



MASSEY SOIL AND CROP RESEARCH NETS \$100,000



Massey University research projects into forage crops and phosphorus runoff have secured \$100,000 from the Kathleen Spragg Agricultural Research Trust.

The research could see forage crop use in pastoral agriculture optimised for animal and human health, and reduced phosphorus leaching into waterways.

The trust, managed by Perpetual Guardian, gave \$75,000 to a three-year project that will measure trace metals in forage crops and animal offal, to determine both the risks and benefits of the metals in these crops.

Project lead and Professor in Environmental Science Chris Anderson says a range of factors, including climate change, have driven a major shift away from just ryegrass and clover towards more forage crops such as chicory and plantain in diverse pastures.

Forage crops are known to have higher concentrations of trace metals, which can be beneficial for animals and – further up the food chain – humans, says Chris.

“One in five humans are thought to be deficient in zinc, but with the change to forage crops the deficiency might not be as bad as we thought.”

Zinc also counteracts facial eczema in stock – expected to worsen with warming conditions due to climate change – and forage crops can also boost flagging copper levels in animals and humans.

Forage crop use can also pose risks, with chicory known to have up to a 50 times greater concentration of cadmium – which can cause liver and kidney disease – than ryegrass.

Anecdotal evidence suggests cadmium levels, which are heavily monitored, do occasionally exceed recommended limits, Chris says.

“We’ll be able to answer whether forage crop use is contributing to this problem, because at the moment we just don’t know. Even if there is more cadmium, the extra zinc might offset the problem in the animal. It’s interesting and important science that could have big implications for our meat exports.”

The project team includes a PhD student and an undergraduate student, and the funding from the trust is an investment in New Zealand science and people, says Chris.

Research by PhD student Janani Palihakkara and overseen by Lucy Burkitt, Associate Professor Soil Science, will investigate whether the ponding of water in low-lying areas increases phosphorus release, and what this might mean for phosphorus runoff into waterways.

Dr Burkitt says these low-lying “critical source areas” make up about 20 percent of farmland but account for 80 percent of phosphorus runoff.

The project, which received \$17,610 from the trust, will measure soil chemistry changes due to water accumulation at critical source areas on two Massey research farms, and quantify how much phosphorus is available in the surface water as a result of those changes.

Early results show more phosphorus is being released to flowing water due to soil chemistry changes.

“This could increase the concentration of phosphorus leaving farms and entering waterways. We haven’t measured this before. It’s really important to understand how big a risk it is.

“The funding has allowed us to run the project in the field which, although more expensive, means the research is more relevant to farms and industry.”

UPDATE FROM THE DIRECTOR

Kia ora whānau,

It was lovely to get back on campus in mid-January and even better when, in late February, students joined us ‘en masse’ and there were queues at the cafeteria for the first time in two years!

Now it is autumn, the Albany and Manawatū campuses look especially stunning, and I’m so pleased for our graduands – many of whom are back on campus to celebrate the conferring of various degrees, diplomas and doctorates. I was thrilled to have Godfrey Mackersey, a graduate from 1951, join us on the Manawatū campus in early May to witness his granddaughter’s graduation ceremony.

Working on the beautiful Palmerston North campus is such a privilege. The grounds cover around 80 hectares and include an arboretum, sports fields, cherry blossom walks, rhododendron dells and the extensive cottage gardens around Wharerata and Tiritea Houses. A team of just eight gardeners works hard to keep them in order.

Their efforts have been enhanced of late by the ‘in-kind’ support of a volunteer group of alumni and friends, led by Emeritus Professor Ian Warrington, who have been generously giving their time to assist with maintaining the gardens and grounds. If you are interested in joining this group, contact me on m.a.murdoch@massey.ac.nz.

Another hard-working volunteer team at Massey is the Veterinary Emergency Response Team. The team responds to save animals in times of crisis and sadly this year it has already been deployed twice, to assist with rescuing animals impacted by flooding in Auckland and then post-cyclone in Hawke’s Bay. You can read about some of their work in this newsletter.

While volunteer and ‘in-kind’ work continues, fundraising for the year is off to a strong start, boosted by a gift from the University of some \$375,000 for the Sir Paul Callaghan Scholarships. The funds have come from the sale of intellectual property from a company originally established by Sir Paul. Income from the donation will support doctoral scholarships in chemistry and physics within the School of Natural Sciences. While the year has started well on all fronts, we are braced for potential challenges as rising interest rates and high inflation impact on disposable incomes.

Finally, if you are looking for the Foundation on campus, we have moved! After 14 years in Tiritea House, the Foundation has relocated to the Refectory Building. Please come and visit us in our new home if you are on the Manawatū campus, it really is a stunning building. Our phone numbers remain the same and any post will be redirected to us!

Ngā manaakitanga

Mitch Murdoch

LINDSAY FOUNDATION AWARDS \$30,000 TO ANIMAL RESCUE TEAM

A \$30,000 grant from The Lindsay Foundation will fund essential training and equipment for Massey University's specialist technical animal rescue team.

The Veterinary Emergency Response Team (VERT) was most recently deployed to Hawke's Bay in the aftermath of Cyclone Gabrielle, and evacuated a range of animals there, including the challenging rescues of sheep and a dog stranded on flood-surrounded rooftops.

VERT treasurer Dr Neroli Thomson says while its costs in a disaster response are usually covered, the team must fund its training, equipment and day-to-day work conducting technical animal rescues around the lower North Island.

"It could be horses stuck in ditches or thick mud, cows down banks, sheep marooned in odd places or dogs over cliffs." VERT's assistance is often a last resort, and without it the animals would likely be euthanised.

The 11-strong team from Massey – a mix of veterinarians, vet technicians, wildlife technicians and staff from other departments - rely on fundraisers, donations and grants to fund their operations but often cover certain costs themselves.

With the support of the Massey University Foundation, VERT sought \$30,417 from The Lindsay Foundation. The grant will fund training and upskilling of team members - in rescues in water, at height and in other unstable environments - and also pay for radios, protective overalls, software, community outreach and a new trailer for transporting equipment.



The VERT team successfully evacuated more than 30 animals following Cyclone Gabrielle, including four sheep, 14 dogs, a horse, five cats, six goldfish and two chickens

The trailer is an urgent need, says Neroli, as the team's old fire truck has been decommissioned, leaving VERT without means to transport its sizable equipment.

"We are hugely grateful to The Lindsay Foundation for supporting us with such a generous grant, to help us ensure we can continue to protect the welfare of animals - and people who may put themselves at risk trying to help them."

VERT received close to \$19,000 in public donations following its deployment after Cyclone Gabrielle.

Team leader Patrice Palleson says it is also thankful for the support of Massey University, which releases staff for deployments, lends fleet vehicles and provides storage, training facilities and resources.

To give to VERT visit: <https://foundation.massey.ac.nz/donate-online>

\$280,000 FUND TO FUEL MĀORI BUSINESS RESEARCH AND SUCCESS

A \$280,000 fund established by Te Kura Whai Pakihi – Massey Business School – will support the success of Māori students and research benefitting the Māori economy.

The sizable endowment from the school will be invested by the Massey University Foundation, and used to support Māori student and staff recruitment and retention, research and scholarships.

Professor Matt Roskrige, Associate Dean Māori and Director of Te Au Rangahau, Massey's Māori business research centre, says Māori are significantly underrepresented in business study and careers

Māori comprise about eight percent of full-time students at the business school despite accounting for 16 percent of the population of Aotearoa.

"We have companies and government agencies asking for Māori candidates for jobs and we just don't have enough coming through – especially ones that have gone on to postgraduate study."

Government agencies and the private sector are increasingly seeing the value and need to be able to bring mātauranga Māori into their organisations, both to better work with the \$70 billion Māori economy and to find innovative solutions, Matt says.

Māori organisations, including many of the roughly 170 marae in Aotearoa, have business interests that could be strengthened with Māori research, business knowledge and entrepreneurship.

"There is a desperate need for Māori workforce in business and business research."

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MASSEY UNIVERSITY
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