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**CEO REPORT***Dr Stephen Prowse, CEO*

Reviews are to be expected in the first term of a new Government, especially one that has been out of office for a number of years. Such reviews assist the Government in making decisions and setting priorities. There are three reviews that are of particular interest to the biosecurity sector and the Cooperative Research Centres (CRC) Program. These are the Review of the National Innovation System, the Quarantine and Biosecurity Review and the Review of Higher Education. In addition, there is a 'lite' review of the National Collaborative Research Infrastructure Strategy Roadmap. As these reviews will play a critical part in determining future policy and directions, making an input is important. However, it is easy to get over-reviewed!

While all of these reviews are important, it is perhaps the review of the National Innovation System that may have the most direct impact on the Australian Biosecurity CRC (AB-CRC), with a component of this review directed towards the CRC Program.

Innovation means different things to different people. In considering the spectrum of research from basic curiosity driven research through to the adoption and uptake of research outcomes to achieve an impact, the AB-CRC sits very clearly at the latter end of the spectrum. Universities, and to a lesser extent Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), are well placed (albeit short of funds) to deliver outstanding fundamental research driven by the researchers own curiosity and research directed at specific issues. This is an absolutely critical part of our innovation system. While this work is innovative, it is not innovation. Innovation is the process by which research results and outcomes are translated into beneficial impacts.

The adoption and uptake of research outcomes is a very complex process that does not interest or suit many research workers. However, in order to make an impact there needs to be a close relationship between the research workers and the ultimate users of the research. In the AB-CRC, we place a lot of emphasis on problem oriented research and the processes put in place to ensure that the outcomes of this research make an impact. As more of our projects deliver outcomes and we seek to transfer technology, knowledge and information to users, it has become clear that each project has its own unique aspects that require a project

adoption plan. It is unrealistic to expect the research workers alone to develop and execute such plans. In the AB-CRC, we understand the adoption complexities and provide support to achieve the innovations that enhance our national biosecurity capacity and capability.

It is a testament to the success of the AB-CRC that research workers in our partner organisations work closely with AB-CRC staff to deliver this innovation.

**New projects**

The following three new projects have been approved by the AB-CRC Board:

- 'Developing a MassTag Polymerase Chain Reaction (PCR) panel for the syndromic detection of encephalitogenic viral pathogens'. Proponent **David Williams, Curtin University of Technology** (CUT) with supporting partners, PathWest and Columbia University;
- 'Studies to determine the role of Bungowannah virus in Porcine Myocarditis Syndrome (PMC)'. Proponents **Peter Kirkland and Deborah Finlaison, New South Wales Department of Primary Industries** (NSWDPI) with Australian Pork Limited as a core participant;

- ‘Assessment of the risks to animal biosecurity associated with small landholders’. Proponent **Tony Martin, Department of Agriculture and Food Western Australia (DAFWA)**, with supporting partners the University of Sydney (USyd) and Queensland Department of Primary Industries and Fisheries (QDPI&F).

### **Dedication of the Department of Health and Ageing National Incident Room to Professor Aileen Plant**

The Commonwealth Department of Health and Ageing (DoHA) has a very sophisticated National Incident Room located in Canberra – see [www.healthconnect.gov.au/internet/main/publishing.nsf/Content/health-publth-strateg-bio-factsht\\_inc\\_room.htm](http://www.healthconnect.gov.au/internet/main/publishing.nsf/Content/health-publth-strateg-bio-factsht_inc_room.htm)

The National Incident Room was established to ensure a nationally consistent and coordinated response to a national health emergency. Since being established, the National Incident Room has been utilised in the responses to numerous emergencies, including:

- Severe Acute Respiratory Syndrome (SARS) outbreak, 2003
- Indian Ocean tsunami, 2004
- Bali bombings, 2005
- Dili civil unrest, 2006
- Java earthquake, 2006
- Yogyakarta Air Crash, 2007
- imported case of Polio, 2007

Former deputy CEO of the AB-CRC, Professor Aileen Plant, frequently provided advice and information to DoHA and participated in the responses to some of the above emergencies. In a fitting recognition of her major contribution to disease control and public health in Australia, the Department dedicated the National Incident Room in memory of Aileen at a ceremony held at the Room on 28 April 2008.

### **NEWS**

#### **AB-CRC SCIENTISTS STRENGTHEN LINKS WITH SOUTH EAST ASIA**

AB-CRC scientists played a key role in the Australian-Indonesian Workshop on Human Health including Infectious Diseases held in Jakarta last month. Professor John Mackenzie convened an Australian delegation consisting of AB-CRC CEO Dr Stephen Prowse, Dr Linfa Wang and Dr Hume Field. All AB-CRC representatives spoke at the two-day event designed to:

- enhance research cooperation between Australia and Indonesia;
- identify opportunities to further develop collaboration; and
- recommend courses of action to the next meeting of the Australia-Indonesia Joint Working Group in Science and Innovation, Research and Technology.

Linfa said it was an honour to be invited to the workshop which was a vital step in assisting Australia’s preparedness for biosecurity. He discussed emerging virus discovery and the value of molecular biological techniques as vital to controlling the impact of emerging infectious diseases on both economies and societies. Citing the emergence of SARS in 2002-03, Linfa said the extent of the SARS outbreak was largely due to the delay identifying the exact cause of the disease. “It’s generally accepted that if the virus was identified in the first month of the outbreak, the consequence would have been very different,” he said.

Linfa added that rapid agent discovery and identification was crucial in combating disease outbreaks. “Although conventional techniques such as cell culture and electron microscopy will continue to play a role, it is generally believed the major breakthrough will come from novel molecular techniques,” he said.

Hume spoke from a ‘one health’ perspective of infectious disease emergence from wildlife, stating that nearly 75% of all emerging infectious diseases that impact or threaten human health are zoonotic. “The majority have spilled from wildlife reservoirs, either directly to humans or via domestic animals,” he said.

“Infectious disease emergence from wildlife can be regarded as primarily an ecological process.

However, the epidemiologic investigation of disease emergence and outbreak requires a comprehensive cross-disciplinary approach that includes an understanding of the ecology of the wildlife species, and an understanding of human behaviors that increase risk of exposure,” Hume added. He used aspects of the emergence of Nipah virus in Malaysia, and more recently Bangladesh, to provide a useful illustration.

“An important outcome of the workshop was the realisation that increasingly Indonesia’s research priorities for emerging infectious diseases was being driven by funding from non-neighbouring countries, and that it was in Australia’s interest that a funding mechanism be identified to reinvigorate the previously close research collaboration between Australia and Indonesia” said Hume.

### **AB-CRC VETERINARY PATHOLOGY TRAINING SUPPORT SCHOLARSHIPS**

*Applications close 18 July 2008*

Australia currently has a chronic shortage of qualified veterinary pathologists. While the Australian Animal Disease Detection Training Initiative is developing postgraduate veterinary pathology training programs, these are not likely to be operational until after 2010.

In the meantime, the AB-CRC is pleased to offer two Scholarships to financially assist two veterinarians currently employed in state or federal government, or private veterinary laboratories in Australia, to become qualified veterinary pathologists.

The Scholarships provide up to \$50,000 per recipient to prepare for and successfully sit the American College of Veterinary Pathologists’ Examination or the European College of Veterinary Pathologists’ certifying examination. In the main the funds will be used to assist travel, setting up and living costs for 12 months while living in the USA or Europe and preparing to sit the relevant veterinary pathology college examinations.

Application forms and the relevant Scholarship policy document are available at [www.abcrc.org.au/pages/Education.aspx?MenuID=45](http://www.abcrc.org.au/pages/Education.aspx?MenuID=45)

### **AILEEN PLANT MEMORIAL LECTURE**

On 17 April CUT hosted the inaugural Aileen Plant Memorial Lecture, an annual public lecture established in honour of Aileen’s memory. Professor Aileen Plant was a medical epidemiologist, Deputy CEO of the AB-CRC, one of the World Health Organisation’s (WHO) leading experts in disease outbreak investigation, as well as a Professor of International Health at CUT.

The AB-CRC and CUT were fortunate to secure special guest speaker Dr David Heymann, Assistant Director-General of Health Security and Environment at WHO and special representative of the Director-General for Polio Eradication for the event.

David is a medical epidemiologist who spent 13 years in sub-Saharan Africa while working at the United States Centers for Disease Control and Prevention (CDC). He has been described by *The Lancet* as “WHO’s public health guru”, and is credited with helping discover Ebola and Legionnaire’s diseases, eliminating smallpox and stopping the spread of SARS. David was a close colleague and friend of Aileen, working with her often through her collaborations with WHO and for six months while she was on secondment at the WHO headquarters in Geneva.

David gave a fantastic lecture titled *Dilemmas in Public Health: From Smallpox Eradication to SARS, Avian Influenza and Polio Eradication* in which he shared many interesting stories about his work with infectious disease, as well as his work with Aileen.

For those of you unable to attend the Aileen Plan Memorial Lecture, audio and video files are now available online at [www.abcrc.org.au/pages/AboutUs.aspx?menuid=35](http://www.abcrc.org.au/pages/AboutUs.aspx?menuid=35)

## JOHN MACKENZIE'S RETIREMENT & FAREWELL SEMINAR

Professor John Mackenzie, Deputy CEO of the AB-CRC and Professor of Tropical Infectious Disease at CUT, hung up his hat for the grey nomad lifestyle in May 2008. He was an inaugural holder of a Western Australia Premier's Fellowship, Honorary Professor of the University of Queensland and, despite retirement, continues to serve on a number of international committees with the United Nations, WHO and other non-government organisations. John's recent research interests were in mosquito-borne virus diseases and emerging zoonotic infections, and the AB-CRC was fortunate to have been privy to his expertise and guidance in these areas.

On Friday 18 April, the AB-CRC's Perth office and CUT hosted the John Mackenzie Farewell Seminar. The Seminar featured presentations by (in order of presentation):

- **Dr David Smith** (Clinical Director of Microbiology, PathWest Laboratory Medicine) - *Of Mice and Men (and Mosquitoes): It's a wonderful One World;*
- **Dr David Heymann** (WHO) - *Emerging infectious diseases: health workers on the frontline;* and

- **Prof John Mackenzie** - *Emerging diseases in Asia-Oceania: What should we be doing to provide an early warning of potential threats?*

The guest speakers, along with CUT Pro-Vice Chancellor Linda Kristjanson and Lisa Adams, Director of Research Development at the AB-CRC, also shared some great anecdotes about John's academic and personal life. Visitors from the east coast included CEO Dr Stephen Prowse, CRC visitor Dr Paul Wood, and researchers Dr Hume Field and Dr Linfa Wang, both of whom have enjoyed close personal and professional relationships with John over the years.

John has published over 275 major papers and research chapters on research topics concerned with humans and animal diseases, in addition to travelling the globe to study, report on, and aid in the control of emerging disease threats. For now, he has decided to explore some areas closer to home; you may catch him, his wife and their caravan as they adventure around the outback. All AB-CRC staff and researchers wish John all the best for his retirement, and thank him for his invaluable contributions.

For those of you unable to attend John's farewell seminar last month, audio and video files are now available online at [www.abcrc.org.au/pages/news.aspx?NewsArticleID=294&Display=1](http://www.abcrc.org.au/pages/news.aspx?NewsArticleID=294&Display=1)

To read John's retirement message to ScienceNetwork Western Australia visit [www.sciencewa.net.au/index.php?option=com\\_content&task=view&id=2119&Itemid=587](http://www.sciencewa.net.au/index.php?option=com_content&task=view&id=2119&Itemid=587)

## AB-CRC PHOTOGRAPHIC COMPETITION 2008

*Entries close 15 August 2008*

Good news ... the closing date for the 2008 AB-CRC Photographic Competition has been extended, so get out there and take some great snaps for your chance to win \$4,500 in cash!

Images should capture the essence of biosecurity, while remaining relevant to the objectives of the AB-CRC. Images of technical aspects of research as well as creative images are equally welcome, and may be as narrow or as broad in your interpretation as you like. To see some past winners visit [www.abcrc.org.au/pages/TechTransfer.aspx?MenuID=12](http://www.abcrc.org.au/pages/TechTransfer.aspx?MenuID=12)

This year there is even a new category for professional photographers who are either employed full or part time with our affiliate organisations, or who work for the AB-CRC but earn a portion of their income from photography.

Download an entry form at [www.abcrc.org.au/pages/TechTransfer.aspx](http://www.abcrc.org.au/pages/TechTransfer.aspx) or visit the AB-CRC website for more details.

## REPORTS

### AB-CRC PRESENCE AT DAFWA'S ANNUAL ANIMAL BIOSECURITY CONFERENCE

Dr Debby Cousins was invited to make a presentation on the AB-CRC at the recent Animal Biosecurity Conference held 6-8 May in Waroona WA. The Application & Linkage Program also supported the attendance of AB-CRC research fellow Marta Hernandez Jover, who gave two excellent presentations on the USyd led research work on biosecurity risks associated with periurban pig farming. Sarah Palmer also gave a thought provoking presentation on her PhD work entitled *Farmers ~ why don't they report disease, and should we change the way we do business?*

Again the AB-CRC presentations received an excellent response from the audience, which included field and policy veterinarians and stock inspectors from throughout WA. The conference was a great opportunity to spread the word of what the AB-CRC is achieving to a larger audience within DAFWA.

### AB-CRC FUTURE DIRECTIONS AT THE AUSTRALIAN VETERINARY ASSOCIATION CONFERENCE

AB-CRC's Director Application & Linkage, Dr Debby Cousins presented *Future Directions of the AB-CRC* on Lisa Adams' behalf at the recent Australian Veterinary Association Annual

Conference held at the Perth Convention Centre from 19-23 May. All AB-CRC presentations, including those given by Hume Field and Joanne Meers, received an excellent response at the conference.

### PLANNING MEETING HELD FOR AB-CRC PROJECT ON ANIMAL BIOSECURITY ON SMALL LAND HOLDINGS

On 8 April, Tony Martin convened a workshop at AB-CRC Perth node headquarters to flesh out the scope and objectives for the AB-CRC project *Assessment of the risks to animal biosecurity associated with small landholders*.

The meeting was held prior to the AB-CRC making a funding decision as project proponents were keen to take advantage of the opportunity afforded by the inaugural National Small Landholders Extension Forum (NSLHEF) held in Fremantle 9-10 April. Several key people were, as a result, able to attend both the project-planning workshop and the NSLHEF.

Twelve representatives from DAFWA, the Australian Government Department of Agriculture, Fisheries and Forestry, USyd, Animal Health Australia, the Department of Primary Industries Victoria, the Department of Primary Industries and Resources South Australia, the Alpaca Association of WA and the AB-CRC participated in the one-day workshop.

The workshop was very successful in building and strengthening relationships. It also resulted in an increased understanding of the complexity of the project, and commitment and enthusiasm amongst the team. The AB-CRC Research Standing Committee and the Board subsequently approved the project.

### AB-CRC PROMOTES BIOSECURITY RESEARCH TO SCIENCE TEACHERS

In late 2007, the AB-CRC was approached to take part in the delivery of professional development courses for science teachers, an initiative sparked by the National Plant Biosecurity CRC in partnership with the Molecular Plant Breeding CRC.

Dr Jo Edmondston, Senior Project Officer with the AB-CRC Application & Linkage Program, was asked to represent the AB-CRC in this three-way partnership based on her experience in curriculum development, delivery of secondary school science programs and supporting professional development courses. It was felt that the collaborative nature of the workshops, and the opportunity to promote biosecurity and CRCs to primary and secondary school teachers, would be beneficial to the objectives of the AB-CRC.

Although industrial action by teachers prevented the delivery of workshops in WA, an AB-CRC resource pack was developed for distribution to teachers and science education lecturers. Over

180 of these resource packs were distributed at workshops in South Australia, Victoria and the ACT, and over 50 packs were sent to science teachers and trainees in WA. In addition, an electronic copy of the packs were distributed to over 200 Victorian biology teachers.

Jo was also invited to deliver a presentation to science teachers as part of a workshop in May organised by the Australian School Innovation in Science Technology and Mathematics Project called *Genetics Education in the 21st Century*. The project brings together exemplary biology teachers with the private sector to increase awareness of current trends in research.

Other talks at the workshop were delivered by representatives from the largest private health company in Australia, Western Diagnostic Pathology, and the WA Institute for Medical Health. Jo's presentation provided a brief background on some of the molecular biology theory and techniques used in AB-CRC research projects. All participants were provided with the AB-CRC resource pack, and the talk was well received.

Consideration is now being given to potential involvement of the Biosecurity CRC Mark II in primary and secondary education through professional development for teachers, production and distribution of educational resource materials, and delivery of classroom

activities through existing networks such as CSIRO Education or Biotechnology Online.

If you are interested in receiving a copy of the AB-CRC Biosecurity for Teachers Resource Pack, please contact Jo on (08) 9266 1705 or email [jo.edmondston@abcrc.org.au](mailto:jo.edmondston@abcrc.org.au)

### BIOINFORMATICS TRAINING

*By Susan Walsh, Molecular Technician, Berrimah Veterinary Laboratories, Diagnostic Services, Northern Territory Department of Primary Industry, Fisheries and Mines.*

As our AB-CRC joint project *Evaluation of rapid molecular detection and characterisation systems for surveillance of arboviruses circulating in northern Australia* draws to an end, we have found ourselves in the happy position of having amassed a lot of exciting sequence data. The challenge now is how to analyse and understand this information. Previously our colleagues at the Australian Animal Health Laboratories (AAHL) have assisted us by interpreting the raw data we generate. However, Dr Richard Weir and I felt it was time we understood the process ourselves, so that we can add new tools to our research portfolio.

Being based in the Northern Territory (Berrimah Veterinary Laboratories) it had proved difficult to become proficient at specialised DNA analysis over the telephone. Dr David Boyle suggested that bioinformatics expert Dr Dieter Baulch and PhD student Ania Gubala (all based at AAHL)

organise a week long bioinformatics course at Geelong for myself and Richard in May.

Many of you may ask "what is bioinformatics?" Bioinformatics involves the use of many techniques including applied mathematics, statistics, computer science and biochemistry to analyse DNA sequence data. In our case, it was how to use software packages to search the genome of thousands of organisms. The programs compensate for discrepancies (e.g. mutations) in the DNA sequence in order to find sequence(s) that are the same or similar to your target sequence. The software then assists you to assemble sequence fragments in a logical manner using genome assembly algorithms and compare your partially assembled fragments to a library of sequences on databases such as GenBank. From this you can determine what your unknown virus is most closely related to and also by what percentage it differs.



Dr Richard Weir



Dr Susan Walsh

The confidence and experience we gained in understanding and analysing our DNA sequence data was fantastic. Dieter and Ania taught us many valuable things. Our aim is to obtain the full genome of at least two more brand new viruses. This will then allow us to do phylogenetic analysis and share this information by listing them on GenBank.

### YOUTH SCIENTIFIC EXCHANGE TO UNIVERSITY OF MALAYSIA

*By Michelle Boyle and Aidan Campbell,  
BSc graduates*

For the second half of 2008 two recently graduated science students, Michelle Boyle and Aidan Campbell, will be working with Professor Jane Cardosa at the University of Malaysia Sarawak as part of a Youth Scientific Exchange Program. This project is funded partly by the AB-CRC along with a grant from the Australian-Malaysian Institute.

Two projects will be undertaken as part of the exchange. One project will involve the disease monitoring process of human enterovirus 71 (EV71, or associated hand, foot and mouth disease), including sampling in urban and remote communities, virus isolation and identification. Outbreaks of EV71 occur in three year intervals across the Asia Pacific region with the next expected outbreak in Sarawak to occur at the start of 2009.

The second project will involve surveillance for diseases and potential human pathogens by using studies of bat populations. Surveillance of wildlife populations for diseases and potential human pathogens is an important part of understanding and monitoring the animal-human interface in order to potentially prevent and manage animal orientated human infections.

Jane is the founding director of the Institute of Health and Community Medicine (IHCM) and one of two coordinators of the Medical Biotechnology Cooperative Centre of the Ministry of Science, Technology and Environment. Her work is focused on the pathogenesis of dengue, Japanese encephalitis and adenoviruses, and developing methods for diagnosing and differentiating between these diseases. In addition, the IHCM has a strong interest in developing vaccines and new drugs to prevent and treat each of these diseases.

Michelle has recently graduated from a BA/BSc(Hons) from the University of Melbourne. She is currently working at the Walter and Eliza Hall institute with the Infection and Immunity division. Her work involves *Plasmodium falciparum* invasion mechanisms and carbohydrate receptor interactions. Her BA majors were Asian studies and Indonesian language which is very similar to Malay.

Aiden has just completed an Honours year through Deakin University after a BSc at the University of Melbourne. His work has involved field studies of invasive marine species along with fertilisation dynamics and mating system mechanisms. He has also been involved with migratory bird research including tag and release monitoring programs.

These projects will expose Michelle and Aidan to relevant field studies and laboratory work as an exciting start to their scientific careers enhancing their future opportunities. Both are planning to begin postgraduate study in 2009. Furthermore, these projects as supported by the AB-CRC and the Australia-Malaysia Institute will strengthen scientific ties and collaboration between the two countries.

Both Michelle and Aidan would like to express thanks to Jane for enabling the projects as well as the funding support from the AB-CRC and the Australia-Malaysia Institute. They are both looking forward to this exciting opportunity and the learning it will entail.

## EPIDEMIOLOGICAL FEATURES OF CORONAVIRUSES IN BATS IN AUSTRALIA

By Amy Burroughs

University of Queensland and Queensland

Department of Primary Industries & Fisheries

AB-CRC Vacation Scholar



For my AB-CRC Vacation Scholarship I was lucky enough to get involved in Craig Smith's PhD project *Investigations of SARS-like coronaviruses in bats* and accompany Craig and Carol de Jong into the field and into the laboratory over the six week period.

At Booloumba Creek just outside of Kenilworth, we set up camp and, considering the weather forecast, made sure all of the tents were waterproof! In the morning we set out on a three kilometre hike to an old gold mine, where Craig used a hand net to catch thirty eastern horseshoe bats (*Rhinolophus megaphyllus*).

Blood, faecal and urine samples were taken from each bat and the amount of blood collected, excreta collected, fore-arm length, sex of the bat and approximate age of the bat were recorded. The bats were released soon after and the process repeated again the next day. We were hoping to collect some more bats of a different genus (*Miniopterus spp.*) from a second gold mine but there were few to be found. In search of some different bat genera, we went looking under several local bridges and came across a group of large-footed myotis (*Myotis macropus*) hanging out underneath. Not wanting to disturb this small colony, we thought of some ways we could collect some faecal samples. We put newspaper down underneath each roost and came back the next day to collect the samples. In addition, faecal samples from Gould's long eared bats (*Nyctophilus gouldi*) were collected from bats in a bat box.

Going out in the field was a very exciting experience. It was great to be able to go bushwalking everyday, handle the amazing little bats and see many other wildlife species such as frogs, monitors and birds. I learned that you have to be resourceful when conducting research in the field and that even with simple methods you can still conduct very good science.

Back at the lab, the faecal and urine samples were put through a process to extract any viral RNA present and after making up the appropriate reaction mix each sample underwent a PCR. The DNA products of the PCR were then subjected to gel electrophoresis and the results viewed with an ultraviolet light and camera. Craig and Carol allowed me to take a part in each stage of the viral RNA extraction and PCR and I was even able to run my own reaction from start to finish.

At the end of my six weeks I felt that I had learnt a lot about the complex nature of viruses (in particular SARS coronavirus) and how, by constantly mutating, they are able to survive in hosts other than the natural maintenance host. I felt I had also gained useful practical laboratory skills and an understanding of the intricacies of RNA extraction, PCR and DNA sequencing. It was great to be involved in a project with both biosecurity and public health aspects as after graduation I would like to be employed in a Government biosecurity, quarantine or research role. This experience cemented my desires to follow such a career path and provided me with the skills and knowledge to hopefully make me an attractive candidate for such a role.

*If you are interested in Vacation Scholarships with the AB-CRC please visit [www.abcrc.org.au/pages/Education.aspx?MenuID=37](http://www.abcrc.org.au/pages/Education.aspx?MenuID=37) for more information.*

## OPTIMISATION OF *LEPTOSPIRA* ISOLATION FROM RESERVOIR VERTEBRATES UNDER FIELD CONDITIONS

By Timothy Sladden  
University of Queensland  
AB-CRC Vacation Scholar

I applied for AB-CRC Vacation Scholarship not knowing much about the research side of veterinary science and just wanting to have a go at something a little more interesting than your routine dog and cat vet practice. The project was part of an existing AB-CRC funded PhD project looking at leptospirosis in flying foxes and being conducted in Far North Queensland.

My project centred around comparing techniques to optimise the recovery of leptospires from flying foxes. After some slight hiccups and series of rabies shots, the research work began up around the Cairns area, but due to the lack of flying fox cadavers the sampling was increased to include rodents being trapped under these colonies.

Being from north Queensland I knew that typically it can get hot, wet and humid. What didn't help was that it was one of the biggest wet seasons up north for quite a while, and the sites at which we were trapping were fast disappearing underwater. In spite of this, we continued with trapping and gained low but steady numbers of rodents.

The process involved anaesthetising the trapped animal before euthanasing it and taking a number of different samples for analysis. Processes included: biopsies of kidneys and placement in EMJH medium for transport to Queensland Health laboratories in Brisbane for culture and identification; collection of blood and tissue samples for PCR identification of leptospire presence; flushing of the bladder with EMJH media for isolation of *Leptospira*; and making tissue smears of the remaining kidney tissue for immunohistological staining.



Tim Sladden macerating up a rodent kidney for smearing on a slide

I had no real idea about research work until applying for this project, but did enjoy the infectious diseases part of the bacteriology component of my Veterinary Science studies at the University of Queensland. There is very little work experience around for this field of study, so I applied for the summer vacation scholarship to try this line of work and it turned out to be great. It was exciting but at times

monotonous. However I have to say it was on the whole a really interesting and enjoyable experience. This summer project has given me the opportunity to experience a side of my degree that very few people have had a chance to appreciate, and to discover how rewarding research work can be.

Upon finishing my degree I hope to go back to north Queensland to work and hopefully continue participating in research work. A big thank you to Suhella Tulsiani and Rowland Cobbold who made my project possible.

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## EVALUATING THE IMPLEMENTATION OF PIGPASS

By Eva Tang  
University of Sydney  
AB-CRC Vacation Scholar

I spent some of my holiday time this summer travelling to peri-urban and country New South Wales so that I could look at pigs and do some paper work. "Not very exciting", you're probably thinking; "I'd rather go to the beach" others may be saying. But participating in the AB-CRC Vacation Scholarship has been one of the best things I did during this holiday.

I was evaluating the implementation of PigPass, which is a movement notice pig farmers must complete when selling their pigs. I examined PigPass from saleyards at Camden and Forbes to abattoirs in Wollondilly and Young. I found that although the PigPass system has been compulsory for over six months, the quality of the information supplied varies significantly between sites (which in turn relates to the farm system type), and this would affect the effectiveness and success in tracking the origin of the problem in the case of a disease or food safety hazard.

We also compared the health status of animals coming from different farm systems according to the quality assurance program the farms had implemented. It was found that most pigs sent to the export abattoir for slaughter are of better health status than those sold at saleyards. Pig abnormality incidence is very low at abattoirs, while it is relatively higher at saleyards, with prolapses, lameness and skin problems being most common. It is likely that the differences in farm systems and quality assurance programs contribute to the variation in the health status.



I decided to apply for the scholarship because I wanted to get more insight into research as I have become increasingly interested in pursuing a career in the field of research. And certainly this experience has allowed me to gain a realistic idea of what is involved in doing research. This experience has also demonstrated to me the importance of research and its relevance to our daily life.

Apart from gaining invaluable research experience, other parts of participating in the project have made it unforgettable and interesting. Travelling, meeting different people and talking to them, getting up early to see our beautiful landscape, as well as having nice food, have made the scholarship enjoyable while also educational. I certainly would encourage anyone that is interested in research to take this opportunity to find out more about this exciting field.

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### **AB-CRC SPONSORED TRAINING COURSE IN THE APPLICATION OF DIAGNOSTIC TESTS**

*By Pebi Suseno, PhD Student*

The first training course in the Application of Diagnostic Tests was held at Curtin Health Research Campus in Perth, 13-15 May 2008. This course aimed to improved knowledge and understanding of test performance, and factors affecting test outcomes for animal health practitioners in the field.

This course was attended by 14 participants with a range of different backgrounds, interests and expectations. Participants were not just from a veterinary background - some also had a background in plant health. The three day course provided the participants with a basic understanding of the application of diagnostic tests, performance, limitation and interpretation of results.

The course was run by Evan Sergeant and Ben Madin from AusVet. The topics covered by this course included: characteristics of tests, aggregate test performance, test evaluation with and without gold standard, prevalence

estimation with imperfect tests, pooled testing, demonstrating freedom from disease, and the application of diagnostic tests in different situations such as testing for screening and diagnosis, research studies, quarantine and movement control and eradication programs.

The course also touched on other issues raised by the participants based on their needs. Most participants used this opportunity to discuss their issues related to the application of diagnostic tests in their work which gave them a better understanding about their data.

This is a course not to miss if you want to refresh and update your knowledge. I really enjoyed the course and thought it was most beneficial, particularly to gain an expert insight into the application of diagnostic tests in relation to my PhD.

*Please see the COURSES section for more information about this course being offered in Geelong 22-24 July.*

## COURSES

### AB-CRC SPONSORED SHORT COURSE IN DIAGNOSTIC TESTS

22-24 July 2008  
CSIRO, Geelong

The AB-CRC is pleased to offer a three-day short course in diagnostic tests. The course is targeted primarily at scientists involved in the application of diagnostic tests in the field, including students undertaking postgraduate degrees, researchers and animal health professionals. However, interested laboratory staff may also benefit from a better understanding of how test performance affects the way tests are used in the field and the interpretation of the results that they provide.

For more information about the course and details of registration please visit [www.abcrc.org.au/pages/Education.aspx?MenuID=42](http://www.abcrc.org.au/pages/Education.aspx?MenuID=42)

### AB-CRC SPONSORED SHORT COURSE IN THE R STATISTICAL ENVIRONMENT

5-7 August 2008  
Primary Industries Building, Brisbane  
18-20 August 2008  
Curtin Health Research Campus, Perth

The AB-CRC is pleased to offer a three-day short course in the R Statistical Package. The course is targeted at scientists and students who need tools for the exploration and statistical analysis of data, graphical presentation of data, modelling and simulation. The course will be of particular value to students undertaking postgraduate degrees as well as institutional researchers. This course is aimed at helping first-time users become confident with the everyday use of R and exposing them to the wide range of advanced applications that are possible with R.

For more information about the course and details of registration, please visit [www.abcrc.org.au/pages/Education.aspx?MenuID=41](http://www.abcrc.org.au/pages/Education.aspx?MenuID=41) If you have any questions about the course, please contact Debra Gendle at [debra.gendle@abcrc.org.au](mailto:debra.gendle@abcrc.org.au)

## AB-CRC SPONSORED SHORT COURSE IN SURVEILLANCE SYSTEMS

2-4 September 2008

Primary Industries Building, Brisbane

28-30 October 2008

Curtin Health Research Campus, Perth

The AB-CRC is pleased to offer a three-day short course in surveillance systems.

This course is designed to provide a simple and understandable introduction to surveillance systems for animal health professionals. It starts with the basic concepts and reasons for undertaking surveillance, then builds on these concepts to develop an understanding of the range of approaches that can be used to undertake surveillance, depending on the specific purpose. Issues associated with planning and subsequent analysis of both random and targeted surveillance programs are covered, as well as the evaluation of surveillance systems.

For more information about the course and details of registration please visit the website [www.abcrc.org.au/pages/Education.aspx?MenuID=44](http://www.abcrc.org.au/pages/Education.aspx?MenuID=44)

## COMMUNICABLE DISEASE CONTROL AND HEALTH ASPECTS OF DISASTERS

29 September – 3 October 2008

University of Queensland, Brisbane

This intensive short course focuses on communicable disease epidemiology and control in Australia and other similar developed countries.

The course covers: (a) principles of communicable diseases and control, communicable disease surveillance in populations, and outbreak investigation; and (b) the epidemiology and control of tuberculosis, influenza and respiratory infections, sexually transmitted and blood-borne infections (including HIV/Aids and Hepatitis B/C), vaccine preventable diseases, food and water-borne disease and vector-borne disease (dengue) and refugee health. Additionally this course will consider aspects of biosecurity and biological warfare. This course has proven popular with state and federal health departments and others interested in this area.

The course cost for participants is \$1100.00. For further information please email Bronwen Blake, course coordinator at [b.blake@uq.edu.au](mailto:b.blake@uq.edu.au) or phone 0403 041882 (office hours only).

## HEALTH ASPECTS OF DISASTERS

17 – 21 November 2008

University of Queensland, Brisbane

Health Aspects of Disasters is a short course covering important thematic areas of disaster response such as: types, phases and effects of disasters on health, nutrition and mortality; public health and medical responses; infectious disease and nutritional emergencies; pandemic scenarios; refugee camps; psychosocial effects; coordination of donor and aid agencies; and disaster preparedness.

The course will include case studies of recent disasters both natural and complex. The short course will have significant inputs from academic, military, civilian, non-government and international organisations in both case studies of particular disasters and important themes in health aspects of disasters. The course aims to foster interaction between the various responding organisations. The cost for participants is \$1100.00.

For further information on the course, please email Bronwen Blake, course coordinator at [b.blake@uq.edu.au](mailto:b.blake@uq.edu.au) or phone 0403 041882 (office hours only).

## RISK ANALYSIS AND DIAGNOSTIC TESTS COURSES AVAILABLE ONLINE

*15 September to 31 October 2008*

*Online study unit offered by University of Sydney*

The University of Sydney is offering two courses open to anyone in the postgraduate community (with Science-related degrees) within or external to the university who are interested in these courses. These courses are offered as electives within their Veterinary Public Health and Veterinary Public Health Management Graduate Diploma and Masters Programs.

**VETS7013 Risk Analysis:** aims to give you a clearer understanding of the components that make up risk management; the role and importance of risk management in animal health and how to apply the principles of risk management to animal health.

Facilitating this unit of study is Dr Sam Beckett, a Member of, and currently Head Examiner in Epidemiology for the Australian College of Veterinary Scientists. Sam joined Biosecurity Australia (formerly the Australian Quarantine Inspection Service) in 1999, where he was responsible for drafting Australia's Guidelines for Import Risk Analysis and for methodology issues associated with Australia's obligations under the World Trade Organization Sanitary and Phytosanitary Agreement. In 2002 he was nominated for a Commonwealth Government Australia Day Award for his work on Bovine Spongiform Encephalopathy. Sam has since

joined Broadleaf Capital International as an Associate Director, providing risk management and epidemiology consulting to Australian governments and industry.

**VETS7020 Diagnostic Tests:** This unit of study will enable you to:

- Understand and describe the biologic principles of common tests and how their inherent characteristics affect their accuracy and precision;
- Analyse and summarise data from a test evaluation or test comparison study;
- Critique published test evaluation studies and describe their strengths and weaknesses considering design and analysis guidelines in the veterinary medical literature;
- Incorporate quantitative test results in clinical decision making about an individual animal's disease status;
- Interpret test results from prevalence estimation studies involving single and multiple animal populations, and from surveys and disease surveillance systems; and
- Plan a disease surveillance system or disease survey and select a diagnostic test(s) (considering its strengths and weaknesses) to meet specified surveillance or survey objectives.

Facilitating this unit is Professor Ian Gardner, currently a Professor in Epidemiology at the University of California, Davis. Ian is also a member of the Australian College of Veterinary Scientists (epidemiology chapter) and is actively involved in other professional organisations such as the Association of Veterinary Epidemiology and Preventive Medicine and the Conference of Research Workers in Animal Disease and has held leadership positions in both organisations.

For more information contact Emmeline Yeo, Learning Support Officer, Faculty of Veterinary Science, USyd on 02 9036 6364 or visit [www.vetsci.usyd.edu.au/publichealth\\_management/future\\_students/](http://www.vetsci.usyd.edu.au/publichealth_management/future_students/).