Natural Capital Fact Sheet 2

How the Emissions Trading Scheme works, and Forestry for carbon sequestration.

At BNZ, we understand that natural resources such as water, soil, climate, biodiversity, and ecology are the fundamentals of food production. We also know that New Zealand agribusinesses are highly attuned to harnessing and managing these natural resources. To help you manage and grow your farm's natural resources to the next level of efficiency and health, we've set up the BNZ Agribusiness Natural Capital team, dedicated to supporting farmers on this journey.

To better understand the effects of environmental regulations on New Zealand agribusinesses, we've partnered with AgFirst Consulting to help answer some of the key questions about the current environmental topics and on-farm management. Together, we've developed a series of Natural Capital fact sheets to help support our customers as they navigate change.

Please use this resource as a quick fact check as to why these topics are important to the future of your agribusiness, and what practical steps you could take on your farm to help you stay ahead of the curve.

This fact sheet looks at how the New Zealand Emissions Trading Scheme (NZ ETS) works, forestry for carbon sequestration and practical steps to help address your on-farm emissions.

Updated November 2022

Why is understanding the New Zealand Emissions Trading Scheme (NZ ETS) and on-farm carbon sequestration important for your Agribusiness?

Strong scientific evidence says our climate is changing. Warmer temperatures and changes to rainfall will have a big impact the world over. Our Government has committed to doing its part to support the reduction of global emissions, by targeting New Zealand's Greenhouse Gas (GHG) emissions, including those from agriculture. Currently, the agricultural sector makes up around nearly half of New Zealand's GHG emissions.

What is the NZ ETS and how does it work?

The NZ ETS was enacted in 2008, as the Government's principal policy response to climate change. Its objective is to support and encourage global efforts to reduce GHG emissions by:

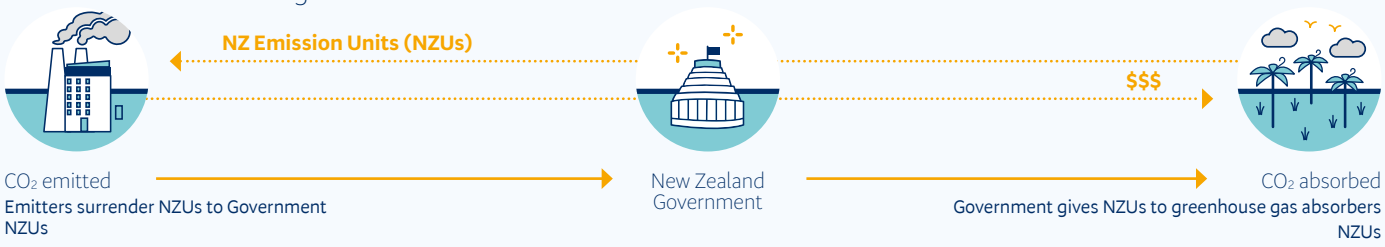
- assisting New Zealand to meet its international obligations under the Paris Agreement.
- helping New Zealand to meet its 2050 target and emissions budgets.

The NZ ETS requires certain sectors of New Zealand's economy to measure and report on their emissions. Those sectors must also purchase and surrender one New Zealand Emissions Unit (an NZU) for each tonne of emissions they produce. The agricultural sector is notably excluded from the NZ ETS.

An NZU represents one tonne of carbon dioxide (CO_2) or its equivalent in other GHGs (CO_2-e) such as methane and nitrous oxide. NZUs are the only emissions unit currently eligible in New Zealand. Essentially, the ETS works like this:

- Some industries add GHGs into the atmosphere. These are known as 'sources'. Other industries take GHGs from the atmosphere. These are known as 'sinks'. The process of removing GHGs from the atmosphere is known as carbon sequestration. The NZ ETS seeks
  to discourage sources and encourage sinks.
- The Government provides NZUs to sinks. Sinks then sell NZUs to sources. Finally, sources surrender NZUs back to the Government.
- Providing NZUs to sinks is just one of the ways that NZUs enter the market. For example, there are also government auctions and, for now, free allocations to industries.
- The Government controls the supply of NZUs to the market, allocating fewer units to the market each year. This increases the price of emissions.

Illustration of NZU Trading



Source: Ministry for the Environment

Recent changes to the NZ ETS

In June 2020, the Government passed legislation which amended the functioning of the NZ ETS, as follows:

- A cap has been set on total NZ GHG emissions, which will be gradually reduced over time.
- Effective from 2021, an auctioning system was introduced for the sale of NZUs. The following pricing controls have been set within the auction as of November 2022:
  - A minimum price below which units must not be sold by auction - $30/NZU in 2022 and $32.10/NZU in 2023
  - A trigger price for sale of reserve amount of NZUs - $70/NZU in 2022 and $78.40/NZU in 2023
  - The Climate Change Commission will recommend NZ ETS unit limits and price control settings to the government every year, beginning in 2022.
- Effective from 2021, a phase out of the historic 'free' allocation on industrial emissions (e.g. CO_2) was introduced. Rates of reduction were set at 1%/year from 2021-2030, 2%/year over 2031-2040, and 3%/year over 2041-2050.
  - Government's final decision on pricing of agricultural emissions will be announced in early 2023 after a public consultation process. Pricing of agricultural emissions will commence in 2025.
- All new registrations from 1 January 2023 will use averaging accounting, unless the forest is registered as a permanent forest. NZUs will be earned based on the long-term amount of carbon the forest is expected to store.
- From 1 January 2023, "permanent forestry" registration is available for eligible forest land that will not be clear-felled for at least 50 years.

For full details on these changes, refer to: https://www.mfe.govt.nz/overview-reforming-new-zealand-emissions-trading-scheme

What qualifies exotic or native forestry to enter the New Zealand Emissions Trading Scheme?

As trees grow, they sequester carbon within the wood. This 'stored' carbon can then be sold to 'emitters' or used as an offset against farming GHG emissions.

Under the NZ ETS, the definition of a forest is:

- Area at least 1 ha
- Average of (or be expected to reach) at least 30m wide
- No gaps bigger than 15m x 15m
- Vegetation (trees) must be able to reach 5m in height where they are growing
- Vegetation (tree canopy) must be able to cover at least 30% of the land
- Includes regenerating and planted native (indigenous) forest, or forests planted in exotic tree species, or mixed species forest, planted or first established after 31 December 1989.

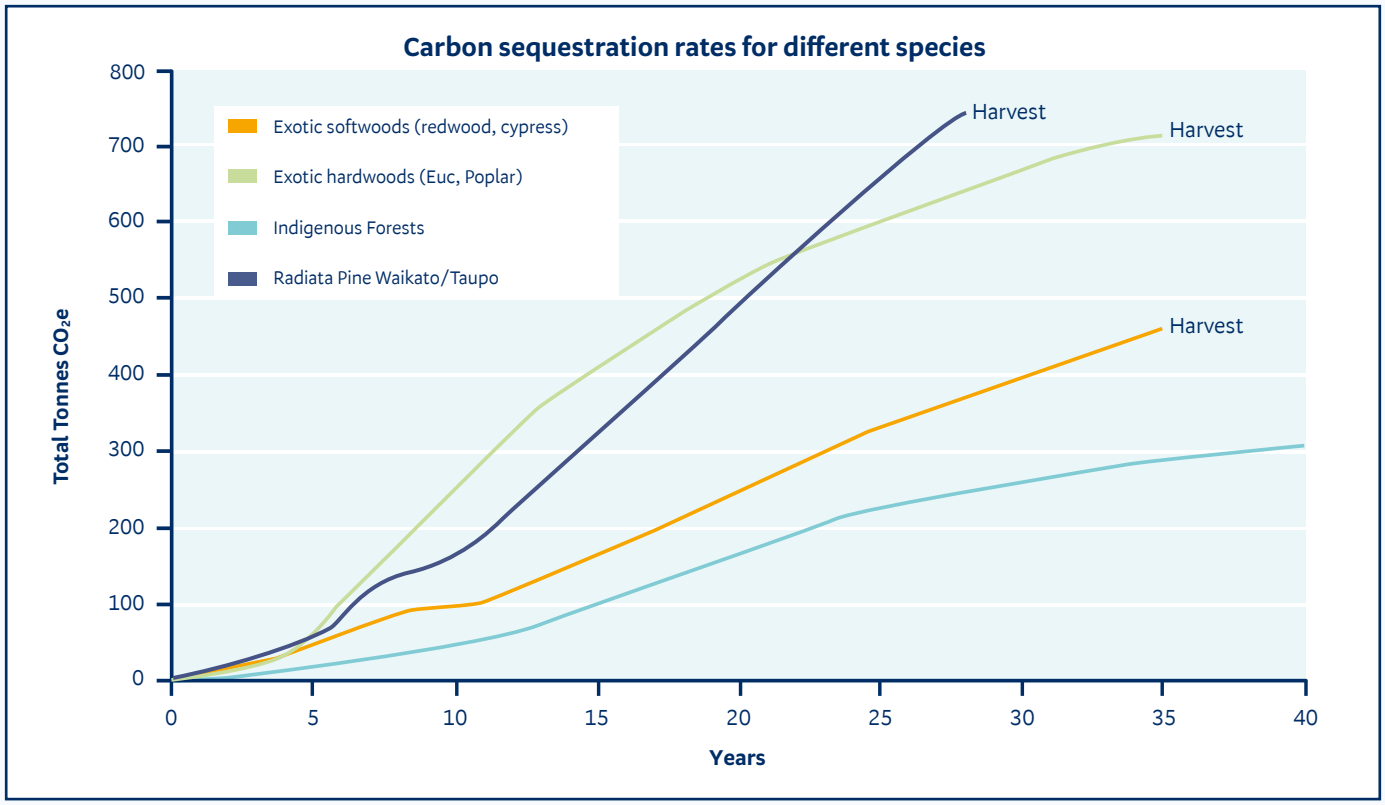
It does **not** include:

- Shelterbelts
- Fruit trees and nut crops
- A forest of native (indigenous) species which existed before 1 January 1990

Under the ETS, the date the trees were planted will determine its eligibility to enter the ETS:

- If the forest was planted prior to 1 January 1990, it is not eligible for carbon credits, and the full liability is payable if forest is converted.
- If the forest was planted after 31 December 1989, it can be registered with the ETS, and carbon credits can be sold or used as offsets. Any carbon credits claimed must be repaid if the forest is converted.
- If the forest was planted after 31 December 1989, and not registered with the ETS, then no carbon liability is payable if the forest is converted.
- It is also important to note that carbon sequestration rates differ for different species at different ages.

Take a look at the below table to see how native / indigenous and exotic trees sequester carbon as they grow; when thinking about the ETS, trees which sequester more carbon earlier in their growth cycle offer quicker financial returns:



The Ministry for Primary Industry has published 'look-up' tables which show the level of carbon sequestration by species by year: https://www.mpi.govt.nz/dmsdocument/31695/send

Source: GroundTruth Ltd (on behalf of AgFirst)

What makes a farm's forest eligible for the Emissions Trading Scheme?

Under the ETS, when a forest is harvested, approximately 60% (varies by tree species and region) of the stored carbon is deemed to be released. This means that if carbon credits (NZUs) have been claimed, then these must be re-paid at time of harvest.

When the forest is replanted, these credits can be re-claimed as the forest grows.

The Government has previously allowed a proportion of the carbon credits to be claimed as 'tradeable without penalty', or 'safe' carbon, which relates to the carbon stored in the stumps and roots. Foresters can claim this safe carbon and do not have to pay this back at harvest.

This equates to around 6 tonnes of carbon dioxide equivalent per hectare per year (for pine forests) over the life of the first rotation. The Government recently introduced a new 'averaging' scheme whereby half the total carbon can be claimed over the first rotation, and not repaid at harvest. So, for example, if the forest was to store 800 tonnes CO_2-e/ha over a rotation, half of this (i.e. 400 tonnes) can be claimed – this is claimed from when the forest is planted up to the point where the 'half' limit is reached. For pine forests this would usually be around year 16-18.

The 'safe' carbon regime only applies to forests registered after 2008, and the averaging scheme applies to forests registered after 21 January 2021. After this date, the averaging scheme is mandatory for all new production forests registered under the ETS.

When considering the financial opportunities behind entering the ETS, what else do you need to know?

The key thing to remember if thinking about entering the ETS for financial reasons, is that both safe and average carbon can only be claimed in the first rotation of tree growth, prior to the first harvest of the forest, and the forest must be replanted. If not replanted, the carbon credits become a liability which must be repaid and cannot be re-claimed. You cannot replant in the same area twice and claim carbon credits again. A further similar area would need to be planted in order to claim the same amount of carbon credits.

It is also important to remember that non-native forestry does not provide a permanent GHG mitigation solution.

Let's assume that you have planted an area sufficient to offset your farm's GHG emissions. Let's also assume no other mitigations are available. In this scenario, when this forest is harvested it:

1. Must be replanted, and
2. A further similar area must be planted to cover emissions for the next rotation and so on.

Note, under the Zero Carbon Act, methane emissions cannot be offset via forestry.

Find out more and discover if your farm is eligible

1. If you've already planted forestry area or have an area that is reverting back into scrub, and aren't sure if it qualifies for carbon credits, talk to a forestry/ETS consultant. Your BNZ Agribusiness team can help point you in the right direction if you are unsure who to talk to.
2. In addition, there is a range of information on the MPI website: https://www.mpi.govt.nz/growing-and-harvesting/forestry/forestry-in-the-emissions-trading-scheme/
3. If you are considering forestry for carbon sequestration, especially if offsetting pastoral GHG emissions, seek good advice. Talk to your forestry, ETS or agricultural consultant.
4. If you already have carbon credits, or are looking to register to sell credits, then check out this link: https://www.epa.govt.nz/industry-areas/emissions-trading-scheme/participating-in-the-ets/

Along with our Natural Capital team, BNZ has dedicated Agribusiness Partners throughout New Zealand. We see natural capital like all other capital inputs into a farming business, and your local Agribusiness Partner can help with the planning and budgeting of costs when it comes to enhancing your natural resources.

If you need any further information on Greenhouse Gas reduction targets, your local BNZ Agribusiness Partner can put you in touch with their trusted advisors.

If you would like to read more about the climate change responsibilities for New Zealand or the Zero Carbon Act, or the ETS, here are some great resources that can help:

1. https://www.mfe.govt.nz/ets
2. https://environment.govt.nz/facts-and-science/climate-change/agriculture-emissions-climate-change/#about-our-agricultural-emissions
3. https://www.dairynz.co.nz/environment/agricultural-greenhouse-gases
4. https://beeflambnz.com/your-levies-at-work/climate-change

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