

NZ GRASSLAND ASSOCIATION

Fuelled by Science, Tempered by Experience

SHORT CUTS

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A note from the President

Jacqueline Rowarth

Saturday night's Country Calendar programme was remarkable for its lack of data, beyond a reduction from 500 cows and three times a day milking to 300 cows and a more natural way... Of course agriculture is more than productivity, but the root of change should always be evidence, facts and data. We had 'the natural way' a hundred years ago. Since then, people's height has increased 10cm, longevity has increased by almost 30 years, and food price has decreased. A dozen eggs in 1959 cost 5s and 3d. In today's money that is \$10.96. A dozen organic free range eggs at the supermarket will cost over \$11, but a dozen Home Brand eggs will cost only \$3.06. SPCA approved eggs are somewhere in the middle. All of this is a testament to agricultural productivity - food security (quantity and quality) has increased and enabled improvement in lives and lifestyles.

There are choices to be made about production systems, but on-going media promotion of 'natural and organic' is preventing society from understanding the real issues.

Stanford study re-ignites debate over organics

Nevil Gibson (reprinted 'Food Industry Week' Sept 10)

Scientists at [Stanford University](#) were satisfied that after examining four decades of research comparing organic and conventional foods they had settled the debate.

But all they did was unleash another media storm that generated strong responses from both camps.

While their study contained no new research, they concluded that fruits and vegetables labelled organic were, on average, no more nutritious than their conventional counterparts, which tend to be far less expensive.

Nor were they any less likely to be contaminated by dangerous bacteria such as *E. coli*. The researchers also found no obvious health advantages to organic meats.

Conventional fruits and vegetables did have more pesticide residues but the levels were almost always under the allowed safety limits, the scientists said.

This allowed supporters of the organic industry to take out of the study statements such as exposure to chemical pesticides being 30% lower in organic foods than conventional and that

exposure to antibiotic-resistant bacteria in meat was 33% lower in organic foods than conventional.

"When we began this project, we thought that there would likely be some findings that would support the superiority of organics over conventional food," said Dr Dena Bravata, a senior affiliate with Stanford's Centre for Health Policy and the senior author of the paper, published in the Annals of Internal Medicine.

"I think we were definitely surprised."

In one response, a Forbes magazine column said organic remained the better choice because it was heavily regulated and worth paying the cost:

"Food is certified organic by the US Department of Agriculture only if it meets a long list of requirements, like being produced without synthetic pesticides or fertilisers, or – in the case of meat – without routine use of antibiotics or growth hormones.

"Organic food – from broccoli to beef – costs more because it requires more work and isn't industrialised as intensively as conventional food... You need much more organic fertiliser for an acre of plants than you would synthetic fertiliser. All these differences add up to higher prices."

The study found that organic chicken and pork was less likely to be contaminated by antibiotic-resistant bacteria, and that organic milk contained more omega-3** fatty acids.*

The Stanford researchers said that by providing an objective review of the science of organic foods, their goal was to allow people to make informed choices.

In the study – known as a meta-analysis, in which previous findings are aggregated but no new laboratory work is conducted – researchers combined data from 237 studies, examining a wide variety of fruits, vegetables and meats.

For four years, they performed statistical analyses looking for signs of health benefits from adding organic foods to the diet. They did not use any outside financing for their research.

"I really wanted us to have no perception of bias," Dr Bravata said. One finding was that organic produce, overall, contained higher levels of phosphorus than conventional produce. But because almost everyone got adequate phosphorus from a wide variety of foods, they said, the higher levels in the organic produce were unlikely to confer any health benefit.



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Organic produce also contained more compounds known as phenols, believed to help prevent cancer, than conventional produce.

While the difference was statistically significant, the size of the difference varied widely from study to study, and the data was based on the testing of small numbers of samples.

"I interpret that result with caution," Dr Bravata said.

Other variables, such as ripeness, had a greater influence on nutrient content. Thus, a lush peach grown with the use of pesticides could easily contain more vitamins than an unripe organic one.

*anti-biotic resistant bacteria - NZ use of antibiotics is very low and is animal health related; antibiotics to promote growth are forbidden.

**Omega-3 is related to grass consumption. In the US organic = pasture in contrast to conventional = barns = feedlot. In New Zealand animal products are mostly pasture-based.

And overall-New Zealand has world leading food safety whatever the production system involved - the supermarkets have standards for what is on their shelves.

A Nielsen report released in August 2010 found the biggest reason for buying organic was that it was "healthier" (76%), followed by avoiding pesticides (53%) and "more nutritious" (51%) – but none of these can be consistently substantiated.

Food is more plentiful, cheaper and safer now than it has been in the past. People might make lifestyle choices about

productivity, which suits their own circumstances in terms of debt loading and family, but presenting a one-size fits all silver bullet simply causes upset and confusion in the minds of consumers.

The world is facing an on-going challenge in terms of food production. We've been through the era where availability of nutritious food and medical care has resulted in improvements in lives and lifestyles.

Now we need an era of understanding about efficiencies. New Zealand already has the data to show we have efficient GHG per unit of production. Can we now show that we have fewest nutrient losses per unit of production? Dr Alec MacKay, AgResearch, is working on it and will be speaking at the Gore Conference. It's a calculation that has the potential to remove the debate about systems, and return to evidence, facts and data.

Evidence, facts and data are what NZGA stands for – fuelled by science and tempered by experience. Perhaps, in the same way that Medical soaps (think Grey's Anatomy, House, etc) have a medical advisory board to ensure that they don't make mistakes, NZGA could offer its science and experience to the media more formally than it has done in the past.

Thoughts from you, the backbone of the economy, are very welcome... and we look forward to great discussion at the conference in Gore.

Market forces dictate career choice

Jacqueline Rowarth, The University of Waikato
(reprinted from NBR August 10, 2012)

Career evenings and tertiary education open days are common at this time of year. School students are being urged to 'come along and find out about options', 'experience being a student for a day', and 'hear what it's like to be in a lecture'.

The transition from school to tertiary studies is a big step and these students do need help. There are more careers options and tertiary qualifications every year: estimates indicate over 4 times as many careers as in the 1970s, and over ten times as many qualifications. Choosing is not easy and making the wrong choice is costly – fees, interest on the student loan, the opportunity cost of earnings, and whether there is a job at the end of it at all. The competition for jobs for graduates is greater than ever in the workforce. In the 1970s approximately 5% of school leavers graduated from university; now over 30% achieve tertiary education successfully....

The plight of unemployed graduates and those in 'lowly positions' was highlighted recently in The Listener, and sparked considerable feedback ranging from 'we deserve better' to 'in my day'... Overall the consensus is that expectation is not always met with reality and questions are being asked about workforce planning.

Does New Zealand need quite so many people with tertiary qualifications?

A recent 'Manpower' survey indicates a major talent shortage (New Zealand reports 48% difficulty in filling jobs in comparison with a global average of 34%) – so the question then becomes one of discipline qualification.

The pressure to become tertiary educated is global. Governments believe that the best way to achieve economic growth is through education of the citizens, and there is considerable evidence to show that the two are linked. Which drives which is less easy to see, and the importance of science and engineering subjects is generally missed.

Michael Porter (Harvard Business School) and co-researchers have examined the ability of countries to create and then commercialise new products and processes, shifting the technology frontier to give a competitive advantage. They have found that competitiveness advances when the public and private sectors together promote a favourable environment for innovation, and that innovation depends on the number of scientists and engineers in the workforce (and ability to retain them), investment in R&D and policy choices to do with support and sharing information. Innovative capabilities in the workforce and absorptive capacities in society are related to the Science, Technology, Engineering and Mathematics – the STEM subjects

Professor Porter's work was done using information from the latter half of the 20th Century and rests heavily on STEM

capability. Design also has a place, but works with STEM, not as a replacement.

Now there is a global shortage of STEM students. The US Congressional Research Service has reported on policies to improve STEM education and encourage recruitment. In the UK the House of Lords released a report last month stating that most STEM subjects are identified as 'strategically important and vulnerable'. The report also stated that although 'industry continues to report shortages of STEM graduates in some areas, at the same time a substantial proportion of STEM graduates end up working in jobs that do not require a STEM degree'.

Clearly people with STEM degrees are in demand and have options in terms of employment – they go where they see rewards.

This is the case in New Zealand, too.

People with STEM degrees are everywhere – industry, agriculture, banking, research, teaching, consultancy, media, retail ...

The Listener article reports that Bachelor degree graduates from the class of 2009 were earning an average of \$29,900 in 2010. That year the applied science graduates working in the banking and fertiliser industries had salary packages of approximately \$55,000. This year the starting salaries in graduate programmes in the industry are in the order of \$55,000, with a car in 6-10 months. The fertiliser industry is talking packages of over \$70,000.

This is market forces at work.

Of the 20,000 or so graduates from 3 and 4 year degrees that New Zealand produces each year, only approximately 11% are in science, with another 5% in engineering.

Although some of them intend to work in New Zealand, many do not. The salaries overseas are higher than they are here – and STEM degrees are a global ticket.

America, already working to increase numbers of STEM graduates, also has a policy of attracting STEM immigrants. The UK and Australia are moving in a similar direction.

'A Call to Arms', the agri-food strategy document released by the Riddet Institute last month, recommends attracting school and university students into STEM subjects, perhaps through targeted university places. This would send a clear signal that could be interpreted by parents, teachers and career guidance counsellors to the benefit of the country; students following the signals would be able to contribute to innovation and hence economic development.

STEM+Design is the future; other countries are already addressing the problems. The Listener has highlighted questions. The next step is to focus on the answers.

www.isc.hbs.edu/Innov_9211.pdf

www.riddet.ac.nz

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Agriculture, biosciences and veterinary medicine in top 10 degrees for getting a job

Caroline Channing; July 25, 2012

https://connect.innovateuk.org/web/biosciencesktn/articles/-/blogs/agriculture-biosciences-and-veterinary-medicine-in-top-10-degrees-for-getting-a-job?ns_33_redirect=%2Fweb%2Fbiosciencesktn%2Farticles

The Telegraph newspaper has used data from the Higher Education Statistics Agency to highlight the top ten degrees for getting a job.

The lists includes agriculture (no. 5), biosciences (no. 6) and of course medicine and veterinary medicine (no. 1).

The top ten degrees are listed below along with the percentage of 2010-11 graduates had either found a job or entered further education within 6 months of completing their degrees.

1. Medicine, dentistry and veterinary science (99.4%)
2. Education (94.8%)
3. Subjects allied to medicine including biomedical science and neurology (94%)
4. Law (91.9%)
5. Agriculture & related subjects (91.3%)
6. Biological sciences (90.9%)
7. Languages (90.3%)
8. Historical & philosophical studies (90.1%)
9. Mathematical sciences (89.9%)

10. Physical sciences (89.9%)



CAT scanning deer

Hill country
Nitrogen research



'If you don't know anything about the sector, don't try to sell into it'. Marketing 101? Yet this was the overarching message from the 'Marketing to the Rural Sector' conference held in Auckland last week.

The next message was 'use evidence, data and facts to support your product'. For the companies present at the conference, this again was basic.

The point is that marketing is more than advertising and promotion, it is part of strategy. It is about attracting and retaining a base of customers and so is directed at satisfying customer needs.

And farmers are business-orientated people, like their urban counterparts, but working with the vagaries of the weather on top of everything else.

The farmers present at the conference were clear that they want to see evidence, facts and data that convince them to try out a product or service. They want to know how it will fit in and improve their current system and how it affects their bottom line.

More than hearing how Farmer Old Macdonald's life has been improved, or what a difference the new product has made, they want to see the evidence on a neighbour's property. They want to be able to talk with that neighbour about the pros and cons and work out whether the cost of the new product, the effort of change, and the risk involved in implementing a new system will be worth it in the long run. More than 80% of farmers get their information from other farmers, according to DairyNZ. Of course most of them (approximately 90%) read articles and newspapers and newsletters as well – but the real deal is local experience from a trusted source, perceived to be independent.

Independence is an increasing issue in New Zealand. With so little money in the research budget, it isn't surprising that Crown Research Institutes and Universities have been urged to find 'other' sources of funding. Commercial research and commercialisation of research findings has been encouraged. Approximately 44% of research income for Plant and Food Research and for AgResearch comes from commercial research contracts. Of further interest is that between them they have approximately 19 subsidiary companies, investments in 15 associates and over \$5million invested in what are described as 'available for sale financial assets'. Joint venture investments exist as well. A Ministry of Education occasional paper released in March on 'commercialisation of university research' reports an increase of 45% (in inflation-adjusted terms) of total income for University Commercialisation Offices between 2003 and 2008.

It isn't surprising that society (farmers included) asks where independence lies. The lack of clarity is an opportunity for a plethora of product claims involving terms such as scientifically, tested, independently, proven, some or all of which

might be able to be validated.

Dr Doug Edmeades, Federated Farmers Personality of the Year 2012, and founder of agKnowledge, has been pointing out the dangers of the current funding science funding system for many years. "Scientific research should be done for public good, with information openly available," he says. "Universities and Crown Research Institutes should be not-for-profit organisations with no interest or involvement in intellectual property. Then the researchers can speak freely without vested interest."

Dr Edmeades is also concerned that the respect for science has been eroded, and in an era where all opinions have equal weight, irrespective of evidence, alternative approaches flourish. 'Storm', a nine-minute beat poem by Tim Minchin, makes the point (see link at end of column). The result is money expended on products that have little or no effect on the bottom line of the business, although some of them might meet feel-good desires of the purchaser.

The Rural Marketing experts at the conference did emphasise the importance of telling and selling a story. Brian Richards, the branding guru behind Cervena, Orca and Icebreaker, targeted 'less for more' while improving the customer experience. "Only one competitor can be the cheapest," he said. "The rest have to use branding." For him, compelling imagery is the key, focussed on the target market and engaging the customer. Clearly his approach works, and although the examples were outwardly focussed, the principles remain the same for companies selling to the rural market.

For the farmer panel, engagement comes through relationships and on-going back-up. Trust is built up over time with more than just neighbours – it is the visits from the sales staff/field officers/consultants to find out how the business is going, whether they do or don't have a new product. The follow-up calls are of equal value – and the sorting out of problems.

Dr Edmeades points out that the transition of technical representatives into sales reps, and the loss of the government farm advisers, has had a big impact in trust and adoption of new technologies. "New Zealand needs a unifying and courageous leadership to move science back to independence, and farmers into a position of being able to trust the facts presented."

The story should never replace the evidence, facts and data, but the two together, backed by the bottom line of a local farmer will be truly compelling.

www.minedu.govt.nz

www.agknowledge.co.nz

www.scienceblogs.com/insolence/2009/12/12/storm/

www.BRRLTD.com

Inaugural Professorial Lecture

Some of you may have noted that the Association's President, Jacqueline Rowarth, is no longer at Massey University but is now the Professor of Agribusiness at the Waikato Management School, The University of Waikato.

She will be presenting her Inaugural Professorial Lecture on Tuesday 18th September. The topic is Agriculture, Science and the Arts.

Where: Gallagher Academy of Performing Arts
Waikato University, Gate 2B, Knighton Road,
Hamilton

Time: 6:00 - 7:00pm (Opus bar will be open from 5:00pm)

All welcome, no RSVP required (for more information see the latest news section on www.grassland.org.nz).

NZGA Student Travel Fund

We have had applications already for support to this years conference. This is a reminder to any other interested students that the applications close at the end of September.

Application forms can be downloaded at <http://grassland.org.nz/newsdetails.php?newsnum=34>

Gore Conference 2012

Early bird registrations are open until October 5th, with further details available on the website including a programme outline.

<http://grassland.org.nz/eventdetails.php?eventnum=10>

The LOC with well known local farmer Nelson Hancox in the chair has been working hard to put together an interesting field day programme including a visit to Alan Stewarts property Leithen Valley. This larger property has sheep, cattle and deer and includes a trophy hunting block as well as an overseas business. The aim has been to allow for succession planning and keeping the family in the business.

<http://www.leithenvalley.co.nz/index.html>

Nithdale Station, run by Andrew Tripp, has diversified their land use and now has a dairy platform on what would be considered marginal dairy country, with the sheep and beef operation providing dairy wintering support.

Both of these field tours should provide plenty of opportunity for stimulating discussion as well as some spectacular views on a good day.

Programme Outline

Day One

Valuing the Opportunity (8:45 am) The opening session evaluates the changing face of Southern New Zealand, investigates the eco-efficiency of sheep and beef farms and reviews economic values for plant improvement traits.

The Levy Oration (10:15 am) A new innovation to honour one of our great Grassland scientists. The inaugural speaker is Pat Garden, farmer and science adviser.

Dairying in Southland—Challenges (11:00 am) How are farmers approaching the challenges of dairying in the South?

Responding to competing land-use change (12:30pm—5:00) We

visit the Stewart family's hill country property, The Leithen, to view a deer trophy hunting operation that sits within hill country improvement, high performance sheep and dairy grazing.

Day Two

Forages for production (8:30 am) Using brassicas and other crops in dairy systems is the focus, including the first reports of herbicide tolerant brassica.

Wintering solutions (8:30 am) What are the impacts of winter dairy grazing and how can we reduce our impacts?

Science for Policy (10:30 am) Dr James Palmer, Science director for the Ministry for Primary Production talks about their role in producing good science for industry.

Managing pests (11:10 am) How we anticipate large scale pest damage, impacts of AR37 on porina and the spread of clover root weevil.

Data for policy (11:10 am) Results from a range of programmes that are helping define how we deal with greenhouse gases and environmental issues.

Integrating land use opportunities (12:15 pm) We visit Nithdale Station and talk about converting to dairy in a marginal environment, and the impacts and challenges of integrating sheep, beef, dairy and tourism on a single farm.

Day Three

Managing sheep and beef (8:30 am) Improving farmers ability to get the best out of their environment by understanding variability, managing the winter and introducing lucerne.

Evaluating opportunities in pasture and soils (8:30 am) How do we evaluate the effectiveness of fertiliser products and improve our decision making around managing pasture surpluses?

Managing pastures (11:15 am) Examining perennial ryegrass, pasture renewal success and the use of plantain to improve spring lamb growth.

Hot topics in plant improvement (11:15 am) What can we look forward to in plant breeding and new ryegrasses in the future?

Rural News

Andrew Swallow of the Rural News is supporting NZGA this year and is providing short news stories on some of the papers in this years conference leading up to November.

You can link to recent articles here

<http://www.ruralnewsgroup.co.nz/ruralnews> or

<http://www.ruralnewsgroup.co.nz/rural-news/rural-management/lucerne-lifts-lambs-and-ewes>

Farming Links

There has been an increasing amount of interest in lucerne and other dryland legumes over the last few years. In response to this the team at Lincoln University has pulled together all of their research and made it easily available at <http://www.lincoln.ac.nz/dryland>

For more information on the Lucerne for Lambs SFF project that has just finished in Central Otago this is available at <http://www.farmingsheep.co.nz/?p=51>. This project developed after discussions on the field trip at the Blenheim NZGA Conference about how to expand the use of lucerne grazing into other regions.

Lighter moments

If you need a break here's a little farming song to lift your spirits <http://www.youtube.com/watch?v=48H7zOQrX3U>