



AGRIBUSINESS & ECONOMICS RESEARCH UNIT, LINCOLN UNIVERSITY, CANTERBURY, NEW ZEALAND

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Greetings to all!

First of all, I would like to express my deepest sympathies for those who have been affected by the February Christchurch Earthquake. From all of us here at the AERU, we wish you all the best with recovery efforts, and bid you to stay strong during these trying times!

This aside, I hope that you are all settling into 2011 and are ready to strike the new year with all you've got!

Last year was a highly productive one for us, with over 70 papers and presentations published, 30 of which have been refereed!

Here at the AERU we are shaping up for what we feel will be another productive and successful year, while continuing with several ongoing projects from the year before.

Such projects include: a concise history of the AERU's back-catalogue of research and discussion papers; a technological innovation conference, as well as many other conferences that we are involved with (AARES and AES); an EU exchange programme wherein we are sending two of our research associates, John and Meike, to Newcastle, UK; as well as many more exciting opportunities!

Throughout this year, we intend to continue to provide a high standard of economic and sociological research in examining key issues for New Zealand. Whatever this year brings you, we wish you all the best!

Regards,



Professor Caroline Saunders



Above left: Pictured (left to right): Peter Tait, Chris Parsonson-Ensor, David Liu, Sini Miller and Meike Guenther.



Above right: The AERU team, post-earthquake (2011).

Inside this issue:

|   |     |
|---|-----|
| AERU—LATEST DEVELOPMENTS                                  | 2   |
| AERU HISTORY  | 2   |
| NEWS AND PHOTOS   | 3   |
| SUSTAINABILITY ATTRIBUTES AND THE GLOBAL MARKET           | 4-5 |
| CANTERBURY WATER ALLOCATION                               | 5   |
| RECENT AERU PROJECTS                                      | 6-7 |
| RECENT RESEARCH REPORTS                                   | 7   |
| CONFERENCE ON INNOVATION, INVENTION AND COMMERCIALISATION | 8   |
| KEY CONTACTS  | 8   |

## AERU—Latest Developments

It has been a trying time in Canterbury over the past 6 months, with two major earthquakes centred in the region. The second quake has, as you have no doubt seen, brought awful destruction to Christchurch city, and we solemnly feel for the families of those who have lost loved ones, and hope that there will be peace throughout Canterbury soon.

Most fortunately, we at the AERU have been fine. As most of us were at The Lodge (where the AERU is housed at Lincoln University) at the time of the recent earthquake, we have been able to establish that all of our staff are safe and sound, and that no significant damages have been accosted on us. This is obviously a massive relief in the wake of the damages brought on by the most recent earthquake. As a result, it is back to business-as-usual at the AERU, and we will continue to produce research over the following months.

We are heavily involved in conference work. In November last year, the AERU hosted the EUCN conference at Lincoln University, featuring many key international speakers, with special focus on topics pertaining to EU, and its relationships with the Asia Pacific region. The conference's keynote speaker was Ole Elgstrom, Professor of Political Science at Lund University, Sweden.

Conferences that the AERU will be involved with this year include the 2011 AARES (Australian Agricultural and Resource Economics Society) Conference, at which AERU associates Peter Tait and others presented, and 2011 AES (Agricultural Economics Society) Conference in the UK, at which AERU associate Meike Guenther and Caroline Saunders will be presenting a paper, and Caroline and John Saunders' will present their paper: *"The Operation and Impact on the New Zealand Emissions Trading Scheme"*.

The AERU will be involved with KEEENZ (Knowledge and Expertise Exchange Europe—New Zealand), through which the Unit is sending associates Meike Guenther and John Saunders this year. This exchange represents the trading of expertise between Europe and New Zealand, and Meike and John will be stationed for 2 months at Newcastle University in the UK.

We would also like to mention that Professor Paul Dalziel was chosen to receive a Lincoln University Teachers' Award in 2010. In addition to this, and his usual research efforts (such as FRST programme leading and projects), Paul is the President of ANZRAI (Australia and New Zealand Regional Science Association), and organised their conference in Melbourne last year. He has also been accepted onto the Council for Regional Science Association International — a prestigious appointment! In his own time, he took part in the Alternative Welfare Benefits Working Group, which met around the country to assess the issues of those on welfare benefits, and contributed three chapters to a report on this.

We would also like to congratulate our former PhD student Penny Mok who won the Jan Whitwell Prize at the AERU-organised 2010 NZAE conference!

## AERU History

The AERU has a long and rich heritage among economics research and consultancy groups in New Zealand, with many important names in the field at one time or another being involved with the Unit.

As such, the AERU is currently involved with the collecting, authoring and publication of a short history of the Unit's back-dated catalogue of Research Reports and Discussion Papers to coincide with the 50-year anniversary of the Unit in 2012. The project is entitled "50 Years of the AERU: An Examination and Summarisation of Past Research", and will chronicle the Unit's long-standing status as one of New Zealand's top Economics Research Units, with an emphasis on authoritative and robust research in the field.

Such past luminaries of the Unit include Bryan Philpott, James Stewart, and Bruce Ross. Their works representing some highly respected documents pertaining to New Zealand's economic policy, in areas as broad as agricultural economics, farm management, sustainability and other issues.

While the research conducted by the Unit has broadened significantly over time, there has always been a strong emphasis on qualitative research, pertaining to current and salient topics of key interest to New Zealand.

Another aspect of the AERU's proud history is that of the personalities that have been involved with the Unit over time, who have respectively given their own flair to the works and social environment of the Unit.

We greatly look forward to presenting our history to the world, and are highly privileged and pleased to display our past works, as well as look to what the future might bring for the Unit!

## NEWS

### Farewell to All Leaving Staff

Unfortunately, we spent quite some time proverbially dragging our feet at the AERU last year, due to some of our staff leaving for other positions. Earlier in the year, we discovered that long-time Associate Professor William (Bill) Kaye-Blake was taking a position with NZIER in Wellington after eight years with the unit (2002-2010).

Following this, Research staff member Simon Lambert left us at the end of 2010, after two years doing FRST-funded research.

Similarly, at the very start of this year, our administrative assistant Karin Wintergerst, who helped out the Unit from the start of 2010, finished with the AERU. You will all be sorely missed!

### Congratulations Rachel!

Aside from all the leaving staff, there has been some good news at the AERU this year! AERU Associate Rachel Campbell has recently had a beautiful baby girl. Many congratulations go to you and your family Rachel!

### Welcome Peter!

This year we welcome (nearly) Dr Peter Tait into the AERU as a Senior Research Economist. Peter has just submitted his thesis for a Doctorate in Economics, and has joined the permanent staff of the Unit as of the start of 2011. Welcome to the fold, Peter!

## AERU Staff and Associates



**Top Right:** Glen Greer's post-earthquake-enforced break cake to cheer us all back into work, September 2010.

**Top Left:** (from left to right) Lesley Hunt, Karin Wintergerst and John Hunt at Caroline's Christmas Party, December 2010.



**Bottom Left:** Former AERU associate Selim Cagatay visited us from Turkey late last year—all ex-associates are welcome back anytime!

**Bottom Right:** A somewhat muscular spread put on by Caroline at the AERU Christmas Party, December 2010.



## AERU, Research News

### Sustainability Attributes and the Global Market

The AERU, as stated in our previous edition of the AERU Update, has completed preparations for an updated research report, building on Caroline Saunders' *Consumer Sustainability Trends in Key Markets*. This report, written by Caroline Saunders, Meike Guenther and Tim Driver, entitled *Sustainability Trends in Key Overseas Markets: Market Drivers and Implications for Increasing Value for New Zealand Exports*, looks into current trends in food retail and marketing, as well as consumer attitudes, opinions and intentions, to quantify the scope of the international food industry, and relate this information back to the New Zealand situation in order to increase potential prospects for New Zealand products on a changing global market.

International consumer concerns are vastly different now than they were around 20 years ago. On other key international markets, it has been shown that sustainability attributes in food products is now a leading indicator of purchasing behaviour among most consumers, with these attributes representing the highest reason for purchase of certain products in most Western countries, notably within the EU. If New Zealand is to compete on this market, it is clear that the use of sustainability attributes in products will determine value for key New Zealand exports, and provide higher yield for New Zealand's key industries.

Notably, and reflecting these changes in the general public, the international policy environment is adapting to these changes. With many new environmental regulations abounding globally, including the introduction of targets for reduction of CO<sub>2</sub> emissions in many key market countries (such as the 20 per cent reduction target throughout the EU) this has important implications for producers, who must comply with these targets.

As a result, there have also been many agri-environmental policies adopted internationally. An example of this can be seen in the EU's Single Farm Payment system, which requires farmers to meet social and environmental criteria in production. In addition to this, the EU subsidises farmers to meet more stringent environmental standards. Similarly, the US is also implementing working land conservation programmes which reward farmers who incorporate sustainable practices in production. These practices indicate not only the requirements now being set by governmental organisations, but also the shifting consciousness of the general public.

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There has also been much influence in the assessment of sustainability attributes in products from the private sector and retailers. This can be seen with the development of GLOBALGAP, a compliance regime developed by retailers which now incorporates around 80,000 producers in over 80 countries. Similar schemes include the Red Tractor Scheme in the UK, through which products that meet certain good agricultural practice criteria are branded with a Red Tractor logo, indicating the use of these practices to the consumer; sustainability promotion schemes (such as Tesco's Fresh and Easy or Marks and Spencer's Eco-Plan A); and major international retailers acting as “gatekeepers”, allowing only goods with sustainability attributes to be stocked on their shelves.

This shift in private sector and retailer behaviour represents a massive international shift towards products that incorporate, and display evidence of, sustain-

ability attributes. As a result, there is a myriad of new consumer groups and affiliations that can be defined in relation to this shifting international market, particularly within the premium segment. Many consumers are reacting to the associated environmental and social impacts of the products they are purchasing, and seeking out products that promote sustainable practices in production, and ultimately consumption. Examples of this include the Slow Food movement in Italy, and the LOHAS (“Lifestyles of Health and Sustainability”) movement, which has massive international appeal and support.

One issue which is now appearing frequently on the global food industry radar is that of climate change/carbon emissions, and that of carbon footprinting. Many major retailers are now implementing schemes to display the carbon footprint of their products and encourage consumers to follow suit. UK retailer Tesco is a leader in this area, and this practice has been taken up in many countries. In order to compete with such products, New Zealand producers and industry officials may need to seriously consider the possibility of carbon footprinting their products.

There is also spreading concern relating to the use of transportation in food procurement, and as a result, there has been a rise in support of local food systems. Such systems include farmers' markets, community-supported agriculture and food box schemes, and while this has been proven to not necessarily improve environmental attributes, (see AERU Research Report no 285) it is something to be considered, as the challenge of effectively marketing food based upon the social and community values in New Zealand may be questioned otherwise.

Another issue which is possibly as urgent as climate change pertains to that

of water quality and quantity, and water footprinting. While still a new concept, the associated use of water in the production process may begin to impact New Zealand imports heavily as consumer awareness spreads. For New Zealand, however, the main concern should be that of water quality. As New Zealand has a history of rapid land change, this has led to an increase of nitrates discharged, and this has a potential to reduce the potency of New Zealand's "clean, green" image.

Many countries also have policies protecting biodiversity and wildlife on farms, reflecting the multi-functionality of land use in some countries. As New Zealand has a large percentage of protected conservation areas, it has not had the same intensity of policy in this area, but this may need to be considered for access to premium segments on international markets.

Similarly, animal welfare now constitutes a large portion of consumer purchasing behaviour, and while New Zealand does not have the same level of farm intensification as other countries, concerns such as the tail docking of lambs, castration without anaesthetic, abortion of cows and winter sheep shearing may still affect our public image internationally. Com-

paratively, as a result of consumer concerns over agriculture's negative effects on the environment, lower meat and dairy consumption is practiced by some consumer segments, as well as some government schemes internationally encouraging lower meat and dairy consumption.

There is also growing demand for ethical products that promote fairness in the international market. Fair-Trade is an example of this, and the intentional purchase of products that display the Fair-Trade logo has dramatically risen in the last ten years. In fact, sales of Fair-Trade products have recently reached the US\$1 billion mark.

Outside of environmental or ethical concerns lies the increasing consumer demand for products which provide health attributes outside of basic nutrition. These are known as functional or fortified foods, and the demand for such products is heavily growing throughout Asian and ageing markets.

Many of the issues above relate to, or rise from, developed markets. However, there is growing evidence that the developing markets especially in countries such as China are also requiring similar attributes. Asian markets tend to pay premiums for natural attributes which as a characteristic is

very similar to sustainability in European markets. Moreover, the growth of the supermarket sector in countries such as China and the movement of western chains such as Wal-Mart and Tesco into these markets mean that the procurement policies are likely to meet international standards.

It is clear, therefore, that in order to increase value for New Zealand exports and enter into premium markets internationally, sustainability, along with other, attributes must be applied. The shifting global consciousness in food retail is fast becoming acutely aware of concepts such as environmental impact, and the social and ethical implications of food production and consumption. In order to meet these increasing demands, New Zealand must be willing to apply said attributes to their products, and continue to promote, through action, the image of New Zealand as a "clean, green" nation.

Now available: AERU Research Report no 319, *Sustainability Trends in Key Overseas Markets: Market Drivers and Implications for Increasing Value for New Zealand Exports*. Caroline Saunders, Meike Guenther and Tim Driver. A digital PDF copy is also available (see page 7).

For more information on this report, or other AERU Research, contact Teresa Cunningham on (+643) 321 8280, or via email: [Teresa.Cunningham@lincoln.ac.nz](mailto:Teresa.Cunningham@lincoln.ac.nz)

## Canterbury Water Allocation Project

The people of Canterbury have always enjoyed their special feature of pure and plentiful water. However, the possibility of deterioration has been recognised recently, in both the quality and quantity of water resources. These threats can be tracked down and examined, for example, in changes in land use (increasing dairy-farming), pressure on water allocation, and climate change. To make this situation even more complex, Canterbury water is distributed over several user groups with varied interests, such as farmers, recreational users, urban consumers, business owners - not to mention environmentalists and those with indigenous rights.

It is impossible to meet all of the wishes and needs within these major user groups completely. For example, the wish of 100 percent recycling is practically impossible, as it is impossible to entirely suspend irrigation. Therefore, an incomplete fulfilment of needs is inevitable. It would be unfair to completely ignore, or favour, one of these user groups.

The overall economic effect of this implies a question of allocating what we have, versus what we want. Therefore this water problem in Canterbury then provides an interesting research question for a thesis: How to promote the equity for all major users of the scarce resource that is Canterbury water? This can be further assessed by a non-market economic valuation and a discrete choice modelling (DCM) methodology. Therefore, the aim of this work is to bring knowledge of people's attitudes towards the trade-offs of water allocation, and its many aspects.

*This study project is being undertaken by PhD candidate Sini Miller (AERU), supervised by Prof Caroline Saunders, Peter Tait and Prof Paul Dalziel in AERU.*

## Recent AERU Projects

One such project of significance is a project working with DEFRA (Department for Environment, Food and Rural Affairs) in the UK examining Free Trade. Specifically, DEFRA commissioned the AERU to produce a report looking into the impact of Free Trade between MECROSUR (or South American Common Market) countries and the EU on trade, and the environment. The model used in this study was the LTEM (Lincoln Trade and Environment Model) - an economic model developed by the AERU to examine issues relating to, and the potential impacts of economic activities on, trade and environment.

Another project of relevance has been commissioned by the FAO (Food and Agriculture Organisation; United Nations). This project is examining the design and implementation of agricultural policy, specifically relating to New Zealand.

The AERU is also involved in an area within this project called Rural Futures, which includes the creation of an industry Multi-agent Simulation Model of NZ's pastoral industries in an attempt to describe the strategic decisions and behaviours of individual farmers in response to changes in their operating environment and link to the production, economic and environmental impacts of their management. The AERU has also been engaged in a project to identify what skills are valuable on dairy farms (on a management or staff/workforce level) funded by DairyNZ.

Along similar lines, Glen Greer has been involved with a project funded by HBRC examining feral goat control in New Zealand. The first part of this project has involved a literature review of current material pertaining to this issue, with a second part, through the use of survey information, is an examination of farmer attitudes towards this. In addition to this, the Unit has recently completed a study of the economic cost of Bovine Tuberculosis to the Hawkes Bay region, as well as a cost-benefit analysis of the use of integrated versus conventional pest management in arable crop rotation, funded by Crop and Food Research.

Locally, there have been some interesting and pertinent projects on the radar at the AERU. One of these, commissioned by, and working with, the CDC (Canterbury Development Council), is the development of an economic model to determine sectors of importance to the region. Sectors were selected with the intention of examining their economic impact on the region, and to examine the knock-on effects of economic changes to each sector, with a conclusion produced, suggesting that the business services are of high importance to the Canterbury region.

Similarly, the AERU has also been recently involved with a project examining technology innovation. Specifically, this project focuses on technology user innovators ("TUIs", i.e. Users of technology who experience shortfalls or limitations in said technology, and hence invent an addition or adaptation to correct this) in an effort to draw attention to this under-recognised source of innovation. Part of this research involves the development of a conference (details on page 5) to examine these and other issues, and a national comparison focussing on cultural and social traits and approaches to technology.

Linked to the AERU's mission of exercising leadership in research in sustainable well-being, last year we were heavily involved in a project for MAF (Ministry of Agriculture and Fisheries) working closely with AgriServices and The Agribusiness Group examining the possibility of integrating climate change principles into the tertiary education sector. Specifically, this involved the collation of a database of current tertiary courses which held potential relevance to, skills or disciplines needed to help mitigate the negative effects of climate change, and three forums. In the first forum, we talked to key industry figures examining their needs for skills in order to help mitigate climate change, from which a gap analysis and a market drivers report were produced. This was followed by another two forums, held respectively at Lincoln and Massey Universities, examining the tertiary sector's propensity to determine potential courses of action in education to address gaps in industry. Related to this work is another recent project examining how farmers can adapt their business and/or financial structures in response to Climate Change, produced by Glen Greer.

The AERU (alongside New Zealand Council for Educational Research) continues to be engaged on research produced by a FRST-funded (Foundation for Research, Science and Technology) project called EEL (Education Employment Linkages) examining means in which to help young people make good decisions pertaining to education component choices. This research has involved the use of international literature reviews, key informant research,

case studies and pilot projects. Related to this, EEL-associated Professor Paul Dalziel and Tim Driver have completed work for a series of reports, commissioned by Projects International, entitled Export Education. This series examined and evaluated the potential value of overseas markets for education in New Zealand, and culminated in the study of 20 countries as potential outlets for the marketing of education in New Zealand. On a semi-related note, Paul Dalziel has also been working on a project to update (social capital) estimates of the value of sport and recreation to New Zealanders.

As previously stated, the AERU is highly concerned with presenting research related to Climate Change or concepts of Sustainability. One such recent work which pertains to this goal is a project looking into carbon footprinting. Specifically, a carbon footprint is a means of determining to related carbon and other emissions associated in the production process for a particular item or commodity. This project involved research into the use of carbon labels on commercial products which communicate these associated emissions to a consumer, and allow them to make environmentally-conscious choices.

Another project of note is Chris Parsonson-Ensor's Resilience of New Zealand Farming Systems During Periods of Hardship (2010), an ARGOS publication funded by FRST, which examines, using survey data obtained in 1986 and 2010, the ability of modern farm businesses to adapt to financial hardship and sustain their business practices, concluding that management systems or strategies that suit the farmer "define the resilience of their farm business and ensure its survival in an ever-changing global marketplace".

The AERU has also been involved with a project providing updated economic analysis of reducing PM10 emissions from domestic combustion for ECan (Environment Canterbury) and modelling the social costs and benefits associated with the introduction of the Clean Air Plan to Christchurch in April 2010, as well as an update of emission factors for a carbon calculator, and a quantification of the benefits of resource efficiency to the New Zealand economy through Ministry for the Environment.

## Recent Research Reports (2009-2011)

### RESEARCH REPORTS

- 321** Comparison of Innovation Policies in selected European, Asian, and Pacific Rim countries: How best to optimise Innovation Governance in New Zealand? *John Fairweather, Rene Wintjes, Julian Williams, Tiffany Rinne and Claire Nauwelaers, November 2010.*
- 320** The Socio-technical Networks of Technology Users' Innovation in New Zealand: A Fuzzy-set Qualitative Comparative Analysis. *Simon J. Lambert and John R. Fairweather, October 2010.*
- 319** Sustainability Trends in Key Overseas Markets: Market Drivers and Implications to Increase Value for New Zealand Exports. *Caroline Saunders, Meike Guenther and Tim Driver, July 2010.*
- 318** Multi-agent Simulation Models in Agriculture: A Review of Their Construction and Uses. *William Kaye-Blake, Frank Y. Li, A. McLeish Martin, Alan McDermott, Scott Rains, Steve Sinclair and Annette Kira, March 2010.*
- 317** Economic Strategy Issues for the New Zealand Region in the Global Economy. *Caroline Saunders, Paul Dalziel and William Kaye-Blake, December 2009.*
- 315** Managerial Factors in Primary Production: Data from a sample of New Zealand Farmers with an Emphasis on Experience as a Factor in Success. *Peter Nuthall, May 2009.*
- 314** A Review of Research on Economic Impacts of Climate Change. *William Kaye-Blake, Suzie Greenhalgh, James Turner, Ellen Holbek, Robyn Sinclair, Tawhai Matunga and Caroline Saunders, April 2009.*

For more information on past AERU Research Reports and Discussion Papers, contact

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## Agribusiness and Economics Research Unit

### AERU Mission Statement:

*To exercise leadership in research for sustainable well-being.*

## Conference on Invention, Innovation and Commercialisation

We are proud to announce that this year AERU associates will be playing a key role in the organisation of a Conference on Invention, Innovation and Commercialisation. Organised by the Lincoln University Technology Users' Innovation (TUI) Group, this event will be held in Christchurch between June 13-14.

It is well known that universities and other research agencies produce R&D, which is acknowledged as a key source of invention for commercialisation. Innovation governance in most countries expressly addresses this source of economic growth. What is less recognised, however, is the role of inventors outside formal organisations. Often, these are technology users who, as inventors, develop the technology and embark on the innovation process. They are a source of R&D that can also be commercialised and contribute to

economic growth. This source is less well studied and, typically, is not given sufficient recognition in innovation governance. There is a need for a better understanding of technology users who innovate (TUI) and their contribution to the economy.

The objectives of this conference are two-fold: 1. To review the scientific knowledge underpinning innovation and commercialisation with special emphasis given to technology user innovation (TUI), and to identify key areas where new knowledge is required; and 2. To provide a forum for information exchange and networking among scholars, policy-makers and inventors, and to encourage international collaborations.

This conference is open to people who practice invention, those who study them, those concerned with promoting commercialisation of invention, and those concerned with innovation policy.

Papers have been accepted, covering a wide range of topics: Invention from the inventors' point of view, the latest research about inventors and the process of invention, how research and practice can inform our understanding of the commercialisation process, how research can contribute to advancing policy formation and the latest policy deliberations regarding invention and innovation ecology, the economic contribution of invention, and social and cultural settings that facilitate commercialisation of invention.

The Conference on Invention, Innovation and Commercialisation is partnered with *Innovation: Management, Policy and Practice*, and *ThisConference.com*.

**For more information about this conference, visit <http://www.lincoln.ac.nz/tui-innovation-conf>, or contact John Fairweather (see below).**

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