

NZ GRASSLAND ASSOCIATION

Fuelled by Science, Tempered by Experience

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NZGA Executive Update

Its hard to believe it has been nearly 6 months since a great NZGA conference in the magnificent Mackenzie basin.

However this year the Hawkes Bay is the focus of the conference planning and Jeff Morton and his team are up to challenge of providing a great venue and location as well as stunning field days! Save the date in your diary now - 5-7 Nov 2019.

A gentle reminder for all those who have had a paper accepted that these are due to be submitted by the **13th May** which is not far away. Click [here](#) to submit your manuscript.

Earlier this month your EO spent 2 days in Palmerston North sorting out the NZGA archives. Many thanks go to Trish Brett, archivist at AgResearch), Susan Barnett (Grasslanz) and David Stevens for their help—85 years of accumulation takes some sorting. There was even more than shown in the picture—we were already a couple of hours in before the photo was taken.

As well as old Proceedings, R and P series and financial records there was much that reminded us of the long history of the Association as well as the close association with the

Dept of Agriculture, DSIR and now AgResearch. Many of our documents and photos are also part of the history of AgResearch so we still have some work to do.



Science, marketing and wishful thinking

DR JACQUELINE ROWARTH, PAST PRESIDENT

The inventor of Gorgeous Pil (trademark still pending) has a new product. Super Body Healant. Quite why one would need it after using Gorgeous Pil (guaranteed to turn the user prettier every time the pill is taken so that the user gradually becomes like a supermodel (male or female) is difficult to imagine. Gorgeous Pil comes with free immortality rings which stop, and even reverse, the ageing process. One month's supply of 130 capsules (guaranteed made out of all natural herbs) is only US\$27 plus shipping...

And for a mere US\$49.97 (2017 advertisement) you can buy an MP3 soundtrack to assist with the transformation (a cynic might replace with the word 'brain washing'...).

The internet is full of such advertisements as well as comments such as 'the fool and his money are soon parted' - but desperate people do desperate things. In the case of the Gorgeous Pil, most people will realise that, contrary to the advertising statements, a pill can't make your eyes larg-

er and cheek bones more attractive, whether the ingredients are 'all natural herbs' or not. Nor can metal rings, however rare the elements involved, give immortality.

Yet the advertising continues.

In an article in the Dominion Post last year, Canadian Cara Rosenbloom, a Registered Dietitian and 'nutrition myth buster' listed five indicators to sort fact from fiction:

1. *One treatment protocol is said to heal a long list of conditions (there's no 'one thing that can cure many ailments).*
2. *The information is based on testimonials and anecdotes, not on research.*
3. *Science is alluded to, but no actual references to reputable journal studies are provided.*
4. *The words 'magic' or 'miracle' are used. (If something really worked that well you'd have heard about*



NZGA for over 80 years

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it and it wouldn't be sold on line for \$29.95.).

5. *You are encouraged to spend money on products and services to achieve the lifestyle that's promoted.*

Her list is a good start, and there are other indicators that assist in the process.

Who profits from the advice? Last year an overseas expert, a homeopathic vet, stated that *Mycoplasma bovis* can be cured with an 'all natural' product. A little bit of digging into the product to find out what was in it and how it worked, revealed that the seller was non-other than the overseas expert. It was not so easy to find the research that supported the efficacy of the product. Similarly, the overseas medical doctor stating that 'glyphosate damages the human gut', sells just what you need to stay healthy. There is research that suggests the new gut product discourages gut leakiness, but what isn't clear is whether that actually makes a health difference. The same applies to various products available for promoting soil health. New Zealand soils generally have high organic matter by overseas standards; will adding a teaspoon of anything really make a difference?

A clue to science or marketing is to *ask if the merchant/promoter/salesperson is credible?* Does he or she have qualifications and a track record of professional experience? Is the track record appropriate for New Zealand? The soils and farming systems here are very different from those in the rest of the world – our cows are pasture fed; very few are on total-mixed-rations as is common in the US, for instance. And in New Zealand most of the area that isn't in the Department of Conservation Estate is under pasture not cropping.

Under pasture, New Zealand soils have relatively high organic matter, giving water holding capacity, aggregate stability and a nutrient reserve for plant and microbial growth. This is well known by soil scientists. Increasing organic matter even more than our already high status is not as easy as when the starting point is low. Does the sales person understand the issues?

Ms Rosenbloom's point about testimonials is extremely important. *Are the claims being made about the new way or new product supported with evidence?* 'Client testimonials' are not evidence. Evidence is facts, data and research, preferably where appropriate comparisons have been made with other products or systems, and in a setting appropriate for New Zealand. Beware the presentation of analysis of a product (its chemical composition, for instance) as a substitute for its effect. Also watch out for being shown the effect of one component of the product as opposed to the actual product. The suggestion that pomegranate juice could help cure prostate cancer was based on one ingredient suppressing cancer cell division in petrie dishes. The concentration in the petrie dish was somewhat stronger than found in commercial juice.

Was the research done by an independent science organisation? This is Dr Doug Edmeades point about government

funding for science organisations – the more the Crown Research Institutes have to take commercial contracts for survival, the more difficult it is to ensure independence. Publication of results in a peer-reviewed journal does help with credibility. That is Ms Rosenbloom's point 3. Note that the peer review process generally ensures that the research has been carried out according to scientific principles, and that conclusions are supported by the results. Peer review doesn't check for how the research is then used by marketers – it can't.

Has the new product of concept been examined over several seasons/years? Results from a short-term trial might not reflect typical conditions. Dr Tony Parsons (retired Professor from Massey University) has shown that when pasture management is changed, it takes several years, even decades, for the interaction between soil, pasture and animal to reach equilibrium again in organic matter, nitrogen loss and production. Basing policy (for instance, imposing a nitrogen cap) on results from the time of change could end up with detrimental consequences on both environment and productivity.

Are ACTUAL figures of production disclosed? Quoting percentages without indicating the starting point can have impact but is meaningless. A current example being promoted is that Northern hemisphere farmers have cut their fertiliser use by 40-50% with no impact on yield. An obvious question is 'yield of what'. Another is 'what is the ACTUAL yield'? Actual could be before or after the reduction, but without a starting or end point the percentage means nothing. The same applies to the amount of fertiliser. Of note is that New Zealand's nutrient balance, whether nitrogen or phosphorus, is lower (indicating greater efficiency) than many other countries can achieve. The OECD figures for 2016 (latest data) report that the UK loses 87kg/ha per year of nitrogen and New Zealand loses 59.5. Always ask what the starting point was and what circumstances surrounded the results.

What are the concerns that are being overcome with the new product or system? The suggestion has been made that New Zealand doesn't need nitrogen fertiliser because clover can provide 'enough' nitrogen through fixation – and doesn't cause leaching problems because the clover nitrogen is 'natural'. It would be convenient if this was true, but research suggests otherwise. Field trials at Ruakura in the 1990s compared clover-ryegrass with ryegrass supplied with the same amount of nitrogen as the clover was fixing. The nitrate leaching loss was the same. In addition, stating that clover nitrogen is 'enough' overlooks the effect of clover root weevil, poor temperatures and the natural clover cycle within a pasture that operates on a 3-4 or even 7-8 year boom and bust dynamic. Pastures respond to fertiliser nitrogen because they are nitrogen limited.

Are the comparisons sensible? When comparing animal growth with a supplement or without, have the nutrients been balanced? Have the animals without the supplement

been fed *ad lib* or were they restricted in comparison with those on the supplement. In the same vein, the theory of 'compensatory growth', where animals can be restricted in food at some times of the year in the knowledge that they can catch up later when food is more available... can be challenged. They might grow faster again when fed better, but do they ever reach their full potential?

Finally, do the marketers/promoters/salespeople know how the new product or concept works? Ms Rosenbloom's point about 'magic' and 'miracle' gives the clue. If the science hasn't been done, and the mechanisms and processes identified, then there can be no idea of what the effect will be in circumstances beyond those existing where the research was done – the drivers and potential interactions will not be known.

Science, marketing and wishful thinking are part of a continuum with potential for confusion. Scientific research can certainly be coloured by perspective. Reputable journals try and sort out fact from wishful-thinking, but once published, marketers can sometimes be carried away by possibilities rather than realities. And people trying to do the right thing and create a better life, do get carried away. The shopping channels rely upon the natural human desire for improvement. But if the machines promising weight loss, fitness and better health for just three minutes a day (and expenditure on the machine) really worked – wouldn't we all be slender, fit and healthy? And be gorgeous as well?

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Defending Biodiversity: Environmental Science and Ethics

Jonathan A. Newman, Gary Varner and Stefan

Cambridge University Press 2017 441p.

Reviewed by Jacqueline Rowarth

Biodiversity is the subject of heated debate globally. At heart we know it is important. In mind we know how some of the biological interactions occur. In the brain we understand the creation of webs of energy and atoms. And in the wallet we know that biodiversity is valuable. But calculating that value in order to defend it is complex, because, in the same way that 'beauty is in the eye of the beholder', value depends upon the perception, perspective and socio-economic status of the person doing the calculation.

In the debate, environmentalists hold a world view on the innate value of individual organisms. This can be at odds with the pragmatic view of those striving for economic development, either personally or on behalf of a group or country. *Defending Biodiversity*, released at the end of 2017, has been written to help the environmentalists improve their arguments. The authors are American and Canadian university researchers – and all three consider themselves to be environmentalists. They have observed that none of the popular arguments for protecting biodiversity 'offer full-blown support for the extensive conservation programs that some environmentalists endorse'. They also suggest that some arguments of biological conservation 'lack adequate empirical support in ways that challenge conventional assumptions, and sometimes they commit one to positions that have unpalatable consequences'.

Putting themselves with environmentalists, the authors suggest that being persuasive will require better arguments, as well as knowledge of the limitations and weaknesses of those arguments. The book is an attempt to help.

Defending Biodiversity covers the types of common arguments involved in the debate from the instrumental and then intrinsic values... and moves on to examine ecosystem services, the precautionary principle, economic benefits connected with agriculture and pharmaceuticals, and nature based-tourism. The authors then consider the success

(or not) of instrumental value defense arguments before moving into the second part of the book which evaluates intrinsic value defenses. This section is more philosophical, bringing in such concepts as extensionism and ecophilism before examining the success (or not) of intrinsic value defenses.

All sections explain information clearly (with important references and real-life examples), including the background of whatever is being discussed (again with references), and ask questions to keep the reader engaged. The questions also provide challenges to think about the different angles and perspectives involved in the debate.

Some of those challenges and real-life examples involve New Zealand. The Black Robin intervention, the role of possums in native forests, and whether introduced red deer might be more valuable in terms of tourism (including hunting) than rare plants, are all discussed. The latter also brings in the value of a sentient versus non-sentient organism.

The final chapter has individual contributions by the three authors, covering their personal environmental history and their current stance. The bottom line appears to be 'do not agree to disagree' as that way leads to stasis.

Defending Biodiversity is aimed at people who care enough about the future to make the effort to understand the issues on both sides of the environment versus economics debate. That makes it, in university jargon, NZGA101...

