members of the FNAS, other relevant groups within UWA and selected industry representatives. The workshop provided clear direction and strategies in formulating a vision, mission and structure for IOA to enhance our teaching, research and communication. The IOA management structure includes an Executive Group and a Program Team. Our connection with real world of agriculture will be further strengthened thorough active collaboration with grower groups (Grower Group Alliance, Local Farmer Group Network, WA No-till Farmer association and Soil Health Extension) located on campus.

The IOA was officially launched on 30th March 2007 jointly by Hon. Mr Kim Chance WA Minister for Agriculture and Food; Forestry, the Midwest and Wheatbelt and Dr Michael Chaney, AO CITWA, Chancellor, UWA. Professor Alan Robson, AM, Vice Chancellor in his address reinforced UWA's commitment to agriculture and natural resource management teaching and research and intent to maintain its premier position at the regional, national and international levels through IOA activities.

Please join me as you walk through this Annual Report to celebrate the highlights of the Institute of Agriculture during 2007. One of the first was when UWA's international reputation in Agriculture was recognized early in 2007 year with a ranking of 37th in the world and 1st in Australia (Shanghai Jai Tong Academic Ranking of World Universities: <http://ed.sjtu.edu.cn/ARWU-FIELD2007/LIFE.htm>). We have attracted several externally funded research projects in agriculture and resource management areas, partnered with several organisations and universities. A number of our staff was recognised for their excellence in scientific and teaching achievement. We had several national and international visitors to the Institute, including a high level delegation led by the Vice Chancellor of the Universiti Putra Malaysia.

Student numbers in the BSc in Agriculture (and the combined degrees with Commerce and Economics) has remained consistent over the last seven years. Growth depends on success in attracting students into the named agriculture-related programs. This appears to be working, with starting loads in our degrees being higher in 2007 than in the previous five years. Our post-graduate numbers are also growing with increasing number of local and talented students from overseas countries.

Effective communication of agricultural research and training activities at UWA to the industry, farmer groups, collaborators, funding bodies potential students and alumni is one of the major objectives of the Institute. We have commenced our regular press releases (through Brendon Cant and Associates), newsletter, big picture lecture series, website and other activities like our industry forum and postgraduate showcase.

The IOA's activities was further strengthened with the appointments of Dr Michael Renton and Mr Graeme Doole (both appointments jointly with CSIRO), Dr Michael Constantine (jointly with Department of Agriculture and Food Western Australia) at UWA, Prof William Erskine, Director for the Centre for Legumes in Mediterranean Agriculture (CLIMA).

I am excited about the future direction of the Institute of Agriculture and look forward to your participation and support.

Yours sincerely,

Prof. Kadambot Siddique



Mission

"To advance research, training and communication in agriculture and resource management, for the benefit of mankind."

In working to achieve its mission the Institute will:

- Integrate UWA's agricultural research, training and communication under one umbrella.
- Provide a focus for leading-edge research and enhance and encourage innovative multidisciplinary research and development programs.
- Foster national and international linkages and alliances for mutual benefit
- Strengthen the reputation of UWA in agriculture by further enhancing links with industry, farmer groups, the community, and national and international organisations.

Vision

To be recognised for excellence in serving agriculture and resource management through education, training and research.

Highlights

Launch of the Institute of Agriculture

In 2007 after nearly 70 years since it was established, the University's Institute of Agriculture was reinvigorated.

The revived Institute will ensure increased competitiveness for national, international and industry funding in agriculture and resource management.

At the launch of the Institute, UWA's number one agricultural scientist, the Vice-Chancellor, Professor Alan Robson, said that the Institute would bring together many of the University's research strengths into one centre. "It will provide a better vehicle for the coordination of University and industry collaborations," he said.

The new director of the Institute, Professor Kadambot Siddique, spoke of his vision for UWA Agriculture. "It is that the Institute becomes an internationally recognised scientific research leader, focusing and enhancing the intellectual capacity needed to tackle industry issues in the agricultural sectors at regional, national and international level," he said.

The Institute was established in partnership with the Schools of Agricultural and Resource Economics, Animal Biology, Earth and Geographical Sciences, Plant Biology and relevant research centres within the Faculty of Natural and agricultural Sciences and other Faculties at UWA.



L to R: Dr Michael Chaney, Chancellor, UWA and the Hon. Mr Kim Chance, WA Minister for Agriculture, Forestry and Fisheries, unveil the commemorative plaque at the launch of the IOA.

Highlights (continued)

Establishment of Future Farm Industries Cooperative Research Centre (FFI RC)

The Future Farm Industries Cooperative Research Centre (FFI CRC) succeeded the CRC for Plant-based Management of Dryland Salinity (CRC Salinity). FFI CRC will continue research into salinity problems, but it will cast a wider perspective on perennial plants in broadacre farming systems.

The Commonwealth Government will invest \$34 million over the next seven years, plus \$80 million in cash and in-kind contributions from other partners.

The University has committed \$100,000 per year and 4.1 full time equivalent staff positions (FTEs) to the new organisation. Mr Kevin Goss was appointed as CEO.

The CRC's target market is 60 million hectares of farms and agricultural businesses in the crop-livestock and high rainfall zones. Potential new industries flowing from changes to farming practices include bio-energy, timber products, charcoal for mineral processing, and seed and technology exports.



Photo: Julia Wilson

New Book on "Producing Table Olives" launched at UWA

Prof. Stan Kailis (UWA) and Dr David Harris (Chemistry Centre WA) launched their new book "Producing Table Olives" at UWA on March 2nd 2007.

The aim of the manual is to provide olive growers and processors with internationally based guidelines for ensuring the quality and safety of processed table olives. The manual covers all aspects essential for the production of safe, nutritious and marketable table olives including site selection, recommended varieties, pest and disease control, primary and secondary processing and quality and safety testing.

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IOA Board Member Awarded 2007 Farrer Memorial Medal

Well known wheat cropping scientist and IOA board member, Dr Tony Fischer, was the winner of the 2007 Farrer Memorial Medal. The Farrer Memorial Medal was established in 1911 to perpetuate the memory of William Farrer and to encourage and inspire agricultural scientists. The medal is awarded annually to a person who has provided distinguished service in agricultural science in the areas of research, education, extension or administration. Dr Fischer's was recognised for his outstanding contribution to agricultural research in Australia, and his internationally renowned work in cropping physiology. Dr Fischer is regarded as the pre-eminent Australian crop physiologist of his generation. His global reputation arises from his personal research record, time as leader of the wheat program at the International Centre for the Improvement of Maize and Wheat and his recent period as an influential research manager at the Australian Centre for International Agricultural Research (ACIAR).

Highlights (continued)

IOA Industry Forum 2007: clean, green and ethical animal production

More than 70 farmers, industry representatives and researchers came together at UWA for the IOA Industry Forum on 2 August 2007. The Forum explored how Western Australia can turn this consumer sentiment into an opportunity to ensure its future in this lucrative market.

Australian lamb and sheep meat exports are worth \$AU1.6 billion a year and with this expected to increase to \$AU2.5 billion in 2015, addressing animal welfare issues is vital stressed UWA IOA Director, Professor Kadambot Siddique in his opening address to the forum. Such consumers also want to know the products come from animals raised in sustainable, animal friendly environments that have not been fed antibiotics or artificial hormones where there has been no excess fertiliser use, minimal greenhouse gas emissions from animal production and safe waste disposal from feedlots. The UWA IOA School of Animal Biology researchers are vigorously addressing ways to address these issues.

Professor Graeme Martin, Head of the School of Animal Biology, said that to achieve these new standards all links in the meat production chain, including abattoirs, processors and livestock transporters, will need to show they are behaving ethically in every aspect of their operation, "since ethics applies to more than animal welfare, but to the integrity of the whole business".

These new challenges and consumer demands create opportunities for WA to lead the way with world class research and instituting clean, green and ethical animal industry practices.



L to R: Professor Graeme Martin, Head of the UWA IOA School of Animal Biology and IOA Animal Production Systems Program Leader, Professor Lyn Beazley, Chief Scientist WA, Professor Kadambot Siddique, UWA IOA director and Mr Roger O'Dwyer, Executive Director for Industry and Rural Services, DAFWA.

Postgraduates on show

The Institute of Agriculture held its inaugural Postgraduate Showcase, 'Frontiers in Agriculture and Resource Management', on Wednesday September 12, 2007, at UWA. Professor Robyn Owens, UWA Pro-Vice Chancellor, Research and Research Training opened this event attended by approximately 60 people.

The event focused on innovative land management and animal production systems, as well as plant production for the future. Sessions were an opportunity to showcase high quality research and for students to interact with the industry and potential employers.

The postgraduates were: Mr Peter Hutton ('Can bioactive plants of Australia control ruminant acidosis?'), Ms Megan Chadwick ('Salt tolerant sheep for salt tolerant plants'), Ms Sam Bickell, ('Temperament and maternal behaviour in sheep'), Dr Graeme Doole ('Value of French serradella (*Ornithopus sativus* Brot.) pastures for the control of *Lolium rigidum* Gaud. in the Central Wheatbelt of Western Australia'), Mr Chris Jones ('Indian Sandalwood *Santalum album* L.; genetic diversity and essential oil biochemistry'), Mr Nader Danehlouei pour ('Chickpea improvement through genetic analysis and QTL mapping of ascochyta blight resistance using wild *Cicer* species'), Mr Ben Biddulph ('Solutions for sprouting in wheat') and Mr Terry Rose ('Deep placed phosphate fertiliser for canola crops' showcased research on plant production for the future).

IOA at Dowerin Field Day

Prof Kadambot Siddique, IOA Director, former IOA Personal Assistant, Ms Angela Fielder, former IOA Communications Officer, Ms Kerry Regan and the Faculty of Natural and Agricultural Sciences (FNAS) Prospective Students Officer, Mrs Chris Hale represented the IOA at the Dowerin Field Days from August 29-30, 2007.

Ms Beth Paganoni and Dr Carolina Vinales Gil of the IOA School of Animal Biology also helped with displays to promote the Institute, the Faculty and UWA on the day. The IOA and FNAS displayed course information, brochures and newsletters as

well as salt resistant wheat, representing research being undertaken by Assoc Prof Tim Colmer of IOA School of Plant Biology, Glyphosate resistant ryegrass supplied by WAHRI (The Western Australian Herbicide Resistance Initiative), pasture species being worked on by Mr Richard Bennett and a sheep ultrasound demonstrated by Ms Paganoni.

The IOA team had many enquiries from interested past and prospective students and parents and shared information on undergraduate and postgraduate courses and opportunities for study within the agricultural disciplines at UWA.

Highlights (continued)

Dean of FNAS appointed as Pro-Vice Chancellor at UWA

Professor Alistar Robertson, previous Dean of the Faculty of Natural and Agricultural Sciences (FNAS), was appointed Pro Vice-Chancellor (Research Initiatives) at UWA. Professor Robertson has been FNAS Dean since 2003 and his vision and leadership has contributed enormously to the Faculty successfully attracting substantial new research income and students (undergraduates and post-graduates), and enhancing its international reputation.

Prof Robertson now is responsible for early career mentoring, promoting more applications and grants within the ARC Linkage scheme and greater interaction with industry. He also chairs the Associate Deans of Research Committee to deliver whole of- University performance improvements. The position provided great opportunities to build and strengthen the University's research partnerships and develop a whole-of-University approach to ensure research excellence throughout the University.

Kick start for A\$1.9 million Lanzhou University – UWA collaboration

Researchers from UWA's Institute of Agriculture (IOA) visited China's Lanzhou University in May 2007 to commence a newly funded A\$1.9 million collaborative project on "The sustainable development of agricultural systems in dry and cold eco-systems of Loess Plateau". The project's main objective is to train researchers and post-graduate students (capacity building) in the study of environmental characterisation of dry and cold eco-systems, development of improved crop and pasture production technologies and animal husbandry practices and long term strategies to adapt to climate change using west China as a model.

Food and Lecture Series

The Institute of Agriculture introduced this big picture lecture series. During 2007 the IOA hosted eight renowned speakers:

Professor Stephen Powles, FTSE

Director of the Western Australian Herbicide Resistance Initiative (WAHRI)

A decade of Genetically Modified (GM) crops around the world: future directions
Thursday, April 19th

Dr Mahmoud Solh

Director General, ICARDA, Syria

"Sustainable Agricultural Development in Dry Areas: Role of the International Centre for Agriculture in the Dry Areas (ICARDA)"
Monday, August 20th

Professor Joachim von Braun

Director General, International Food Policy Research Institute, Washington DC, USA

"New forces in the world food equation: Energy, climate, science and economics"
Monday, August 24th

Professor Fred Provenza

Utah State University, U.S.A.

"Behaviour-based grazing management for animal health, ecosystem diversity, and enterprise sustainability"
Friday, August 24th

Dr Tony Fischer AM FTSE

Honorary Research Fellow, Plant Industry CSIRO, Canberra and External Advisory Board Member, Institute of Agriculture, UWA

"Improvements in wheat yield: Farrer, physiology and functional genomics"
Friday September 28th

Dr Christophe Delye

(French National Institute for Agricultural Research (INRA), Dijon, France)

"Evolution in French Fields: Herbicide Resistant Weeds"
Friday November 9th

Publications

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Personal Assistant, IOA, UWA

Visitors to IOA

Name	Organisation	Host	Date
Pascal Poindron	Laboratoire de Comportement, UMR 6175 INRA-CNRS-Université de Tours-Haras Nationaux, Physiologie de la Reproduction et des Comportements, INRA, France	Dr Dominique Blache	June 2007 - May 2008
Maria Fredberg	Faculty of Life Sciences, University of Copenhagen, Denmark	Dr Dominique Blache	June 2007 – May 2008
Arild Angelsen	Dept of Economics & Resource Management Norwegian University of Life Sciences, Norway	School of Agricultural and Resource Economics	June 06-May 07
Mr Seyyed Md Reza Ehteshami	Tarbiat Modrres University, Iran	Prof. Zed Rengel	Oct 2006 – Aug 2007
Professor Zhao Zhizhong	Hainan Normal University, PR of China	Dr Andrew Rate	Sept 2006 – Sept 2007
Pascal Poindron	Laboratoire de Comportement, UMR 6175 INRA-CNRS-Université de Tours-Haras Nationaux, Physiologie de la Reproduction et des Comportements, INRA, France	Dr Dominique Blache	Jun 2007 – May 2008
Dr Aris Junaidi	Faculty of Veterinary Medicine, Gadjah Mada University (Yogyakarta, Indonesia) -‘clean, green and ethical production in small ruminants’. Endeavour Indonesia Research Fellowship.	Dr Graeme Martin	Mar-Aug 2007
Dr Martin Aiub	University of Buenos Aires, Argentina - Endeavour Fellowship to undertake herbicide resistance research at WAHRI.	Prof. Steve Powles	Aug-Dec 2007
Mr Raul Moreno	Technical Manager for herbicides, Syngenta, Argentina – WA cropping systems and herbicide resistance.	Prof Steve Powles	15-30 Sept 2007
Dr Ibrahim Abdallah	Postdoc fellowship ‘herbicide resistance in weeds’. University of Cairo, Egypt.	Prof Steve Powles	June-Dec 2007
Dr Christophe Délye	French National Institute for Agricultural Research (INRA), Dijon, France.	Prof Steve Powles	Sept 2007
Prof Liyong Hu	Huazhong Agricultural University, China	Dr Ping Si, CLIMA Dr Guijun Yan	6-9 Sept 2007
Ms Céline Lenoury	Institut National Agronomique Paris-Grignon (INAPG), France	Dr Dominique Blache	April-Sept 2007
Prof Jinling Meng	Huazhong Agricultural University, China	Assoc Prof Wallace Cowling Dr Guijun Yan	Mar-Aug 2007
Dr Raymond Nowak	Institut Nationale de la Recherche Agronomique, Nouzilly, France.	Dr Dominique Blache	Sept 2007
Dr Elize van Lier	Animal and Forage Sciences Department, Faculty of Agriculture, Universidad de la República, Montevideo, Uruguay	Dr Dominique Blache	Sept 2007
Prof Weijun Zhou	Zhejiang University, China. Dr Guijun Yan, School of Plant Biology	Prof Kadambot Siddique, IOA	6-9 Sept 2007
Prof Guozheng Yang	Huazhong Agricultural University, China.	Dr Ping Si, CLIMA Dr Guijun Yan	6-9 Sept 2007
Prof Fred Provenza	Wildland Resources, Utah State University, USA.	Dr Phil Vercoe	20-25 Aug 2007

Industry awards

Name	Award
Associate Professor Tim Colmer	2006 Carrick Institute Award for Australian University Teaching
Professor Steve Powles FTSE	Weed Technology Journal Outstanding Research Paper for 2006
Professor David Pannell	Australian Agricultural and Resource Economics Society "Connections Award" for article contributions that fitted best the aims and intent of the journal "Connections: Farm, Food and Resource Issues".
Professor Stan Kailis	Australian Olive Association "National Industry Award" for his contributions to the Australian Olive Industry.
Dr Erik Veneklaas 2006 Excellence in Teaching Award	Postgraduate Research Supervision
Ms Clare Coffey (Animal Science, FNAS)	Winner of The AIAST/DAFWA Young Professionals in Agriculture Forum
Ms Marinda Williman (Animal Biology, FNAS)	Second overall in The AIAST/DAFWA Young Professionals in Agriculture Forum
Mr Trent Smoker (Agricultural and Resource Economics, FNAS)	Third overall and best presentation in The AIAST/DAFWA Young Professionals in Agriculture Forum
Dr Patrick Finnigan (Plant Biology, FNAS)	2006 Excellence in Teaching Award: Individual Teaching
Dr Jo Pluske (Agricultural and Resource Economics, FNAS)	FNAS Teaching Award for Excellence in Supervision of Research Students(Hons or 4th year projects)
Mr Frank D'Emden (Agricultural and Resource Economics, FNAS)	2006 Australian Agriculture and Resource Economics Society masters thesis prize for a study on southern Australian grain growers' adoption of conservation tillage.
Ms Di Mayberry (Animal Biology, FNAS)	CRC Association award for communication of science.
Professor Kadambot Siddique (Institute of Agriculture)	Guest Professor of Lanzhou University Honorary Professor of Gansu Academy of Agricultural Sciences Adjunct Professor of Ministry of Education Key Laboratory of Arid and Grassland Ecology, Lanzhou University
Professor Neil Turner (Centre for Legumes in Mediterranean Agriculture, FNAS)	Guest Professor of Lanzhou University Honorary Professor of Gansu Academy of Agricultural Sciences Adjunct Professor of Ministry of Education Key Laboratory of Arid and Grassland Ecology, Lanzhou University
Dr Guijun Yan (Plant Biology, FNAS)	Guest Professor of Lanzhou University Adjunct Professor of Ministry of Education Key Laboratory of Arid and Grassland Ecology, Lanzhou University
Ms Annaliese Mason, PhD Student, School of Plant Biology	Canola Breeders WA Best Student award at the 15th Biennial Australian Research Assembly on Brassicas, Geraldton, for research into 'Molecular characterisation of a population derived from microspores of Brassica napus x Brassica carinata hybrids' supervised by Dr Matthew Nelson, Dr Guijun Yan and Assoc Prof Wallace Cowling.
Ms Aneeta Pradhan, PhD Student, School of Plant Biology	Canola Breeders WA Best Student award at the 15th Biennial Australian Research Assembly on Brassicas, Geraldton, for research into 'Synthesis of hexaploid Brassica from B. napus and B. nigra' supervised by Dr Guijun Yan, Assoc Prof Julie Plummer and Assoc Prof Wallace Cowling.
Dr Julia Wilson, Research Officer, Centre for Legumes in Mediterranean Agriculture, Faculty of Natural & Agricultural Science	Best poster, at the 6th Europe Conference on Grain Legumes - Integrating legume biology for sustainable agriculture, for poster entitled 'Progress towards crop improvement in lupin with interspecific hybridisation' with Jon Clements, John Quealy and Hu'uan Yang as co-authors.
Dr Tony Fischer, IOA External Advisory Board Member and Honorary Fellow, CSIRO's Division of Plant Industry, Canberra	2007 Farrer Memorial Medal
Prof Lyn Abbott, School of Earth & Geographical Sciences	Carrick Institute Award for Outstanding Contributions to Student Learning.
Mr Warwick Matthews (Faculty of Natural & Agricultural Sciences)	Premier's Prize for Excellence in Science Teaching



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