

POULTRY
RESEARCH
FOUNDATION



THE UNIVERSITY OF
SYDNEY

ANNUAL REPORT 2014

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GOVERNANCE STATEMENT

The Poultry Research Foundation recognises the importance and benefit of reviewing its adoption and alignment with governance principles and provides the following report

Principle 1 – Lay solid foundations for management and oversight

- Nature of the entity:
The Poultry Research Foundation is a part of the University of Sydney (ABN 15 211 513 464) and not separately incorporated under a State or Commonwealth Act. The Foundation is required to gain prior approval for its fundraising activities from the appropriate University delegate. The Foundation's activities are not-for-profit and covered by the DGR status of the University of Sydney. The University is exempted from the requirement to hold an Authority to Fundraise and obligations upon holders of such an authority but is still required to comply with the balance of provisions of the Charitable Fundraising Act.

- Roles of board / council and management:
The Foundation operates under the authority of the Senate of the University of Sydney, as approved in June 2011, and has no powers of delegation. The Foundation conducts its affairs pursuant to the Foundation Rules and the relevant policies of the University.

Principle 2 – Structure of the council to add value

The Council of the Foundation in 2013 consisted 17 members. (refer to page 7)

Council members were elected at the Foundation's AGM on 6th April, 2011. There is not a separate nomination committee of Council. The full Council resolves on nominations for co-opting of members to fill vacancies outside of the process of election at the AGM. There was not a performance evaluation of the Council undertaken in the reporting period.

Principle 3 – Promote ethical and responsible decision-making

Council members have been provided with the University of Sydney Foundation Governance Guide, Foundation Rules, Code of Conduct, Work Health & Safety policy and the External Interests policy. All these policies are available on the University's Policy Register, as are other relevant University policies regarding harassment, grievance procedures and the Delegations of Authority.

Principle 4 – Safeguard integrity in financial reporting

The annual accounts of the Foundation are prepared by the financial staff of the University, signed off by the Director of the Foundation and included in this Annual Report to the Senate. The Foundation is part of the University and therefore does not have its own audit sub-committee. While the Annual Financial Report of the University is audited by the Audit Office of NSW, the Annual Accounts of the Foundation have not been audited.

Principle 5 – Make timely and balanced disclosure

The Foundation complied with the reporting and disclosure requirements of the Senate. These include an annual budget and this Annual Report

Members and Council have been made aware of the processes for disclosure

pursuant to the Code of Conduct, External Interests policy, which include protected disclosure to the ICAC, to the Ombudsman or to the Auditor General.

Principle 6 – Respect the rights of shareholders, members, staff, volunteers, clients & other stakeholders

The Foundation Council and/or membership consists of invited industry professionals, industry bodies and University representatives, whose input is invited via the Annual General Meeting and Council meetings of the Foundation. Each year the Foundation conducts a General Meeting in Oct/Nov and the AGM in April/May.

Principle 7 – Recognise and manage risk

The Foundation recognises its activities within University premises or other premises require risks such as health and safety, environmental protection, privacy, trade practices, and compliance with the Charitable Fundraising Act to be considered and managed. The Foundation has managed these risks during the year by complying with risk management procedures as outlined by the University.

Principle 8 – Remunerate fairly and responsibly

No member of a Council is entitled to receive any remuneration for acting in that capacity except reasonable remuneration on a basis which has first been approved in writing by the University Officer (Foundations).

Members of the Foundation Council may be reimbursed for reasonable expenses after written approval of the University Officer (Foundations). Any such instances are recorded in the minutes of the Council.

FOUNDATION OBJECTIVES

OBJECTIVES OF THE FOUNDATION

The objectives of the Poultry Research Foundation are to advise the Senate of the University of Sydney and the Vice-Chancellor on matters associated with poultry research, education and scholarship within the University of Sydney and to provide an interface between the Australian poultry and allied industries and the University.

In doing so, the Foundation shall increase the resources of the University by way of membership to the Foundation and utilising benefits given by members in provision of services and other non-financial contributions.

AIMS OF THE FOUNDATION

1. To provide an interface between the poultry and allied industries in Australia and the University of Sydney.
2. To undertake research of relevance to these industries.
3. To assist in the training of scientific and technical personnel to service the private and public sectors of these industries.
4. To act in an industrial liaison capacity.

PRIORITIES 2014

1. Develop links between the University of Sydney and the Poultry CRC
 - a. Research projects
 - b. Educational programs
 - c. Postgraduate scholarships
2. Develop research projects lead by the Chair of Poultry Science
3. Complete infrastructure maintenance of the Poultry Unit
4. Promote postgraduate opportunities within the Poultry Research Foundation
5. Organise the 2015 Australian Poultry Science Symposium

Management of the Foundation is vested in a Council which comprises the President, Deputy President, Director, Faculty of Veterinary Science Dean and Provost Nominee along with elected Industry Members from the categories of Governors and Executive Members, Honorary Governors and Ex Officio Members.

The administrative office and Research Unit are based at Camden.

Faculty of Veterinary Science
University of Sydney
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CONTACTS:

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Enhancing poultry performance



PRESIDENT'S REPORT

The vitality of the Poultry Research Foundation is evident in the breadth of both the membership base and research and extension being undertaken. Interaction and diversity are ingredients integral to this Foundation's success. On this base, we move with confidence towards the opportunities presented to us in the future.

Dr. Peter Groves has been appointed Director of the PRF. We thank him for accepting this position and wish him every success. During 2014, we said goodbye to Post-doctoral Research Associates Dr Stuart Wilkinson and Dr Yumin Bao. We thank them for the intellect and enthusiasm they brought to the Foundation and wish them well for the future. The position of Poultry Nutrition Lecturer was advertised and high quality candidates were attracted, appointment to be made early 2015.

The 25th Australian Poultry Science Symposium was celebrated in February 2014. To mark the occasion, a Sunday evening reception was held in the Great Hall, Camperdown Campus of the University of Sydney. It featured three presentations by Dr Derick Balnave, Mr John McLeish and Mr Adam Naylor encompassing the history of the event. I acknowledge the vision of the founding fathers of APSS: Emeritus Professor Frank Annison, Dr Derick Balnave and Dr Balkar Bains of the PRF and Dr Bruce Sheldon and Bob Pym from the WPSA. I also thank the many organizers and contributors that have created 25 successful Symposia. Importantly, I thank the industry for its ongoing commitment. For example, sponsorship remains robust and 210 delegates attended the 2014 event.

The period ahead can be described as a time pivotal to the future of poultry research at the University of Sydney and indeed nationally. With the Poultry CRC due to end 30th of June 2017, an opportunity exists to transition the CRC's partnerships and activities to the University of Sydney to provide continuity to the Australian Poultry

Industry. A draft plan is being prepared for submission in March 2015. It is very early in the process, but all going well, the aim would be to kick start activities mid 2016 as the Poultry CRC winds down.

In parallel, it is proposed that a Poultry Research Centre be established attached to the faculty of Veterinary Science. This is because activities currently undertaken by the PRF are those of a Research Centre according to the University's definition. Whereas the definition of a Foundation's activities is limited to that of fund raising. It is proposed that we should establish a Research Centre and keep the Research Foundation for fundraising activities. This will be put to the membership for ratification during 2015.

Applying enquiring minds to innovate is key to improving productivity whilst producing healthy, ethical food. This is our *raison d'être*.

Ms. Judy O'Keefe
March 2015

DIRECTOR'S REPORT

In February we celebrated the 25th annual Australian Poultry Science Symposium marked by an impressive pre-conference night meeting with speakers focusing on the history of the symposium and WPSA collaboration. Major topic areas for the symposium were Early Chick Nutrition, Feed Ingredient Quality, the Role of Gut Health and Leg Health and Flock Mobility in Broilers. The program was supported by an eminently qualified group of invited speakers, both international and local. The huge success of the symposium was largely due to the inputs of Jo-Ann Geist and Ben Geist, without whose efforts we would struggle to achieve such great results.

Planning for the 2015 symposium began soon afterwards with overriding themes of Egg Quality (both from an edibility and hatchability viewpoint), Energy versus Protein in broiler nutrition and Poultry Welfare. A Sunday night informal meeting was again foreshadowed hoping to look at the welfare matters which are currently driving change in both the layer and broiler industries. Speakers from RSPCA, the supermarket retailers and from the industry were sought to present an assessment and forward looking perspective on the direction and effects this was having at all levels. While RSPCA agreed to speak, there was unwillingness from the supermarkets and the industry to contribute. Hence this speaking session was abandoned and the RSPCA input deferred to the AVPA meeting which follows APSS in that year.

2014 was a busy year in research for the Foundation with several post graduate students completing their theses. I congratulate them on their progress and success. The research focus of the Foundation continues to aim at poultry nutrition, with studies focusing on starch and protein nutrition, calcium and phosphorus utilization, sorghum digestibility and vitamin D and strontium in layer production. We also continue substantial research on poultry welfare issues, including feather pecking in free range layers, gut health in free range broilers and the effects of egg incubation on subsequent broiler leg strength. There has also been considerable contract research activity related to projects for Foundation members. Our facilities have been extensively utilized this year and the support from the technical staff has been superb.

All of these research areas have lead to improvements in understanding and new developments and findings that will enhance poultry performance and bird welfare in the field. We now have a useful free range layer trial facility

and access to a very good free range broiler facility that allow small scale replicated experimental conditions. The Foundation is particularly well placed to continue useful studies into improvements in performance and welfare in this changing environment.

Changes in University attention to Foundations and Centres will require us to re-assess the structure of the PRF in early 2015. A discussion of the possibility change of our entity from a Foundation to a Centre will be a part of the AGM in March 2015. As a part of this change there is also an exciting opportunity to look at a transition of the completion of the Poultry CRC into the Research Centre which the PRF may become. This would involve the taking on of uncompleted CRC projects and some funds after the CRC finishes in 2017. The options will be explained and can be debated at this AGM. Changes always involve some level of uncertainty but we will move on with a strong commitment to the tradition and strengths that have made the PRF such a long term success, especially the contribution of the membership over such a long period. 2015 will be an eventful and historic year for the PRF.

Dr. Peter Groves
March 2015



POULTRY RESEARCH FOUNDATION MEMBERS

GOVERNORS	EXECUTIVE MEMBERS	ASSOCIATE MEMBERS
Baiada	ADM Australia	Alltech Biotechnology
Inghams	Feedworks	Aviagen
	DSM Nutritional Products	BEC Fed Solutions
	Elanco Animal Health	Biomin Australia
	Evonik Degussa Australia	Bio Processing Australia
	Novus Nutrition	Cordina Chicken Farms
	Phibro Animal Health	International Animal Health
	Ridley Agriproducts	Kemin (Aust)
	Weston Animal Nutrition	Ruth Consolidated Industries
	Zoetis	The Egg Basket (Sales)

HONORARY GOVERNORS

Emeritus Professor E. Frank Annison

Dr. Balkar S. Bains

Dr. Derick Balnave

Prof. Wayne Bryden

Mr. John Darling

Mr. Ern Newton

Dr. Ron MacAlpine

INVITEES

The Deans of Agriculture and Natural Resources

The President, World's Poultry Science Association (Australian Branch)

The Program Manager, RIRDC Chicken Meat Program

The Program Manager, Australian Egg Corporation Ltd

A Representative, NSW Agriculture

A Representative, Poultry CRC

A Representative, Australian Egg Industry Association

The Executive Director, Australian Poultry Industry Association

PRESIDENT	Ms. Judith O'Keeffe
DEPUTY PRESIDENT	Dr. David Cadogan
DIRECTOR	Dr. Peter Groves

GENERAL MEMBERS	UNIVERSITY COUNCIL MEMBERS
ADM Australia Pty Ltd Mr. John McLeish	Executive Dean - Faculty of Veterinarian Science Prof. Rosanne Taylor
Baiada Poultry Pty. Limited Mr. Greg Hargreave	Nominee of the Provost Ms. Shauna Jarrett
Biomin Mr. Neil Gannon	The Pro-Dean - Faculty of Veterinary Science Assoc. Prof. Paul Sheehy
Evonik Degussa Australia Mr. Ilia Mendeleil	Associate Dean for Research - Faculty of Veterinary Science Prof. Katherine Belov
Inghams Enterprises Pty Ltd Mr. Greg McDonald	
Novus Nutrition Dr. Nick Rodgers	
Phibro Animal Health Mr. Greg Manna	
Poultry CRC Dr. Tim Walker	
WPSA President Assoc. Prof. Juliet Roberts	

**POULTRY
RESEARCH
FOUNDATION
COUNCIL**

POULTRY RESEARCH FOUNDATION STAFF AND STUDENTS

ACADEMIC STAFF

Dr. Peter Groves BVSc,
MACVSc(Epidemiology), PhD (Sydney)
Deputy Director Poultry Research
Foundation

Dr. Wendy Muir BScAgr, PhD
(Sydney), GradDipEd (UNE)
GradCertEducStud(Higher Education)

Dr. Jeff Downing WDA (Wagga
Agr. Col.), BSc, PhD (Macquarie),
GradCertEducStud(Higher Education)

Dr. Greg Cronin BAgSc, MAgSc
(Melbourne), PhD (Wageningen NL),
GradCertEducStud(Higher Education)

POSTDOCTORAL RESEARCH ASSOCIATES

Dr. Yumin Bao BAgSc, MAgSc (Inner
Mongolia), PhD (Armidale)

Dr. Stuart Wilkinson BScAgr,
MScVetSc, PhD (Sydney)

Dr. Mini Singh BScGen (India),
MScVetSc, PhD (Sydney)

Ms. Sonia Yun Liu BEng, MFoodSc
(Queensland), PhD (Sydney)

HONORARY RESEARCH FELLOWS

Adj. Assoc. Prof. Peter Selle BVSc,
PhD (Sydney)

ADMINISTRATION STAFF

Mrs. Jo-Ann Geist
Administrative Officer

Mr. Benjamin Geist
Assistant Administrative Officer



PROJECT MANAGEMENT STAFF

Mrs. Joy Gill
Mrs. Melinda Hayter

PROJECT SUPPORT STAFF

Ms. Kate Dehon
Mr. Don Nicholson
Mr. Duwei (Wade) Chen
Mr. Ryan Hopcroft
Mrs. Kylie Warr

POSTGRADUATE & MASTERS STUDENTS

Ms. Emma Bradbury – Ca, P and
phytase and the effects on broiler
welfare.

Ms. Linda Browning – Vitamin D, Ca, P
and phytase in poultry

Mr. Tugrul Durali – Free range broiler
production

Ms. Kate Hartcher – Feather pecking
in free-range laying hens

Mr. Dean Powell - Investigating the
effect of nutritional status on chicken
satellite call fate, proliferation and
differentiation and their implications on
muscle developmanet

Ms. Ha Hong Truong - Starch
utilisation and glucose absorption in
broiler chickens with emphases on grain
sorghum, phytase enzyme and whole
grain feeding.

HONOURS STUDENTS

(CONDUCTING THESIS PROJECTS
UNDER THE SUPERVISION OF THE
POULTRY RESEARCH FOUNDATION)

Mr Anthony Sin (BAnVetBioSc)
(Supervisor: Jeff Downing)

'Electrolyte supplementation of ducks
during transport'

Ms Josie Stiddard (BAVBS)
(Supervisors: Wendy Muir & Peter
Groves)

'Incubation conditions: Their effect on
leg strength in Ross 308 broilers'

Ms Danielle Azevedo (BAVBS)
(Supervisors: Wendy Muir & Peter
Groves)

'Identifying incubation conditions to
optimise hatch time and leg strength in
broiler chickens.

Mr James Baumann (BAnVetBioSc)
(Supervisor: Greg Cronin)
'The effects of added forage on the
behaviour of free range laying hens'

Ms Rachel Doran (BAnVetBioSc)
(Supervisor: Greg Cronin)
'The effects of perches and overhead
cover in the outdoor ranges on
utilisation of these resources by free
range laying hens

STAFF MEMBER- SHIPS AND AFFILIATIONS



MEMBERSHIPS

Dr. Peter Groves:

Member: Australian Veterinary Poultry Association

Member: Commercial Poultry Veterinarians (an SIG of AVA)

Adjunct Senior Lecturer: Charles Stuart University - Department Agriculture & Veterinary Sciences

Adjunct Senior Lecturer: James Cook University - Veterinary Science

Member: RIRDC Chicken Meat Advisory Committee

Member: National Newcastle Disease Technical Working Group

Dr. Wendy Muir:

Member: International Society of Mucosal Immunology

Member: Australian Poultry Science Symposium Organising Committee

Member: Worlds Poultry Science Association

Associate Editor: Animal Production Science

Adj. Assoc. Prof. Peter Selle::

Associate Editor: Poultry Science

Member: Australian Poultry Science Symposium Organising Committee

Dr. Stuart Wilkinson

Member: Worlds Poultry Science Association

Member: Australian Poultry Science Symposium Organising Committee

Dr. Greg Cronin

Member: Editorial Advisory Board, Applied Animal Behaviour Science

Member: Australian Society for Animal Production

Associate of the Animal Welfare Science Centre

Dr. Jeff Downing:

Member: Worlds Poultry Science Association

Member: Pork CRC Research and Development Committee

Member: Pork CRC Education Committee

Member: Australasian Pig Science Association

Dr. Yumin Bao

Member: Worlds Poultry Science Association

Dr. Mini Singh

Member: Worlds Poultry Science Association

Member: Australian Society for Animal Production



CONFERENCE ATTENDANCE, PRESENTA- TIONS, ACKNOWL- EDGEMENTS AND AWARDS

CONFERENCE ATTENDANCE AND PRESENTATIONS BY PRF STAFF AND STUDENTS

25th Annual Australian Poultry Science Symposium, Sydney, February 2014 -

Presentations by Yumin Bao, Dean Powell, Sonia Yun Liu, Peter Selle, Tugrul Durali, Kate Hartcher and Emma Bradbury.
Attended by Wendy Muir, Mini Singh, Jeff Downing, Peter Groves, Linda Browning, Stuart Wilkinson, Ha Hong Truong Ryan Hopcroft and Greg Cronin.

Poultry CRC Post Graduate Meeting, Melbourne, March 2014

Attended by: Ha Hong Truong, Mini Singh, Dean Powell, Emma Bradbury and Kate Hartcher

16th European Poultry Science Conference, Stavanger ,Norway, June 2014 -

Presentations by: Wendy Muir, Mini Singh, Emma Bradbury & Dean Powell

International Society for Applied Ethology 48th International Congress, Vitoria-Gasteiz, Spain, July/August 2014

Presentation by: Kate Hartcher

International Symposium of Herbivore Nutrition, Canberra, September 2014

Presentation by: Ha Hong Truong
Attended by: Greg Cronin

Feedworks Nutrition Workshop, Coolum, QLD, September 2014 -

Presentations by: Jeff Downing, Sonia Yun Liu and Ha Hong Truong

Poultry CRC Ideas Exchange, Gold Coast, September 2014

Presentation by: Kate Hartcher and Jeff Downing

Attended by: Ha Hong Truong, Sonia Yun Liu, Dean Powell, Emma Bradbury, Kate Hartcher, Greg Cronin and Mini Singh

Poultry CRC Feed Formulation Workshop, Armidale

Attended by: Ha Hong Truong, Ryan Hopcroft Emma Bradbury, Dean Powell and Kate Hartcher

Faculty of Veterinary Science Postgraduate Conference, Sydney, October 2014

Organised by: Jeff Downing
Presentations by: Dean Powell, Emma Bradbury, Ha Hong Truong, Tugrul Durali and Kate Hartcher

Regional Meeting of the International Society for Applied Ethology, Sydney, October 2014

Presentation by: Greg Cronin

World Poultry Science Conference, New Zealand, October 2014

Presentation by: Tugrul Durali

Eurotier, Hannover, Germany, November 2014

Attended by: Ha Hong Truong and Peter Selle

ACKNOWLEDGMENTS

Thankyou to all of our research partners who funded research projects, student scholarships and post-doctoral fellowships throughout 2014:

- RIRDC
- Poultry CRC
- AECL
- Feedworks
- Danisco
- DSM
- AB Vista
- Baiada

The 25th Annual Australian Poultry Science Symposium was held 16th-19th February, 2014. The Poultry Research Foundation in conjunction with the World's Poultry Science Association (Australian Branch) organised this combined meeting which presented subjects of "Early Chick Nutrition" and "The Role of Gut Health in Poultry Production" along with hot topic sessions on "Feed Ingredient Quality" and "Leg Health and Flock Mobility". The 25th anniversary saw a change in venue, taking the conference back to where it all began in the Great Hall and Eastern Avenue. We had 7 internationally acclaimed speakers and 1 local authority who were invited to present their recent research outcomes and concepts for a crowd of approximately 210 attendees. In total, there were 55 contributing papers presented.

A highlight of the conference was the symposium dinner, held at the Crystal Palace Ballroom at Luna Park. Delegates caught a Sydney Ferry

from King St Wharf across the harbour. During cocktail hour our guests took a ride on the iconic Ferris Wheel taking in views of the harbour bridge and surrounding Sydney area. After meals were served and presentations made, everyone danced the night away to live music. It was a great night had by all.

INVITED SPEAKERS:

Prof. Theo Niewold – Universiteit of Leuven, Belgium

Dr. Hyun Lillehoj – USDA - Agricultural Research Service, USA

Prof. Sandra Velleman – Ohio State University, USA

Prof. Orna Halevy – The Hebrew University of Jerusalem, Israel

Dr. John Black – John L. Black Consulting, Australia

Dr Jan Dirk van der Klis – Schothorst Feed Research, The Netherlands

Prof. Layi Adeola – Purdue University, USA

Dr. Randy Mitchell – Purdue Food LLC, USA

Sponsorship of the APSS 2014 was kindly supported by:

Invited Speaker Sponsors	Poultry Research Foundation RIRDC Chicken Meat Program University of Sydney
Gold Sponsors	Alltech Biotechnology Pty. Ltd. AECL Egg Program Poultry CRC
Silver Sponsors	Feedworks DSM Nutritional Products Ltd. BEC Feed Solutions Adisseo Aviagen ADM Elanco Animal Health AB Vista Feed Ingredients
Bronze Sponsors	Biomin Australia JEFO Australia Phibro Animal Health Corporation Evonik Industries
Item Sponsors	Evonik Industries Zoetis Australia Kemin ADM Feedworks Phibro Animal Health Corporation

AUSTRALIAN POULTRY SCIENCE SYMPOSIUM 2014

FOUNDATION RESEARCH IN REVIEW

The Poultry Research Unit has been very active in both the broiler and layer research fields for more than 50 years here at Camden. Some major contributions to research and industry during this time have been in the areas of:

1. Amino Acid Digestibility Studies (RIRDC)
2. Modulation of lean tissue deposition by dietary fatty acids (RIRDC; ARC)
3. Development of a non-invasive test for stress in laying hens (RIRDC)
4. Mucosal immunity in chickens (RIRDC)
5. Nutritional and toxicological evaluation of transgenic plants (CSIRO Division of Plant Industry)
6. Application of feed enzymes (Industry)
7. Mycotoxins in poultry feeds (ADAB)
8. Egg Shell Quality (RIRDC)
9. Amino acid balance for heat stressed broilers (Industry)
10. Nutritional requirements of recently imported layer stock (RIRDC)

We will continue to serve the needs of research, industry and teaching over years to come.

CURRENT RESEARCH PROJECTS

DR. PETER GROVES:

RIRDC Chicken Meat project 8616: "Opportunities to improve broiler locomotory ability." This project has examined different incubation profiles and their subsequent effect on the hatched broilers' leg strength. From studies on the contents of the residual yolk at hatch it has been determined that the amount of calcium available to the chick from the yolk is much

higher than remaining phosphorus. Coupled with this we have chicks that hatched early and remained in the hatcher incubator for up to 24 hours before takeoff show a lower bone ash percentage compared to later hatched chicks but also the early chicks show elevated serum calcium levels but their serum phosphorus remains the same. This indicates that the lower observed bone ash results may be due to a relative deficiency of phosphorus. Early hatched chicks which have early access to feed have much better bone mineralization at the same age. This effect is only demonstrable in one of the commercial breeds of meat chicken. This breed also has a different incubation trajectory to the other. Overall this indicates an opportunity to develop a different incubation profile for each breed to maximize their subsequent bone strength.

DR. WENDY MUIR:

1. RIRDC Chicken Meat Project No: PRJ-8616 Opportunities to improve broiler locomotory ability; with senior investigator Dr Peter Groves. Dr Groves has provided an outline of this project above.
2. Australian Poultry CRC Project – in association with Professor Sandra Velleman at Ohio State University and PhD student Dean Powell, "Investigating the effect of nutritional status on chicken satellite cell determination, proliferation and differentiation". During 2014 Dean has continued with the in-vivo components of this project. This has included continued analysis of satellite cell development, gene expression and cell fate from the first in-vivo study. A second chicken experiment, investigating the effect of hatch time and access to feed on satellite cell activity and muscle development in broiler chickens, was completed. Laboratory analysis of samples continues.

DR. JEFF DOWNING:

Poultry CRC Project: Proteomic measures of albumen degradation as indicators of egg freshness. A co-funded PhD scholarship was sourced which allowed Ferdusai Bergum to be appointed to the project. The objective of the project is to find specific proteomic makers of albumen degradation which can be used to assess egg freshness. The essential activities to complete in the first year were to develop an efficient protein extraction procedure and develop the 2D-PAGE methodology. In the first study eggs were collected from hens on day 1 and then stored at 40C, 170C or at room temperature. Eggs were sampled at day 1, 7, 24, 21 and 28 after laid. The albumen protein was collected at these times and stored at -800C and is being processed using the 2D-Gel analysis. At each sampling time the albumen height and egg weight were determined for Haugh unit determination.

DR. GREG CRONIN:

During 2014 Greg Cronin conducted the third experiment in his AECL-funded project investigating the effects of factors in the rearing environment on the development of feather pecking and cannibalism in free range hens. The first peer-reviewed paper by Kate Hartcher for her PhD was accepted for publication in Applied Animal Behaviour Science on 24 December 2014. Greg also completed a Pork CRC-funded project on piglet survival and growth in farrowing pens compared to crates, and the final report for the project was submitted and accepted by the Pork CRC.

DR. SONIA LIU

The geometric framework in poultry project kicked off in Feb, 2014. The project includes 5 feeding studies

in 3 years of time. It is collaboration between Charles Perkins Centre and Poultry Research Foundation. It is the first time that nutritional geometry applies in poultry nutrition. Also, this may extend the possibility of using broilers as an animal model to understand glucose absorption and diabetes in human. In 2014, two large scale feeding studies have been completed. The focus of these two feeding studies was the interactions of starch, protein and fat on growth performance and nutrient utilisation in broiler chickens. The key findings are that feed intake decreased with dietary fat concentration in iso-energetic diets. The optimal feed conversion can be achieved when the energy derived from starch, protein and fat equally distributed. A manuscript based on the first feeding study is under preparation and we are aiming to submit it to British Journal of Nutrition. The carcass samples from the second feeding study are being processed and the report is being prepared.

DR. MINI SINGH:

1. Poultry CRC Project 2.1.7 Milestone 4: Collaborative trial, with scientists at CSIRO, Cheswick and UNE, Armidale, involved understanding the performance and digestibility in a multi-modal distribution of birds identified using RFID (radio frequency identification) technology, with a proportion of the flock that use the range routinely and a proportion that use the range rarely, if at all. Significant differences were observed within subpopulations with different range access patterns.

2. Poultry CRC Project 2.1.7 Milestone 5: Trial was conducted to determine if choice feeding of whole grains (WG) could be used as a strategy to reduce heat stress in free range broilers especially during summer months. The rationale behind the trial was identify how much WG FR broilers will voluntary

consume, to investigate whether WG intake can mitigate heat stress, to see if provision of WG helps balance nutrient intake given the variable intake of grass (low energy, high K) and to investigate whether FR broilers fed WG have more 'robust' GI tracts (esp. gizzard) that may improve their resilience to enteric disease and/or grass consumption etc.

3. Inception and coordination of the Poultry CRC funded "Free Range Poultry Survey 2014" in collaboration with researchers from PIRSA-SARDI, DAFF QLD, CSIRO AND UNE, Armidale and various independent consultants. Information on geographical location, demographics, management practices, vegetation cover, nutrition, health, environmental load and range access along with level of adaptation by farmers was gathered. Follow up trips to various free range farms across Australia were conducted and feed and soil samples collected.

4. Additionally, working in an international development project in collaboration with Robyn Alders at USyd and B4MD (an Australian based NGO) to develop a poultry out grower program in Kwale county of Kenya.

5. Poultry CRC Project 1.5.7 AI Risk: Started work on recently commissioned Poultry CRC funded and USyd hosted project in collaboration with scientists from NSW DPI, CSU and ANU that will undertake research and extension with the aim to safeguard the Australian chicken industry from avian influenza virus (AIV H5 or H7) outbreaks.

ADJ. ASSOC. PROF. PETER SELLE:

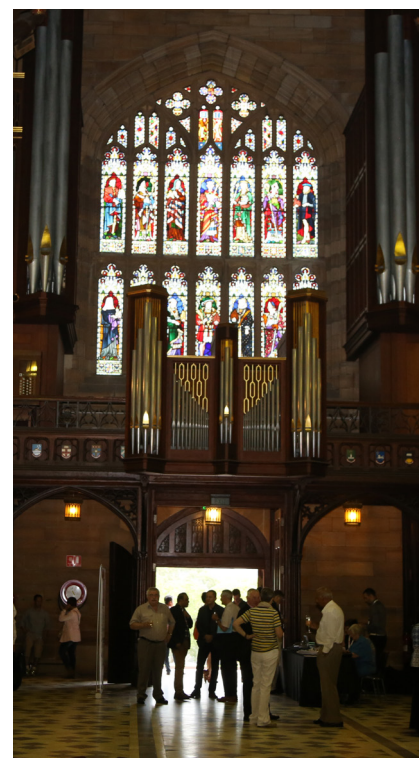
In 2014 Peter's PRF involvements included the following.

Supervision of Ms Ha Truong's PhD candidature; Dr Sonia Liu is Ha's Co-Supervisor.

Principal Investigator of three projects funded by RIRDC Chicken-meat. These projects are related to (i) utilisation of grain sorghum starch, (ii) whole grain feeding and (iii) the problem of 'wet-

litter'. Completion of a contract R&D study for Feedworks.

In November, Ha Truong and Peter Selle were invited by Danisco Animal Nutrition to visit their head-quarters in Marlborough, UK and to attend Eurotier in Hannover, Germany. At Eurotier, Peter presented a paper entitled "The maturity or immaturity of phytate and phytase" in a seminar hosted by the trade magazine All About Feed. Peter Selle co-authored 10 publications in peer-reviewed journals and gave a similar number of presentations at various conferences plus giving lectures to fourth year AVBS undergrads. Present interests include slowly digestible starch in relation to whole grain feeding, the influence of phytate on glucose absorption in broiler chickens and humans, the impact of branched-chain amino acids on catabolism of amino acids in the gut mucosa and their post-enteral availability and sodium metabisulphite..





The PRF continues to collaborate with the Charles Perkins Centre and a three-year joint post-doctoral fellowship began in February, 2014, to extend the Geometric Framework to broiler nutrition. The project aims to extend the Geometric Framework (GF) for nutrition to commercial poultry nutrition and diet optimization. The primary objective is to use the Geometric Framework for the first time to understand regulation of protein and carbohydrate intake in broiler chickens. This will enable diets to be formulated to optimise multiple output criteria including meat yield and flesh quality, feed efficiency, animal health and welfare, and environmental waste.

Dr. Peter Groves is continuing collaborations with Prof. Steve Walkden-Brown from UNE on Mareks Disease and is co-supervising two postgraduate students, including one at UNSW.

Dr. Wendy Muir is collaborating with Prof. Sandra Velleman (Ohio State University) on meat quality.

In 2014 collaboration between A/Prof. Peter Selle and a number of people from several organisations continued. These included Mr Denis McGrath (Australian Feed Grains Partnership), Dr Tom Roberts and Mr Ali Khoddami (Faculty of Agriculture and Environment), Mr Bernie McNerney (Australian Proteome Analysis Facility), Dr Robert Caldwell and Ms Jingwen Cae (Faculty of Agriculture and Environment), and Mr Greg Hargreave and Ms Robyn Surry (Baiada Poultry) in relation to various aspects of grain sorghum.

Dr. Jeff Downing is collaborating with Dr. Anthony Keyburn (CSIRO) on a CRC grant on a new test for poultry welfare.

Dr. Greg Cronin is collaborating with Prof. Paul Hemsworth and Dr. Jean Loup Rault (both from the University of Melbourne) on free-range laying hen behaviour and welfare, and Associate Professor Susanne Hermes (University of New England) on research on piglet vitality and viability in pen farrowing systems.

Dr Mini Singh was involved in a lot of collaborative research in 2014. The Poultry CRC funded "Free Range Poultry Survey 2014" was in collaboration with researchers from PIRSA-SARDI, DAFF QLD, CSIRO AND UNE, Armidale and various independent consultants. Her work on developing a poultry out grower program in Kwale county of Kenya was in collaboration with Robyn Alders at USyd and B4MD (an Australian based NGO). Mini also began collaboration with scientists from NSW DPI, CSU and ANU that will undertake research to safeguard the Australian chicken industry from avian influenza virus (AIV H5 or H7) outbreaks.

Kate Hartcher was invited to attend the Hen Welfare RD&E 3rd Stakeholder Workshop which is run by the Australian Egg Corporation Limited. She was involved with the Poultry CRC and the Department of Education, doing some filming for schools on poultry welfare and wrote a unit for Certificate III for TAFE NSW (in collaboration with the Poultry CRC).

RESEARCH COLLABORA- TION AND INDUSTRY SERVICES

COMMUNICATIONS

PUBLICATIONS FROM PRF STAFF AND STUDENTS FOR 2014:

Wilkinson SJ, Downing JA, Thomson PC & Newman RE (2014) Dietary fatty acid affect the growth, body composition and performance of post-weaning gilt progeny. *Animal Production Science*, 54: 329-338.

Groves P & Muir W (2014) A meta-analysis of experiments linking incubation conditions with subsequent leg weakness in broiler chickens. *PloS One*, 9(7): e102682-1 - e102682-8.

Powell D, McFarland D, Cowieson A, Muir W & Velleman S (2014) The effect of nutritional status and muscle fibre type on myogenic satellite cell fate and apoptosis. *Poultry Science*, 93: 163-173.

Powell D, McFarland D, Cowieson A, Muir W & Velleman S (2014) The effect of nutritional status on myogenic gene expression of satellite cells derived from different muscle types. *Poultry Science*, 93(9): 2278-2288.

Powell D, McFarland D, Muir W, Cowieson A & Velleman S (2014) Influence of nutritional restriction on satellite cell activity and adipogenic transdifferentiation. *Proceedings of the Australian Poultry Science Symposium*, 25: 13-16.

Powell D, McFarland D, Muir W, Cowieson A & Velleman S (2014) The effect of nutritional restriction on the myogenic satellite cell proliferation and adipocyte formation. *XIVth European Poultry Conference*, Stravanger, Norway.

Muir W & Groves P (2014) The impact of early incubation conditions on bone development in Cobb 500 broiler chicks. *XIVth European Poultry Conference*, Stravanger: Norway

Newman RE, Downing JA, Thomson PC, Collins CL, Henman DJ & Wilkinson SJ (2014) Insulin secretion, pig performance, and body composition

are altered by the feeding pattern. *Animal Production Science*, 54: 319-328.

Celi P, Selle PH & Cowieson AJ (2014) Effects of organic selenium on growth performance, nutrient utilisation, oxidative stress and selenium tissue concentrations in broiler chickens. *Animal Production Science* 54, 966-971.

Liu SY, Truong HH & Selle PH (2014) Whole-grain feeding for chicken-meat production: possible mechanisms driving enhanced energy utilisation and feed conversion. *Animal Production Science* dx.doi.org/10.1071/AN13417.

Liu SY, Selle PH & Cowieson AJ (2014) Steam-pelleting temperatures and grain variety of finely-ground, sorghum-based broiler diets. II. Influence on starch and nitrogen digestion kinetics in the small intestine of broiler chickens. *International Journal of Poultry Science*, 13, 308-315.

Liu SY, Selle PH, Khoddami A, Roberts TH & Cowieson AJ (2014) Graded inclusions of sodium metabisulphite in sorghum-based diets: II. Modification of starch pasting properties in vitro and beneficial impacts on starch digestion dynamics in broiler chickens. *Animal Feed Science and Technology*, 190, 68-78.

Liu SY, Cadogan DJ, Péron A, Truong HH & Selle PH (2014) Effects of phytase supplementation on growth performance, nutrient utilisation and digestive dynamics of starch and protein in broiler chickens offered maize-, sorghum- and wheat-based diets. *Animal Feed Science and Technology* 197, 164-175.

Liu SY, Cadogan DJ, Péron A, Truong HH & Selle PH (2014) A combination of xylanase, amylase and protease influences growth performance, nutrient utilization, starch and protein

digestive dynamics in broiler chickens offered maize-, sorghum-, and wheat-based diets. *Animal Production Science* dx.doi.org/10.1071/AN14657

Selle PH, Liu SY, Cai J, Caldwell RA & Cowieson AJ (2014) **Graded inclusions of sodium metabisulphite in sorghum-based diets: I. Reduction of disulphide cross-linkages in vitro and enhancement of energy utilisation and feed conversion efficiency in broiler chickens.** *Animal Feed Science and Technology*, 190, 59-67

Selle PH, Liu SY, Cai J & Cowieson AJ (2014) **Steam-pelleting temperatures and grain variety of finely-ground, sorghum-based broiler diets. I. Influence on growth performance, relative gizzard weights, nutrient utilisation, starch and nitrogen digestibility.** *Animal Production Science* 54, 339-346

Liu SY, Selle PH & Cowieson AJ (2014) **Steam-pelleting temperatures and grain variety of finely-ground, sorghum-based broiler diets. II. Influence on starch and nitrogen digestion kinetics in the small intestine of broiler chickens.** *International Journal of Poultry Science*, 13: 308-315

Liu SY, Bold R, Plumstead PW & Selle PH (2014) **Performance recoveries from standard and elevated phytase inclusions in maize-based broiler diets with two tiers of reduced nutrient specifications.** *Animal Feed Science and Technology* (submitted)

Truong HH, Yu S, Peron A, Cadogan DJ, Khoddami A, Roberts TH, Liu SY & Selle PH (2014) **Phytase supplementation of maize-, sorghum- and wheat-based broiler diets, with identified starch pasting properties, influences jejunal and ileal digestibilities of phytate (IP6) and sodium.** *Animal Feed Science and Technology* 198, 248-256.

Wilkinson SJ, Selle PH, Bedford MR & Cowieson AJ (2014) **Separate feeding of calcium improves performance and ileal nutrient digestibility in broiler chicks.** *Animal Production Science* 54, 172-178.

Liu SY, Peron A, Cadogan DJ, Truong HH & Selle PH (2014) **Phytase supplementation of maize-, sorghum- or wheat-based diets.** *Proceedings, Australian Poultry Science Symposium* 25, 41-44.

Liu SY, Khoddami A, Roberts TH & Selle PH (2014) **Phenolic compounds and phytase influence starch and protein digestion rates in sorghum-based broiler diets.** *Proceedings, Australian Poultry Science Symposium* 25, 44-48.

Liu SY, Cowieson AJ & Selle PH (2014) **The relevance of starch and protein digestive dynamics in sorghum-based broiler diets.** XIVth European Poultry Conference, Stavanger, Norway

Selle PH, Liu SY, Cai J, Caldwell RA, Khoddami A & Roberts TH (2014) **Sodium metabisulphite influences sites of starch digestion, energy utilisation and feed conversion in sorghum-based broiler diets.** *Proceedings, Australian Poultry Science Symposium* 25, 89-92.

Bradbury EJ, Wilkinson SJ, Cronin GM, Thomson PC, Bedford MR & Cowieson AJ (2014) **Nutritional geometry of calcium and phosphorus nutrition in broiler chicks. Growth performance, skeletal health and intake arrays.** *Animal* 8: 1071-1079.

Cameron C, Lyons N, Millapan L, Talukder S, Cronin GM, Kerrisk K & Garcia S (2014) **Rumination and activity levels as predictors of calving in pasture-based dairy cows.** *Animal*. doi:10.1017/S1751731114003127

Cronin GM, Rault J-L & Glatz PC (2014) **Lessons from past experience with intensive livestock management**

systems. *OIE Scientific and Technical Review*, 33(1): 139-151.

Fogarty ES, Manning JK, Trotter MG, Schneider DA, Thomson PC, Bush RD & Cronin GM (2014) **GNSS technology and its application for improved reproductive management in extensive sheep systems.** *Animal Production Science*. On-line 2nd Dec 2014; <http://dx.doi.org/10.1071/AN14032>

Hartcher KM, Tran KTN, Wilkinson SJ, Hemsworth PH, Thomson PC & Cronin GM (2014) **The effects of rearing treatments, beak-trimming and environmental enrichment, on the reaction to novelty during rearing and feather damage in adulthood in free range laying hens.** *Applied Animal Behaviour Science*, 164: 64-72

Manning JK, Fogarty ES, Trotter MG, Schneider DA, Thomson PC, Bush RD & Cronin GM (2014) **A pilot study into the use of GNSS technology to quantify the behavioural responses of sheep during simulated dog predation events.** *Animal Production Science* 54: 1676-1681.

Wilson RL, Holyoake PK, Cronin GM, Doyle RE (2014) **Managing animal wellbeing: a preliminary survey of pig farmers.** *Australian Veterinary Journal* 92(6): 206-212.

Cronin GM, Beganovic DF, Sutton AL, Palmer DJ, Thomson PC & Tammen I (2014) **Observations on altered behaviour and growth in the Australian cln6 merino sheep model.** 14th International Conference on Neuronal Ceroid Lipofuscinoses (Batten Disease) & 2nd International Patients Organization Meeting, Córdoba, Argentina, October 22nd to 26th 2014, Hotel Sheraton, Córdoba, Argentina. Abstract published in *Medicina (Buenos Aires)* Vol 74 Supl. 2, P-24.

Fogarty ES, Manning JK, Trotter MG, Schneider DA, Thomson PC, Bush RD &

Cronin GM (2014) Sheep reproductive behaviour: The application of GNSS technology to detect changes in sheep movement patterns at oestrus. Proceedings of the 30th Biennial Conference of the Australian Society of Animal Production, Vol. 30; S. Hatcher, GL Krebs & BWB Holman (eds), National Convention Centre, Canberra; 8-12 Sept 2014; p. 104.

Hartcher K, Tran M, Wilkinson S, Hemsworth PH & Cronin GM (2014) The attractiveness of loose feathers to free-range laying hens exhibiting severe feather-pecking. Australian Poultry Science Symposium 25: 117.

Larsen H, Cronin GM, Hemsworth PH, Smith C & Rault J-L (2014) Behaviour of free-range laying hens in distinct outdoor environments. 48th Congress of the International Society for Applied Ethology (ISAE), Spain, p186.

Manning JK, Fogarty ES, Trotter MG, Schneider DA, Bush RD & Cronin GM (2014) Can remote sensing technology improve the welfare of sheep during predation events? Regional Meeting of the International Society for Applied Ethology, University of Sydney Camperdown, 29 Oct 2014, p. 9.

Trotter T, Economou Z, Barwick J, Dickson S, Dobos R, Schneider D, Bailey D, Fogarty E, Manning J, Bush R, Cronin G & Lamb D (2014) Next-gen technologies for the grazing industries – from yield mapping pastures to virtual fencing of livestock. Proceedings. Precision Agriculture Symposium.

Singh M, Durali, T, Cowieson AJ (2015) Use of n-alkanes for determination of Kikuyu grass (Pennisetum clandestinum) intake in free-range broilers. Animal Production Science (Accepted).

Masey-O'Neill HV, Singh M, Cowieson AJ (2014) Effects of exogenous xylanase on performance, nutrient

digestibility, volatile fatty acid production and digestive tract thermal profiles of broilers fed on wheat or maize based diets, British Poultry Science DOI:10.1080/00071668.2014.898836.

Ruhnke I, Dekoning C, Drake K, Glatz P, Skerman A, Hinch G, Sommerlad M, Singh M (2015) Free range farm demographics and practices in Australia – preliminary data. In '25th Annual Australian Poultry Science Symposium, Sydney, New South Wales, Australia, 16-19 February 2014.' pp. 260. (Poultry Research Foundation: Camden)

Singh M, Cowieson AJ (2014) Manipulating energy density and dietary electrolyte balance in diets of free range broilers. In 'The XIVth European Poultry Conference (EPC), Stavanger, Norway, 23 – 27, June, 2014. pp.438

Durali, T, Groves, P, Cowieson, AJ, Singh, M (2014) Evaluating range usage of commercial free range broilers and its effect on bird performance using radio frequency identification (RFID) technology. In '25th Annual Australian Poultry Science Symposium, Sydney, New South Wales, Australia, 16-19 February 2014.' pp. 150-153. (Poultry Research Foundation: Camden)

INVITED PRESENTATIONS FROM PRF STAFF AND STUDENTS IN 2013:

Liu SY (2014) Geometric chickens: The interaction of macronutrients on growth performance of broiler chickens. Feedworks Nutrition Workshop, September 17-20, 2014. Coolum, Qld.

Groves PJ (2014) How do we determine the cause of wet litter? Australasian Veterinary Poultry Association Scientific Meeting, May 28-29, 2014, Gold Coast, Queensland.

Selle PH (2014) The maturity or immaturity of phytate and phytase.

Seminar held by "All About Feed" magazine in conjunction with Eurotier. Wednesday 12th November, 2014. Hannover, Germany

Selle PH & Truong HH (2014) Poultry Research Foundation: current and future research. Internal presentation to Danisco Animal Nutrition. November 7, 2014. Marlborough, UK.

Selle PH & Truong HH (2014) The wonderful world of phytate, phytase, digestive dynamics of starch and protein, sorghum, whole grain feeding, sodium metabisulphite and all hands to the sodium pump. Internal presentation to Danisco Animal Nutrition. November 10, 2014. Marlborough, UK.

Selle PH, Truong HH & Liu SY (2014) Whole grain feeding [WGF] generates more than bigger and better gizzards. Feedworks Nutrition Workshop. September 17–20, 2014. Coolum, Queensland.

Truong HH, Liu SY & Selle PH (2014) Phytase supplementation of maize-based diets primes the sodium-pump. Feedworks Nutrition Workshop. September 17–20, 2014. Coolum, Queensland.

Singh M (2014) 'Role of pasture in the nutrition of free range birds' 2014 SA Poultry Industry Day organized by the South Australian Sub Branch of the WPSA., PIRSA-SARDI, October 2, 2014, University of Adelaide, Roseworthy Campus, South Australia.

Cronin GM (2014) Can non-confinement housing for the farrowing sow and her litter be successfully achieved in intensive pig production in Australia? Regional Meeting of the International Society for Applied Ethology, October 29, 2014, University of Sydney Camperdown, NSW.



2014 has been an extremely busy year with almost back to back trials in all of our facilities, mostly though for funded research trials which do not contribute to our foundation accounts. You will note the small amount in "Other income" this is now basically miscellaneous income, CRC reimbursement of some student expenses. Internal reclassification of accounts within the University accounting structure now has any trial work completed through the PRF for small commercial trials come in under "Business and Investment Income"

Memberships have remained relatively constant, so a big thank you to the members for their continued support during this uncertain time of searching for a new Director. Thanks needs to go to Dr. Peter Groves for his ongoing support as Acting Director through the bulk of the year and congratulations to him on his placement as Director of the Foundation in December 2014.

There are a few big standouts in the financials, one being the increase in Services and Utilities- this includes \$41K of catering for APSS. Travel, Conference and Entertainment was another one this was largely due to a very understated 2013 this normally sits around the \$100K mark which includes our expenses for invited speakers for APSS and associated accommodation

and catering expenses. The other one is a new one to the reporting line of Commercial Business Expenses, this includes specialised medical testing (sample analysis), feed, livestock, and outside contractors payments, as I mentioned earlier there was a lot of trial work happening through the year and associated costs sometimes run through the PRF operating account and are then credited back at the end of the research trial when ingredients for diets etc are worked out.

The figure of almost \$145K as overspend this year also has some accrued expenses - Purchase Orders that were raised through 2014 amounting to approx.. \$45K that should have been cancelled before the end of the year due to non supply and about \$5K of internal expenses charged for removal of asbestos from our drying oven plus another \$4.5K on CIS work around the sheds.

Overall though, I feel that we are still in a relatively strong position and with the decision finalised about the Director of the Foundation and the strong community we have amongst the staff and students at the PRF we will look forward 2015.

Jo-Ann Geist,
March 2015

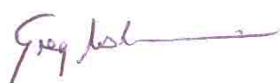
FINANCIAL REPORT AND STATEMENTS

The University of Sydney
The Poultry Research Foundation

Income Statement
for the year ended 31st December 2014

	Notes	2014 \$	2013 \$
INCOME			
Business and Investment Income	2	239,742	370,989
Memberships and Subscriptions		82,000	68,000
Symposium Income		125,594	138,695
Other Income		267	80,642
Total Income		447,603	658,326
EXPENDITURE			
Salaries	3	241,694	488,886
Consumables		27,626	28,917
Equipment and Repairs & Maintenance		35,303	64,017
Services and Utilities		57,735	17,752
Travel, Conferences and Entertainment	4	118,580	52,907
Contributions to University areas		4,330	5,036
Commercial Business Expenses		104,452	-
Other Expenses		2,726	-
Total Expenditure		592,447	657,516
SURPLUS / (DEFICIT)		(144,845)	810
Accumulated Funds brought forward 1st January		379,384	377,242
Prior Year Adjustment	5	5,588	1,332
Accumulated Funds as at 1st January		384,972	378,574
ACCUMULATED FUNDS AS AT 31ST DECEMBER		240,127	379,384

I certify that the Income Statement and Balance Sheet of the Foundation have been prepared in accordance with the University's accounting practices and procedures. These Foundation accounts form part of the University of Sydney's financial reports.



Greg Robinson
Finance Director
Divisions of Natural Sciences, Engineering & Information Technologies and Business
10th February 2015

The University of Sydney
The Poultry Research Foundation

Balance Sheet
as at 31st December 2014

	2014 \$	2013 \$
ASSETS		
CURRENT ASSETS		
Short Term Investments	240,127	381,384
Total Current Assets	<u>240,127</u>	<u>381,384</u>
TOTAL ASSETS	<u>240,127</u>	<u>381,384</u>
LIABILITIES		
CURRENT LIABILITIES		
Payables	-	2,000
Total Current Liabilities	<u>-</u>	<u>2,000</u>
TOTAL LIABILITIES	<u>-</u>	<u>2,000</u>
NET ASSETS	<u>240,127</u>	<u>379,384</u>
EQUITY		-
Accumulated Funds	240,127	379,384
TOTAL EQUITY	<u>240,127</u>	<u>379,384</u>

Notes to the Financial Statements

1. Accounting Policies
 - The financial statements have been prepared on a modified accrual accounting basis.
 - All fixed assets are expensed in the year of purchase.
 - Employee entitlements for Long Service Leave are held centrally in the University's accounts.
 - The University (including the Foundations) is exempt from income tax.
2. Business and Investment Income includes \$62,500 regarding outside trial work for Poultry Research Foundation and Industry members.
3. Salary Costs in 2014 decreased significantly over the Prior Year due to vacancy of the Director's position and discontinuation of Post-Doc positions.
4. Travel, Conferences and Entertainment includes costs associated with the Symposium and additional travel of students and staff for conferences.
5. Prior Year Adjustment includes CIS-issued credit of \$5,588 regarding completion of the Shed Building Extension project under Budget.



The University reserves the right to make alterations to any information contained within this publication without notice. UPS50683

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