

Seed islands vs seed orchards for forest planning



Naturally established kānuka (*Kunzea ericoides*) in Fairhall, Marlborough.

© alistaibull · some rights reserved (CC BY-NC)

This fact sheet is for landowners, tangata whenua, and community groups interested in growing native (indigenous) forests. It compares two approaches to increasing sources of native tree seeds to increase the population of native species: seed islands and seed orchards.

Seed islands

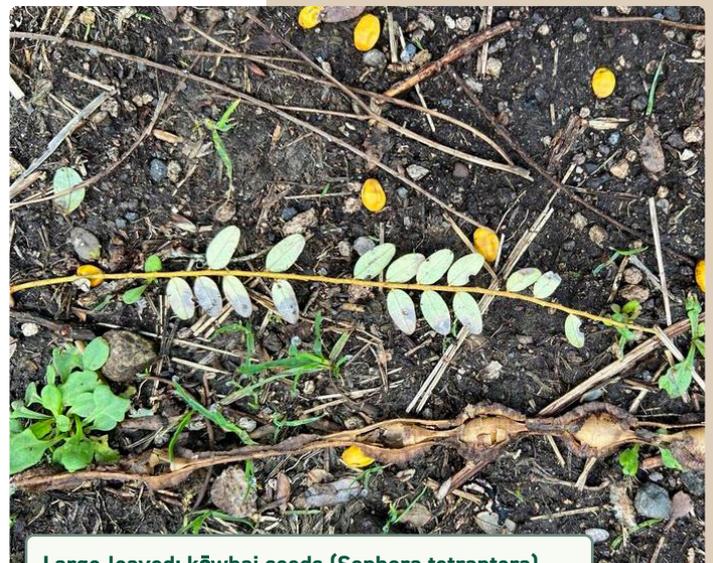
A seed island is a small area planted with native trees to help natural regeneration of forest on the surrounding land. As the trees grow, seeds can spread into nearby areas through natural mechanisms such as birds and wind to encourage forest growth. The seed island acts as a centre for the forest to expand from. Seed islands are especially useful in areas where there are few or no natural sources of seed.

Seed orchards

A seed orchard is a carefully managed plantation where selected trees are grown to produce seeds. These orchards are designed to produce seeds of high genetic quality. This is done by selecting parent trees with beneficial traits and controlled pollination. These orchards help ensure that high-quality seeds will be available for large scale native forest restoration as well as commercial forestry.

Comparison of seed islands and seed orchards

	Seed island	Seed orchard
Lower cost	✓	✗
Promotes biodiversity	✓	✓
High seed production	✗	✓
Genetically superior seeds	✗	✓
Less infrastructure and resource needs	✓	✗
Controlled environment	✗	✓
Natural regeneration	✓	✗
Low maintenance	✓	✗



Large-leaved: kōwhai seeds (*Sophora tetraptera*).

© greghadley1, some rights reserved (CC BY-NC)

Establishing seed islands and seed orchards

Seed islands can be established by fencing off existing trees to protect from browsing animals or can be strategically planted to establish a seed source. Use of nurse crops like kānuka and mānuka can provide cover for harder to establish native tree species.

Seed orchards can be expensive to set up and need ongoing care. They also tend to focus more on commercial use and improving tree genetics than on supporting biodiversity or restoring ecosystems.

Biodiversity and wildlife in seed islands and seed orchards

Both approaches help create healthier ecosystems by supporting biodiversity and connecting forested areas.

Seed islands can have better biodiversity because the diversity of native species mimics the way forests naturally expand. This creates more complex habitats that attract native birds and insects.

Seed orchards also provide habitats for birds and insects. However, their biodiversity benefits can be more limited, as they are managed for seed production using fewer, selected species and more uniform planting.

Tips for effective use of seed islands and seed orchards

For seed islands and seed orchards to be successful, you need to think about how native seeds and plants are sourced, and which land care practices to use.

Engagement with Māori on seed islands and seed orchards

Collaborating with mana whenua as kaitiaki on native seeds represents an opportunity to:

- restore the mana of iwi
- safeguard rongoā species
- preserve the traditions of mahinga kai.

It's important to partner with Māori communities in meaningful ways, to ensure that any seed sourcing, propagation, and planting aligns with cultural values and supports long-term aspirations.

Costs of seed islands and seed orchards

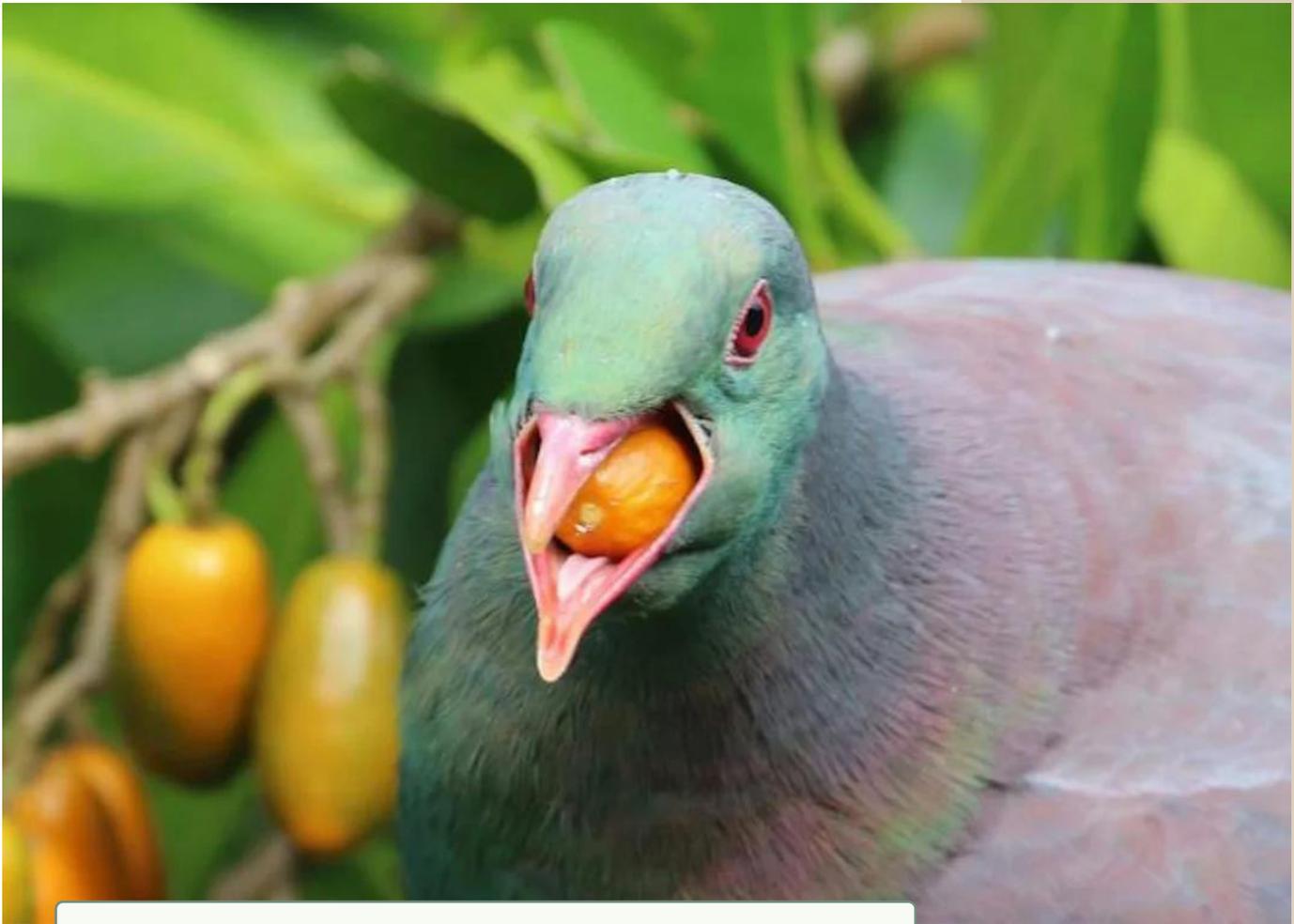
Choosing between seed islands and seed orchards depends on your goals, budget, and timeline.

Seed islands are straightforward and relatively low cost to set up and maintain, as long as any fences needed are already in place, and land ownership is clear.

Seed orchards require more investment and ongoing care, but they produce a reliable, long-term supply of high-quality seeds for selected tree species.

Both require new seedlings to be protected from browsers, which may require fencing.

Seed islands	Seed orchards
1. Choose the right spot Pick areas with good sunlight, open space, and healthy soil. Plant each island around 100 metres from each other and make sure the site fits with local cultural and environmental values. Or, choose an existing site with an established range of trees close to where you want native seedlings to establish.	1. Plan for long-term use Seed orchards need more space, time, and money. Choose sites that can support long-term seed production.
2. Start with hardy nursery species Use fast growing native trees like kānuka, mānuka, and tī kōuka as a nurse crop to support natural regeneration of long-lived species.	2. Select high-quality trees Use parent trees that clearly display the traits you need to grow better seeds. This helps with large-scale forest restoration or commercial planting.
3. Lower cost, lower maintenance Seed islands are low cost and low maintenance. They work well for small projects or areas with limited resources.	3. Manage carefully Regular monitoring and care are needed to keep trees healthy and productive.
4. Support biodiversity Plant a mix of native species to attract birds and insects that help spread seeds.	4. Boost biodiversity Plant a variety of native species to help support wildlife and ecosystem health.



© Geoff de Lisle some rights reserved (CC BY-NC). Retrieved from www.sciencelearn.org.nz/images/98-kereru-feeding-on-karaka-berry

Adult kererū (New Zealand pigeon) eating karaka fruit on Kapiti Island, January 2018.

About this fact sheet

This fact sheet was developed by Te Uru Rākau – New Zealand Forest Service, a business unit of the Ministry for Primary Industries.

It is based on the report **Feasibility study of establishing a network of native tall tree seed orchards vs. seed islands**, prepared by Mānuka Farming New Zealand Ltd and Tāne's Tree Trust. The report contains more detail on the differences of these two approaches and provides further details on species consideration, management strategies, financial considerations and several case studies.

Want more information?

Forestry science and research
mpi.govt.nz/forest-science-and-research

Tirohanga Ngahere | Canopy website
canopy.govt.nz – Discover the environmental and economic benefits of trees

Feasibility study of establishing a network of native tall tree seed orchards vs. seed islands
mpi.govt.nz/dmsdocument/64956

Disclaimer

While every effort has been made to ensure the information in this publication is accurate, Te Uru Rākau – New Zealand Forest Service does not accept any responsibility or liability for error of fact, omission, interpretation, or opinion that may be present, nor for the consequences of any decisions based on this information.