

Kia ora, gday and welcome to the History of Aotearoa New Zealand. Episode 50: Kūmara comes from the Freezer! This podcast is supported by our amazing Patrons, such as... If you want to support HANZ go to patreon.com/historyaotearoa. Last time, we talked a lot about weeds. What is a weed, how do we define it and how they affected both Māori and Europeans. We also talked a bit about the harvesting of kumara and what happens after it is taken out of the ground. This time we take a bit of a closer look at kumara and the other major cultivated plants in the pre-European Māori world such as gourds, taro and yams before finishing up with a bit of linguistics type stuff.

So, kumara, that all important plant shrouded in the mystery of its South American origin and one of the key foodstuffs that Māori cultivated. Even going so far as to be one of the main reasons Māori switched to a more martial society requiring the construction of pā, fortified villages. As we mentioned in our first episode on kai, the way Māori planted kumara was a bit different to that of the rest of Polynesia. Instead of replanting the stalks that formed above ground, the tubers themselves were replanted, sometimes being cut in half. This seems to have been a uniquely Māori practice, though it did become less popular as European plants like potatoes were introduced and the Polynesian method was used for them instead. The Polynesian method is also used in modern commercial growing of kumara in New Zealand and the US. However, they call it the sweet potato. We also talked a bit about how the Polynesian style of planting was year-round requiring little to no storage of plants as cultivation was done constantly throughout the year. Māori would have needed to transition to the more annual form of planting, harvesting and storage, something that would have been gradual given the large shift in technology and cultural practices it would have required. One of the main driving factors of this was the climate and assuming that the climate was the same back then as it is now, Māori would have certainly had a tough time initially. Experiments done by Lincoln University in the 1950s showed that kumara cultivation would have been pretty tough around Banks Peninsula, particularly as the tubers would be inconsistent in size despite growing them being relatively easy. They put this down to the colder weather, earlier frosts and generally shorter growing season so at least for South Island Māori it was unlikely to be a regular and sustainable food source. However, assuming that the climate was the same in the 13th or 14th century as it is today is one big fucken assumption. Other sources claim that the climate may have been warmer than it is today due to the Medieval Warm Period just ending as Māori arrived in Aotearoa. So perhaps the climate was more amenable to growing tropical plants initially and the situation not quite as dire as we think but the climate was still much colder here in New Zealand than Polynesia so it wasn't super ideal as any shift in mean temperature would be a lot more devastating to kumara which was now at its ecologically adaptive border. That's just a fancy way of saying if the average temperature changed, kumara would be munted cause it was already in place that stretched it to its limits. In any case, it was likely that in the very early days of Polynesian arrival that none of this really mattered. Most of the waka of the Great Fleet landed in the most northern parts of the North Island, the place closest to the tropics and therefore the place in the country that has the most similarity in climate to Polynesia. Add in the fact it may have been warmer on average than it is today and you can see how they might have been pretty chill for a bit. The only indication that something needed to change was as they lost more crops with the shorter growing seasons resulting from a changing climate. The first change they might have tried may have been changing the way they plant kumara, perhaps in different soil or in the mounds we eventually see later, rather than going whole hog building the storage pits. Like most of the Māori horticultural calendar, kumara planting was dictated by the phases of marama, the moon. This would mean that the 4th, 17th, 18th, 19th, 27th and 28th days of the month were the days for planting kumara with the thinking being that if they were to be planted on any other day the crop would fail.

Another cultivated food source Māori brought with them were uhikāho, yams. Though the yams they grew were likely different to the yams seen on New Zealand supermarket shelves today. The purple yam is likely the species but there may have been a few others hanging around as well. That's *Dioscorea alata* for you plant nerds out there! These seem to have had a much more restricted range of growth as it doesn't look like they made it further south than the northern North Island. This is probably down to the fact that yams are just generally less hardy than kumara with it being too cold in the south. In saying that though, Cook does record yams being grown in Tolaga Bay on the East Coast but that could just be an outlier similar to Golden Bay in the Nelson region. We also find that yams were being sold to whalers in the early 19th century but cultivation seems to have stopped by 1839. Like kumara, yams tended to be grown on hill slopes with good drainage whereas taro was grown on flatter land.

Speaking of which, taro is a plant that you are probably more familiar with, at least if you live somewhere in the Pacific or South East Asia, where it grows. In these areas taro is usually grown with some form of heavy irrigation to ensure optimum growth. However, Māori didn't really use any form of irrigation in their horticultural practices, if anything they were trying to remove water from the soil. Instead taro in Aotearoa seems to have been grown in areas that were naturally wet, such as near swamps. Like yams though, taro isn't really as hardy as kumara so its range was just as limited if not more so, with Best postulating it didn't grow in the South Island except for the Nelson region. He does also mention that there was some taro growing in Queen Charlotte Sound, part of the Marlborough Sounds in the upper South Island, in 1839. However he dismisses this as an introduced variety that was a bit more well adapted for those conditions. In terms of planting, taro was probably the closest to kumara in regards to how it was done. The tubers were planted in a set pattern with breakwind fences set around them. There were some key differences though. For one, and this goes for all cultivated plants, kumara had the most cultural significance. No other plant had as much tapu and ceremony surrounding it as kumara but taro did have a little at least in the early years of Māori arrival which seems to have waned gradually over the generations. Which makes sense given kumara was taken around the country and became a staple food for Māori almost universally, whereas taro wasn't. Taro was also only planted on the 17th, 18th and 28th days of the month in line with certain phases of marama. Instead of mounds they would be placed in pits about half a metre in diameter and about 25cm deep with a gap of half to one metre between each pit. In each of these, four plants would be placed with gravel being placed on top as they grew, the smaller leaves being pinched off to help the edible tuber grow bigger. Taro also had the advantage of being able to be eaten fresh which I guess you could do for kumara too though I'm not sure how nice it would be.

We have talked about gourds quite a bit in the past as musical instruments and briefly mentioned their other applications. In this case gourds could be used for food as well as pots to grow other plants in. Gourds tended to be a bit more obvious given the fruit grows above ground so it was assumed that it was popular and made up a significant part of the Māori diet. However, I'd say it's pretty likely that a lot of those gourds that Europeans saw were intended for other purposes as well. So overall gourds were less important as a food source, particularly since they were really only edible in their immature state, and they were generally considered more important for all the other functions they filled, like calabashes, containers and instruments. As with taro, they were planted in accordance with the phases of the moon, for gourds it was the full moon. Karakia were also spoken when they were planted which was naturally spoken to Hine-pū-te-hue, goddess of gourds, asking her to help them to grow, flourish and to "develop gourds as large as the space between a person's arms". According to Best, this was, in part, a reference to the action the planter did as they put the seed into the ground and spoke the karakia. They would take the seed between their thumb and

index finger, raising their hands above their head in a kinda curved, arc-like manner whilst facing east. When the fingers on each hand touched there would be a large circle made with the arms, so they were praying that the gourds would be that big. In terms of what they were planted in, sources seem to differ with some saying small holes, others saying small mounds. But it's possible both methods were used depending on the region. As with many plants, gourds didn't grow too well in the South Island so alternatives needed to be found for their many uses. Often it was wood or kelp that filled the gap. When a gourd was destined to become a container of some kind it would be allowed to mature so that the rind would become hard and impermeable. This would be further reinforced by drying the gourd, either by placing it near a fire or burying it in hot sand for a time. Once dried, the inner flesh would be removed through a hole near the top so it could actually hold stuff. The size of the hole itself would depend on what the gourd's intended use was. For tahā wai, water vessels, the size of the hole would be pretty small so gravel would be poured in and shaken around to loosen the flesh inside. Other types of gourds were the tahā huahua for preserving birds and rats in fat, often their own, and the ipu hue or just ipu, which were bowls made by cutting the gourd in half. These bowls also sometimes had hand painted designs on them. As a side note, when Cook traded glass to Māori they also called that tahā, so maybe it was a generic term for container. Another interesting part of the growing was that they were hand pollinated. What this meant in practice, Best doesn't say but it's interesting since I wasn't able to find any other sources that mention this for other plants. A gourd fingered to be a container wasn't just left to grow and hope it came out the right shape though. Sometimes the shape would be designed by constricting certain sections with cord as it grew. For example, doing so in the middle would make a kinda dumbbell shape which were used to preserve tui on the east coast of the North Island and sometimes decorated with their feathers.

To kinda round out this discussion of specific plants, I talked earlier about how kumara put Māori society on a more martial footing. Although that is a bit of a generalisation it should be noted that the areas that were the best for growing cultivated food, basically the area of the North Island north of Taranaki, also had the highest pā concentration as well compared to the rest of the country. There are other factors to consider like the size of the population being larger in the northern North Island and it would seem that this statement, made by Best, would be somewhat contradicted in later research in foraged foods.

Moving on to something slightly different, for quite a while there was thought to be three phases of Māori horticultural development. Proposed by D. E Yen in the 1960s it said that there was an introductory, experimental and systemic stage. The introductory stage was when Māori attempted to grow tropical plants in the same way they had grown in Polynesia, which probably happened more in the more northern regions, as we know. Moving on to experiment, this is where we see the impacts of climate change resulting in technology shifts in shelters, fencing, modifying soils and that all important storage system. This lead into the systemic stage which was basically when Māori had found out what worked and what didn't, settling into a nice annual rhythm of planting, growing and harvesting.

It wasn't until a couple of decades later that Helen Leach revised all this or at least tweaked it and expanded on it. She still went with the same introduction phase of Māori trying to grow tropical plants with varying success. She also keeps pretty much the same experimental phase except stating that in this period only short term tuber storage was developed which allowed for the expansion of the population further south to places like Palliser Bay near modern Wellington. Leach then forgoes the systemic stage and splits it into two other stages. The first is regional consolidation, basically storage techniques were improved and kumara became more regionally distinct in its varieties. The

final stage is reentrenchment, as the climate continues to cool gardens that were already on the fringes of where their crops could survive were abandoned, though not so much in the north. Instead, areas that had a bit more favourable conditions were preferred. You shouldn't take this to mean that all of Aotearoa was going through each phase at the exact same time. Just like the European Bronze Age, different regions went through the different stages at different times. Sure there would be some overlap but it was hardly a universal experience for Māori.

To change tack again a bit, I didn't have enough to fill out this episode so I'm giving you some random stuff that doesn't really fit into other episodes! Anyway, let's talk a bit more about how Māori named some of the flora and fauna they found when arriving in Aotearoa. You see, there were a number of plants that they would have recognised because they looked pretty much exactly the same as the ones that they were familiar with back in East Polynesia. Māori at the time thought that these plants were the same as the ones back home so they often gave them the same names. Of course now with modern identifying techniques and genetics we know that these plants are of the same genera to those in Polynesia but are not the exact same species. We also find that Māori gave familiar names to unfamiliar plants based on similar traits. For example, rimu, a large tree endemic to New Zealand, may have been named for its drooping leaves that kinda look like seaweed. In other areas of Polynesia seaweed is sometimes called rimu or limu. We also see this with milo, pronounced mee-lo. I say that for the benefit of those who are reading the transcription on historyaotearoa.com where they will be seeing that the word milo is spelt M I L O, just like the popular drink milo here in New Zealand. Or at least it was popular until they changed the recipe and then everyone kicked up a big stink until they changed it back. Moving on, milo is a tree that is quite renowned for its wood in the Pacific, sometimes called Pacific rosewood. As far as I can tell, this tree isn't found in Aotearoa but we do have a bunch of other really nice wood, such as the podocarp miro. So what seems to have happened is that Māori have found this really nice new wood in Aotearoa and have named it the same thing or similar to another really nice wood that they were already familiar with, perhaps with similar visual or material properties. We actually see around 20 examples of this occurring across all sorts of plants, not just trees and they weren't always based on the way that the plant looks as well. Sometimes names would be transferred for things like flowers, smell, taste, colour of the root or juice, leaf shape and the properties of the fibre or timber.

As for animals, they tended to keep the same names as Māori had already been using elsewhere in Polynesia. Again, they were likely different species but how many of you could tell the difference between a packhorse and a spiny crayfish? Those of you who are divers probably could but for the rest, it could be pretty difficult without any prior knowledge. So for crayfish as well as mussels, pigeons, squid, whales, worms, caterpillars and a whole bunch of other stuff they mostly kept the same names that Māori were already using. This also explains a bit why we use Māori names for some plants and animals that don't really have a common English name, for example the tui. For Māori, the ecology of New Zealand was foreign but it was still recognisable. There were noticeable similarities and parallels to the environment that they had just come from so they could draw from that knowledge as well as that pool of words to help explain and clarify the new world around them. In contrast, when Europeans came over from basically the other side of the planet, they took one look at the New Zealand ecology and immediately thought, oh my god, that shit is super weird. Which, ya know, fair enough, we have a bunch of really weird animals and plants here. You can't tell me you haven't looked at a kiwi and thought why would god make such a strange being. So because Europeans, with all their fancy classification systems and need to categorise everything, couldn't really figure out how to name some of the wild out there nature they were seeing, they instead decided to opt for the Māori name, though English names were still attached to them. This resulted in us today calling it rimu instead of red pine or paua instead of abalone or kina instead of sea urchin

or mānuka instead of tea tree, which is what the Aussies call it. In fact, there has been a bit of a kerfuffle over the last few years as Australian beekeepers try to use the word mānuka to classify the honey that they make from tea trees. The tree the honey comes from is actually the same species as the one in New Zealand so they have a point on that front, however, mānuka is a Māori word, not an English or even an Australian Aboriginal word so there is some contention as to them using it. Additionally, mānuka has a very strong brand recognition, there are whole labs set up just to test mānuka honey to see if it's legit. There is a lot of money in it so it seems that Australian honey makers may be trying to capitalise on that. Anyway, back to naming animals. Unlike mānuka and the other species we mentioned, there are some animals that just don't have an English name at all in modern vernacular, such as the kākāpō or kererū. Why that is may be that Europeans had a bit of a sliding scale of familiarity with Aotearoa's environment. Some they could relate to quite easily or they had a distinguishing feature that could be used to name them, like the fantail or morepork. Others were a bit more weird so Māori names were favoured over their English names, like rimu or puaa. Finally there were those that were just so weird they couldn't really come up with an English name for them or at least if they did it's not very well known, such as the takahē. Cause calling it Big Chonk probably wouldn't catch on. Would it?

Next time, we move away from the garden and out into the bush. Rather than discussing what Māori were actively cultivating, we will talk about what they were searching for in the forest from foraging, with a particular focus on the aruhe, fern root.

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