

Measuring carbon removals on your farm



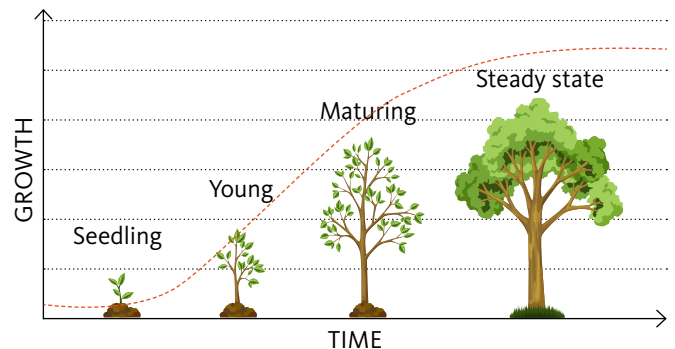
Learn more about how the Co-op is looking to measure carbon removed by vegetation on your farm.

What is a 'carbon removal'?

Your farming activity – managing cows, using fertiliser and importing feed – creates emissions, but the vegetation on your farm can store some of the emissions generated on your land. Because trees remove carbon dioxide out of the air as they grow, these stored emissions are termed, carbon removal's.

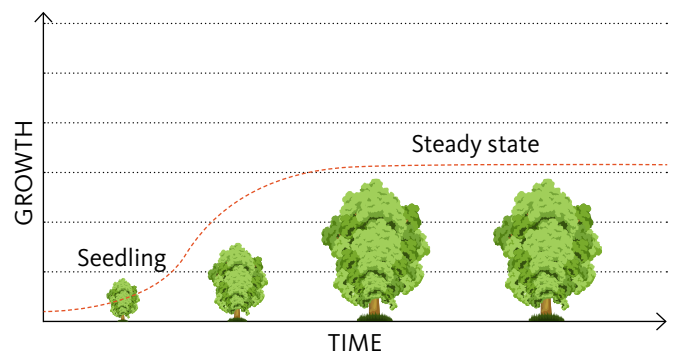
Trees

- As a tree grows from a small seedling into a young tree, it absorbs more and more carbon.
- As the tree ages, growth slows down and eventually stops.
- When the tree is fully mature, any new growth is balanced by parts of the tree that die off.



Shrubs

- Shrubs absorb carbon faster than trees when they are first planted.
- They absorb most of their carbon in the first 5-10 years and reach their full size sooner.
- Shrubs absorb less carbon than trees over their lifetime.



Through measuring your carbon removals, we can help grow the value of your milk

Competitive advantage

Counting on farm carbon removals can lower the carbon footprint of the milk and the ingredients we sell. This enables us to maintain a competitive position for GHG/ kgMS (emissions intensity) for our markets and customers.

Making it easier for you in future

As we collect and collate the data, we're exploring ways to easily share maps, planted area boundaries, and the effect the removals have on the carbon footprint of milk from your farm.

In early 2025, we expect to be able to share with you your farm's data for you to review. Then the plan is that from the 2025/26 season, you'll have the choice of whether to let the Co-op claim the carbon stored in vegetation on your farm. If you choose to do this, it will help us to meet our emissions targets, which is critical to our competitive advantage. Find out how this works on the next page.

Key Terms:

There are two different terms used to describe the amount of carbon stored on your farm.

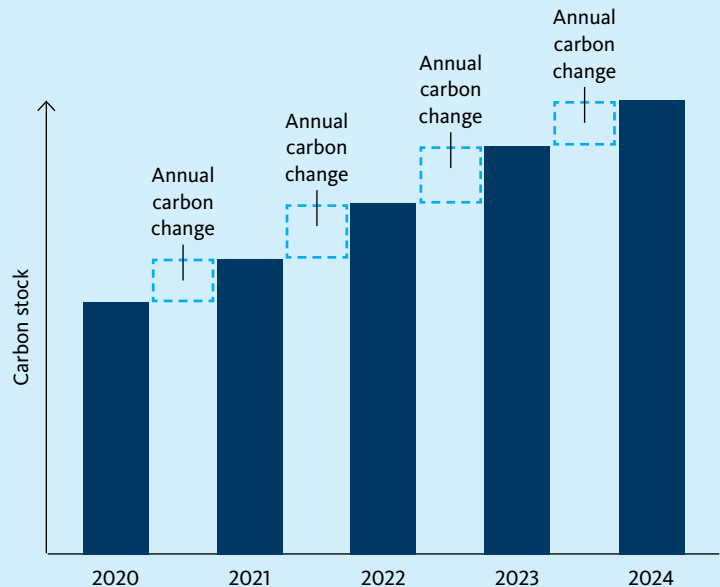
Carbon stock

This refers to the total amount of carbon stored in the vegetation on a specific piece of land. Think of it as the carbon “bank” that trees and plants hold.

Annual carbon change

This is the yearly change in the carbon stock. It can increase if the vegetation is growing or decrease if the plants are affected by events like floods or landslides.

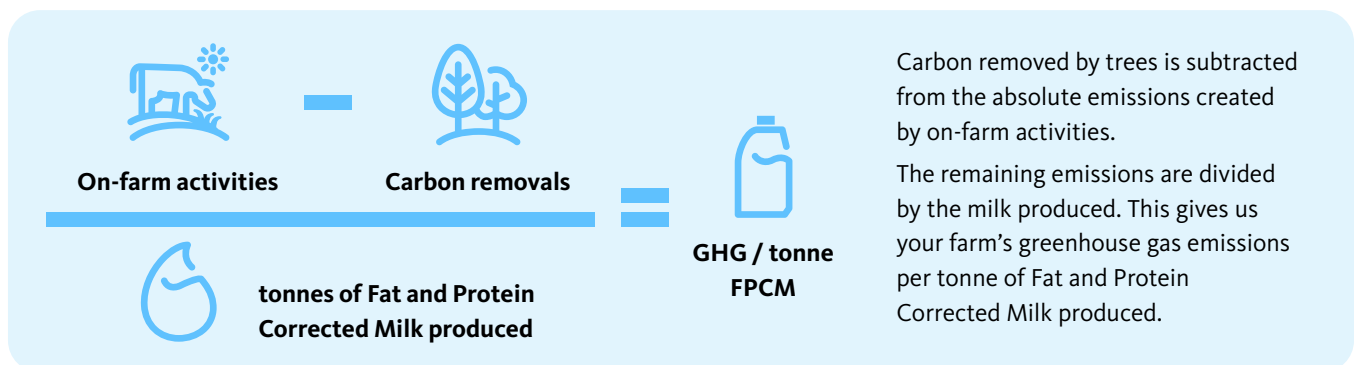
This is the key metric that affects the annual GHG footprint of a farm.



How does it work?

How we include carbon removals

When we’re calculating your farm’s emissions footprint, we can “remove” the annual carbon stored by trees from the emissions created by farming. This lowers your on-farm activity footprint.



Things we need to think about:

Making sure we’re not double-counting – if your vegetation is enrolled in the New Zealand Emissions Trading Scheme (NZ ETS), or in other voluntary carbon markets, it means that this carbon removal is already being accounted for by someone else.

Making sure we have land owner’s permission – The Co-op will need to prove that we’re allowed to count the carbon removed from the farmers’ planting on-farm.

Annual permission - Your permission will be on an annual basis and can also be specific to certain planted areas on your farm, providing you flexibility.

Next steps

- **Reach out to your Sustainable Dairy Advisor** – they can mark out any planted area in the ETS or other voluntary scheme in your Farm Environment Plan so we avoid tracking these areas. They are also able to adjust boundaries and map support land.
- **Look out for a data verification and approval request** – we are aiming to have the process live in 2025.

Frequently Asked Questions

How are you measuring planted areas?

In the past, calculating carbon removed by growing vegetation at the individual farm level hasn't been possible at the scale and pace needed. Fortunately that's changing thanks to new tools that are becoming available.

We are working on a tool to detect vegetation from satellite imagery. This provides us information on the area, predominant species (native, pine, exotic hardwood, exotic softwood, scrub) and approximate age of each planted area. From this, annual increases in carbon storage can be calculated.

Is my soil carbon going to be counted?

New Zealand's soils generally have high levels of carbon, thanks to our rotational grazing system. This is a good starting point, but it's crucial to focus on preventing carbon loss from the soil, not just increasing carbon stocks.

Natural events like droughts, floods, and cultivation can cause soil carbon to be lost, and there's still uncertainty about how to fairly account for these changes. Ongoing research aims to find the best management practices to improve soil carbon and ensure accurate measurement during different conditions.

Do customers get carbon credits for my planted areas?

No, the carbon benefit from removals will not be passed on to customers via credits. Your removals will be used to lower the footprint of your milk.

Currently, the Co-op's on-farm footprint includes emissions from on-farm activities, historical land use change, and peat soils. Including carbon removals in the net on-farm footprint will help us meet our emissions intensity reduction targets.

What types of trees are included?

We are focusing on trees and other types of woody vegetation as this vegetation has the greatest carbon benefit. Flaxes and smaller shrubs are beneficial for riparian areas and water quality, however, do not store high amounts of carbon due to their size and composition.

Is my pasture carbon counted?

Pasture does not store carbon in the long term. Most of the carbon from the pasture is breathed out of the cow as carbon dioxide.

Season to season the amount of pasture is typically consistent on farm, unlike growing trees and woody vegetation where the carbon stocks can increase year on year.

What is the difference between a carbon credit/offset and a carbon removal?

Carbon credits are a type of carbon offset. Carbon offsets and removals are two different ways a company can manage emissions. Offsets use carbon removals that compensate for emissions created elsewhere, – for example, when you book a flight overseas, you can choose to buy 'carbon credits' that offset your flight. Because the airline is unlikely to own the land with trees growing on it, it can only manage this with offsets.

On the other hand, carbon removals involve the storage of emissions on the same land where emissions are produced. In our case, the carbon absorbed by growing trees on your farm can help to reduce the footprint of the milk you've produced.

What level of detail can you map?

Vegetation needs to be at least two metres in height and have a crown area of 20m² or canopy cover of greater than 30% of the forest floor to be detected by the mapping tools.

