

**Queensland**

**The University of Queensland**

**LP0884051** Prof PF Alewood; Dr HC Deeth; Dr MC Broome

**Approved Project Title** **Markers of milk quality in commercially produced UHT milks and milk powders**

**2008 :** \$ 35,000

**2009 :** \$ 70,000

**2010 :** \$ 70,000

**2011 :** \$ 35,000

**Primary RFCD** 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

**Collaborating/Partner Organisation(s)**

Dairy Innovation Australia Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

Efficient production of safe, wholesome food relies on the application of the best available knowledge of the food material and the processing technologies involved. This project applies proteomics, the most advanced protein analysis technique, to determine the changes that occur in milk during high heat treatment and subsequent storage of the heat-processed milk product. Armed with such knowledge, the dairy processing industry will be able to make informed decisions about processing and storage conditions to ensure the final products provided to the consumer are of the highest possible quality.

**LP0883462** Dr J Batley; A/Prof D Edwards

**Approved Project Title** **Characterising genetic variation in Brassica napus**

**2008 :** \$ 141,509

**2009 :** \$ 283,019

**2010 :** \$ 283,019

**2011 :** \$ 141,509

**Primary RFCD** 2702 GENETICS

APA(I) Award(s): 2

**Collaborating/Partner Organisation(s)**

Bayer BioScience N.V.

New South Wales Department of Primary Industries

Australian Genome Research Facility Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

Applying the latest scientific advances supports society through promoting a knowledge based economy, as well as through securing agricultural productivity and biomedical applications. Establishing these methods places Australia at the forefront of genomics technology with direct applications for Australian agricultural, biomedical and biotechnology industries. Maintaining agricultural production in an unreliable environment remains a national challenge, both for rural and urban communities. This technology will provide a detailed understanding of crop genome variation in relation to agronomic traits and lead to the development of crops that are better suited to the Australian climate, supporting a sustainable agricultural industry.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883861** Dr JJ Corcoran; Dr P Chhetri; Prof RJ Stimson

**Approved Project Title** **Enhanced agency response strategies through modelling geo-temporal characteristics of emergency services calls**

**2008 :** \$ 16,458

**2009 :** \$ 34,731

**2010 :** \$ 38,887

**2011 :** \$ 20,614

**Primary RFCD** 3704 HUMAN GEOGRAPHY

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Queensland Fire and Rescue Service

**Administering Organisation** The University of Queensland

**Project Summary**

Understanding the timing and geographic distribution of emergency calls to agencies such as Fire, Police and Ambulance, is critical to improving emergency response and developing effective preventive strategies. In turn, improved response and prevention strategies can help save lives and minimise economic costs. This project uses advanced geographic and statistical methods to analyse fire incidents and develop the evidence base necessary to inform effective response and prevention strategies. The project will critically assist emergency fire response, but will also provide a case study that can be adapted for other kinds of emergency response.

**LP0883806** Prof BM Degnan; Dr MJ Sellars

**Approved Project Title** **An investigation of the underlying mechanisms that control gender and fertility in the Moreton Bay Bug, *Thenus orientalis***

**2008 :** \$ 20,000

**2009 :** \$ 45,000

**2010 :** \$ 50,000

**2011 :** \$ 70,000

**2012 :** \$ 45,000

**Primary RFCD** 3007 FISHERIES SCIENCES

**Collaborating/Partner Organisation(s)**

Lobster Harvest Pty Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

To date there is no available information on the underlying biochemical and genetic mechanisms that control gender and fertility in *Thenus* spp. Understanding how gender and fertility are controlled in this lobster species will allow development of technologies to exploit desired commercial traits such as reproductive sterility (for genetic protection). Such technologies will facilitate rapid uptake of commercial culture of this high-value species in Australia and establishment of international markets.

**LP0883650** Prof J Foster; Prof JC Quiggin; Dr PE Simshauser; Mr CJ Nalder

**Approved Project Title** **Assessing the impacts of proposed carbon trading and tax schemes on the Australian electricity industry and the overall economy**

**2008 :** \$ 51,647

**2009 :** \$ 102,106

**2010 :** \$ 107,689

**2011 :** \$ 57,231

**Primary RFCD** 3402 APPLIED ECONOMICS

**Collaborating/Partner Organisation(s)**

Babcock & Brown Power Pty Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

Currently, policymakers require a much clearer understanding of the impacts of different carbon abatement policies. Mounting evidence on global warming is making this an increasingly urgent priority. The proposed project is specifically concerned with using state of the art economic modelling approaches to give the best advice possible to policymakers in crafting an environmentally sustainable set of economic policy instruments that can maintain our enviable standard of living well into the future. The findings of the project will be available before the new Kyoto negotiation round commences.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883377** Dr MM Foster; Dr P Henman; Dr JM Fleming; Dr CF Tilse

**Approved Project Title** **Financing and management of lifetime care for adults with acquired disabilities and high care needs**

**2008 :** \$ 36,217

**2009 :** \$ 63,177

**2010 :** \$ 45,215

**2011 :** \$ 18,255

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Motor Accident Insurance Commission

The Public Trustee of Queensland

**Administering Organisation** The University of Queensland

**Project Summary**

Lifetime care for adults with acquired disabilities is of growing public concern. Substantial levels of unmet need, poorly coordinated services and inadequacy of care arrangements to guarantee lifetime care are pressing concerns. Coordinating multi-sector and service inputs is an ongoing problem for policy makers and providers in Australia. The proposed project will develop an empirical understanding of how current systems of financing and management of lifetime care operate at policy and service delivery levels for adults with acquired disabilities. This provides a strategic foundation for policy development and enhanced lifetime care arrangements that will be of relevance to other populations.

**LP0883644** Prof MJ Gidley; Dr GR Monteith; Dr SJ Roberts-Thomson; Prof PN Shaw; Dr RG Dietzgen

**Approved Project Title** **Nutritional properties of mango fruits: linking plant genomics to cellular bioactivities**

**2008 :** \$ 45,000

**2009 :** \$ 90,000

**2010 :** \$ 90,000

**2011 :** \$ 45,000

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 2

**Collaborating/Partner Organisation(s)**

QLD Department of Primary Industries and Fisheries

**Administering Organisation** The University of Queensland

**Project Summary**

Mango fruits are prized for their sensorial properties, but little information is available on potential nutritional benefits. By using a broad-based bioactivity screen, followed up with specific bio-activity assays, molecular components within mango fruits that have the potential to deliver nutritional health benefits will be identified. This information will be used both to provide information on the properties of current mango varieties and to develop breeding tools for enhancing nutritional properties in future varieties.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883881** Prof RG Gilbert; Dr MT Gaborieau; A/Prof ID Godwin

**Approved Project Title** **Graft copolymers from starch and synthetic monomers**

**2008 :** \$ 65,000

**2009 :** \$ 135,000

**2010 :** \$ 145,000

**2011 :** \$ 75,000

**Primary RFCD** 2505 MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

APDI Dr MT Gaborieau

**Collaborating/Partner Organisation(s)**

BASF Australia

**Administering Organisation** The University of Queensland

### Project Summary

Polymer dispersions, manufactured as latexes in large quantities in Australia and elsewhere, have myriad applications, such as in adhesives, bitumen modifiers, paints and paper coatings. This project will create the enabling science to replace by starch the current synthetic products used to stop these dispersions from coagulating. This will create new uses for renewable resources and will reduce environmental insult by avoiding the leaching of biologically incompatible chemicals. By using starch from crops suited for Australia's arid climate, the new technology will reduce both our dependence on imported products and our greenhouse gas emissions.

**LP0883808** A/Prof ID Godwin; Prof CP Grof; Mr ND Muller

**Approved Project Title** **eSorghum as a bio-fuel feedstock for arid environments**

**2008 :** \$ 149,813

**2009 :** \$ 295,576

**2010 :** \$ 285,050

**2011 :** \$ 293,047

**2012 :** \$ 153,760

**Primary RFCD** 3002 CROP AND PASTURE PRODUCTION

APA(I) Award(s): 2

**Collaborating/Partner Organisation(s)**

Pacific Seeds

**Administering Organisation** The University of Queensland

### Project Summary

Increasing fuel costs, finite resources and the need to develop more carbon neutral and cleaner fuels have created a need for renewable sources. Ethanol and future generation biofuels (butanol and more energy-rich alcohols) can be extracted from biomass sources. Sorghum is an ideal bioenergy feedstock in the hotter, drier areas of Northern Australia, where starch (grain), sugar and lignocellulose (stover) can be amassed in this water efficient plant. Identifying and manipulating the genes to enable the improvement of sorghum as a dedicated bioenergy crop, will enable the increased efficiency of the Australian biofuels industry and create sustainable rural industries.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883448** A/Prof PJ Halley; A/Prof BR Bhandari; Dr JA Cichero; A/Prof LC Ward; Dr TM Nicholson

**Approved Project Title** **A Novel Rheological and Chewing and Swallowing model for the Smart Design of Texture Modified Foods for Increased Aged Health**

**2008 :** \$ 65,000  
**2009 :** \$ 125,000  
**2010 :** \$ 120,000  
**2011 :** \$ 60,000

**Primary RFCD** 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

APA(I) Award(s): 2

**Collaborating/Partner Organisation(s)**  
RSL Care

**Administering Organisation** The University of Queensland

### Project Summary

Difficulty in chewing and swallowing mean about 40% of elderly people require Texture Modified (TM) meals. Elders able to eat only very soft food textures have a 2.4 fold higher risk of mortality. However existing methods to assess the level of texture modification are poor; achieving a consistent level of TM meal is difficult; and TM meals have poor sensory properties (appearance, flavour, aroma). This work will use a novel chewing and swallowing model in conjunction with novel food flavour and property measurements to develop new texture modified foods with increased taste, ease of swallowing and nutritional value.

**LP0883380** A/Prof BD Hankamer; Dr PM Schenk; Dr UC Marx; Prof Dr CH Posten; Dr O Kruse

**Approved Project Title** **Second generation biofuels: developing environmentally friendly high-efficiency microalgae for biofuel production**

**2008 :** \$ 115,926  
**2009 :** \$ 228,124  
**2010 :** \$ 221,246  
**2011 :** \$ 109,048

**Primary RFCD** 2708 BIOTECHNOLOGY

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**  
Pacific seeds  
Advanta India Limited

**Administering Organisation** The University of Queensland

### Project Summary

The development of CO<sub>2</sub>-neutral (biodiesel) and CO<sub>2</sub>-free (hydrogen) fuels is an urgent challenge facing our society to combat climate change and protect against oil price shocks. Successful outcomes from this project will bring this innovative technology closer to commercial reality. The solar-powered microalgal systems being developed, offer a number of national/community benefits including

1. A high-efficiency frontier-technology for clean fuel production for the Australian and international market
2. A new process to desalinate water
3. Frontier technology to sequester atmospheric CO<sub>2</sub>
4. Frontier technologies for wealth generation in drought- or salinity-affected and naturally arid regions

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883314** Dr DK Harrison; Prof DC Joyce; Dr KM Davies

**Approved Project Title** **Australian native plant species as models for understanding the regulation and roles of betalain pigment synthesis**

**2008 :** \$ 16,040

**2009 :** \$ 31,108

**2010 :** \$ 28,868

**2011 :** \$ 13,799

**Primary RFCD** 3003 HORTICULTURE

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Aussie Colours Pty Ltd

**Administering Organisation** The University of Queensland

### Project Summary

This project will have triple bottom line benefits. Economic: new cultivars developed from understanding betalains will sell worldwide, generating returns, incomes and employment in urban, peri-urban and rural Australia. Social: Novel Ptilotus and Calandrinia cultivars will adorn parks and gardens around Australia, thereby enhancing quality of life. Environmental: Ptilotus and Calandrinia are inherently drought resistant. Novel ornamental cultivars will have high water use efficiency and contribute to water conservation in urban Australia in the face of drought and global warming. Moreover, understanding their synthesis and roles could yield new strategies for enhancing stress tolerance in other species, including crop plants.

**LP0883403** A/Prof SM Mahler; Prof MT Smith; Dr BD Wyse; Dr TM Woodruff; Prof PM Curmi; Dr DJ Naylor; Dr RJ Brown

**Approved Project Title** **Development of chaperonin 10-based second generation biopharmaceuticals for treatment of inflammatory diseases.**

**2008 :** \$ 45,000

**2009 :** \$ 90,000

**2010 :** \$ 90,000

**2011 :** \$ 45,000

**Primary RFCD** 3202 IMMUNOLOGY

**Collaborating/Partner Organisation(s)**

C-Bio Ltd.

**Administering Organisation** The University of Queensland

### Project Summary

Diseases caused by malfunctioning of the body's immune system (inflammatory diseases) such as rheumatoid arthritis, psoriasis and Crohn's disease cause illness in all cultures and societies, and impose financial strain on health care providers. Current treatment relies on biopharmaceuticals that block inflammatory mediators in the body or with pharmaceuticals such as anti-inflammatory drugs; both these treatments may have serious side effects. Cpn10 suppresses the body's inflammatory response while maintaining immune function to combat infections. The project seeks to develop new, safe and effective biopharmaceuticals based on Cpn10 for the treatment of a variety of chronic inflammatory diseases and autoimmune disorders.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883689** Dr PA Meehan; Dr W Daniel; Dr S Ding

**Approved Project Title** **Optimal transitional surface for a new continuous press forming process**

**2008 :** \$ 35,000

**2009 :** \$ 70,000

**2010 :** \$ 70,000

**2011 :** \$ 35,000

**Primary RFCD** 2903 MANUFACTURING ENGINEERING

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Australian Tube Mills Pty Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

This project addresses the National Research Priority - Frontier Technologies for Building and Transforming Australian Industries through smart information use. This project aims to gain fundamental scientific understanding of a manufacturing process with the aim of developing a tool that will enhance existing manufacturing processes and controls from an 'art of expertise' to a scientific understanding and improvement. This manufacturing area represents a niche market for Australian manufacturing and the development of a product that enhances productivity and reduces costs has the potential to elevate Australian manufacturers in the export market and create economic benefit for Australia.

**LP0883675** Dr JF Mueller; Dr DW Hawker; Dr ME Bartkow; Dr K Booij; Dr SD Costanzo; Dr RK Symons; Mr AJ Watkinson; Dr BL Tan; Dr BI Escher

**Approved Project Title** **Development and calibration of aquatic passive sampler technologies for emerging water pollutants**

**2008 :** \$ 50,000

**2009 :** \$ 120,000

**2010 :** \$ 110,000

**2011 :** \$ 40,000

**Primary RFCD** 2911 ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

**Collaborating/Partner Organisation(s)**

Queensland Environmental Protection Agency

Great Barrier Reef Marine Park Authority

South Australian Environmental Protection Authority

Environmental Protection Authority, Victoria

Queensland Health Forensics and Scientific Services

National Measurement Institute

Brisbane Water

Department of Water, WA

SEQWater Corporation

NSW Dept of Environment & Climate Change

**Administering Organisation** The University of Queensland

**Project Summary**

Contaminated water is a key exposure source for many emerging pollutants either direct via consumption of water or indirect via consumption of aquatic biota. Monitoring of emerging aquatic pollutants remains a challenge. In this project we will develop cost effective monitoring technologies for emerging aquatic pollutants. The outcome will allow a more comprehensive and cost-effective monitoring of these pollutants and related to that a decrease in risk related to water pollution. Furthermore it will enhance consumer confidence, improve water management and allow more comprehensive identification of emerging risks related to aquatic pollutants.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883616** Prof HP Possingham; Dr KA Wilson

**Approved Project Title** **Spatial prioritization in the context of climate change and unforeseen opportunities: maximizing conservation outcomes in Gondwana Link**

**2008 :** \$ 53,058

**2009 :** \$ 107,367

**2010 :** \$ 108,617

**2011 :** \$ 108,617

**2012 :** \$ 54,308

**Primary RFCD** 3008 ENVIRONMENTAL SCIENCES

### **Collaborating/Partner Organisation(s)**

The Nature Conservancy  
The Wilderness Society Inc  
Greening Australia

**Administering Organisation** The University of Queensland

### **Project Summary**

The economic wealth of Australia is underpinned by its remarkable biological diversity. However, land and water degradation are eroding Australia's natural asset base and climate change is expected to magnify these impacts. Given limited funds for biodiversity conservation, we need to maximise the benefits of our investment in natural resource management. This research will deliver approaches and tools to ensure that we maximise the protection of biological diversity in the context of a changing world climate and a limited budget. We will share the results of our research with decision makers, scientists, and the general public.

**LP0883663** Dr AJ Richardson; Dr MA Burford; A/Prof K Yin; Prof HP Possingham; Dr D Rissik

**Approved Project Title** **Resilience of Moreton Bay to climate change: Links between nutrient inputs and plankton dynamics**

**2008 :** \$ 80,000

**2009 :** \$ 160,000

**2010 :** \$ 160,000

**2011 :** \$ 80,000

**Primary RFCD** 3008 ENVIRONMENTAL SCIENCES

APA(I) Award(s): 4

### **Collaborating/Partner Organisation(s)**

Healthy Waterways Partnership  
Environmental Protection Agency

**Administering Organisation** The University of Queensland

### **Project Summary**

A healthy Moreton Bay, with its lucrative fishing, iconic turtles, dugongs and seabirds, helps support the \$9 billion per annum tourist industry in SE Queensland. Moreton Bay is under increasing threat from nutrients produced by a mushrooming coastal population and from climate change impacts. Here we investigate nutrient-plankton relationships and develop a simple model to evaluate future impacts on bay health. This project will put Australian scientists at the forefront of research focused on the adaptation of coastal marine environments to climate impacts, and ensure that Moreton Bay remains healthy now and into the future

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883530** Dr PT Scott; Prof PM Gresshoff

**Approved Project Title** **Genetic transformation of the biodiesel producing tree legume Pongamia pinnata**

**2008 :** \$ 22,500

**2009 :** \$ 60,000

**2010 :** \$ 70,000

**2011 :** \$ 82,500

**2012 :** \$ 92,500

**2013 :** \$ 42,500

**Primary RFCD** 2708 BIOTECHNOLOGY

### **Collaborating/Partner Organisation(s)**

Bioenergy Research Pty Ltd

**Administering Organisation** The University of Queensland

### **Project Summary**

In response to global climate change and the threat of declining reserves of fossil fuels, liquid fuels of the future are to be manufactured in greater proportion from sustainable biological resources. Pongamia, a native legume tree, has the potential to make a significantly positive impact on the emerging biofuels industry. As a legume Pongamia requires no nitrogen fertiliser, is not a food crop, and can grow well on marginal lands unlikely to be used for food crops. Improvement of Pongamia through the genetic tools developed in this project will provide an environmentally sustainable source of biodiesel long into the future.

**LP0883839** Dr JG Tichon; Dr GM Wallis; Dr MS Horswill

**Approved Project Title** **Improving Efficiency and Safe Workplace Operations in Heavy Industry: Training Problem Solving and Decision Making through Immersive Simulation**

**2008 :** \$ 60,000

**2009 :** \$ 130,000

**2010 :** \$ 120,000

**2011 :** \$ 90,000

**2012 :** \$ 90,000

**2013 :** \$ 50,000

**Primary RFCD** 3803 COGNITIVE SCIENCE

### **Collaborating/Partner Organisation(s)**

The Construction Training Centre

**Administering Organisation** The University of Queensland

### **Project Summary**

Civil construction is critical to Australia's economic growth. Currently the industry suffers from significant accident rates and severe labor shortages. Simulators offer a means to tackle both issues by accelerating training and familiarizing staff with unsafe, hazardous situations. This project will test and refine training programs to ensure they are both valid and effective. Results will maximize quality of simulator-based training for heavy industry and contribute to safer workplace practices on high risk work sites. Training innovations in heavy industry are essential to keep Australia's competitive edge in the domestic labor market and Asia-Pacific region.

## Summary of Linkage Projects Proposals for Funding to Commence in 2008

**LP0883837** Dr DJ Trott; Prof MR McGowan; Prof M Bellgard; Dr AE Lew

**Approved Project Title** **An integrated genomics approach to improve our understanding of the biology of genital campylobacteriosis in beef cattle**

**2008 :** \$ 75,000

**2009 :** \$ 145,716

**2010 :** \$ 130,000

**2011 :** \$ 59,284

**Primary RFCD** 3005 VETERINARY SCIENCES

APA(I) Award(s): 1

### **Collaborating/Partner Organisation(s)**

QLD Department of Primary Industries & Fisheries

Pfizer Australia

Gribbles Veterinary Pathology

**Administering Organisation** The University of Queensland

### **Project Summary**

Beef is Australia's most valuable agricultural export estimated at \$9.6B annually and this industry accounts for one-third of full time employment in regional communities. Currently, unknown causes of reproductive losses in cattle in Northern Australian cost producers approximately \$15M per annum. Bovine genital campylobacteriosis is one of the major risk factors associated with this high cost due to the inability to accurately diagnose the disease. This research will integrate genomics and bioinformatics with infection and vaccination models to improve our understanding of the biology of the disease to develop appropriate control strategies securing Australia's beef industry.

**LP0884013** Prof JE Wilson; Dr OR Wright; Prof DG Hegney; Dr EC Ward

**Approved Project Title** **Food services in residential aged care: Financial, personnel, and service delivery factors**

**2008 :** \$ 28,126

**2009 :** \$ 59,720

**2010 :** \$ 57,243

**2011 :** \$ 25,649

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

### **Collaborating/Partner Organisation(s)**

Blue Care Head Office

TriCare

**Administering Organisation** The University of Queensland

### **Project Summary**

Evaluating current services to identify systems that deliver satisfying, effective, high quality care to vulnerable older Australians in aged care facilities (ACFs) is of national significance. If residents are more satisfied with their meals, their nutritional status will either improve or stabilise, reducing their risk of malnutrition-related morbidity and mortality and the associated financial burden to health care services. The cost of residential aged care is significant and growing and is subject to increased monitoring and concern. This project will suggest refinements of the Aged Care Accreditation Standards to improve their applicability to ACF residents and appropriateness for evaluating resident-focused nutritional care.