Geoff Mansell of Kotare Subtropicals in the banana polyhouse in Maungatapere. Photo by Delwyn Dickey

SUBTROPICALS HEATING UP

As the warming Northland climate tilts more to conditions in New South Wales in Australia than to other parts of New Zealand, more growers are trying their hand at growing tropical and subtropical crops.

Delwyn Dickey

Australian native finger limes - more at home in lower Queensland and northern New South Wales - are being grown in Kerikeri and Gisborne, while coffee growers have formed a collaborative group.

Most other subtropical growers however are smaller, scattered growers going it alone, finding out by trial and error what production suits the crops on their piece of land and selling through local farmers' markets and restaurants.

Modest-sized banana plantations can now be found dotted around the north. The largest pineapple grower has around 40,000 plants in the ground.

The economic feasibility of scaling up some of these new crops was tackled in new reports by Scarlatti and BioPacific Partners for regional economic development agency Northland Inc.

Banana and pineapple were looked at, as was leafy salad plant moringa, and root crops ginger and turmeric. The report also examined field crops soybean and sunflower as some farmers eye up on-farm diversity. Mango and papaya production were also covered in a separate report.

Banana grower and subtropical plant nurseryman Geoff Mansell of Kotare Subtropicals at Maungatapere feels the report was a good starting point for new growers, including that it contained a calculator so anybody could put in their own figures and work out their own feasibility. That it provides details of the Ministry for Primary Industries and NZGAP compliance requirements was also a winner.

Subtropical crops can be grown in some Northland areas with suitable microclimates

Due diligence was needed, however, especially around set-up costs, he says, as funding constraints hadn't allowed for agronomy to be included.

While the north is warming up, he says, not all of Northland is subtropical and some tropical and subtropical crops can still only be grown in some nooks and crannies with suitable microclimates.

Northland's geography is also mostly hills and valleys, so Geoff was pleased to see the 10 percent of land-use capability (LUC) 1 to 3, most suitable for cropping, had been acknowledged – although again, not all was suitable for subtropicals.

Costs for covered structures that could be needed along with various types of irrigation weren't generally covered in the report, which could well affect the viability of some crops regardless of the report findings, he says.

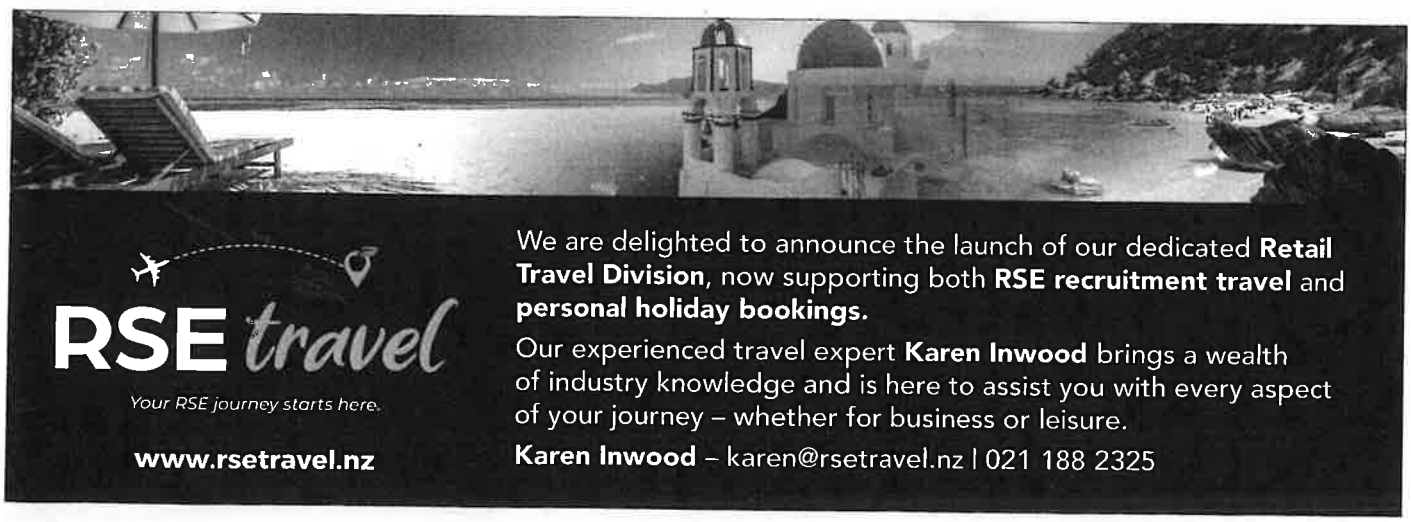
"Soil type, contour, the number of frost-free days, wind, altitude in relation to sea level, water availability – all that sort of thing has to be considered."

Growing his own bananas mostly outdoors, with a smaller amount in an unheated polyhouse, Geoff could vouch for the difference cover makes. From 15 months inside to produce a bunch of bananas, to 18 months to two years outside.

Transport wasn't considered a big issue in the report – something Geoff disagrees with, especially if door-to-door chilled transport was needed. The cost of getting fresh product to the bigger Auckland markets is one of the reasons growers sold locally. But overall, he found the report useful.

> **Soil type, contour, the number of frost-free days, wind, altitude in relation to sea level, water availability – all that sort of thing has to be considered**

Access to coolstores is needed to preserve quality and potentially control ripening for many subtropical fruits. If looking to value-add growers need to be aware there are currently no contract food processing or freeze-drying facilities, with onsite staff, in the north.



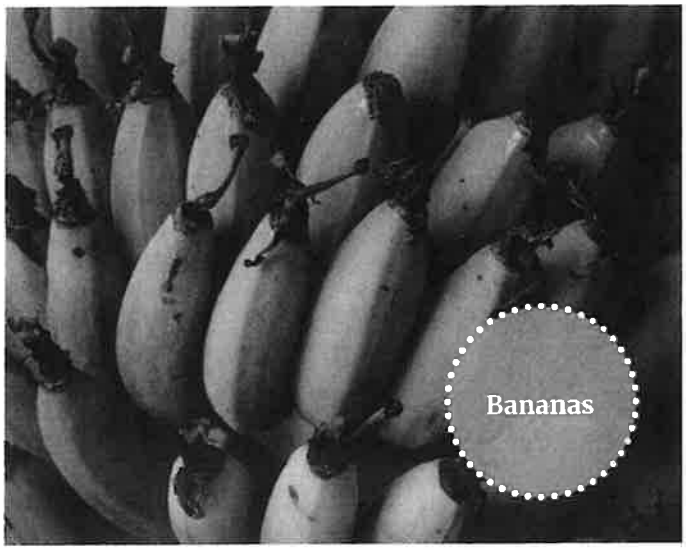


Photo by Trefor Ward

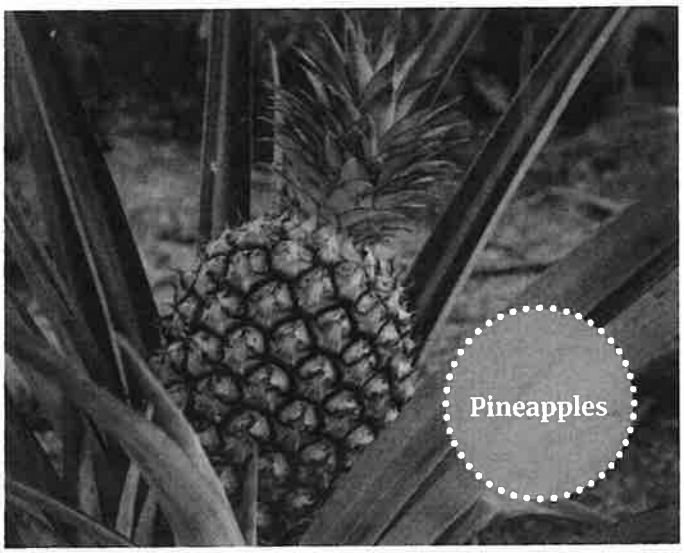


Photo by Trefor Ward

Bananas

With around 100ha already planted around the north, bananas are the most visible of the new subtropical crops. Their lush broad green leaves are synonymous with the tropics.

While several different cooler climate variates are being grown locally, the report modelled the smaller ladyfinger varieties. Much smaller than the Cavendish – of which New Zealand imports over 80,000t annually, ladyfinger variates also produce less in our cooler climes than overseas.

Planting at 800 plants/ha, growers can expect an annual yield of 14t – with around 70 percent commercial grade. Growers could see a farmgate value of between $1.50 and $3.00/kg, with low-grade fruit receiving half that price.

Establishment costs could vary from between $40,000–$113,000/ha depending on land development, if irrigation, wind and frost protection was needed, and cost of plants. Profit per hectare after costs ranged from a loss of -$8,836 to an expected $6,138 to an optimistic $32,757. Labour accounted for around 70 percent of annual costs.

Returns for other crops like avocados, tamarillos and oranges growing on the same good quality soil, were all considerably better than for bananas in an average year. However, in a good year when everything worked in their favour, bananas were comparable with avocados and much higher than both tamarillos and oranges.

Fresh bananas were considered feasible for small-scale production with a total of 190–300ha meeting expected demand.

Pineapples

With its ability to travel well and with low labour production costs, the popular Smooth Cayenne variety is the darling of the global pineapple trade with New Zealand currently importing over 9000t annually.

Queen and Red varieties are cold-tolerant and doing well in Northland with the largest grower having around 40,000 plants in the ground.

Susceptible to root rot, the plants need to be grown on slopes or mounds. Open field production was looked at. While they produce better under cover, this would add $400,000-$600,000/ha to production.

The Queen variety for fresh fruit was modelled with 30,000 to 35,000 plants/ha with each producing about 0.7–1kg of fruit annually.

This would produce between 16 and 31.50t/ha each year of which around 80-90 percent would be of commercial grade with a farmgate value of $2.15 per kg. Sub-par fruit would bring in about half that.

Low set-up costs could be around $58,000/ha or up to $142,000/ha including irrigation, wind and frost protection.

Profit per hectare after costs ranged from a loss of -$4,268 to an expected $26,241 to an optimistic $73,791, putting it on par with avocado.

Returns for kiwifruit, avocados, tamarillos and oranges growing on the same good quality soil, were considerably better than pineapple in a poor year. Pineapple was on par with kiwifruit and avocado in an average year, and brought in 25 percent more than kiwifruit – the next highest performer – in a good year.

Minimal processing at harvest means up to 30ha or up to 750t a year could be processed manually before semi-automatic machinery would likely be needed.

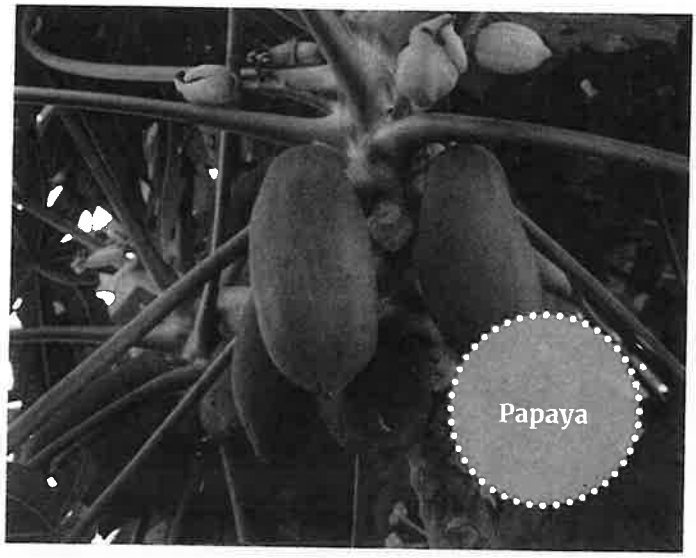


Photo by Trefor Ward

From left, Northland banana grower Toni-Nere Austen, Dr Jane Mullaney and Simone Frame present banana research

Fresh pineapples were considered feasible for small-scale production with 20–30ha meeting expected demand, while set-up costs and low volumes made cold pressed juice not feasible.

Papaya and mango

Each year New Zealand imports 2000t of fresh mango and 700t of fresh papaya. For local production, papaya looks a better option. Papaya trees planted three metres apart can potentially produce 800t of fruit off 20ha, compared to 140t of mango.

Sensitivity to climate variations means maintaining consistent quality is currently difficult. Both crops are better suited to growing under cover – increasing establishment costs and affecting viability.

Another home advantage is papaya's thin skin which doesn't travel well over long distances – affecting the quality of imported fruit.

Of the 800t of papaya produced from a 20ha block, 10 percent would be substandard, 60 percent could be processed into freeze dried papaya, with the remaining 240t sold fresh.

Growers could expect to receive around $5/kg for papaya. After looking at the overall costs to establish orchards and with low ongoing growing costs, papaya was a clear winner with opportunities for both fresh fruit and value-add products from fruit, leaves, skin and seeds, while mango was considered unfeasible. ●

VISIT WWW.NORTHANDNZ.COM TO DOWNLOAD THE REPORTS

BABY FOOD TO BOOST BANANA INDUSTRY

Northland's growing banana industry could provide first foods for weaning infants, following a study at the Riddet Institute at Massey University.

PhD candidate Simone Frame (Ngāti Maniapoto) is investigating how the infant gut responds to specific prebiotic structures in New Zealand-grown bananas. She is working with Far North grower Austenz Ltd's Toni-Nere Austen (Te Rawawa, Ngāti Kahu, Ngāti Hine) and the Bioeconomy Science Institute's Dr Jane Mullaney (Ngāti Porou/ Ngāti Raukawa).

The theory is that New Zealand's cooler climate and slower growing bananas will produce the distinct starch profiles they are targeting and be different from bananas grown in tropical zones in the world.

Simone says she wants to be a part of research science that can be used to achieve Māori aspirations. She is taking science and using her skills and knowledge to help Māori develop a new industry.

www.riddet.ac.nz