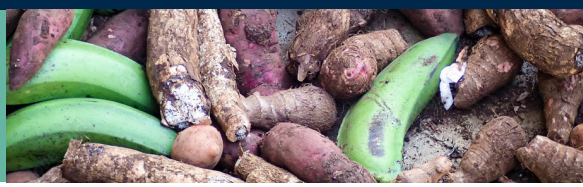
Rootcrops *(Taro, Cassava, Plantain)*



1. Offer Analysis

Product Description & Market Trends

Taro is derived from the Polynesian words kalo or talo, probably from the Malay words talles or tallus. Taro is used as a collective word for the edible aroids in general (Alocasia, Colocasia, Cyrtosperma, and Xanthosoma) but is also applied to each aroids separately. Taro is a root vegetable rich in starches. It's gluten-free and primarily used for culinary applications. Taro (Colocasia esculent Linn.) is a vegetative propagated tropical root originating in Southeast Asia. It occupies 9th position among world food crops, with its cultivation spread across Africa.

Taro tubers are essential sources of carbohydrates as an energy source and are used as staple foods in tropical and subtropical countries. It is produced mainly for its underground corms and contains 70–80% starch. Numerous root and tuber crops are grown in the world. Taro is one of such crops grown for various purposes.[1]

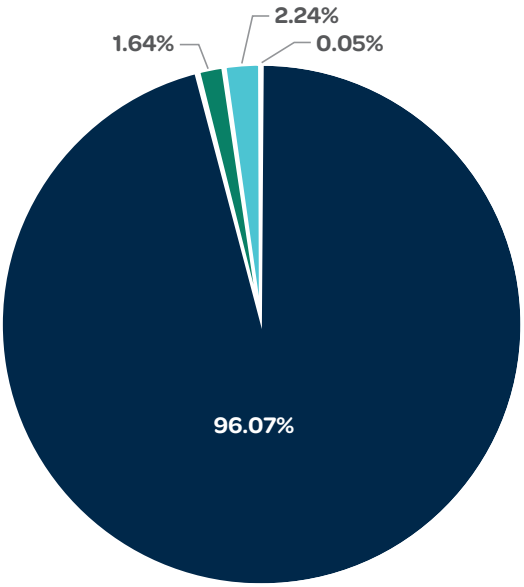
Products Keys Advantages:
Gluten-Free, Organic, Chips or Packaged Snacks, Flour, Frozen, Ready to Eat, Health Benefits.

New Zealand top market trends in 2022 vs Year Average (YA), with market size

- Raw Taro (Fresh, Chilled, Dried, Frozen) ≈ 4,582 Tons in 2022 (+0.5% vs YA)
- Flour (For both Cassava and Taro. Heading no 0714) ≈ 107 Tons in 2022 (-11% vs YA)
- Cooked Taro (Cooked, Frozen) ≈ 78 Tons in 2022 (-18% vs YA)
- Chips (For Potatoes, Cassava and Taro. Heading no 0714) ≈ 1830 Tons in 2022 (-11% vs YA)
  - *Chips from Fiji and Samoa (assumed to be mainly Taro & Cassava) ≈ 2.3 Tons in 2022 (+215% vs YA)*

TARO NUTRITIONAL CONTENT

Nutrient	Amount (per 100g)
Calories	112 kcal
Carbohydrates	26.46g
Sugars	0.49g
Dietary Fiber	4.1g
Fat	0.2g
Protein	0.52 g
Vitamin C	4.5mg
Vitamin A	0 IU
Vitamin B6	0.299mg
Folate	22mcg
Potassium	591mg
Magnesium	33mg
Iron	0.61mg
Phosphorus	23mg
Calcium	11mg



Taro Market Share in New Zealand (%)

- Raw Taro
- Cooked Taro
- Rootcrop Flour
- Rootcrop Chips

[1] Taro (Colocasia esculenta): An overview, Journal of Medicinal Plants Studies 2018; 6(4): 156-161, Rashmi DR et Al.

Here's a showcase of the various value-added products that can be created from Taro; the below products underlined are identified as being top market trends by assessing the offerings from leading retailers across New Zealand.

Food Byproducts

- Frozen Taro: Pre-cut and frozen taro pieces for convenience.
- Taro Chips: Thinly sliced and deep-fried or baked taro.
- Taro Flour: Ground taro root, used as a gluten-free alternative to wheat flour.
- Taro Starch: Extracted and processed from taro root, used in cooking and industrial applications.
- Taro Paste: A sweet or savoury mash often used in Asian cuisines.
- Taro Balls: Boiled and sweetened taro, often found in desserts.
- Taro Milk Tea: A popular flavour in bubble tea shops.
- Taro Ice Cream: An increasingly popular dessert option.
- Taro Smoothies: Blended with fruits and other ingredients.
- Taro Soups: Often used in savoury dishes or stews.

Non-Food Byproducts:

- Animal Feed: The leaves and stems, which are less commonly consumed by humans, can be used as animal feed.
- Cosmetic Products: Taro extract is sometimes used in skincare products for its nutrients.
- Biofuel: Research is ongoing into the use of taro as a potential biofuel source.
- Textile Dyes: Some traditional communities use taro in natural dyeing processes.
- Culinary Ash: Burned taro stems and leaves can produce ash used in traditional cooking methods.

Other Industrial Uses

- Bioplastics: Research into using taro starch to create biodegradable plastics is ongoing.
- Water Treatment: The taro plant has shown promise in phytoremediation, which is the use of plants to remove toxins from water.

Cassava is a tropical root vegetable high in carbohydrates. It's gluten-free and mainly utilised for both culinary and industrial purposes. Cassava (Manihot esculenta) is a perennial shrub originating from South America, primarily Brazil. It ranks as the sixth most important crop in the world in terms of annual production and serves as a significant food source in developing countries. With cultivation extending to Africa, Asia, Latin America, and the Pacific, cassava is crucial for both food security and income generation.

The underground tuberous roots of the plant are rich in carbohydrates, specifically starch, making up 60-70% of its composition. Unlike other root and tuber crops, cassava is also notable for its drought resistance, making it an ideal crop for arid regions. It is versatile, used not only as a staple in various cuisines but also industrially for the production of starch and ethanol.

The cassava plant naturally produces some toxic chemical substances (linamarin and small amounts of lotaustralin), which, during digestion, get converted to cyanide. Cyanide is very harmful to humans and causes severe health problems. First and foremost, Cassava shouldn't be eaten raw. Always peel the cassava, as the cyanide is more concentrated on the surface of the root tuber.[2]

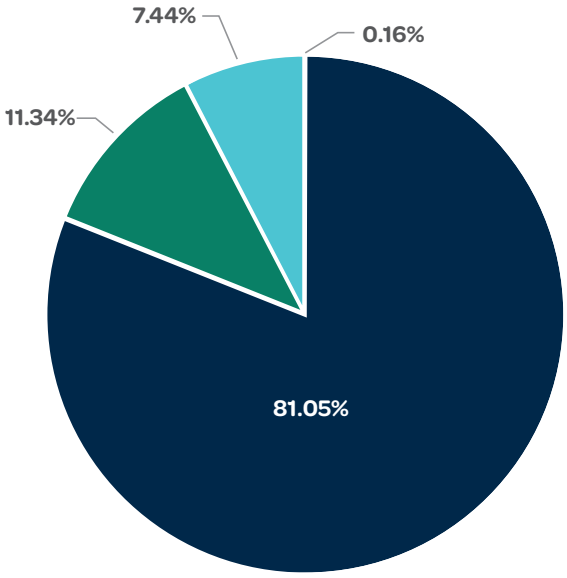
Products Keys Advantages:
Gluten-Free, Renewable Energy Source, Versatility in Industrial Use, Organic and Non-GMO Options, Climate Resilience, Local and International Trade.

New Zealand top market trends in 2022 vs Year Average (YA), with market size

- Raw Cassava (Fresh, Chilled, Dried, Frozen) ≈ 1,165 Tons in 2022 (-26% vs YA)
- Cooked Cassava (Cooked, Frozen) ≈ 163 Tons in 2022 (+30% vs YA)
- Flour (For both Cassava and Taro. Heading no 0714) ≈ 107 Tons in 2022 (-11% vs YA)
- Chips (For Potatoes, Cassava and Taro. Heading no 0714) ≈ 1830 Tons in 2022 (-11% vs YA)
    - *Chips from Fiji and Samoa (assumed to be mainly Taro & Cassava) ≈ 2.3 Tons in 2022 (+215% vs YA)*

CASSAVA NUTRITIONAL CONTENT

Nutrient	Amount (per 100g)
Calories	160 kcal
Carbohydrates	38.06g
Sugars	1.7g
Dietary Fiber	1.8g
Fat	0.34g
Protein	1.36 g
Vitamin C	20.6mg
Vitamin A	13 IU
Vitamin B6	0.088mg
Folate	27mcg
Potassium	271mg
Magnesium	21mg
Calcium	16mg
Iron	0.27mg
Phosphorus	27mg



Cassava Market Share in New Zealand (%)

- Raw Cassava
- Cooked Cassava
- Rootcrop Flour
- Rootcrop Chips

[2] Cassava Save and Grow, FAO 2013, ISBN 978-92-5-107641-5

Here's a showcase of the various value-added products that can be created from Cassava. The below products underligned are identified as being top market trends by assessing the offering in main retailers across New Zealand.

Food Byproducts

- Cassava Flour: A gluten-free flour made from dried and ground cassava root.
- Tapioca: Starch extracted from cassava, used in making pearls for bubble tea and puddings and as a thickening agent.
- Cassava Chips: Similar to taro chips, these are thinly sliced and deep-fried or baked.
- Garri: A popular West African food product made from fermented and toasted cassava.
- Fufu: A starchy side dish made from boiled and pounded cassava.
- Cassava Bread: A type of gluten-free bread made from cassava flour.
- Cassava Cake: A sweet cake made primarily from cassava root.
- Boiled Cassava: Often served as a starchy side dish, similar to potatoes.
- Cassava Leaves: These are also consumed and usually cooked in stews and soups.

Non-Food Byproducts

- Animal Feed: Cassava foliage and the byproducts of cassava processing can be used as animal feed.
- Ethanol: Cassava is used in some countries to produce bioethanol.
- Starch-Based Adhesives: The extracted starch can be used in the production of glues and adhesives.
- Textile Industry: Cassava starch is sometimes used in the textile industry for sizing yarn.
- Paper Industry: Cassava starch can be used as a raw material in papermaking.
- Laundry Starch: Traditional use of cassava starch includes using it to stiffen fabrics.

Other Industrial Uses

- Biodegradable Plastics: Similar to taro, cassava starch is also being explored for making biodegradable plastics.
- Water Treatment: Cassava peels have been researched for their potential in water treatment processes.
- Pharmaceuticals: Cassava starch is sometimes used as a filler or binder in pharmaceutical products.

Plantain is a starchy fruit closely related to the banana. It's usually cooked before being eaten and is a staple in many tropical diets. Plantain (Musa paradisiaca) is a tropical plant originating from Southeast Asia but now widely cultivated in other parts of the world, including Africa, the Caribbean, Latin America, and the Pacific. Unlike bananas, plantains are generally not eaten raw due to their high starch content. They serve as an important source of complex carbohydrates, vitamins, and minerals in many countries.

The fruit, which comes in various colours, including green, yellow, and black, depending on its ripeness, can be cooked in multiple ways: boiled, fried, or grilled. It occupies a significant place in global agriculture as a key food crop and is particularly valued for its long growing season and relatively low maintenance cultivation requirements.

Products Keys Advantages:
Gluten-Free, Health and Wellness, Ethnic Foods, Global Cuisines, Organic and Non-GMO Options, Chips, Snack Foods, Convenience Foods, E-Commerce Growth, Sustainable and Local Sourcing, Versatile Culinary Applications.

PLANTAIN NUTRITIONAL CONTENT

Nutrient	Amount (per 100g)
Calories	122 kcal
Carbohydrates	31.9g
Sugars	14.8g
Dietary Fiber	2.3g
Fat	0.3g
Protein	1.3 g
Vitamin C	18.4mg
Vitamin A	1127 IU
Vitamin B6	0.299mg
Folate	22mcg
Potassium	499mg
Magnesium	37mg
Calcium	3mg
Iron	0.6mg
Phosphorus	34mg

Food Byproducts:

- Plantain Chips: Made from thinly sliced plantains, either dried, baked or fried.
- Plantain Flour: Produced from dried, ground plantains and can be used as a gluten-free alternative to wheat flour.
- Mofongo: A dish made from fried green plantains mashed with other ingredients like garlic, olive oil, and pork.
- Animal Feed: Waste parts can be used as animal feed.

Industrial Byproducts

- Biofuel: The fruit peelings can be used as a raw material for producing bioethanol.
- Fiber: The plant fibres can be used for textiles or rope making.
- Starch: Obtained from the fruit and can be used in various industrial applications like adhesives, textiles, and paper industries.
- Activated Carbon: Made from the fruit's peel and used for water purification.

Cosmetic Byproducts:

- Plantain Extracts: Used for skincare products, as they are rich in antioxidants.
- Plantain Oil: Used for massages and skin treatments.

Medicinal Byproducts:

- Plantain Tea: Made from the leaves and used for treating various ailments like colds, flu, and digestive issues.
- Plantain Salve: Made from leaves and used for minor cuts, burns, and skin irritations.

Waste Management:

- Compost: All waste parts, like the peels and leaves, can be composted to make organic fertiliser.

Understanding Consumer Demand in the New Zealand Market

The New Zealand market for taro and Cassava is confined mainly to the Pacific Island population residing in West and South Auckland and the Wellington suburb of Porirua. A demand for taro also exists in the Asian and South American communities in New Zealand, even though they tend to consume preferably products from their home country.

According to the 2018 Census, there were 381,642 people of Pacific ethnicity and 775,836 Maori living in New Zealand, which accounted for about 24.6% of the total population. According to the Census, a significant portion of Pasifika people in New Zealand were born there, with 66.4% being New Zealand-born, marking an increase from 62.3% in 2013 and 60.0% in 2006. Regarding population distribution, the majority of Pacific people, 63.9%, reside in the Auckland region, while 27.8% live in the North Island outside of Auckland and 8.3% in the South Island.[4]

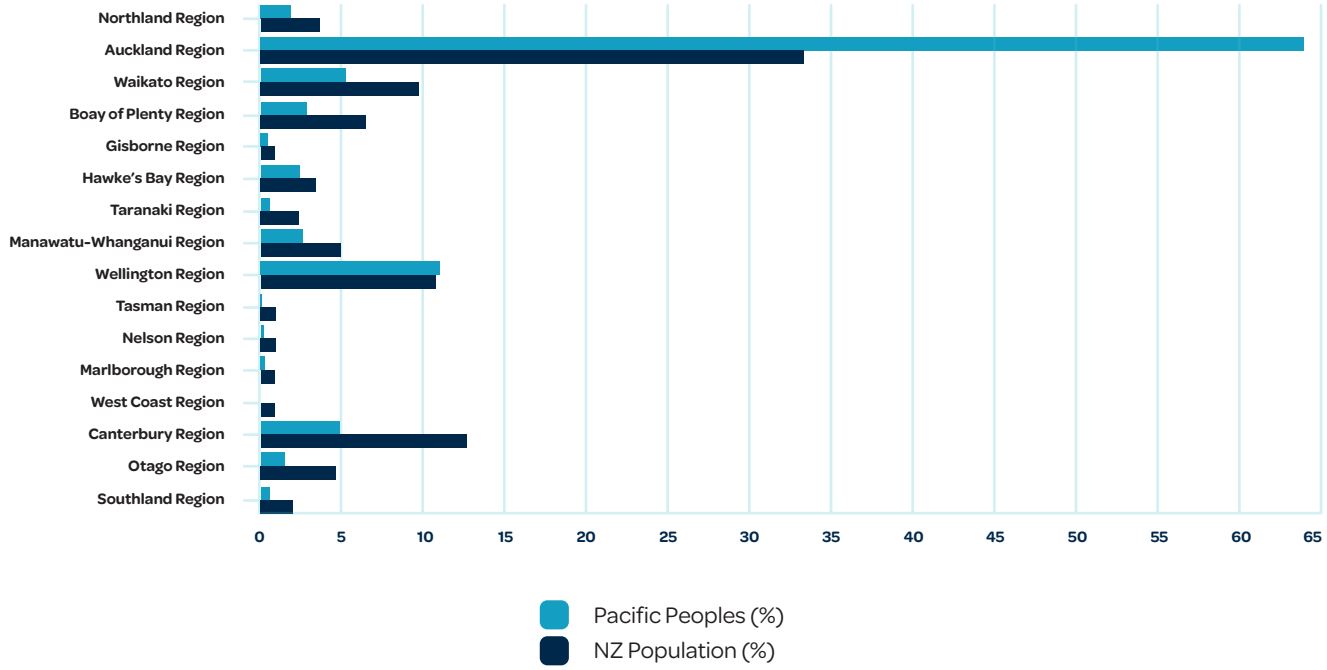
Among specific local board areas, Māngere-Ōtāhuhu leads with 59.4% of its population being Pasifika, followed by Ōtara-Papatoetoe at 46.5% and Manurewa at 36.3%. Outside Auckland, Porirua City has a notable Pasifika population concentration at 26.3%, while areas like Kaikōura, Waimate District, and Queenstown-Lakes District have much lower concentrations ranging from 0.8% to 1.0%.4 For specific agricultural regions such as the Northland, Bay of Plenty, South Island and, seasonal growing demand exists linked to RSE (Recognised Employers Workers) coming from the PICs to support the growing demand for picking and packing in New Zealand.

A growing concern appears during the interviews regarding the future of root crops like Taro and Cassava. There is a need to broaden the market beyond Auckland and explore the creation of value-added products that can cater to consumers' evolving preferences, particularly among young Pacific Islanders.

Consumer choice plays a pivotal role in this context. Western lifestyles have significantly influenced the consumption habits of young Pacific Islanders in New Zealand. They have been exposed to various alternative products, such as rice, potatoes, and bread, which have gradually replaced the traditional preference for root crops like taro. Additionally, these are often perceived as a more expensive option when compared to the substitutes.

Furthermore, changing lifestyles have increased demand for convenience food catering to individuals with busy schedules. This trend may also impact the taro market, potentially leading to a shift towards frozen prepared meals to make taro more accessible and convenient for consumers.

Population, by Regionl Council, for the Pacific Peoples and NZ population ethnic groups, 2018 Census.



[4] New Zealand Census 2018.

Overall Market Insights

Imports of Taro in value to New Zealand (NZD) with Ranking

	2022		2021		2020		2019		2018	
	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total
Fiji	**11 618 079 NZD**	**83,88%**	**8 574 033 NZD**	**79,22%**	**7 557 121 NZD**	**67,20%**	**6 971 962 NZD**	**62,28%**	**6 673 038 NZD**	**66,65%**
Samoa (Western)	**1 351 191 NZD**	**9,76%**	**1 184 225 NZD**	**10,94%**	**2 857 688 NZD**	**25,41%**	**3 383 955 NZD**	**30,23%**	**2 611 837 NZD**	**26,09%**
Tonga	**295 428 NZD**	**2,13%**	**326 171 NZD**	**3,01%**	**250 146 NZD**	**2,22%**	**364 188 NZD**	**3,25%**	**344 024 NZD**	**3,44%**
China	254 672 NZD	1,84%	259 732 NZD	2,40%	228 248 NZD	2,03%	152 448 NZD	1,36%	125 457 NZD	1,25%
Vietnam	155 105 NZD	1,12%	257 819 NZD	2,38%	200 560 NZD	1,78%	207 040 NZD	1,85%	179 955 NZD	1,80%
Taiwan	110 499 NZD	0,80%	70 223 NZD	0,65%	37 011 NZD	0,33%	99 667 NZD	0,89%	64 038 NZD	0,64%
Cook Islands	**27 366 NZD**	**0,20%**	**64 081 NZD**	**0,59%**		**0,00%**		**0,00%**		**0,00%**
Bangladesh	11 343 NZD	0,08%		0,00%		0,00%		0,00%		0,00%
India	6 745 NZD	0,05%	1 121 NZD	0,01%	74 307 NZD	0,66%	7 611 NZD	0,07%	2 852 NZD	0,03%
Niue	**5 898 NZD**	**0,04%**	**15 743 NZD**	**0,15%**	**6 000 NZD**	**0,05%**		**0,00%**		**0,00%**
Philippines	4 964 NZD	0,04%	31 845 NZD	0,29%	15 210 NZD	0,14%	1 329 NZD	0,01%	993 NZD	0,01%
Thailand	3 047 NZD	0,02%	10 069 NZD	0,09%	8 116 NZD	0,07%	4 899 NZD	0,04%	3 094 NZD	0,03%
Vanuatu	**2 807 NZD**	**0,02%**	**23 503 NZD**	**0,22%**	**8 558 NZD**	**0,08%**		**0,00%**		**0,00%**
Japan	2 270 NZD	0,02%	3 713 NZD	0,03%	2 628 NZD	0,02%	1 674 NZD	0,01%	2 053 NZD	0,02%
Korea, South	1 143 NZD	0,01%	623 NZD	0,01%		0,00%		0,00%		0,00%
Romania		0,00%		0,00%	710 NZD	0,01%		0,00%		0,00%
Finland		0,00%		0,00%		0,00%		0,00%	4 950 NZD	0,05%

Imports of Taro in volume to New Zealand (Kg) with Ranking

	2022		2021		2020		2019		2018	
	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total
Fiji	**3 292 502**	**70,7%**	**2 655 017**	**57,0%**	**2 574 768**	**54,1%**	**2 107 551**	**44,3%**	**2 569 410**	**56,5%**
Tonga	**675 771**	**14,5%**	**1 025 273**	**22,0%**	**818 762**	**17,2%**	**984 770**	**20,7%**	**615 450**	**13,5%**
Samoa (Western)	**558 423**	**12,0%**	**708 513**	**15,2%**	**1 196 167**	**25,1%**	**1 539 881**	**32,4%**	**1 263 455**	**27,8%**
China	56 403	1,2%	72 119	1,5%	60 360	1,3%	40 032	0,8%	36 915	0,8%
Vietnam	38 707	0,8%	72 827	1,6%	58 439	1,2%	70 661	1,5%	51 966	1,1%
Taiwan	12 469	0,3%	9 570	0,2%	4 730	0,1%	12 974	0,3%	7 731	0,2%
Cook Islands	**10 846**	**0,2%**	**14 920**	**0,3%**		**0,0%**		**0,0%**		**0,0%**
Niue	**4 744**	**0,1%**	**43 671**	**0,9%**	**2 880**	**0,1%**		**0,0%**		**0,0%**
Bangladesh	3 831	0,1%		0,0%		0,0%		0,0%		0,0%
Vanuatu	**2 800**	**0,1%**	**49 570**	**1,1%**	**15 300**	**0,3%**		**0,0%**		**0,0%**
India	2 345	0,1%	473	0,0%	21 457	0,5%	2 659	0,1%	1 102	0,0%
Philippines	563	0,0%	2 119	0,0%	1 632	0,0%	65	0,0%	153	0,0%
Thailand	517	0,0%	1 985	0,0%	1 839	0,0%	1 090	0,0%	722	0,0%
Japan	343	0,0%	513	0,0%	416	0,0%	250	0,0%	310	0,0%
Korea, South	25	0,0%	36	0,0%		0,0%		0,0%		0,0%
Finland		0,0%		0,0%		0,0%		0,0%	2 800	0,1%
Romania		0,0%		0,0%	2 240	0,0%		0,0%		0,0%

Average Price per Kg of Taro imported to New Zealand by trade partner.

	2022	2021	2020	2019	2018
Korea, South	45,72 NZD	17,31 NZD			
Japan	15,12 NZD	15,41 NZD	6,32 NZD	12,79 NZD	6,62 NZD
Samoa (Western)	**10,66 NZD**	**19,06 NZD**	**2,39 NZD**	**17,41 NZD**	**29,97 NZD**
Taiwan	9,74 NZD	7,34 NZD	7,82 NZD	19,90 NZD	51,24 NZD
Philippines	8,82 NZD	15,03 NZD	9,32 NZD	20,45 NZD	6,49 NZD
China	8,49 NZD	7,28 NZD	7,23 NZD	7,11 NZD	6,22 NZD
Vietnam	8,13 NZD	3,54 NZD	3,43 NZD	4,87 NZD	5,95 NZD
Fiji	6,94 NZD	7,68 NZD	2,94 NZD	6,57 NZD	5,42 NZD
Niue	**6,20 NZD**	**0,36 NZD**	**2,08 NZD**		
Thailand	5,89 NZD	27,02 NZD	4,41 NZD	4,49 NZD	4,29 NZD
Bangladesh	2,96 NZD				
India	2,88 NZD	2,37 NZD	6,26 NZD	2,86 NZD	2,59 NZD
Cook Islands	**2,52 NZD**	**4,29 NZD**			
Vanuatu	**1,00 NZD**	**0,47 NZD**	**0,56 NZD**		
Tonga	**0,61 NZD**	**0,98 NZD**	**0,56 NZD**	**0,59 NZD**	**0,82 NZD**
Romania			0,32 NZD		
Finland					1,77 NZD

Data trends and Discussion

Fiji, Samoa, and Tonga hold 95,77% of the market for Taro Exports. The price disparity is essential. Average Samoa = 15,90 NZD, Average Fiji = 5,91 NZD, Average Tonga = 0,71 NZD. Whilst Tonga is #2 in volume with 14,5% of MS, it drops three # in value with only 2,13% of MS. COVID 2020 has affected most prices with a drop in prices superior to 50% but not in volume. Demand might have dropped during these uncertain times—a Mature Market with fewer opportunities for volume increase. The value should be added to extend the market.
Total Market Value - $13,850,557 NZD in 2022.

Imports of Cassava in value to New Zealand (NZD) with Ranking

	2022		2021		2020		2019		2018	
	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total
Fiji	**540 019 NZD**	**53,39%**	**453 005 NZD**	**42,28%**	**555 366 NZD**	**42,78%**	**623 896 NZD**	**23,39%**	**420 661 NZD**	**34,50%**
Tonga	**207 119 NZD**	**20,48%**	**289 036 NZD**	**26,97%**	**243 026 NZD**	**18,72%**	**150 159 NZD**	**5,63%**	**137 145 NZD**	**11,25%**
Vietnam	148 867 NZD	14,72%	124 345 NZD	11,60%	114 780 NZD	8,84%	159 789 NZD	5,99%	85 207 NZD	6,99%
India	68 295 NZD	6,75%	147 081 NZD	13,73%	167 974 NZD	12,94%	168 519 NZD	6,32%	47 184 NZD	3,87%
Philippines	24 074 NZD	2,38%	25 250 NZD	2,36%	42 411 NZD	3,27%	28 427 NZD	1,07%	19 297 NZD	1,58%
Solomon Islands	**13 079 NZD**	**1,29%**		**0,00%**		**0,00%**		**0,00%**		**0,00%**
Vanuatu	**8 183 NZD**	**0,81%**	**28 406 NZD**	**2,65%**	**4 037 NZD**	**0,31%**	**5 915 NZD**	**0,22%**		**0,00%**
Thailand	1 629 NZD	0,16%		0,00%	507 NZD	0,04%		0,00%		0,00%
Samoa (Western)	**119 NZD**	**0,01%**	**2 712 NZD**	**0,25%**		**0,00%**	**61 NZD**	**0,00%**	**270 NZD**	**0,02%**
Niue	**10 NZD**	**0,00%**	**69 NZD**	**0,01%**		**0,00%**		**0,00%**		**0,00%**
Chile		0,00%		0,00%		0,00%		0,00%	346 NZD	0,03%
Finland		0,00%		0,00%		0,00%		0,00%	8 094 NZD	0,66%
Australia		0,00%		0,00%		0,00%	1 264 NZD	0,05%	2 753 NZD	0,23%
Romania		0,00%		0,00%	1 876 NZD	0,14%		0,00%		0,00%
Togo		0,00%		0,00%		0,00%	30 NZD	0,00%		0,00%
Costa Rica		0,00%		0,00%	37 184 NZD	2,86%		0,00%		0,00%
Indonesia		0,00%		0,00%	122 608 NZD	9,44%	1 518 648 NZD	56,93%	498 194 NZD	40,86%
Brazil		0,00%		0,00%	58 NZD	0,00%		0,00%		0,00%
Colombia		0,00%	302 NZD	0,03%	8 462 NZD	0,65%	1 632 NZD	0,06%		0,00%
Taiwan		0,00%	1 290 NZD	0,12%		0,00%	9 182 NZD	0,34%		0,00%

Imports of Cassava in volume to New Zealand (Kg) with Ranking

	2022		2021		2020		2019		2018	
	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total
Tonga	**770 599**	**58,0%**	**993 832**	**58,6%**	**1 161 488**	**60,1%**	**782 803**	**34,4%**	**529 494**	**40,3%**
Fiji	**343 660**	**25,9%**	**288 962**	**17,0%**	**428 623**	**22,2%**	**511 286**	**22,5%**	**438 067**	**33,3%**
Vietnam	97 152	7,3%	83 565	4,9%	71 961	3,7%	96 821	4,3%	55 993	4,3%
India	59 082	4,4%	164 778	9,7%	150 873	7,8%	214 266	9,4%	46 001	3,5%
Vanuatu	**30 682**	**2,3%**	**140 253**	**8,3%**	**9 241**	**0,5%**	**10 000**	**0,4%**		**0,0%**
Solomon Islands	**15 500**	**1,2%**		**0,0%**		**0,0%**		**0,0%**		**0,0%**
Philippines	11 311	0,9%	22 334	1,3%	24 185	1,3%	17 529	0,8%	10 888	0,8%
Thailand	150	0,0%		0,0%	246	0,0%		0,0%		0,0%
Samoa (Western)	**59**	**0,0%**	**3 317**	**0,2%**		**0,0%**	**3 108**	**0,1%**	**136**	**0,0%**
Niue	**40**	**0,0%**	**77**	**0,0%**		**0,0%**		**0,0%**		**0,0%**
Chile		0,0%		0,0%		0,0%		0,0%	26	0,0%
Finland		0,0%		0,0%		0,0%		0,0%	11 804	0,9%
Australia		0,0%		0,0%		0,0%	98	0,0%	208	0,0%
Romania		0,0%		0,0%	7 277	0,4%		0,0%		0,0%
Togo		0,0%		0,0%		0,0%	1 058	0,0%		0,0%
Costa Rica		0,0%		0,0%	15 030	0,8%		0,0%		0,0%
Indonesia		0,0%		0,0%	63 308	3,3%	638 589	28,0%	221 374	16,8%
Brazil		0,0%		0,0%	22	0,0%		0,0%		0,0%
Colombia		0,0%	50	0,0%	1 882	0,1%	137	0,0%		0,0%
Taiwan		0,0%	150	0,0%		0,0%	1 050	0,0%		0,0%

Average Price per Kg of Cassava imported to New Zealand by trade partner

	2022	2021	2020	2019	2018
Thailand	10,86 NZD		2,06 NZD		
Philippines	4,47 NZD	3,29 NZD	3,93 NZD	6,18 NZD	3,53 NZD
Fiji	**3,09 NZD**	**2,81 NZD**	**1,65 NZD**	**2,47 NZD**	**2,05 NZD**
India	2,12 NZD	0,89 NZD	2,40 NZD	0,79 NZD	1,03 NZD
Samoa (Western)	**2,02 NZD**	**0,82 NZD**		**0,02 NZD**	**1,99 NZD**
Vietnam	1,53 NZD	1,49 NZD	1,60 NZD	1,65 NZD	1,52 NZD
Solomon Islands	**0,84 NZD**				
Tonga	**0,50 NZD**	**0,49 NZD**	**0,38 NZD**	**0,39 NZD**	**0,44 NZD**
Vanuatu	**0,27 NZD**	**0,20 NZD**	**0,44 NZD**	**0,59 NZD**	
Niue	**0,25 NZD**	**0,90 NZD**			
Chile					13,31 NZD
Finland					0,69 NZD
Australia				12,90 NZD	13,24 NZD
Romania			0,26 NZD		
Togo				0,03 NZD	
Costa Rica			2,47 NZD		
Indonesia			1,94 NZD	2,38 NZD	2,25 NZD
Brazil			2,64 NZD		
Colombia		6,04 NZD	4,50 NZD	11,91 NZD	
Taiwan		8,60 NZD		8,74 NZD	

Data trends and Discussion

Fiji is a leader in value, whilst Tonga is a volume leader. The average price for Fijian Cassava is 3,09 NZD in 2022 versus 0,50 NZD for Tonga during the same year. (More than six times...) Over the years, Fiji managed to increase the selling price of Cassava from 2,05 NZD in 2018 to 3,09 NZD in 2022 (+ 51% increase). Total Market Value - $1,011,394 NZD in 2022.

Imports of Plantain in value to New Zealand (NZD) with Ranking

	2022		2021		2020		2019		2018	
	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total	Value (NZD)	% Total
Ecuador	34 767 NZD	48,40%	298 961 NZD	87,59%		0,00%		0,00%		0,00%
Philippines	13 086 NZD	18,22%	15 852 NZD	4,64%		0,00%		0,00%		0,00%
Fiji	**11 038 NZD**	**15,37%**	**4 495 NZD**	**1,32%**	**7 548 NZD**	**27,59%**	**996 NZD**	**2,74%**	**416 NZD**	**0,81%**
Tonga	**4 321 NZD**	**6,02%**	**2 877 NZD**	**0,84%**	**7 304 NZD**	**26,70%**	**6 833 NZD**	**18,82%**	**3 483 NZD**	**6,75%**
Thailand	3 750 NZD	5,22%	6 506 NZD	1,91%	493 NZD	1,80%	2 710 NZD	7,46%	5 588 NZD	10,83%
Samoa (Western)	**3 414 NZD**	**4,75%**	**9 764 NZD**	**2,86%**	**3 612 NZD**	**13,21%**	**20 451 NZD**	**56,32%**	**35 009 NZD**	**67,85%**
India	1 238 NZD	1,72%	320 NZD	0,09%	7 NZD	0,03%		0,00%		0,00%
Nigeria	190 NZD	0,26%		0,00%		0,00%		0,00%		0,00%
Indonesia	28 NZD	0,04%		0,00%		0,00%		0,00%		0,00%
United Kingdom		0,00%		0,00%		0,00%		0,00%	31 NZD	0,06%
Vietnam		0,00%	783 NZD	0,23%	2 382 NZD	8,71%	1 306 NZD	3,60%	4 438 NZD	8,60%
United States		0,00%		0,00%	10 NZD	0,04%	16 NZD	0,04%	5 NZD	0,01%
Peru		0,00%	56 NZD	0,02%		0,00%	147 NZD	0,40%	56 NZD	0,11%
Australia		0,00%	1 682 NZD	0,49%	5 997 NZD	21,92%	3 856 NZD	10,62%	2 574 NZD	4,99%
Togo		0,00%	29 NZD	0,01%		0,00%		0,00%		0,00%

Imports of Plantain in volume to New Zealand (Kg) with Ranking

	2022		2021		2020		2019		2018	
	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total
Ecuador	63 277	63,9%	423 053	90,5%		0,0%		0,0%		0,0%
Tonga	16 748	16,9%	13 025	2,8%	44 057	84,5%	41 041	63,4%	24 076	45,6%
Philippines	8 665	8,8%	15 889	3,4%		0,0%		0,0%		0,0%
Fiji	**4 411**	**4,5%**	**2 148**	**0,5%**	**3 460**	**6,6%**	**420**	**0,6%**	**150**	**0,3%**
Samoa (Western)	**3 878**	**3,9%**	**12 743**	**2,7%**	**3 364**	**6,5%**	**22 224**	**34,3%**	**26 130**	**49,5%**
Thailand	1 336	1,3%	161	0,0%	48	0,1%	282	0,4%	840	1,6%
Nigeria	420	0,4%		0,0%		0,0%		0,0%		0,0%
India	253	0,3%	14	0,0%	1	0,0%		0,0%		0,0%
Indonesia	3	0,0%		0,0%		0,0%		0,0%		0,0%
Australia		0,0%	206	0,0%	734	1,4%	463	0,7%	594	1,1%
United Kingdom		0,0%		0,0%		0,0%		0,0%	4	0,0%
United States		0,0%		0,0%	0	0,0%	0	0,0%	0	0,0%
Vietnam		0,0%	150	0,0%	450	0,9%	302	0,5%	951	1,8%
Peru		0,0%	9	0,0%		0,0%	6	0,0%	3	0,0%
Togo		0,0%	80	0,0%		0,0%		0,0%		0,0%

Average Price per Kg of Plantain imported to New Zealand by trade partner

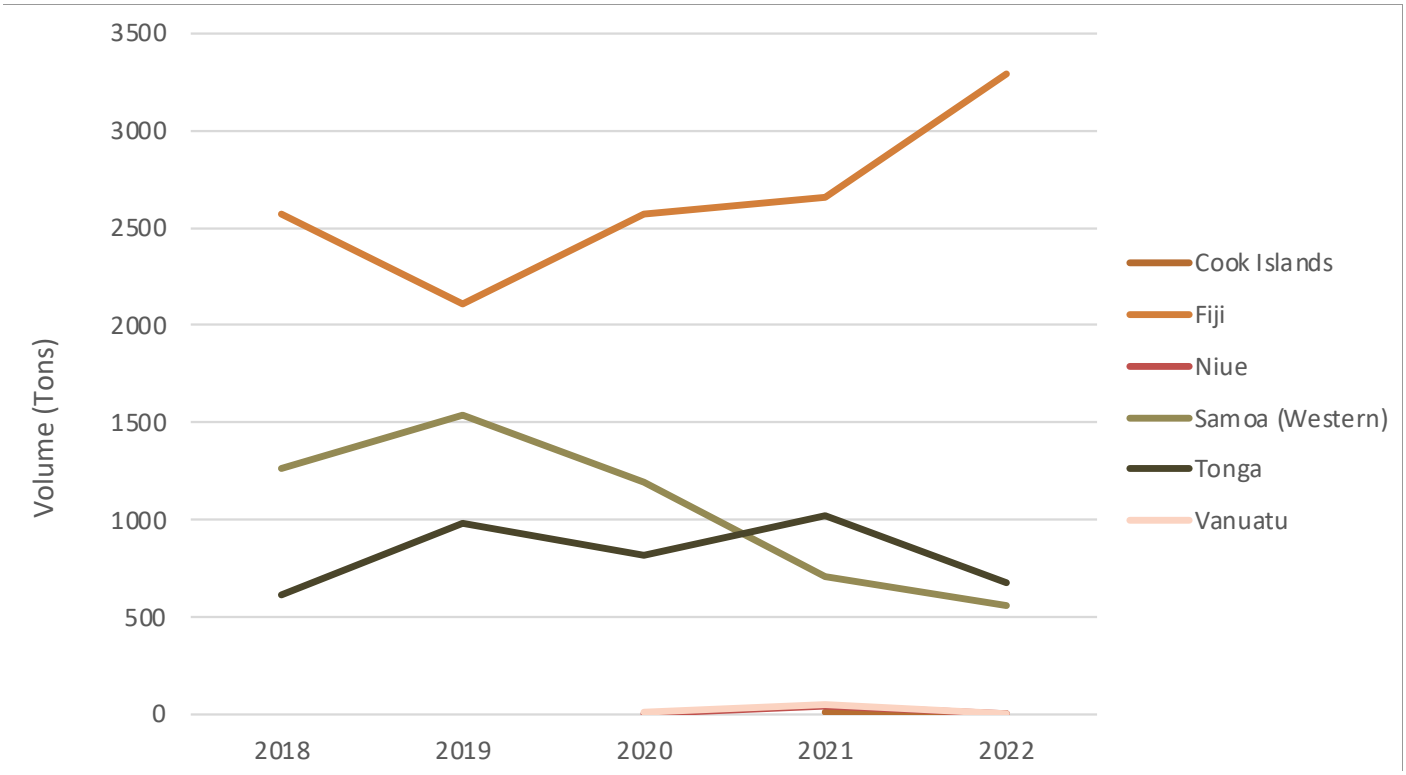
	2022	2021	2020	2019	2018
Indonesia	9,33 NZD				
India	4,89 NZD	22,86 NZD	7,00 NZD		
Thailand	2,81 NZD	40,41 NZD	10,27 NZD	9,61 NZD	6,65 NZD
Fiji	**2,50 NZD**	**4,54 NZD**	**2,18 NZD**	**2,37 NZD**	**2,77 NZD**
Philippines	1,51 NZD	1,00 NZD			
Samoa (Western)	**0,88 NZD**	**0,77 NZD**	**1,07 NZD**	**45,00 NZD**	**1,34 NZD**
Ecuador	0,55 NZD	8,31 NZD			
Nigeria	0,45 NZD				
Tonga	**0,26 NZD**	**0,22 NZD**	**0,17 NZD**	**0,25 NZD**	**0,14 NZD**
Peru		6,22 NZD		24,50 NZD	18,67 NZD
United Kingdom					7,75 NZD
United States			0,00 NZD	0,00 NZD	0,00 NZD
Vietnam		5,22 NZD	5,29 NZD	4,32 NZD	4,67 NZD
Australia		8,17 NZD	8,17 NZD	8,33 NZD	4,33 NZD
Togo		0,36 NZD			

Data trends and Discussion

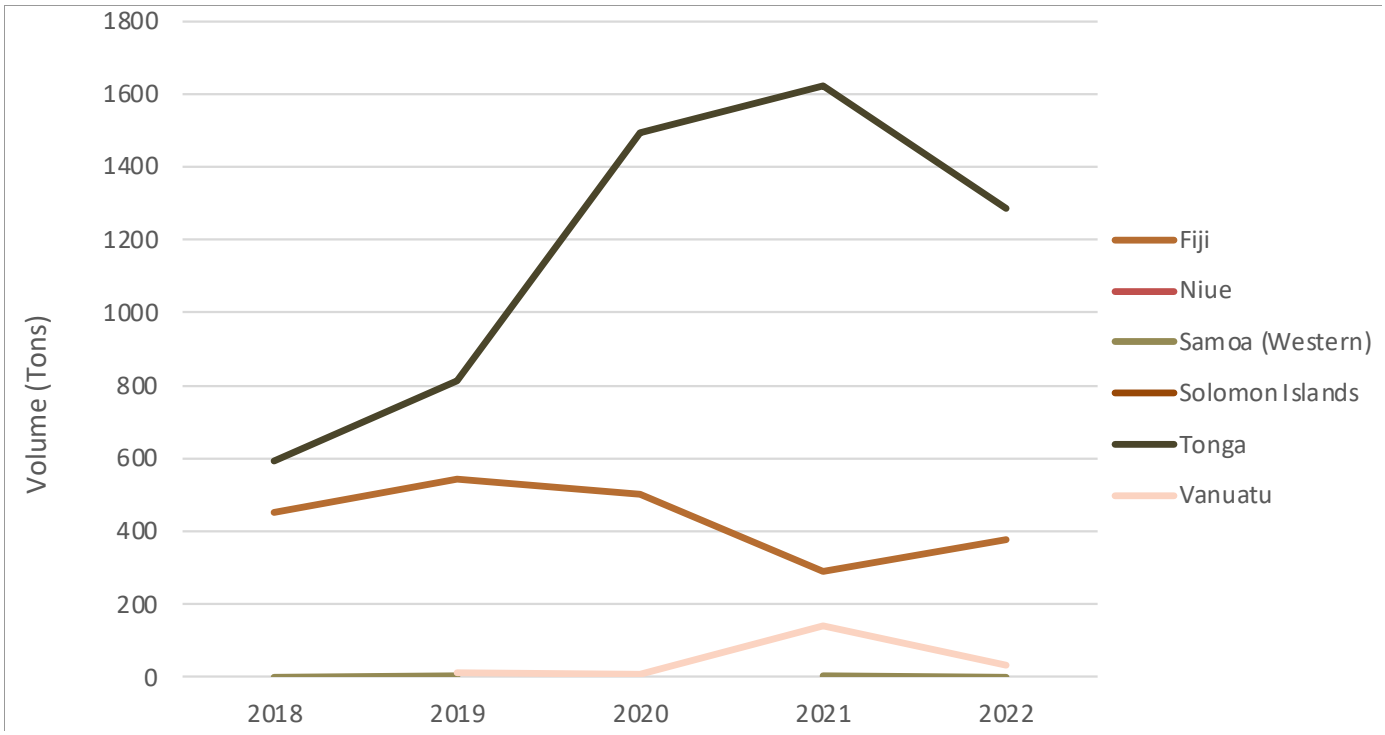
Fiji is #3 in value for import in New Zealand. Market leader and two # are not PICs. Tonga has exported 16 tons for only 4 321 NZD with an average price of 0,26 NZD for 2022. The average price in 2022 (excluding Indonesia as only 3kg imported for a high price) was 1,73 NZD. Total Market Value - $71,832 NZD in 2022.

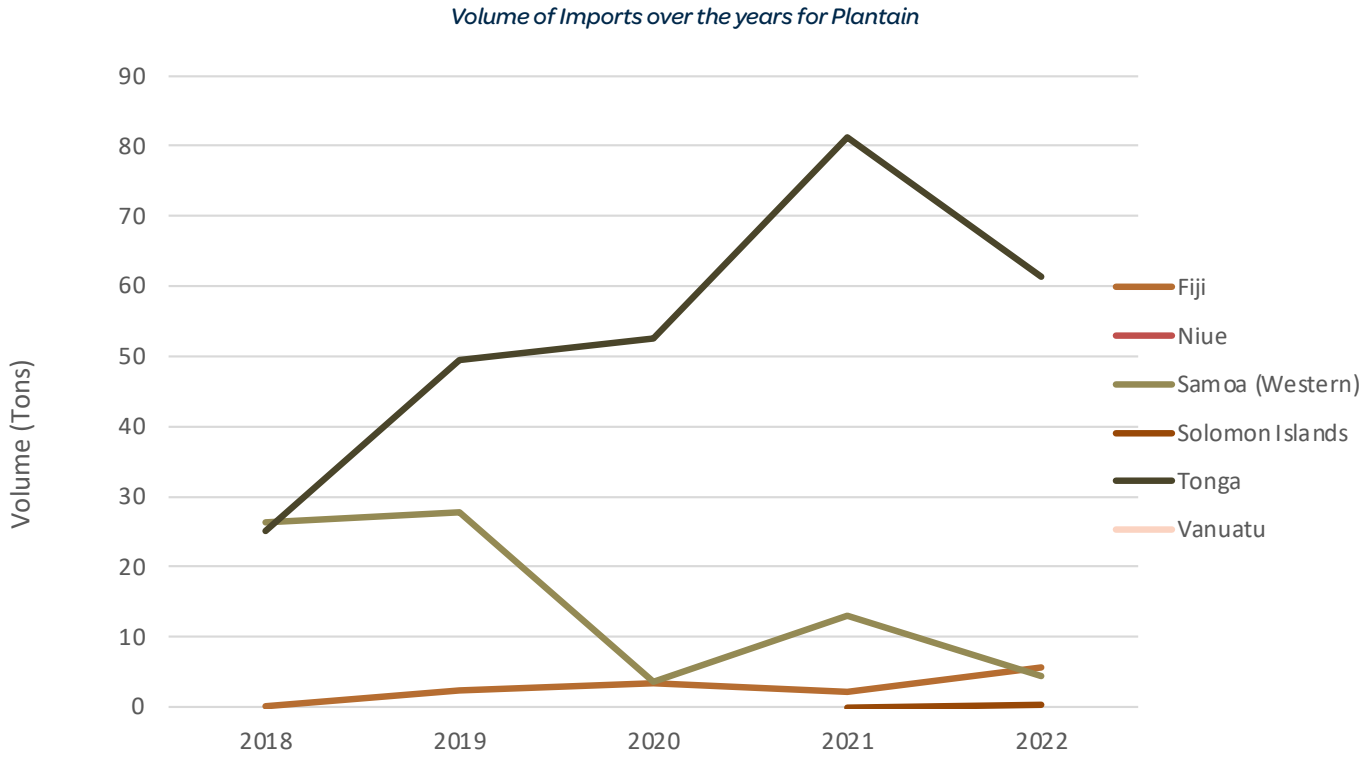
Graphs with producing countries from the Pacific and corresponding export volumes

Volume of Imports over the years for Taro



Volume of Imports over the years for Cassava





List of other big exporting countries

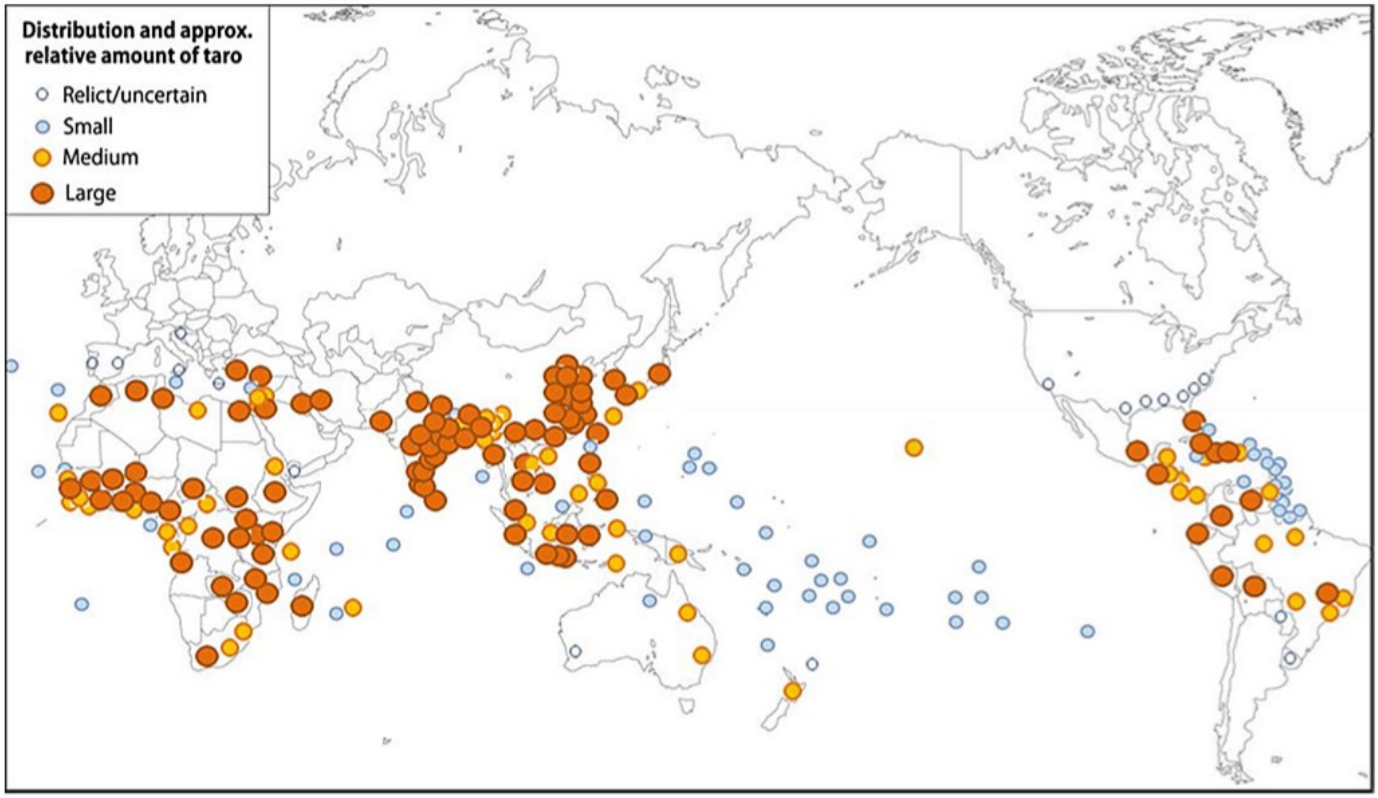
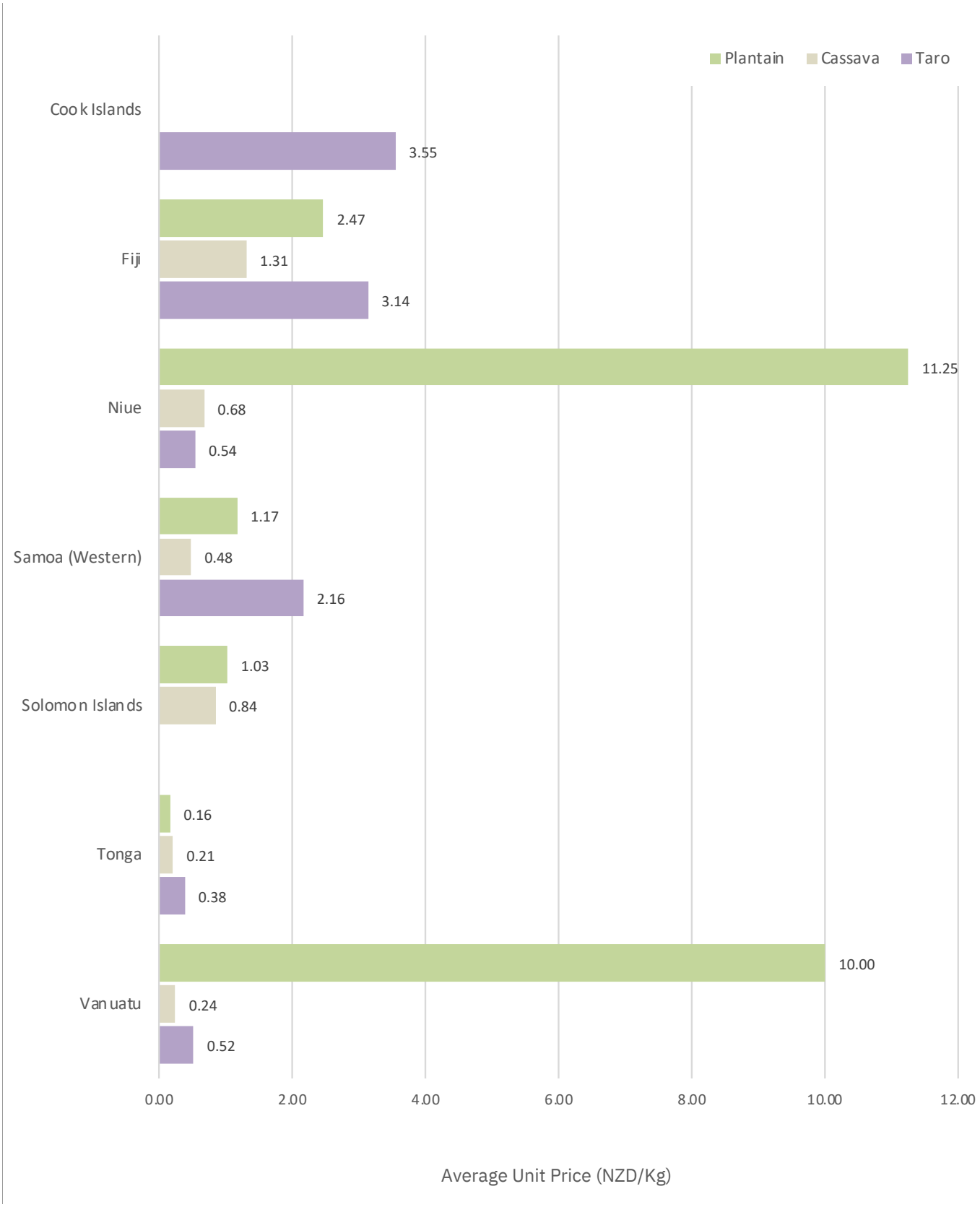


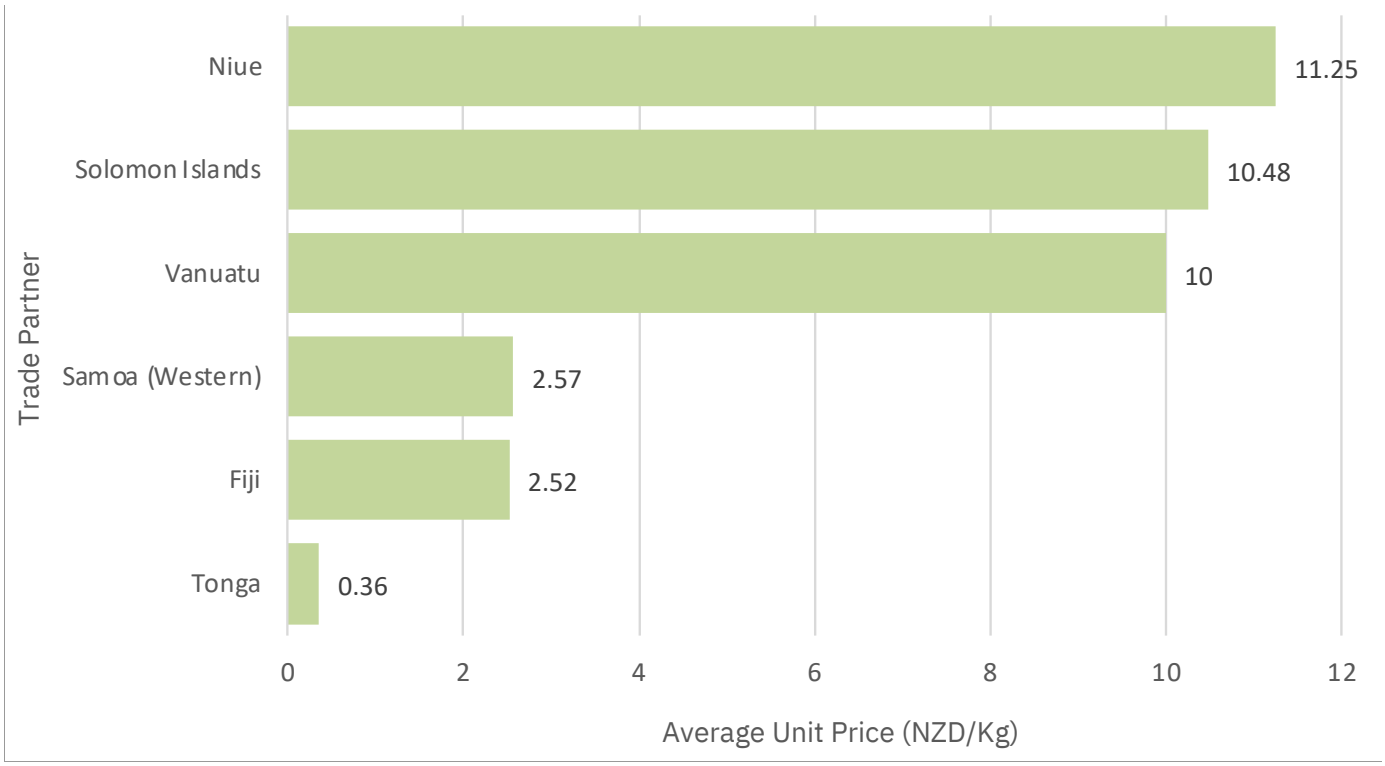
Figure 1: World distribution of taro with map points weighted to indicate approximate relative amounts according to human population size. (Peter Joseph Matthews, 2021)

Graph with average (wholesale/CIF) price by country over the past three years

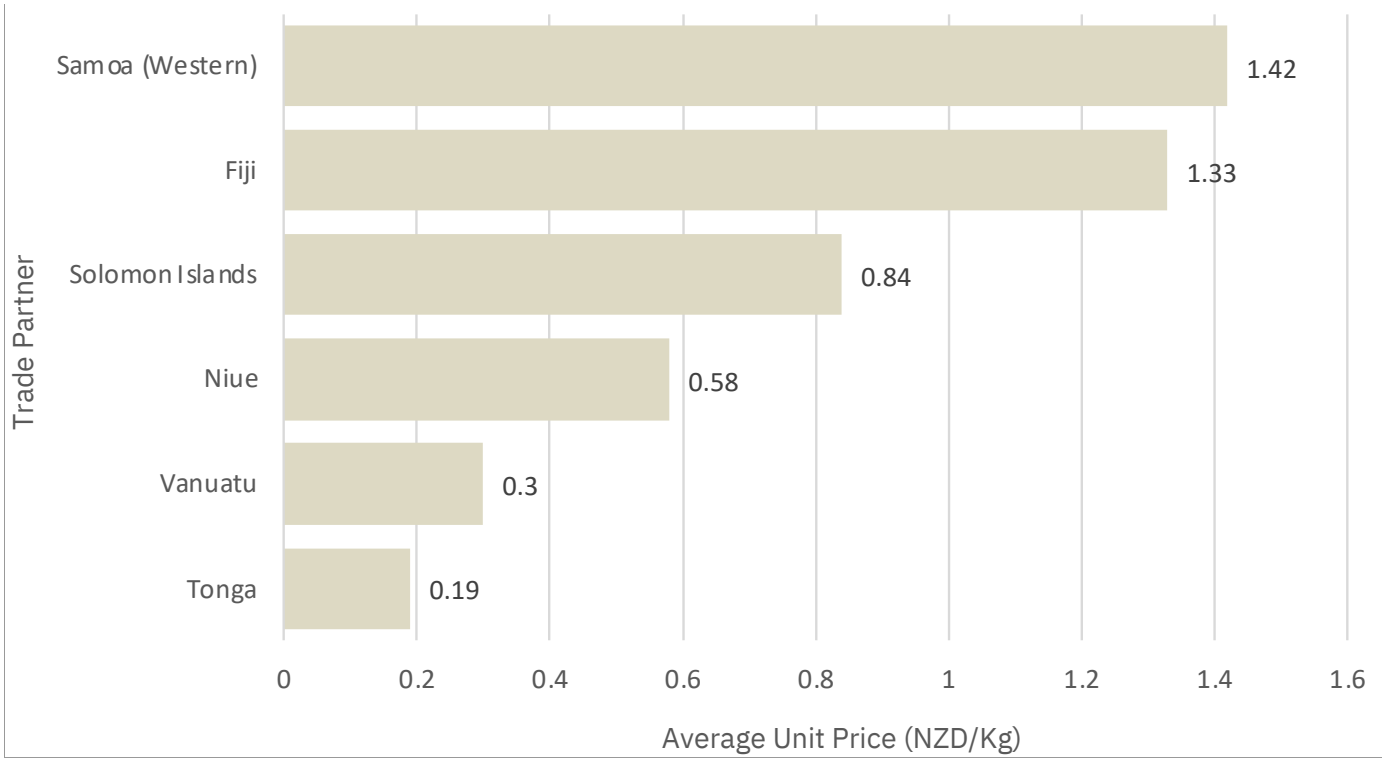


The bar graph above shows the average (wholesale/CIF) price by country and commodity (Taro, Cassava, and Plantain) for imports into New Zealand over the past three years. The prices are in New Zealand Dollars per kilogram (NZD/Kg). For better readability, the same data is available below with a separate graph per commodity.

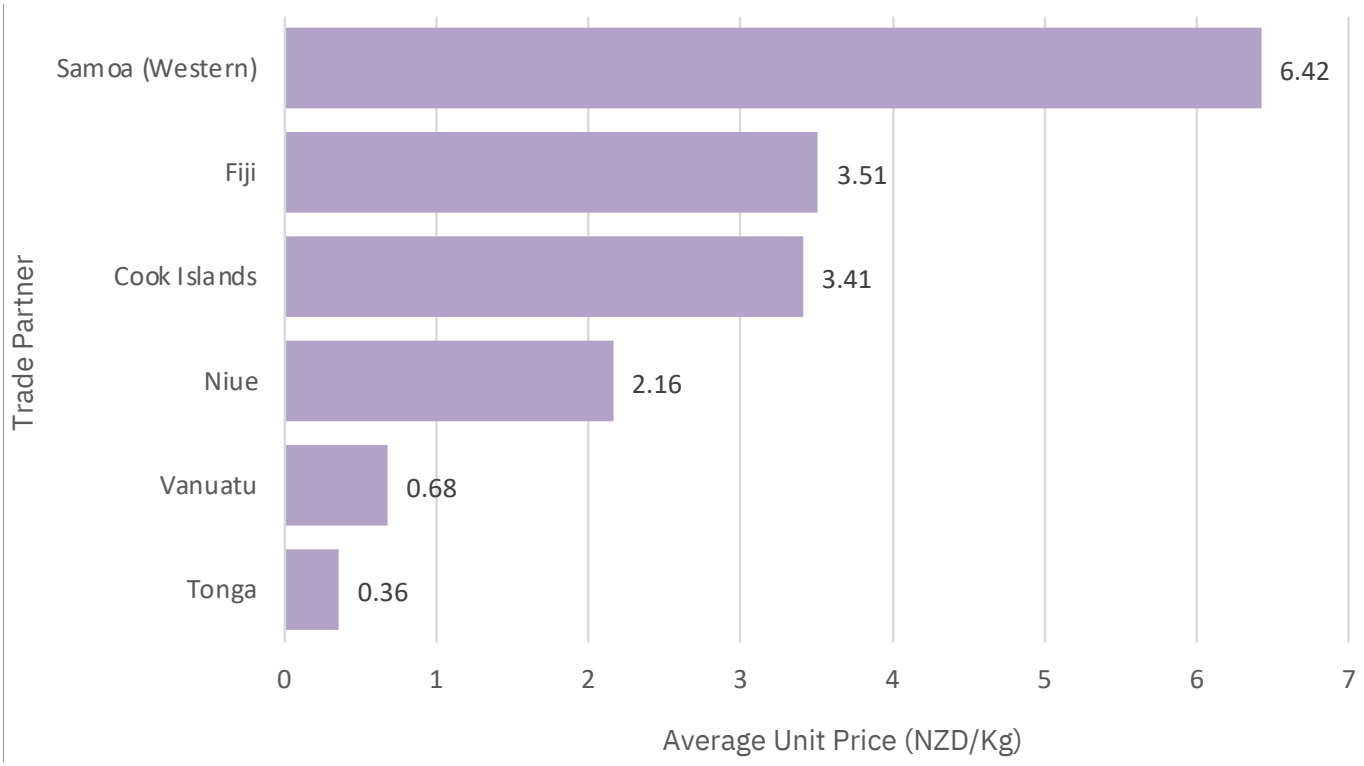
Average (Wholesale/CIF) Price by Pacific Country for Plantain over the past 3 years



Average (Wholesale/CIF) Price by Pacific Country for Cassava over the past 3 years



Average (Wholesale/CIF) Price by Pacific Country for Taro over the past 3 years



The data suggest that the form in which these products are exported can dramatically influence their unit price. Whether these commodities are shipped in their raw, fresh state or processed into frozen, dried, or even canned varieties, the price metrics vary considerably. For exporters, this isn't just a variable to be aware of; it's an opportunity. By opting for value-added processing, exporters can significantly elevate the market value of their products. This isn't merely a matter of higher pricing; it opens doors to different market segments, including those willing to pay a premium for convenience, extended shelf life, or perceived quality improvements.

Furthermore, value-added products often meet stricter quality and safety guidelines, making them more appealing to importers and end consumers. This can also facilitate more accessible access to markets with stringent regulatory requirements, broadening the exporter's reach.

In essence, transitioning from exporting raw, unprocessed commodities to value-added forms could be a strategic move. Not only does it have the potential to increase unit prices, but it could also provide a competitive edge in increasingly discerning global markets. Thus, for Pacific countries like Fiji, Samoa, and Tonga, investing in value-added processing facilities could be a game-changer, transforming their export portfolios and their economic landscapes.

2. Market Access

Biosecurity Requirements and Advice

Importing taro, cassava, and plantain into New Zealand is subject to strict biosecurity controls to protect the country's unique flora, fauna, and agriculture. These regulations apply to all such products unless they meet the requirements of an Import Health Standard (IHS). An IHS outlines the specific conditions that must be satisfied before a product can be brought into the country. The complete list of fresh fruits and vegetables authorised by countries for import into New Zealand is available via this link: Importation and Clearance of Fresh Fruit and Vegetables 152 02 (mpi.govt.nz)

In the case of Rootcrops authorized to be imported to New Zealand from your country, there are particular treatment and quarantine requirements that exporters from Pacific Island countries must adhere to before shipping to New Zealand. These requirements include:

- ✓ Inspection by the exporting country's national plant protection organisation (NPPO) to ensure the absence of visually detectable regulated pests, as specified by the Ministry of Primary Industries.
- ✓ Pest control measures must be implemented before export.
- ✓ A valid and completed Phytosanitary Certificate, issued by the exporting country's authority in line with International Plant Protection Convention (IPPC) standards, verifying compliance with the relevant import health standard.
- ✓ Clean packaging, free from soil and contaminants.
- ✓ Soil contamination should not exceed the maximum number of grams per measured unit.
- ✓ Foliage contamination should not exceed the maximum number of leaves per measured unit.

Any contamination exceeding acceptable levels must be addressed by washing (for soil contamination) or resorting (for foliage contamination), and the importer bears the cost of these actions, which can be substantial. Importers must follow the clearance process diligently, as failure to comply at any stage can have financial implications and impact the product's market value. Please note that these regulations are not specific to any product or company.

Scientific Name: ***Musa paradisiaca***

Common Name: Plantain

Country: Tonga

PHYTOSANITARY CERTIFICATE - ADDITIONAL DECLARATIONS

The plantain in this consignment has:

(i) been inspected in accordance with appropriate official procedures and found to be free from any visually detectable quarantine pests, specified by the New Zealand Ministry for Primary Industries;

Note: the generic phytosanitary certificate declaration contained on the phytosanitary certificate will be considered as equivalent to the above declaration.

AND

(ii) treated in accordance with Appendix 3 of the Arrangement between the New Zealand Ministry for Primary Industries and the Tonga Ministry of Agriculture and Forestry, concerning the access of host material of fruit fly species of economic significance into New Zealand from Tonga.

OTHER INFORMATION:

Accepted "historic" additional declarations: "shipped in an unripe condition".

Excerpt of Appendix 1 for reference, an example of additional measures for Tongan Plantain import to New Zealand:

Biosecurity Clearance of Fresh Fruit and Vegetables for Human Consumption

***STEP 1:* Provision of Documents**

- ✓ Importers must submit detailed information to MPI before goods arrive.
- ✓ Electronic phytosanitary certificates are recommended.
- ✓ MPI reviews all accompanying documents for compliance with Import Health Standards (IHS).

***STEP 2:* Non-compliant Documentation**

- ✓ Clearance is refused for consignments without valid phytosanitary certificates.
- ✓ Correct documentation must be provided within 48 hours if missing.

***STEP 3:* Transit Requirements**

- ✓ Short, shipped consignments have exceptions but must meet IHS.
- ✓ Transit consignments must meet import or transit requirements of each country.

***STEP 4:* Transport to Approved Inspection Facility**

- ✓ Compliant produce can be transported to a transitional facility under an MPI Inspector's direction, using pest-proof containers.

***STEP 5:* Phytosanitary Security Before and After Inspection**

- ✓ Consignments not inspected within 4-6 hours are securely stored.
- ✓ Non-compliant consignments are securely stored until inspection or disposal.

***STEP 6:* Inspection**

- ✓ MPI conducts risk profiling activities before or upon arrival.
- ✓ Visual inspections verify descriptions and absence of pests or contaminants.
- ✓ Sampling plans determine inspection quantity based on lot size.
- ✓ Biosecurity clearance is granted when all IHS requirements are met.

***STEP 7:* Reconciliation**

- ✓ Compliance checks validate phytosanitary certificates, frequency varies based on importer history.

Food Safety Requirement

In New Zealand, food safety regulations are primarily governed by the Food Act 2014 (Available here), the Food Regulations 2015, and the Australia New Zealand Food Standards Code. These regulations apply to all foods sold in New Zealand, including imported foods like taro, cassava, and plantain.

General Requirements

- **Traceability:** Businesses must be able to trace where their food products came from and where they are going, to ensure that any products that are found to be unsafe can be quickly removed from sale.
- **Hygiene:** All aspects of food handling, from harvesting to processing, storage, and sale, must adhere to strict hygiene standards.
- **Labelling:** Food items must be correctly labelled, including ingredients and allergens, and may need to have nutritional information displayed.

Please note this information may be subject to change; it is crucial to consult New Zealand's Ministry for Primary Industries | NZ Government (mpi.govt.nz) or similar authorities for the most current guidelines. They are country specific and product specific. **Please note that failure to adhere to these regulations can result in fines, business closure, or other penalties.*

Certification

HACCP (Hazard Analysis and Critical Control Points) is a systematic approach to food safety that identifies, evaluates, and controls potential hazards in food production. It's a preventive system that focuses on identifying critical points in the food production process where hazards can be controlled or eliminated. It aims to ensure the safety of food products by identifying and managing potential risks at key stages of production.

New Zealand GAP (Good Agricultural Practices) is a set of voluntary standards that focus on agricultural and aquaculture practices to ensure the safety and sustainability of food production. These requirements cover various aspects such as environmental conservation, worker welfare, and food safety. Essentially, Global GAP aims to establish and maintain standardized practices in farming and food production to meet quality and safety standards for global markets.

Both of these certifications are considered to be the baseline in the market.

Overview of export process from the Pacific Islands to New Zealand

Approved commodities & treatment outlined in the Import Health Standards (IHS) Phytodsanitary Certificate.

MPI clearance (document to provide)
Customs clearance (document to provide)

Technical specifications, price and grading. Food standards code - labelling. Packaging and barcoding.

Quality, consistency, size, variety, Country of Origin

Appearance & branding
Taste & nutrition
Price

3. NZ Buyers' Requirements

Production Seasonality

- ***Islands with distinct wet and dry seasons:*** Planting typically occurs at the start of the wet season (around November-December) for harvest towards the end of the dry season (around May-June).
- ***Islands with more consistent rainfall:*** Planting and harvesting can spread throughout the year, with peaks often seen during the wetter months.
- ***Variety:*** Different taro varieties have varying maturation times, impacting their seasonality. Early maturing varieties can be harvested within 6-7 months, while late maturing ones might take 10-12 months.
- ***Location:*** Even within the same island chain, microclimates and local agricultural practices can influence taro seasonality. For example, taro grown at higher altitudes might have a slightly different season than lowland crops.

Volume

The minimum quantity (MOQ) is often a full container load for sea freight.

Preparing and Packaging

Fresh Taro: Commonly packaged in 10-20 kg (Bests to comply with Occupational Safety & Health (OSH) regulations, particularly in servicing the supermarkets where the policy is nothing over 20kgs) mesh bags or crates to allow for ventilation. The packaging should be robust enough to protect the taro roots from damage during transit. All packages must be appropriately labelled, featuring details like country of origin, weight, and best-before date.

Frozen Taro: Commonly packaged in 1-2kg for retail. Blast freezing or Individual Quick Freezing (IQF) are recommended when it comes to freezing the product. Taro should be cut into 3-4 pieces if they are large or halved if smaller. For the best product quality, it is preferable to vacuum-pack the taro, although packaging it loosely in clear plastic bags is also acceptable. Shops typically have a fast turnover, so concerns about a long shelf life could be more relevant. Lastly, while the white variety of taro is most common, there's a growing demand for the rarer purple taro among New Zealand importers.

The main advantage of frozen Taro is that it allows exporters to prolong the shelf-life for export while meeting biosecurity requirements, and it provides consumers with a convenient alternative to fresh Taro that retains its quality and taste, resembling fresh Taro when cooked.

Figure 2: Vietnam origin. Frozen sold in Pak'n Save 1kg pack.

Picture: Frozen Taro from Aitutaki (Cook Islands)

Frozen Cassava: Peeled frozen Cassava is the only form available in New Zealand. For cassava, vacuum-packing is the optimal choice for maintaining product quality, although using clear plastic bags filled loosely is also a viable option. Since retail stores usually experience a quick inventory turnover, a lengthy shelf life is not a significant concern. Blast freezing, or Individual Quick Freezing (IQF) are the preferred method for preserving cassava. The cassava should be kept whole but cut into smaller sections for convenience. While the white variety of cassava is the most commonly available, the yellow variety is particularly sought after. The standard weight for packaging is set at 2kg.

Plantain: Commonly packed in 5-20 kg boxes or crates, separated by layers of padding for protection. Each package should be adequately labelled, including information on the country of origin, weight, and recommended storage conditions.

Frozen Plantain: Ripe plantains are ideal for freezing as they have a softer texture and are sweeter. Blast freezing, or Individual Quick Freezing (IQF) are the preferred method for preserving the Plantain. They will usually be peeled and cut into individual pieces or halves. The standard weight for packaging is set at 2kg.

Processing Steps for Frozen Rootcrops[5]
- Important to be in sum up report

Skin Removal and Cutting: Remove the rootcrops' skin and cut them into evenly sized pieces to ensure consistent cooking times and an attractive presentation.

Blanching or Dipping: Blanching or dipping in sodium metabisulphite helps inactivate enzymes, remove contaminants, and preserve the rootcrops. Quick cooling after blanching is essential to prevent overcooking.

Packing: Place the blanched, cooled, and drained rootcrops in containers, often plastic bags, for freezing. Vacuum packing may be used for improved shelf life. Prevent sticking of root crop pieces during freezing.

[5] Fiji Dalo Quality Manual, 2018, Fijian Ministry for Agriculture

Freezing: Freeze the rootcrops, preferably using a blast freezer at -18°C, ensuring even circulation of air around the bags to achieve rapid and uniform freezing. Transfer to a commercial freezer maintaining -18°C.

Shipment: Maintain the frozen state of rootcrops throughout shipment to export markets. Thawing can deteriorate the quality and make rootcrops inedible. Continuous freezing during handling and shipment is crucial for maintaining the quality of frozen rootcrops.

Transport recommended

Fresh taro is transported by sea freight every week. New entrants into the market will have to consider matching weekly shipments if it is to compete effectively. Taro is packed into refrigerated containers and is maintained at a temperature of 4-7°C and can be stored for up to 21 days. Storage times of 6-8 weeks are possible using polyethylene bags, which maintain relative humidity and prevent dehydration.

Frozen Taro, Cassava and Plantain are transported by sea freight on Reefers (Refrigerated container), maintaining a temperature of -18°C.

4. Types Buyers/Distributors

Top Importers of Taro in New Zealand organised by countries (Source MPI Dataset 2020-2021 numbers)

	FIJI		SAMOA		TONGA		Total Quantity (Kg)	Total % TOTAL
	Quantity (Kg)	% Total	Quantity (Kg)	% Total	Quantity (Kg)	% Total		
Mellow Foods Ltd	1,540,130	63.23%		0.00%		0.00%	1,540,130	49.61%
Cibus NZ Ltd	755,510	31.02%		0.00%		0.00%	755,510	24.34%
Fresh Direct		0.00%	624,587	98.10%		0.00%	624,587	20.12%
Sandhu Trading Company Ltd	133,640	5.49%		0.00%		0.00%	133,640	4.30%
Market Gardeners Ltd		0.00%		0.00%	31,960	100.00%	31,960	1.03%
Go Pasefika Company Ltd		0.00%	12,117	1.90%		0.00%	12,117	0.39%
Healthy and Fresh Ltd	6,560	0.27%		0.00%		0.00%	6,560	0.21%
GRAND TOTAL	**2,435,840**	**100.00%**	**636,704**	**100.00%**	**31,960**	**100.00%**	**3,104,504**	**100.00%**

The structure of the New Zealand market for fresh produce can be segmented into three tiers based on commercial size.

Large Commercial Importers
Examples of large commercial importers of fresh and or frozen produce include Mellow Foods LTD, Cibus NZ LTD and Fresh Direct. Another company identified is Ninetyninestreetfood, which distributes Cassava Chips in New Zealand with an interest over the phone to source products from the Pacific. Avalanche Café also produce and sells the Foodstuff Taro Bubble Tea. These companies place great emphasis on consistency of supply and quality, given that they handle large orders from various customers, including supermarket chains and independent retailers. Large commercial buyers have the established infrastructure and systems in place to supply customers nationally.

Medium Commercial Importers
There are several small-to-medium-sized companies, such as Pacific Taro D&S Wholesalers, identified in Otahuhu, that specialise in importing and distributing Pacific Islands produce. Sometimes, limited by their size, these companies deal only in limited quantities and carry out any necessary sorting and repacking economically. Medium commercial importers may also align with supermarket chains to supply specialty lines or have their retail outlets. Some also sell through the 'flea market' systems on the weekends and extensively use local Facebook groups for promoting their new shipments.

Small Importers
This tier consists of small family and church networks the 'informal channel'. Generally, products are imported directly from their home countries through family connections and supplied to local buyers. The informal trade of taro within the Pacific Island communities in New Zealand is estimated to be significant. Often, containers of taro are supplied by the community or church groups in the Pacific Islands to community or church groups in New Zealand. Products are sold at the local flea markets of Mangere and Otara. Informal channels are used primarily due to their relative simplicity and lower transaction costs. Compared to the commercial distribution system (or the formal distribution channel), goods transferred through the informal distribution channel generally pass through relatively shorter channels before reaching the consumer. However, its main disadvantage is the poor revenue collection, which is mainly due to the informal nature of the relationship, which lacks the institutional mechanisms that traditionally govern business transactions. While commercial trade can be lengthy and relatively complex, a successful model ensures a reliable revenue stream for Pacific Island growers and exporters.

5. Key Success Factors

Complement of information

A 2018 "Cost Analysis of Root Crop Exports from Fiji" study examined the various expenses involved in preparing Taro for export to New Zealand. The research revealed that the most substantial cost was buying Taro from farmers, accounting for 76% of the total cost to export one container. Ocean freight charges were the next significant expense at 10.9%, followed by packhouse expenses at 4.8% and transportation costs to the packhouse at 3.7%.

The report showed that the profit margins for exporters were relatively slim. Even minor fluctuations in the cost of acquiring Taro from farmers or the expenses related to insurance and freight to Auckland significantly affected the financial viability of exporters.[6]

[6] Young, D. and Gonemaituba W. (2018) "Cost Analysis of Root Crop Exports (TR#118)" Report for the Pacific Horticultural and Agricultural Market Access (PHAMA) Program.

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