The Ecopolitics Podcast – Episode 2.10: Dairy Cows, Climate Change and Settler Colonialism: Insights From Aotearoa/New Zealand (TRANSCRIPT)

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Guests: Dr John Reid (University of Canterbury) and Hugh Campbell (University of Otago)

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INTRO: In this episode we talk about dairy farming and climate change in Aotearoa/New Zealand, focusing on how settler-colonial dynamics shape this complex story. New Zealand's dairy sector contributes 1/4 of that country's greenhouse gas emissions. Dr John Reid, Senior Research Fellow at the Ngāi Tahu Research Centre at University of Canterbury, and Dr. Hugh Campbell, Professor of Sociology at University of Otago tell us how this came to be, bringing their personal histories and research insights, as Māori and Pākehā (non-Māori New Zealanders) respectively. The episode shows how Indigenous sustainability values are having a growing influence on the agricultural sector today.

[00:00:00] **Dr John Reid:** There is a lot of respect across industry for what Maori are doing. There has been a significant change and the Maori are now seen as leaders and as innovators in the area and as having something to contribute. The language, Maori language and thinking is coming to structure the main strategy within industry leadership.

[00:00:27] **Peter Andrée:** Hello, welcome to the Ecopolitics Podcast, season two Global Ecopolitics. This is a podcast for university students tackling some of the big questions in the field of global environmental politics. I'm Peter Andrée from Carleton University. My co-host for the show is Dr. Ryan Katz-Rosene from the University of Ottawa, though Ryan is not joining us for this episode.

[00:00:50] Today we're going to look at the relationship between global Agri-Food Systems and climate change, putting that into the context of the shifting power relations of settler-colonialism and reconciliation between indigenous and non-indigenous peoples. The 2015 Paris Agreement on climate change sets ambitious targets intended to keep global temperature increases below 1.5 to 2 Degrees Celsius above pre-industrial levels. In response, industrialized countries are putting in place frameworks to try to achieve net zero carbon emissions across their economies by 2050.

[00:01:25] To reach net zero carbon a lot needs to change in just 29 years, including how land is managed and how food is produced. Today we'll focus on livestock farming, which is responsible for about 7% of global greenhouse gas emissions in terms of direct emissions

from domesticated animals and 14.5% of global greenhouse gas emissions if you include the entire livestock supply chain.

[00:01:50] At the same time as states are trying to wrap their heads around how to address climate change, settler-colonialism in countries like Canada, New Zealand and Australia, all former colonies of the British empire, is facing a reckoning. Settler-colonialism involved the takeover, usually violent, of the traditional lens and resources of indigenous peoples.

[00:02:11] Even when formal treaties were signed between the British and indigenous peoples ostensibly allowing settlement on agreed upon terms, adherence to those treaties by settlers and their governments was rare. At their worst colonial, land relations were genocidal. At the very least they marginalized indigenous people within the colonies, preventing them from continued management of their resources.

[00:02:33] After many decades of resistance and advocacy by indigenous people, these histories of dispossession and marginalization, which persist to the present day through intergenerational trauma and ongoing social inequities have really come into the spotlight. In Canada, for example, we had the Truth and Reconciliation Commission.

[00:02:51] The TRC documented the history of the residential school system in this country and released calls to action intended to further reconciliation. Similar efforts are taking place across settler states to come to terms with the history of settler-colonialism, to identify appropriate forms of reconciliation and to negotiate redress.

[00:03:12] So climate change, Agri-Food Systems, settler-colonialism, and reconciliation are all connected. And today we're going to dig into those connections by focusing on the case of the dairy industry in Aotearoa, the indigenous Maori name for New Zealand. We'll be talking with two people I met in Aotearoa while I was there on sabbatical in early 2020.

[00:03:33] Dr. John Reid, a Senior Research Fellow with the Ngāi Tahu Research Centre at the University of Canterbury. He is of Maori heritage and works closely with a variety of tribes known as iwi across Aotearoa. He specializes in indigenous economic development with a focus on land, freshwater and ocean sustainability.

[00:03:53] Welcome to the Ecopolitics Podcast John, 'kia ora'!

[00:03:57] **Dr John Reid:** 'Kia ora' Peter! Nice to be here.

[00:03:59] **Peter Andrée:** I'm really glad that you're here with us here today. And I also just want to introduce professor Hugh Campbell. He's a New Zealander of European background. He's a sociologist of Agri-Food Systems based out of the University of Otago in Dunedin.

[00:04:12] He recently published a book called 'Farming Inside Invisible Worlds: Modernist Agriculture and its Consequences', which deals in part with how his own family's history of farming in New Zealand involved a hidden history. This is a story of attempted erasure of Maori land uses and understandings of how to relate to the land.

[00:04:31] His book is part of a growing effort in Aotearoa to render visible this hidden history as one step in the long-term process of decolonization.

[00:04:39] 'Kia ora' to you, Hugh. Welcome to the Ecopolitics Podcast.

[00:04:43] **Hugh Campbell:** 'Kia ora' Peter. Yeah, thanks very much for the invitation. It's lovely to be able to join you in this conversation.

[00:04:49] **Peter Andrée:** So my takeaway from my time in Aotearoa in New Zealand is that your country may be at the forefront of confronting some of these issues at the intersection of Agri-Food Systems, climate change, settler-colonialism, and reconciliation. But that's just my take and I'm looking forward to hearing how the two of you look at it.

[00:05:05] I'll direct my first question towards you, John. I wonder if you can tell me a little bit about yourself and your background and how that relates to what we're talking about, which is this question in the intersection of Agri-Food Systems, climate change and settler-colonialism.

[00:05:21] **Dr John Reid:** Sure. Thanks, Peter.

[00:05:22] So, my background is I descent from a tribe called Ngāti Pikiao, which is in the central North Island of New Zealand. And so I became very interested in land issues around particularly Maori land issues. Given our own family's history with Maori land and reservation land in the sort of central North Island of New Zealand. Growing up, I had a concern for the environment and particularly the way in which the land was being treated.

[00:05:50] And so those two things converged. And when I went to university, I looked at land sustainability, particularly focused in on community forestry and agriculture. And later I started to examine more closely those issues related to Maori land and Maori land development. And that was happening at a time when the treaty settlement processes were underway in New Zealand, which we'll come to talk about.

[00:06:17] But at that time, Maori were receiving compensation assets from the New Zealand government and including large tracks of land. And so as part of that process, there was a question of how do Maori manage and operate on these lands that are returning to them often with legacy land management systems.

[00:06:35] And so a lot of my work has examined those issues, particularly different land management processes around sustainability and particularly the indigenous Maori perspective on sustainability and how that makes its way into how we think about land management in New Zealand. And then more broadly, how does that then further impact New Zealand's land management policies and regulations?

[00:06:58] **Peter Andrée:** Thank you, John, I'm really looking forward to getting into some of those questions. But you mentioned already the treaty settlement process and for listeners outside of New Zealand who may not know what that means, can you tell us a little bit about the Treaty of Waitangi of 1840 and what that was, and what the Waitangi Tribunal is that's leading to this treaty settlement process of today?

[00:07:22] **Dr John Reid:** Yeah sure. So, first of all, there's two versions of the Treaty of Waitangi that were signed between the Crown and the different tribes around New Zealand,

which of course we refer to as the iwi. And it was signed back in 1840, but there were two versions of the Treaty.

[00:07:37] And so one is referred to as the Treaty of Waitangi and the other one's referred to as tiriti o waitangi, which is the Maori name, but they were two quite distinct and separate versions. So I think today I'll refer to the Maori vision, because that is the version that the vast majority of iwi or tribe signed.

[00:07:57] So that tiriti was made up of three articles. And the first article provided a platform for the Crown to assume kāwanatanga, or governance over New Zealand. Now for Maori, this wasn't seen as handing over sovereignty. Given that under article two of the tiriti, Maori were guaranteed what Maori referred to as rangatira, which is chieftainship and that gave them full, their mind, full control over the territories and resources within them.

[00:08:22] But they felt that under article one, kāwanatanga, that the Crown would assume a governing role. There was also in article three and that article three guaranteed Maori the right of citizenship. So a lot of Maori were interested in gaining access to the trade network of the British Empire, and they saw this also as a pathway into becoming part of this broader system.

[00:08:46] But article two of the tiriti also gave the Crown what is known as the 'Writer Preemption'. So that meant that only the Crown could buy land from Maori. Now what happened once the Crown bought that land, it came under a different jurisdiction. So while that land remained an indigenous title under the chiefs that came under Maori law, but once it transferred to the Crown, it came under Crown law and it came under Crown jurisdiction.

[00:09:18] So what they often refer to is that New Zealand was colonized by contract. And what that means is that the Crown vigorously moved to purchase as much land as possible to ensure that land transferred from the chieftainship of the chiefs to the Crown jurisdiction. And, yeah, of course, that process involved a lot of underhanded dealings and a range of other issues, which have come up today to be resolved through the Treaty of Waitangi settlement process.

[00:09:47] There were also large tracks of land that were confiscated through te tango whenua, which is the taking of land. And so, the treaty settlement processes were developed and they certainly started to get underway. And then in the 1990s to deal with issues around the way in which these resources were taken, the way in which the colonization process occurred, and to seek redress on behalf of those iwi or natural groupings.

[00:10:12]**Peter Andrée:** And just to come full circle, then, you began by talking about how you work in sustainable economic development with iwi. And as I understand that a lot of your work is really focused on iwi that now are regaining control of lands, possibly their traditional lands. In some cases it's lands and in other parts of the country that they then might be under land management already, might be in farms, and that now become economic assets for the community, is that correct?

[00:10:42] **Dr John Reid:** Yeah, that's right. So the Treaty settlement processes usually have several sort of components to them. So one was often the return of assets. So that could involve usually Crown land that was currently in Crown ownership and that would return to a iwi or a tribe.

[00:11:00] The second thing was often cash. And the third thing was certain rights around governing rights, particularly at local government scales and around the way in which resources and the traditional tribal areas were managed. So you've seen the formation of a lot of co-governance relationships. With what we have here at our local government level, which are local councils, a lot of co-governance between the tribes that have settled and with their local councils.

[00:11:28] So there is a sort of a political dimension and there's the economic dimension in terms of the return of land. And so the main tribe I've worked with over the years is the Ngāi Tahu, which is New Zealand's largest iwi by land area and second largest by population. And it covers most of the land area of the South island of New Zealand, probably three quarters of that whole area, and that settlement included farm land and forestry land, but also the tribe has also embarked upon quite substantial dairy farm developments.

[00:11:58] **Peter Andrée:** Great. Thanks for clarifying those points. And I want to come back shortly, but I'd like to bring Hugh in now. Hugh, as I understand it, your family's background is in farming and I'd like you to tell us a little more about that background and how this relates to the book you just wrote and really how that book relates to this discussion of reconciliation and treaty settlement in Aotearoa, New Zealand.

[00:12:21]**Hugh Campbell:** Thanks Peter. Yes, John's really beautifully elaborated the centrality of the treaty and land in the colonizing of New Zealand and in what he's laid out as how at that early colonial moment, the Treaty was somewhere between indistinct and outright fraudulent. And so there was a period of some decades in which many different pathways could have happened in New Zealand. We might've been ended up being all sorts of different kinds of colony.

[00:12:50] But what eventually locked New Zealand into one particular trajectory for really what was going to be over a hundred years was the centrality of the farm, particularly the farms of European, particularly British settlers, what we call pākehā, arriving and using their Crown right of preemption and getting hold of land.

[00:13:13] Of course also there were some moments of very dire military engagement and the like, but the thing that really shifted and marginalized Maori from the land was the arrival of pākehā farmers. And farm by farm, parcel by parcel, the New Zealand landscape, particularly from the 1860s onwards, got drawn slowly into this huge pastoral farming estate.

[00:13:34] And I grew up on one of those pākehā farms and the story that I knew of our farm through my childhood and the one that was, sort of the normal narrative of being a pākehā farmer in New Zealand, was one, we weren't pākehā farmers, we were just family farmers. And sort of the myths I grew up by was that the New Zealand family farm was a pastoral

farm, it was either a sheep, beef or dairy system. And it was the most efficient in the world, it was the most scientific in the world. And we were fantastic. We were just an exemplar of how farming could be done and we were also nice folks as well.

[00:14:17] When I became an academic and began becoming interested in dynamics of rural sociology and I spent a lot of my career writing about the neoliberalization of New Zealand farming. And then more recently about the colonization of New Zealand through farming. I began to reflect back on my own upbringing in a very different kind of way.

[00:14:39] And so I wrote the book 'Farming Inside Invisible Worlds' predominantly based around the story of six of my own family's farms stretching back from the 1850s through to the 1920s in terms of the initial histories and then through to the present day. And how our histories, for me as a kid who grew up on a pākehā farm, the histories of our farms are incredibly complicated.

[00:15:04] But that complexity is essentially avoided by rendering worlds around us invisible, including our histories invisible. And so that whole complicated story that John just laid out about treaty settlement and the way in which Crown purchasing of land and the transfer of that land into pākehā ownership to create farms just was absent, completely absent from my upbringing.

[00:15:26] And so as a result, our farm existed in a nice sort of little bubble on its own. And we didn't have to think about too many of the wider consequences of what we did. So yeah, I wrote the book about what do you find out if you start looking into those invisible worlds around the farm that I grew up in. And how does that change the terms of how we think about farming both from the past, but also in the future, in Aotearoa, New Zealand.

[00:15:52]**Peter Andrée:** Hugh, I'd like to ask you just to link what you've just been talking about in terms of the history of your family's experience and the colonization process in Aotearoa, New Zealand, with this move that I had a sense was active within New Zealand culture today, which is what we can broadly call trying to reckon with the past and the process of decolonization, if you might call it that, which I know is a very contested term, but I wonder where you see the kind of work that you're doing fitting in with this idea of decolonization?

[00:16:25] **Hugh Campbell:** Yes. It's an excellent question. And I think what I have tried to do in the narrative of the book is by both locating the farmers and agent of colonization and recognizing the farm as having dynamic agency as a shaper of landscape and farms, in the sense of farms as human and non-human assemblages, that these farms had tremendous agency to colonize New Zealand and to arise and to marginalize and to create boundaries.

[00:16:58] But in the latter stages of the narrative, I really tried to turn to ask the more hopeful side of that analysis, which is: 'Farms can colonize. Can farmers decolonize?'. And do farms become a site where different relations with landscape become possible when different futures get enacted.

[00:17:16] And so I think really the great colonization of New Zealand hit a brick wall in 1973 when Britain entered the European common market and New Zealand lost its last vestiges of

a colonial trading relationship with Britain and were thrown into a period of huge crisis. And I've spent most of my academic career studying the different ways in which that crisis played out.

[00:17:40] But the one that became - it was partly surprising and also extremely hopeful - was that out of it, this huge turmoil and crisis in farming in New Zealand, some really hopeful things began to appear. That's not the way we like to think about crisis, that you need something really big and terrible to happen to break down huge institutional powers and cultural norms, but that's what happened in New Zealand farming.

[00:18:01] And so out of that period of crisis and what I lived through in terms of my adult life and model my contemporary farm family who still are on farms have experienced was this tremendous kind of diversification and heterogeneous array of things that are happening in the New Zealand landscape.

[00:18:23] But in terms of what John's talking about, that begins to happen very late in terms of its consciousness for pākehā farmers. It's only very recently that the great mainstream institutions of pākehā farming began to realize that Maori were doing something - I was going to say new and exciting - but actually Maori were reviving something old and incredibly useful and exciting in terms of how we relate to land.

[00:18:47] And so in the last 10 years, you've started to see a really powerful, slow and seemingly unstoppable emergence of new Maori land trusts and incorporations and mainstream farming organizations, like our government farmer Landcorp starting to look towards Maori principles and land use. And it's both incredibly unexpected for people like me who were sitting in New Zealand farming 40 years ago, where any involvement of Maori and the future of New Zealand farming was just unthinkable. To now really looking at it and going, this is the pathway forward.

[00:19:27] Yeah, the pathway forward as being enacted in front of us by inspirational groups of Maori owners and land governance arrangements and particular close relationships with the land. It's very inspiring. It's a very inspiring time to be living well.

[00:19:43] **Peter Andrée:** I really want to turn to John now. And Hugh asked a provocative question earlier: 'Can farming decolonize?'. And I might broaden that to pākehā land relations in general. What's your perspective on this John?

[00:19:58] **Dr John Reid:** Yeah, it's a very broad and deep question. So, I suppose I might just take a little step back and start to think a little bit about the Maori, the traditional Maori perspective and relationship to land. So from a Maori perspective, the world is structured by a concept called whakapapa, which means that you're basically related to everything around you and the natural world, whether it's a river or the land or forests or pasture, whatever it is, it is parts of the family tree. And another core concept is that of mauri and mauri means that's the life supporting capacity of something.

[00:20:38] So for example, if you have a river and it's polluted, it would have low mauri, but if it wasn't polluted and there was abundance within it, you'd say it has high mauri. So from that Maori perspective, there's this idea that the things around, in terms of the ethics of

relating to the world around you, that you have an obligation to increase the mauri, or at least maintain the mauri of the land and the resources that are around you, because it's understood that if you don't look after the rest of the family, it can't look after you.

[00:21:11] So it's this idea of you increase the mauri of those things that will increase your mauri. So it's like a symbiotic way of thinking about the world. And so with that sort of way of thinking, which tends to frame the way most iwi understand the world and understand the way in which you relate to it, that has come to shape the technology of farming, in particular, the choice of technologies.

[00:21:36] And the way in which these tribes are structured through settlement processes is that most of the structures were more or less imposed externally by the Crown on the way in which settlement processes could occur. So they were forced into what the Crown called natural groupings which were large groupings of people and then the assets within compensated or provided to those groups under large trust structures.

[00:22:01] And so the resources that were once owned at sort of family levels were all pulled together and centralized, and they sit under these runanga tribal council structures. And then they sit within these assets holding companies, those holding companies then implement these farming operations.

[00:22:16] But what's interesting about that is that at the tribal level, the tribes have got this kind of world view that I was outlining, then they attempt to implement through their tribal corporations. So these tribal corporations are running some of the most technologically sophisticated farming operations in the country, but they've been shaped and directed by indigenous thinking and values and the way they operate.

[00:22:42] And there's a bit of a tension, a real tension there, that occurs between the tribal corporations and the tribal owners. And the tribal corporations are trying to deliver dividends to the tribes, to invest in cultural activities, social welfare, all these types of initiatives, and at the same time as attempting to be environmentally sound and socially sound, and that sort of strong emphasis has pushed those corporations into behaving in new and innovative ways and types of technologies they uptake and apply. And I suppose that to me that's very interesting is the way in which an indigenous knowledge system is taking control of technology and systems and ideas and applying it through their own frame and doing very well out of it.

[00:23:30] And some of our research has shown that some of it, the highest performing farming operations in New Zealand and those winning the most environmental awards, are Maori operations using these types of thinking and systems. That's where I think there's quite a lot of opportunity and quite a lot of excitement.

[00:23:46] At the same time, that's a continuum within New Zealand of different Maori organizations from those that are often with Maori, small Maori family land trusts and other organizations, which are quite poor and struggling through to these large corporate entities that are often thriving in the new environment.

[00:24:07] **Peter Andrée:** I know some of our listeners heads are getting dizzy right now as is my own. But this is exactly why I'm talking to the two of you today, because I think there's a really fascinating story taking place in Aotearoa, New Zealand, not withstanding a very troubled history. Everything that you just described, John, the bringing together of traditional values around whakapapa and mauri traditional governance structures, new governance structures, technology and innovation.

[00:24:37]And as you said, the proof is in the pudding in some of the Maori led enterprises becoming real leaders in both economic returns and sustainability at the other dimensions of sustainability. I really want to come back to this, but I feel like I told our listeners at the beginning that we'd talked a little bit about dairy farming.

[00:24:56] And I feel like I want to bring that story in because it's a bit of a case study that reveals maybe in a way how things can go wrong and provide also some glimpses into how things maybe can go. So in our opening, I mentioned that we'd talk about livestock farming and climate change.

[00:25:12] The livestock industry is about 49% of greenhouse gas emissions. A big part of, and a growing part at least over the last 30 years, has been the dairy sector, which is up to about a quarter of total greenhouse gas emissions Aotearoa, New Zealand, which compared to North America, dairying is maybe 2%.

[00:25:32]But that's in part because it's such a huge export industry in New Zealand with markets in China for powdered milk and in the Middle East for a butter spreads and so on. Hugh, can you tell us a bit about how this industry catapulted to where it is today? And I know I'm asking you to do a lot in a short time, but maybe also a little bit about the environmental and social conflict that came with it?

[00:25:59] **Hugh Campbell:** Yes. Dairying was part of the great pastoral empire of New Zealand through its colonial phase, but it was always second fiddle to sheep farming. When the great crisis came after 1973 and New Zealand lost its exclusive access to Britain. All these old traditional huge pastoral sectors went into a period of intense crisis.

[00:26:22] The dairy industry actually did reasonably well out of the crisis and has been on a, as an economist would see it on a massive growth trajectory, mainly because the sheep industry really crashed badly, particularly wool markets around the world. And what's happened is that we now have really two dairy industries in New Zealand existing side by side. There's the very old, traditional dairy farming regions like Taranaki where you have a multi-generational dairy farmers on reasonably small dairy units with low levels of debt.

[00:26:55] And then you have the second wave of dairying, this kind of dairy frontier that pushed out over the last 20 years and led to the collapsing sheep and beef sector, which had tended to happen on more dry land. And that frontier of the dairy industry forged a new model for dairying in New Zealand which was based on the center pivot irrigators using a particular variety of ryegrass and heavy application of nitrate fertilizers.

[00:27:23] And using that combination theory colonized a whole new frontier of farming, which had once been dry land sheep farming, became wet dairying land. This is particularly

along the East coast of the South Island, where John is based in Canterbury, through parts just North of where I am and North Otago and Southland.

[00:27:42] All the growth in the dairy sector really came from that new frontier of dairying, the catch being is that the frontier dairying is incredibly intensive, this is by New Zealand standards. It's still a grass-based system, so it's not really intensive in the North American sense, but by New Zealand standards, it was a level of intensity of production that had never been seen before.

[00:28:02] And what happened was that intensity began to cause two immediately problematic environmental effects. One is that you're just sticking a whole lot of big ruminants in the form of cows onto land that once had sheep and they are generating a lot more greenhouse gases through, what do we call them, politely interac emissions.

[00:28:23]So in terms of greenhouse gas profile, you've got a combination of a lot more cows on the landscape and a lot more nitrate fertilizers being used, which of course are also producing a greenhouse gas. So that was the first immediate effect.

[00:28:36] But the second one which in some ways is even more compelling as a social and political drama in New Zealand is that this was happening in areas that were dry, often quite sensitive, fresh water systems and the arrival of a heavier industrial model of farming into those systems has caused freshwater impacts and released a lot of nitrogen into groundwater systems. And has unleashed a slow unfolding cascade of freshwater effects, which has become extraordinarily, politically and socially contentious in New Zealand.

[00:29:09] To just round out the narrative, that's really the moment in which, in my understanding as an academic the moment, in which pākehā New Zealand moved from basically saying: 'Farming is great, farming is an enormously important part of our history. All our cousins are successful farmers. If there were a few minor environmental impacts, that's okay,' to 'We have a major problem with farming in terms of its environmental impacts,' happens around the year 2000. This is when this new frontier style of intensive dairying has time to really gain pace and a public campaign called the Duty Dairying Campaign after 2001 emerged and it was really the first time that there had been political and social backlash against farming.

[00:29:49] And since the Duty Dairying Campaign, which was a straight out set of media advertisements and protests against dairying and dairy impacts on freshwater systems. Since then, it's really been all on and questions about the environmental impact of dairying, both in terms of its fresh water impacts and at a broader level of climate change impacts, have been a very hot political issue and social issue ever since.

[00:30:14] **Peter Andrée:** I knew you could do it - you packed a lot in there and that's a really compact summary of at least over a hundred years of change. And then certainly the big changes that have happened since the early 90s and 2000s with this increased attention and concern from pākehā and New Zealanders. And I guess I want to bring the timeline back because John was talking about some of the treaty settlement processes really coming to fruition in the 1990s and some of this land coming back and coming into iwi control under

corporations and various governance structures in the 1990s, some of which is in dairy, some of which is in commercial forestry.

[00:30:55] So John, I'd like to go back to you because you're now working with iwi who manage lands where people are looking, perhaps Maori may have looked in this way for a long time, and New Zealanders in general are looking very carefully at how land is used and what the environmental impacts are, both in terms of greenhouse gas emissions and on water, how do you see that from the kind of work that you do?

[00:31:19] **Dr John Reid:** Yeah, sure. So I might take one step back and just outline the - so we've had the settlement processes, which we have had land returned and which a number of iwi and are engaged in dairy farming today. But there's also been a reasonably long history of Maori dairy farming in various parts of the country and the formation of corporate cooperatives and being quite successful at different times in New Zealand's history, but then not finding the institutional support structures needed to support Maori. So, for example, not being able to access financing or other things to develop their dairy farming initiatives. And then to come forward and to the sort of 90s period when Maori were having land returned and then we're starting to engage in dairy farming on scale.

[00:32:05] And I think certainly being in the room when some of those decisions were being made, there were a lot of questions and concerns around the impact of what dairying would have on fresh water. And particularly from - certainly a ngāi Tahu perspective - which was most familiar, the impact on mahi kai which is the traditional food resources that are gathered out of fresh water systems.

[00:32:35] And so there was a lot of concern about the expansion of dairying and particularly the tribe going into dairying, but at the same time, there's this sort of pressure - you've got land returned and you need to be able to make some return on that land for your own people. And so, it's also being put into this unenviable position of needing to make a return off your land at the same time as everybody else is going through this sort of dairy gold rush, sort of tsunami that was happening certainly in the Canterbury region where I am - where everybody and all the farmers - were converting the dry land areas to gearing from sheep. And so there was this need to be on board to be able to take advantage of this economic benefit.

[00:33:21] But at the same time this concern about what the impact would be. So, in response they were saying: 'If we're going to go in this direction, we need to do it in a way that is as responsible as possible and to be able to put in place the restrictions and the demands on our funds and how they need to perform and what they need to do'.

[00:33:43] So that was what was happening there, but it also differs around the country. Some parts of the country, depending on the land type, is much better at accommodating dairy farming, whereas some areas are far less accommodating just in terms of the environmental footprint it leaves.

[00:34:00] So you also find large differences between iwi and their level of comfort of entering into dairying and its impact. But the other thing happening at the same time was

the Maori were really gaining greater governing rights into to the regional and local areas, particularly around seeding policy and regulation around water and what land uses could occur in particular areas.

[00:34:26] You also see this influence coming through at a governance level with Maori starting to influence what can happen, but that certainly the early 2000s period, Maori had very limited influence into to what was happening more broadly in what could happen on land in terms of regulation.

[00:34:41]**Peter Andrée:** When I was in Aotearoa, New Zealand last year looking at the dairy industry and climate change - this is a project I became very interested in as I had conversations with many people across the country about dairying and what it means - a few things struck me.

[00:34:57] First, as we've discussed, this industry is massive. It's differentiated in the way that Hugh indicated and John, I'm glad you brought the earlier Maori history of dairying, as well, forward. But it is certainly a massive industry today contributing a good part to the country's greenhouse gas emissions.

[00:35:15]It also appeared to me that after probably two decades of the industry - along with agricultural sector in general maybe resisting the climate change question and not really wanting to deal with it - through various both research and government pushing and there's various points of impact where the industry has been developing a real sense that they have to do something on this issue.

[00:35:41] And I think the Dirty Dairying Campaign that Hugh was alluding to is all part of the loss of social license that the sector has maybe had in New Zealand in the last couple of decades that have been forcing the industry to look more carefully at itself and its actions. The third thing that I found very interesting is that the solutions, at least in terms of achieving net zero emissions by 2050, are not there yet.

[00:36:07] There has been some really interesting research by Andy Reisinger from the New Zealand Agricultural Greenhouse Gas Research Center, working with industry players that suggests that mitigating sources of greenhouse gas emissions is technically possible through methane inhibitors in feed, by breeding lower GHG producing livestock.

[00:36:28]But there's a lot of things that have to go right for the same herd size to be there by 2050 and producing much less methane, much less nitrous oxides and thus being part of this net zero solution. So in sum, the industry can potentially get there if a lot of things go right.

[00:36:50]But there also have to be other options, other directions for the future of this industry and for land uses in Aotearoa. And that's my sense of where things are at, but I'd welcome both of your thoughts on where is the industry now and where do you see it going?

[00:37:05]And maybe turning first to Hugh, do you think that there's going to be a sustainable dairying system in New Zealand? What do you think that's going to look like?

[00:37:13] **Hugh Campbell:** It was very interesting, the discussions we had last year when you were visiting were extremely interesting on this, and it's always good to get an outside voice, especially someone who's from a similar settler agricultural milieu in Canada.

[00:37:28] And I have pondered, since we first began having these discussions, what are the trajectories forward from here? And I think I characterized it a few minutes ago saying: there are two worlds of dairying in New Zealand. There's old dairying in the established dairy regions like Taranaki and then there's the new frontier stuff in Canterbury.

[00:37:46] And I think the answer is quite different for both. I think there will be pathways into more sustainable, more climate friendly dairying in the old systems for two reasons. One is that on multi-generational dairy farms I think that there's just a lot deeper culture, a lot more sort of acquaintanceship and relationality with your land. But also in places like Taranaki, they've already made the first moves towards working with regional government and working with iwi in terms of what is appropriate use of land and how can that land start to live to its full potential within a dairy farm, rather than its full productive potential.

[00:38:24] But the other world of dairying is where the real crisis is going to be: the frontier dairying. Because they are caught between two mess of crisis. The first being this eroding sense of public, social and political trust, what the consultants call the social license to farm being created by initially this freshwater crisis.

[00:38:43]But more generally, it will become part of our climate adaptation strategies over the next 10 years. So that's one crisis, but the other crisis is that they borrowed a huge amount of money to put on those big center pivots and buy Holstein Friesian dairy cows and pour lots of nitrate onto highly specialized ryegrass.

[00:39:04] And the frontier dairy farms are massively indebted and they are pushing right out to the edge of their systems just to try and keep the banks at bay. And at the moment it's all working out okay because there's a reasonable amount of demand out of China because of COVID and interest rates are historically low.

[00:39:22] But we're about two base points and mortgage rates away from a massive meltdown out in frontier dairying. At which point, you're not talking about whether their dairy system is going to adapt to climate change, you're talking about a whole lot of that land returning to other forms of farming that will be more climate friendly.

[00:39:39]So that's my take on it. I think John and I were on a farm trip - we had a farm visit a couple of years ago out in the center of that dairy frontier in mid Canterbury and the farmer who invited us onto his farm that day - from their perspective he pointed around himself at his highly intensive dairy farm that he was trying to modify and said: '20 years, come back, this will not be here'. He said: 'We are trying absolutely everything that science can provide for us, every technology to mitigate our impact, to reduce our freshwater impacts. We're trying everything as far as I can currently see, we're going to get about halfway to where we need to be'.

[00:40:18] So he said: 'We need some kind of miracle in the next 20 years to mean that dairying will still be in these parts of New Zealand or else something else will be happening here'.

[00:40:28] **Peter Andrée:** John, what is your sense? Because, you described organizations like Ngāi Tahu farming also have some of those big central pivot irrigators on some of their dairying properties.

[00:40:39] How do you see a Maori land use maybe, either following one of the trajectories that you just pointed out, or maybe it's going down a different path because of its different history and governance structure and values?

[00:40:53] **Dr John Reid:** Yeah, sure. So, I believe that depending on the type of land they're farming that Maori will diversify out of how to dairy in those dryland frontier areas.

[00:41:05] Although those farms are winning environmental awards for their performance, their ability to get their nitrate levels to a point on those particular types of environmental conditions and soils, and to get to that level in terms of reducing the carbon footprint, then just like you're saying, I think they will likely shift to a different land use over the next few years to be able to comply.

[00:41:31] And just also to add to what Hugh was saying is that certainly then the development of the Canterbury region, there was a significant sort of strong collaboration between banks and our central government seems to have grown irrigation to put in place the infrastructure for the expansion of dairy from sort of 2000 and onwards.

[00:41:50] And there has been a massive investment, not just the farmers and banks, but also in terms of public investment and in terms of the large plans of water infrastructure. And like you said, paying that off is going to be a major issue.

[00:42:06] **Peter Andrée:** John, earlier in this podcast Hugh talked about Maori leadership within the agricultural sector and that this has been growing and was perhaps not something he would have expected to see in the same way 25 years ago.

[00:42:23] And as an example, and I'm just curious your take on this, I sent in advance - and I can put it up on the website - there's a document called He Waka Eke Noa, which is the primary sector's response to the challenge to reduce greenhouse gas emissions. It came out in 2019 across New Zealand and signed on by a whole bunch of mainstream farming organizations.

[00:42:46]And seemingly, it has a Maori name and it refers directly to Maori values and is this symbolic, is this a form of greenwashing or is this part of a political shift that you think is beginning to take place in New Zealand?

[00:43:03] **Dr John Reid:** I think when I read the document, I was reasonably impressed by the way they had brought in Maori ways of thinking and concepts and approaches to frame their strategy.

[00:43:15] And I do know that there was a reasonable amount of Maori input into its development. And there was also some pushback from certain quarters amongst Maori as to whether it was a genuine or whether it was genuinely representing Maori thinking and ideas. I think certainly within industry leadership, it's recognized and seen by many quarters, but whether that cascades down through and across New Zealand's farming culture overall, which is generally conservative, that will be another question. But I suppose I'm always hopeful and optimistic and I think generally things are heading in the right direction.

[00:43:54] **Hugh Campbell:** If I would just join in there with what John's saying, I think one of the things that's struck me in recent years - and partly it's because of the work that John and his research group have done in terms of just quietly elaborating and allowing all these new land use patterns to be thought about and to think about ways to bring Maori principles into the way in which we farm - is that really what a striking difference that as to what I experienced in my own childhood.

[00:44:22] So in the 1960s, in those last 10 years of the great boom time of New Zealand colonial pastoral agriculture, when you looked at government documents and reports and public media and active judgments happening in courts, Maori land, the land that was still in Maori ownership, was derided as unproductive, it was described as wasteland. There were open political calls for the final remnant of the Maori farming, to be handed over to pākehā so it could be modernized and rendered scientific and productive.

[00:44:54] And so really, if you go back to the 1960s, Maori land was an object of derision. It was object to really undisguised, racist policy and orientations in terms of our universities, agricultural scientists, and the like. To fast forward to now, really messes with my historical understanding of where I came from because you know what John and his group and many others have done is really placed Maori at the forefront of our response strategies.

[00:45:25]And he hasn't had time today to talk about some of the work that's been done around linking Maori land use to other forms of alternative agriculture, like organic or regenerative, and those kinds of dialogues that are emerging. But looking at it in a long historical sense, what we're experiencing now is just profoundly different to where New Zealand was as a pastoral colonial agricultural country.

[00:45:50] **Peter Andrée:** Thank you, Hugh and John. This has been a fascinating conversation and I feel like you've left us both with a lot to think about and make sense of, but also a sense of hope and of change. Whether everything will be done in the next 29 years that is anticipated, we'll only know when we get there, but it is amazing to see how things can change in the way that you both have been describing.

[00:46:15] So I want to thank you both for joining us on the Ecopolitics Podcast. As a reminder, this podcast is made available under a Creative Commons License 2.0, please share it and use it widely, we just ask that you provide attribution. You can follow us on Twitter @EcoPoliticsP and get in touch via our website site, ecopoliticspodcast.ca.

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