

# NZ GRASSLAND ASSOCIATION

Fuelled by Science, Tempered by Experience

GRASSLAND NEWS

[www.grassland.org.nz](http://www.grassland.org.nz)

May 2022

ISSN 1179-4216

**New-Generative Agriculture: based on science, informed by research and honed by New Zealand farmers... an update for 2022**

Jacqueline Rowarth<sup>1</sup>, Ants Roberts<sup>2</sup>, Warren King<sup>3</sup> and Mike Manning<sup>2</sup>  
<sup>1</sup>Lincoln University, <sup>2</sup>Ravensdown, <sup>3</sup>AgResearch

## The background

The Regenerative Agriculture (RA) debate and confusion continues, and an update on the 2020 New-Gen paper ([Rowarth et al. 2020](#)) has been written. It is on the NZGA website [here](#) and examines the 15 priorities for research presented in the White Paper (Grelet et al. 2021). What follows is a taste to whet your appetite and prompt you to follow the link... or a summary of main points to save time. RA continues to be presented as an improvement on current practice. We have also been told that making change cannot wait for the science (Burns 2021). In fact, we already have considerable research on organic agriculture which “can inform the evaluation of regenerative agriculture” (Terra Genesis International n.d.). In addition, the similarities between organics and RA have been well described (Burgess et al. 2019), the main difference being prohibiting synthetic chemicals in organics in comparison with minimising their use in RA. The conflict between *having* research *but* needing research and not being able to wait for the results should be sending alarm signals to funders.

Some of the urgency is presented as being important for farmers’ mental health (Burns 2021), which aligns with the statement in the White Paper (Grelet et al. 2021):

“RA is much more than a system of farming: it is a mindset that questions the status quo, and instead of becoming defeatist sees opportunities for different ways of living, working and farming”

People who work with New Zealand farmers know that farmers question their activities all the time and are constantly seeking better ways of doing things. Rather than being ‘defeatist,’ the great majority of farmers have an appetite for change and the existence of the NZGA is testament to that; the journals are full of examples.

## The RA proposal

The research priorities and questions proposed in the White Paper are aimed at investigating farm system changes that might occur as a result of using RA practices. If RA is focussed on continuous improvement, there will be no change for the New Zealand farmer who has been on that trajectory of improvement for decades.

If it is a fundamental reset to much lower production and productivity, the consumer will be expected to pay more for the product - and consumers are fickle.

Setting aside tools and approaches advocated (especially the long pasture grazing and hyper-diverse pastures, with humates and seaweed additions, tested with Brix and Albrecht Kinsey) leaves farmers with what we are already doing, and the concept expressed in the previous paper (Rowarth et al. 2020b).

In effect, what RA in New Zealand has done is support the weaponization of the term ‘conventional agriculture’ (Sumberg & Giller 2022). RA encapsulates ‘good’ and virtually everything else is ‘bad’. This is a dangerous generalisation. While some of the intensive food production systems in the US and Europe (e.g. large-scale feedlots) might appear to be ‘working against nature’, the predominantly pastoral agricultural systems in New Zealand would seem to be closer to ‘working with nature’.

Research has shown that the biggest impact on nature and biodiversity is the expansion of agriculture (Sanchez-Bayo & Wyckhus, 2019) not the type of agriculture being undertaken. Reduction in food production per hectare is not desirable, as to feed an ever-growing population, more land under agriculture to produce the same amount of food would be required, with obvious negative consequences on biodiversity (Schneider et al. 2022).

## Conclusions

Each of the 15 priorities was considered and conclusions formed from available research:



NZGA for over 80 years

SPONSORED BY AGRESEARCH

It is possible that RA-style long, diverse pastures may have some negative impact on GHG per unit of production and on nitrogen loss.

It is unlikely that food from RA systems will differ in quality from conventionally produced food. There will, however, be less of it.

Data on resilience and farmer well-being are qualitative and sparse. The empowerment and mindset of farmers is subjective and highly personal. It remains unclear as to what impact research might have in this space.

RA effectively removes some management tools from the farmer's toolbox and adds constraints around livestock management i.e. grazing. This adds cost and risk, running counter to RA claims.

RA is unlikely to directly contribute to better animal welfare outcomes in New Zealand which already has high farm animal welfare – higher than that of trading partners.

At a farm scale, RA will probably increase plant and insect biodiversity, but will have little effect on the product. At a global scale, however, biodiversity would be negatively affected by agricultural expansion.

Any changes in soil carbon due to RA will likely be small and temporary.

Effect of RA on improving resilience to weather events seems unlikely given the opportunity cost of RA Australia.

Accountability in food systems remains unexplained.

A premium for RA products has not yet been apparent.

Farmscape for biodiversity is still obscure as RA does not specifically refer to native species.

RA systems are a risk in terms of seeds and weeds; closer scrutiny needs to be made of promoted seed mixtures.

If RA stimulates conversations between farmers who would normally ignore regular industry support channels, then some good may come of it, but only IF the information provided is accurate...

## References

### International Grassland Congress 2023

From its beginning as a small group of researchers in Europe in 1927, it is now a gathering with over 1000 delegates from 80+ countries. The current chair of the IGC is **Dr Derek Woodfield** (PGG Wrightson Seeds, past president and life member of the NZGA, and NZGT member).

The Organizing Committee of the XXV International Grassland Congress invites submissions for volunteer oral, posters, and thematic sessions to be presented at this global conference, to be held in **Kentucky, U.S. from May 14-19, 2023.**

#### Submissions – due July 15th 2022

For online submission please visit <https://internationalgrasslands.org/2023-igc/>

- AgScience 57. 2020. [www.agscience.org.nz](http://www.agscience.org.nz) <https://indd.adobe.com/view/693a575a-5482-4df0-bc4d-f986d3bce64815p>.
- Burgess PJ, Harris J, Graves AR, Deeks LK. 2019. *Regenerative agriculture: identifying the impact; enabling the potential*. Report for SYSTEMIQ. 17 May 2019. Bedfordshire, UK:
- Burns EA. 2021. Regenerative agriculture: Farmer motivation, environment and climate improvement. *Policy Quarterly* 17 (Issue 3). 7p. <https://ojs.victoria.ac.nz/pq/article/download/7133/6293/10027>
- Grelet G, Lang S and 68 others). 2021 *Regenerative agriculture in Aotearoa New Zealand– research pathways to build science-based evidence and national narratives*. [https://ourlandandwater.nz/wp-content/uploads/2021/02/Grelet\\_Lang\\_Feb-2021\\_Regen\\_Ag\\_NZ\\_White\\_ePaper.pdf](https://ourlandandwater.nz/wp-content/uploads/2021/02/Grelet_Lang_Feb-2021_Regen_Ag_NZ_White_ePaper.pdf). 59p.
- Rowarth JS. 2020. Hot Topic – Regenerative Agriculture. <https://www.agscience.org.nz/hot-topic-regenerative-agriculture/> 7p.
- Rowarth JS, Roberts AHC, King W, Manning MJ. 2020a. *New-generative agriculture – based on science, informed by research and honed by New Zealand farmers*. *Journal of New Zealand Grasslands* 82: 221-229.
- Rowarth JS, Roberts AHC, Manning MJ. 2020b. Learning from the past: a comparison of food production systems for managing nutrients. In: *Nutrient Management in Farmed Landscapes*. (Eds. CL Christensen, DJ Horne and R Singh). <http://flrc.massey.ac.nz/publications.html>. Occasional Report No. 33. Farmed Landscapes Research Centre, Massey University, Palmerston North, New Zealand. 7p.
- Sanchez-Bayo F, Wyckhus KAG. 2019. Worldwide decline of the entomofauna: A review of its drivers. *Biological Conservation* 232: 8-27.
- Schneider JM, Zabel F, Schünemann F, Delzeit R, Mauser W. 2022. Global cropland could be almost halved: Assessment of land saving potentials under different strategies and implications for agricultural markets. *PLoS ONE* 17(2): e0263063. <https://doi.org/10.1371/journal.pone.0263063>
- Sumberg J, Giller KE. 2022. What is conventional agriculture? *Global Food Security* 32. 9p. <https://doi.org/10.1016/j.gfs.2022.100617>

The theme of the conference is **Grassland for Soil, Animal & Human Health**.

Sub-Theme 1: Grassland Ecology

Sub-Theme 2: Grassland Production & Utilization

Sub-Theme 3: Livestock Production Systems

Sub-Theme 4: Grassland Sustainability, Innovations & Initiatives

Sub-Theme 5: Grassland Policies, Social Issues & Ecosystem Services

Further details available [here](#)

## Dr Alison Popay – 2021 recipient of the Ray Brougham Trophy

In a normal year the NZ Grassland Trust would announce the winner of the Ray Brougham Trophy at the conference dinner.

Dr Alison Popay is the recipient of the 2021 Ray Brougham Trophy, awarded by the NZ Grassland Trust in acknowledgement of contributions to pastoral agriculture.

In awarding the Trophy to Alison, John Caradus (chair of the Trust) stated that the unique ecology of New Zealand pasture systems needs unique researchers. They need to have a grounding in the wider ecological principles such as population dynamics, also understanding the fundamental drivers of the physiological responses of our pests. When building knowledge to develop biological control the New Zealand pastoral system is unique because it is built on forest soils and incomplete ecosystems, while providing new pest challenges to imported grasses and legumes.

Alison has spent a career developing this expertise, with particular emphasis on the essential symbiosis between ryegrass and its endophytes, and the role of this interaction with the ecology of our ruminant-grazed pastures. As well as a dedicated and impactful science career, Alison has been fully engaged in the development and delivery of messages for industry through her roles in the Plant Protection Society and the New Zealand Grassland Association.

Alison's expertise was recognised through commercial developments. She was part of the Endophyte team that re-



ceived the 2018 AGMARDT Technology Transfer Award and the 2018 Pickering Medal from the Royal Society of NZ for the development of AR37 – an endophyte strain, released in 2007, valued at \$3.6 billion to the NZ economy. This team also received the AgResearch Technology prize for this work in 2014. When combined with our modern ryegrass genetics, this endophyte provided a suite of chemicals that provided protection for the plant from insect pests and provided a safe forage for the grazing ruminant.

Through her contributions to the field of New Zealand pastoral entomology, biological pest control and particularly the understanding and applications of the ryegrass/endophyte symbiosis Alison is the Ray Brougham Trophy winner for 2021.

The NZGT Trustees congratulate Dr Popay. In accepting the Trophy, Alison emphasised that she had always been part of a team, working on a challenge with a cross-disciplinary approach. She was originally educated in ecology, and it was this integrative background that resulted in her ability to contribute to the endophyte host-herbivore interaction that has been her work. Motivated by her love of research and science, and the people with whom she has had the pleasure of working, the fact that the research has been adopted has also been a driver. Industry and farmers have embraced the new technologies around endophyte, and animals have benefitted - as has the economy.

Details of the Ray Brougham Trophy seminar series will be circulated in due course.



## NZGA Executive Office Update

### Membership

Its that time of year again - we are busy trying to wrap up the end of the year financials. Over the last few weeks many of you will have received reminders of unpaid subscriptions. Soon we will be removing members who are in arrears as we prepare to invoice membership for the next financial year in August.

### Publications

Members in arrears will not have received the Journal or Resilient Pastures Symposium books as mailing these out comes at significant cost to us - \$7.70/book plus another \$4.30 ea for a rural delivery.

If you need to update your postal address please email [nzgrassland@gmail.com](mailto:nzgrassland@gmail.com).

HINT - In addition we are about to mail out the updated '**Pasture and Forage Plants for NZ**' (5th ed) to our NZ members.

Alan Stewart informed me this book was first produced 22 years ago and has definitely stood the test of time. It is

written as a great starting point for students, farmers and anyone interested in pastoral agriculture plus it has an extensive reference list for those wanting to delve further.

Extra copies of the book can be [purchased online](#).

### NZGA History

NZGA is in its 91st year and in time to honour the occasion Dr Deric Charlton (past president and secretary NZGA, life member and DSIR plant breeder) has compiled our history in [14 short chapters](#) that are available on our website.

### Invercargill Conference 2022

Just a reminder that the conference is all go for 15-17 Nov 2022. We have carried over all previous registrations but welcome anyone who can now join us. Full details and link to online registration are on the [website](#).

