



CARBON FORESTRY – THE OPPORTUNITY

Well-managed forests can deliver many benefits to growers and society generally; carbon capture is one of them. New Zealand's Emissions Trading Scheme (ETS) enables growers of forests planted after 1989 the opportunity to trade carbon credits for profit.

OPTIONS FOR NEW FOREST CREATION

Wherever they are planted, trees have the potential to deliver multiple benefits, some of which have economic value. As well as producing timber, forests in certain places can:

- produce clean water with low nitrates
- control soil erosion and reduce land slips
- provide shelter and shade for livestock and buildings
- enhance landscapes, encourage desirable wildlife, provide refuge for endangered plants and birds and create an attractive recreation environment
- provide enhanced cultural and spiritual values.

All trees capture carbon dioxide from the atmosphere as they produce wood fibre and release oxygen for humans and animals.

TURNING CARBON INTO A FINANCIAL ASSET

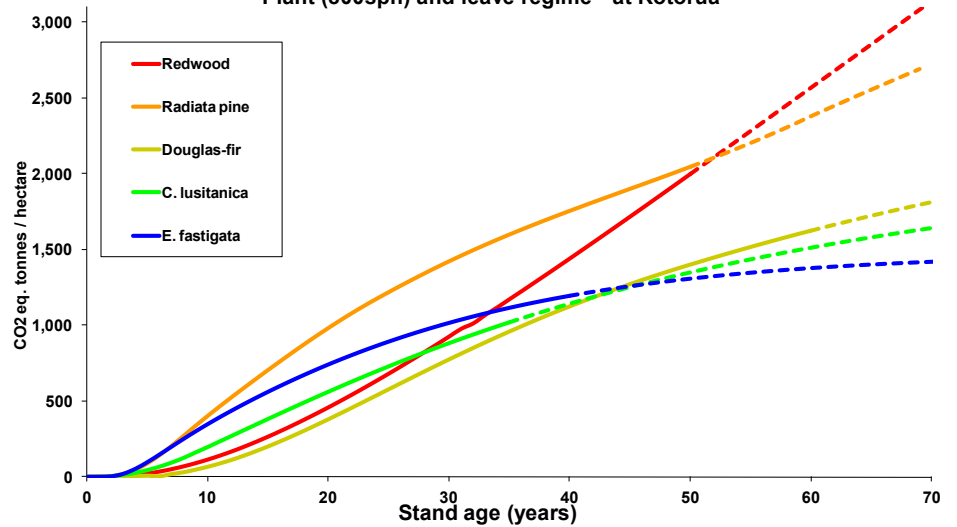
As long as the forest is registered for the ETS, growers can convert the carbon captured by their trees into government issued credits. These credits are an asset available to the grower and can be banked or sold on open carbon markets at any time. This gives the grower added financial flexibility - for example, potentially providing income to contribute towards early-rotation forestry operations such as pruning and thinning, or smoothing out cash flow in a farming business during downturns in other commodity cycles.

If the trees are harvested, carbon is considered lost back to the atmosphere. Growers are liable for a portion of the carbon removed at harvest. The key to managing the risk associated with carbon liability at harvest is to have a forest with a range of species and/or age classes.

The Ministry for Primary Industries (MPI) administers forestry involvement in the ETS. Full details can be found at www.mpi.govt.nz/forestry/forestry-in-the-ets. Forests established before 1990 are managed under a different set of rules to forests established after 1989.



Carbon sequestered by Stand age and Species
Plant (800sph) and leave regime - at Rotorua



Growers planning new plantings can review their overall business objectives and assess how carbon benefits can be managed to contribute to the business. Because of the complexity involved and to minimise investment risks you are best advised to consult a forestry professional.

PLANTING OPTIONS AND CARBON OPPORTUNITIES

- **Exotic species plantations** - radiata pine is New Zealand's preferred plantation species, but species such as Douglas-fir, cypresses, redwoods and eucalypts all produce high-quality timber when managed correctly. The rate at which these species establish, grow and capture carbon varies with site quality.
- **New indigenous forests** - retiring land such as steep, inaccessible hill country allows the eventual regeneration of native forest species which can be managed for multiple benefits. Native species can also be planted to create new forests. Native species grow slowly but can capture carbon over centuries.
- **Poplars and willows** - planting these species at wide spacing on farms can provide shade, shelter and livestock fodder, control soil slumping and erosion, and still allow grazing underneath. Wide-spaced plantings

are eligible for carbon credits as long as they meet rules relating to minimum area planted and percentage of canopy cover at maturity.

- **Firewood or biomass** - fast-growing species such as eucalypts and acacias can provide firewood, pulp or woodchip crops. These species can grow rapidly, capture a lot of carbon in a short time, and have relatively short rotations.
- **Riparian plantings** - designed to reduce freshwater contamination and can comprise either native or exotic species. Such plantings can confer additional benefits such as timber, shelter and shade, and wildlife habitat. As long as they are over 30 metres wide, riparian plantings are eligible for carbon credits.
- **Wildlife, amenity and recreation plantings** - either exotic or native species can be planted to develop, for example, areas for mountain biking, walking, or plantings around wetlands or other conservation areas. These plantings can be managed for carbon benefits in perpetuity.

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Climate change will affect planted forests in New Zealand

Over the next two or three forestry rotations, NIWA projects the following likely climate trends in New Zealand:

- Warmer by 2.0°C (mid-range projection)
- Wetter in the west and drier in the east
- More extreme weather events.

Some of these changes will create opportunities. Others will require higher levels of risk management.