

Māori perspectives on potential new pest control

Aotearoa New Zealand is facing invasive pest threats that require next-generation tools. Pests such as wasps compete with, and prey upon, taonga insects and birds, while parasites such as the varroa mite destroy honeybee hives. These are economic, environmental and cultural concerns for Māori and non-Māori alike.

Current methods to combat wasps and varroa mites include manual trapping and chemical treatments, but these carry some risks and are not always effective.

The Novel Tools & Strategies – Invertebrates tangata whenua team used Māori-centred approaches to engage 62 tangata whenua, of different backgrounds and interests, in discussions on two novel pest management tools: gene silencing (RNA interference), and gene drive (CRISPR Cas 9).

THEMES WITHIN MĀORI PERSPECTIVES

1: A responsibility to protect taonga species makes invasive pest management a continued imperative

When it comes to pest control, "doing nothing" was always a least favoured option amongst participants. Many were controlling pests or supported pest management as ways to actively protect taonga. Participants also strongly disliked toxins so they were interested in novel pest management tools that reduce by-kill. Participants were keenly aware of historic and contemporary opposition to genetic modification (GM), but were willing to consider and discuss the pros and cons of GM in the context of pest eradication.

2: Looking back to the future

We explored traditional pest management in Māori society, discovering customary methods that align with contemporary pest control strategies, as well as being novel in their own right. While the concept of 'eradication' was not evident in traditional Māori society, elimination strategies were used. This highlights the value of understanding historic pest control approaches, Māori values and the dynamic continuity of Māori-led strategies.



AT A GLANCE

Genetic technologies could be very useful for pest control in Aotearoa New Zealand, but social acceptance and support is needed before these can be considered, developed and implemented.

So, what do tangata whenua think of using gene-based technologies to protect taonga species? We spoke with Māori to gauge their views on two promising technologies for pest control: gene silencing and gene drive.



3: Effective communication is required to make informed decisions

Participants were keenly interested to learn about novel biotechnologies and how they work, and we developed different text, graphics and presentations, animations and video primers, as well as in-person explanations to assist peoples' understanding.

While it can be challenging to convey complex scientific principles to diverse audiences, we addressed these challenges by drawing te reo Māori, Māori values, interests and concepts into the discussions. The ways our participants went on to articulate and discuss the pros and cons of different methods revealed they had developed more than sufficient understanding of the science mechanisms to engage. New approaches to science communication, including Māori-led dialogue with key stakeholders, adds value and enables us all to make better-informed decisions.

4: Acknowledging multiple complexities

Developing and using novel pest management tools presents technical issues and social considerations that are equally important to work through carefully, and together as Tiriti partners. Concerns identified about various risks, and unknown long-term impacts of the tools need to be taken into account during development of any new tool. Implementation is another consideration again.

Novel pest management tools that are 'socially acceptable' require discussions informed by the latest scientific knowledge, alongside addressing ethical, political, social, spiritual and cultural arguments. We need to examine technologies from all perspectives to fully evaluate the risks and opportunities. This discussion must encompass the relevance and significance of tikanga, mātauranga Māori, and – as our aligned research is showing – the centrality of te Tiriti o Waitangi-based decision-making.



MOVING FORWARD

Achieving a pest-free status by 2050 is a complex task, needing new pest management technologies and innovative approaches that support tangata whenua interests. The development, testing, and release of these technologies in Aotearoa New Zealand must constantly address socio-cultural and local concerns.

Māori have raised concerns that they are excluded by current political, economic, and social decision-making processes. Future strategies should align with tikanga Māori and empower Māori-led rangatiratanga, with the government playing a supportive role.

Aotearoa New Zealand requires innovative pest management tools and approaches that foster meaningful collaboration with Māori researchers, enhancing Māori leadership and capacity. Development of novel pest management tools is an opportunity for researchers and government agencies to establish positive relationships with Māori communities and honour Te Tiriti o Waitangi. Future research should continue to advance engagement with tangata whenua.

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Researchers:

- Symon Palmer, Te Herenga Waka – Victoria University of Wellington symon.palmer@vuw.ac.nz
- Ocean Mercier, Te Herenga Waka – Victoria University of Wellington ocean.mercier@vuw.ac.nz

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