Land-use change from pastoral farming to large-scale forestry

Summary of independent validation report and B+LNZ's analysis

August 2021

Summary report

Purpose of report

BakerAg was commissioned by Beef + Lamb New Zealand (B+LNZ) to independently validate the amount of sheep and beef farmland that has been, or will be, planted into exotic plantation species in the near future, where the planting is likely to take land out of pastoral production. By looking at this, BakerAg also identified land sold to mānuka honey interests and land planted within farms under two government schemes (exotic and native planting). B+LNZ also asked BakerAg to look at the land types affected and comment on why farms may be being sold.

Methodology

BakerAg used a three-stage process.

1. Analysis of publicly available sales and titles data, cross-referenced with companies known to be forestry or carbon farming companies, and further investigation.
   a. To provide a benchmark for 'whole of farm' purchases, BakerAg analysed all sales of 250 ha or more.
   b. 'Plantable area' (effective forest land) was calculated using declared Overseas Investment Office (OIO) intentions, 100 percent for honey production and 85 percent for whole of farm domestic sales for forestry.
2. Cross-checking data already obtained and then developing a methodology to determine the quality of land in terms of its production potential. BakerAg used two GIS layers describing Land Use Capability (LUC) classification and Erosion Susceptibility Classification (ESC) on top of the property title layer. Satellite imagery was also used as part of a visual assessment and attempts were made to cross-check with regional council data.
3. Additional cross-checking of further reports of sales in all regions.

Note that the report only looked at land expected to go from farming to forestry, not from forest to pastoral use.

Key findings

	Year				Grand Total (ha)	Percentage by Conversion
Whole of Farm Purchase	2017	2018	2019	2020		
Honey (Mānuka)	3,039	7,340	1,678	2,281	14,338	10.3%
NZ Sales	2,510	11,245	26,198	11,881	51,834	37.2%
OIO	1,455	8,982	10,626	4,883	25,946	18.6%
Total Whole of Farm (ha)	7,004	27,567	38,502	19,045	92,118	66.0%
Partial farm plantings by Landowner through 1BT/JV (2018 – 2020)						
1BT Landowner Grant		12,124 indigenous + 13,434 exotic			25,560	18.3%
Crown Forestry JV		21,822			21,822	15.6%
Total Partial farm funded		47,382			47,382	34.0%
Totals					139,500	100.0%

Notes on the above:

- The data was based on sales that could be verified during the stated period.
- The areas of farm sales identified could potentially be higher if sales occurred outside the methodology used for assessing whole of farm sales and within farm plantings. The area could be less if land is sold back to farming interests and not yet captured in the data.
- While most sales for 2020 have been recorded, it is possible there could be a small additional number from 2020 that could still emerge due to lags in the sales process. BakerAg also noted the slowdown is in part due to COVID-19 affecting the ability to transact.

Whole of farm purchases

- The gross land area of whole farms purchased between 1 January 2017 and 31 December 2020 for planting is estimated at **92,118 ha**. (In 2017 the gross land area purchased was 7,004 ha. In 2018 it increased to 27,567 ha and in 2019 it increased again to 38,502 ha. In 2020 the total was 19,045 ha)
- Of the total 92,118 ha, based on an analysis of the 2016 LUCAS (Land Use and Carbon Analysis System) layer, 66,665 ha (72.4 percent) is estimated as 'plantable (effective) area', or effective forest land.
- Of this 92,118 ha, it is estimated that a gross area of 26,547 ha (or about 34 percent) of these land sales were to carbon farming companies – ie forestry that is not intended to be harvested. (Noting that the actual planted area is likely to be less)
- A total of 14,338 ha of whole farm purchases were identified for honey/mānuka planting, making the gross land area of whole farms purchased for non-mānuka planting 77,780 ha.

Partial farm plantings

- Between 2018 and December 2020 an additional **47,382 ha** of land within existing farms was approved for planting, funded by the One Billion Trees programme or as part of the Crown Forestry Joint Ventures scheme. (74 percent exotic and 26 percent native trees)
- Of this area, approximately 12,124 ha is identified for mānuka/indigenous plantings.

Land taken out of production

- In total it is therefore estimated that, based on 2017-2020 figures, **139,500 ha (gross)** of land has been or will be planted in the near future, taking this land predominantly out of sheep and beef production. (While there may be some areas of farms not planted, a significant proportion of the land will be planted)

Analysis of LUCAS layers

- Analysis of the 2016 LUCAS layers of the whole of farm purchases showing how the land was being used suggests that 65.7 percent of the whole farms sold into forestry was in clear pasture, 6.7 percent in potentially reverting country (therefore a total of 72.4 percent of the whole farm purchases is estimated as plantable) and 27.5 percent in either exotic or indigenous forest species.

Land Use Capability (LUC) classification summary

By far the majority (90.4 percent) of land being converted is land of LUC (class) 6 and above (52 percent of the area is in LUC 6, 36.7 percent in LUC 7 and 1.7 percent in LUC 8).

Erosion Susceptibility Classification (ESC) summary

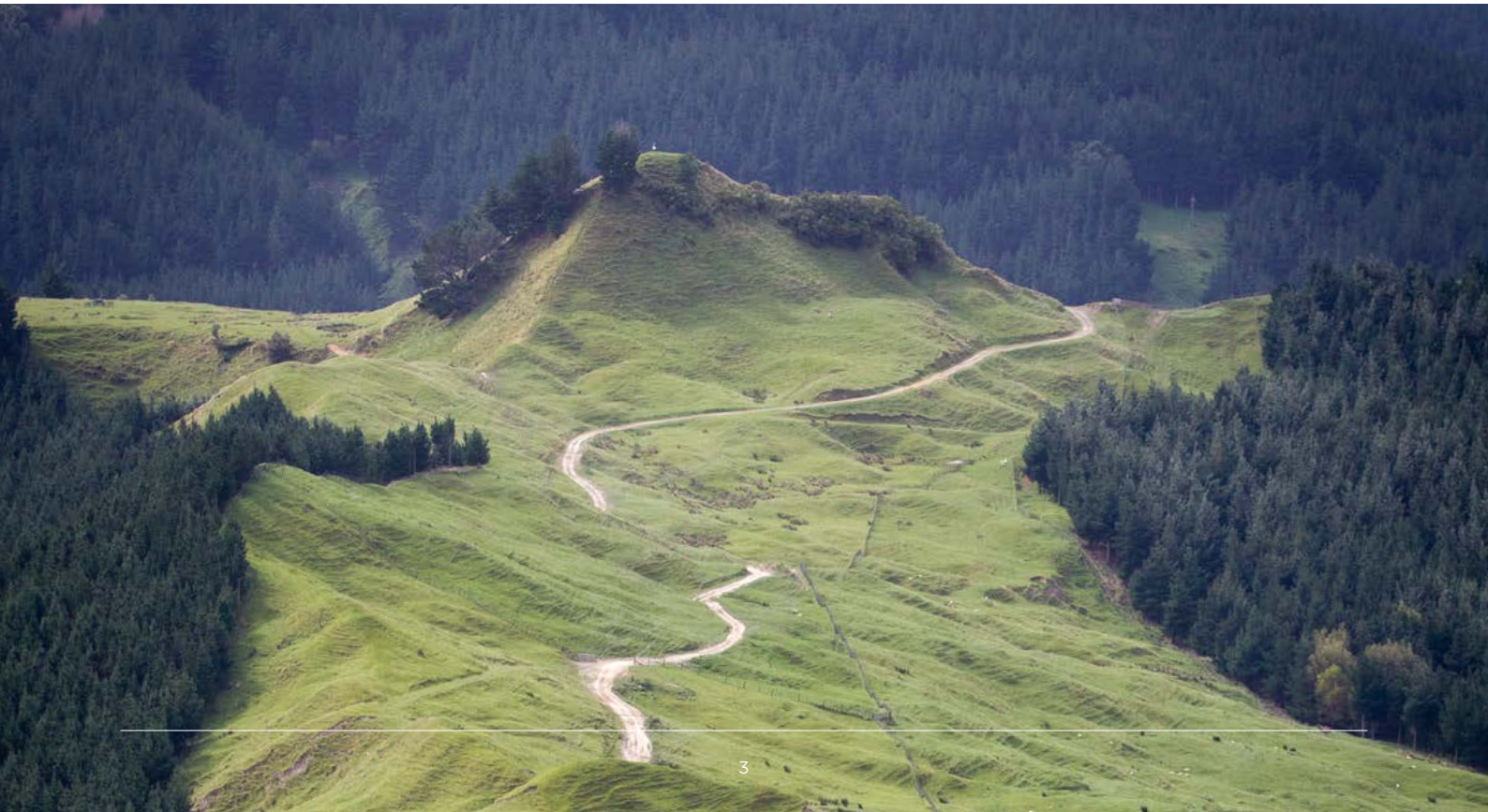
- The land falls into the four main ESC classes as follows:
  - Low 28.2 percent
  - Moderate 35.8 percent
  - High 26 percent
  - Highly erodible 9.9 percent
- The land in the highly erodible, low and moderate classes are noted as being spread across all farms (the total land area) as opposed to whole properties.

Location

- At least 21 properties, totalling 12,565 ha, were between 150 km and 200 km from the nearest port.
- With established carbon (cash) flows available to forest plantings, forestry is now an attractive option in these more remote areas. Throughout the life of these more remote forests (if planted in radiata pine) there could be decision points which may result in the forests either being managed for timber and carbon revenues, or for carbon only, depending on relative values.
- Forests closer than 150 km to a port are those most likely to be managed for both timber and carbon revenues.

Land-use change

- BakerAg also sought to gain an understanding of why there has been the recent increase in farmland being sold to forestry interests.
- Land prices had been relatively static until the interest from forest investors with ability to pay more for the more remote and possibly less productive land than farming interests. Forestry investors have been able to pay thanks to strong log prices, a rise in the carbon price and expectations this will continue to rise, particularly following the amendments to the Emissions Trading Scheme. Key drivers influencing the carbon price include an increase in the Fixed Price Option for surrender to $35/NZU (from $25/NZU) and the eventual move to auctioning. Introduction of averaging and the introduction of a Permanent Forest Category will also add to the attractiveness of forestry from 2023 onwards.
- The strong uptake of the Crown Joint Venture fund and the One Billion Trees planting grant by existing landowners provides evidence that many farmers are beginning to assess the long-term benefits associated with putting part of their farm in trees, planting ‘the right trees in the right place’.
- An unexpected result was a growing understanding of how much land was or is being purchased for mānuka farming/indigenous plantings, amounting to 16 percent of whole of farm sales and 20 percent of total plantings.



B+LNZ's analysis

Following are B+LNZ's analysis of the report and policy positions.

1 The report confirms a significant amount of sheep and beef farmland has been converted to forestry and underscores the need for limits on carbon offsetting

B+LNZ, farmers and rural communities have been concerned for some time about the speed and scale of productive sheep and beef land being converted into pine trees.

The report shows that since 2018 there has been a significant increase in the sale of sheep and beef farms to transition into forestry and confirms our existing policy positions.

It's important to note there is a long lag time between sales of farms and when trees are planted, and that official estimates therefore differ from these figures. Tracking sales is key because it provides an earlier sense of what's happening with land conversions.

Drivers behind land conversion

In 2017, 3,965 ha of whole sheep and beef farms were sold into forestry. This increased to 20,227 ha in 2018 and rose to 36,824 ha in 2019 – coinciding with the consultation and eventual passage of the Zero Carbon Act and signals about the price ceiling in the ETS being lifted. (Figures are NZ sales plus OIO and not including mānuka)

The report shows that sales slowed to 16,764 ha in 2020. This is likely to be due to COVID-19, and discussions with real estate agents indicate that demand has increased again in 2021.

There has been some increase in pine prices, but a significant proportion of the increased activity has been the result of climate change policies, in particular the Zero Carbon Act and reforms to the ETS, and other policy changes that have made the purchase of pastoral farmland for a combination of forestry production and carbon (or carbon only) revenue more attractive.

We anticipate this trend will continue as the carbon price continues to increase. Carbon is currently trading around $46/tonne. The Climate Change Commission in their May 2021 advice to Government modelled prices rapidly rising to $50/t, further increasing to about $140/t in 2030 and possibly reaching $250/t by 2050.

The need for limits

Both the Climate Change Commission and the Minister for Climate Change have indicated the price of carbon needs to increase significantly in order to drive down carbon emissions. This is correct, however without limits on forestry offsets (i.e. the amount of carbon credits emitters can purchase to offset their emissions rather than reducing them) the more likely outcome is an even faster increase in the sale of sheep and beef farms into forestry, with little or no change in fossil fuel emissions behaviour.

While there is absolutely a place for forestry, this analysis and subsequent rural reporting supports the need for an urgent discussion and decisions about placing limits on forestry offsets. This was highlighted by the Climate Change Commission's final advice to the Government, which recommends amendments to the ETS and other climate policies to manage the area of exotic forests planted.

Furthermore, the Climate Change Commission in their advice to Government in June stated that 25,000 ha of new planting of exotic forestry was needed each year to put the country on a pathway to achieving the net zero target contained in the Zero Carbon Act.

This report indicates that the Commission's expectations are already being achieved. Combining the average 'plantable' (effective) area within the whole farms sold into forestry with the average of the exotic trees funded under the IBT and JV programmes results in over 29,000 ha per year between 2018 and 2020.

	2018	2019	2020	Total	Average over three years (ha)	Average plantable area
Total farm sales (ha) (excludes mānuka)	20,227	36,824	16,764	73,815	24,605	17,800 approx (average 'plantable' effective area at 72.4% of a whole farm)
Govt planting programmes (ha) (exotic)	13,434 + 21,822			35,256	11,752	11,752
Total average plantable each year (ha)						29,500 approx

B+LNZ notes that these figures are a minimum amount. Based on reports from farmers there is far more land being converted into trees within farms, that has not been part of the two government programmes.

Agriculture Minister Damien O'Connor has previously said the Government may intervene if land conversions reach 40,000 ha a year. BakerAg's report shows that land purchased for the purposes of forest planting reached 36,824 ha in 2019 (excluding mānuka). We are already nearly at the Minister's suggested threshold for action, further underlining that limits are urgently needed.

Policy options

The Parliamentary Commissioner for the Environment has recently suggested a range of policy options for limiting forestry offsets, including two options that were similar to the ones put forward by B+LNZ in its submission to the Government on reforms to New Zealand's emissions trading legislation in 2020, which were:

- Placing limits on the volume of offsets participants in the ETS can use to meet their surrender obligations. An example of such a policy exists in California, where entities can only offset their emissions up to a limit of 8 percent of their compliance obligations.
- Restricting the quantity of New Zealand Units (NZUs) issued to forestry participants for post-1989 forests for carbon sequestration, and in turn limit the quantity of NZUs from forestry available to be used by fossil fuel emitters through the ETS.

B+LNZ is calling on the Government to urgently work with the sector on the issue of forestry offsets and introduce limits.

2 The report busts myths about trees going on 'unproductive' land and shows the impacts on communities

One of the comments surrounding the sale of farms into forestry is that farms that have been sold consist of largely 'unproductive' land.

However, this report shows that nearly 90 percent of the land that has been sold into forestry is in LUC classes 6 and 7, and that most of this land (64 percent) is of low to moderate erosion susceptibility and therefore still likely to be highly productive for sheep or beef farming.

The New Zealand hill country is the lifeblood of the sheep and beef sector because most lambs and calves are born on the hill country and finished on lower land. There is considerable vertical integration.

If the rate of sale of sheep and beef farms continues then this will have significant flow-on effects for many farmers on the flatter land – and further impacts on New Zealand's ability to produce and export food, in addition to negative impacts on rural communities.

Based on average hill country stocking rates of 8 stock units per ha, we estimate that more than 700,000 stock units (equivalent to about 700,000 sheep) is likely to have been lost from the sector due to over 90,000 ha of productive land being converted into exotic forest. This is a significant change in a short period – although we note it may not have shown up in the national data yet because of a lagged effect. (The 90,000 ha estimate is based on adding together pastureland from whole farm sales excluding mānuka [77,780 ha x 72.4 percent in clear pasture based on LUCAS layers] plus the 35,256 ha funded to transition to exotic forestry under the 1BT and JV programmes as partial farm plantings) (Note the 700,000 estimate is conservative as it is based on land use change into exotic forest and would be larger if we added in land use change for mānuka and indigenous planting)

Previous research by BakerAg using the Wairoa district as a case study indicates that forestry, especially just for carbon farming, supports fewer jobs in the surrounding rural community than sheep and beef farms. The loss of jobs jeopardises local businesses, schools and services essential to rural communities and impacts the New Zealand economy.

The report reinforces B+LNZ's position that the Labour Party's pre-election proposal to place limits on the sale of land LUC classes 1-5 would not be effective. Labour had said it would make changes to the National Environmental Standard for Plantation Forestry (NES-PF) to require resource consents to be issued for plantation of carbon forests within Land Use Capability (LUC) classes 1–5.

While it was positive the Labour Party at the time acknowledged there was an issue to be addressed, this report shows that the Labour promise would be completely ineffective in resolving the problem because around 90 percent of the land within whole farms sold into forestry was of LUC classes 6 and above.

3 The report shows better reporting on carbon farming is needed

By studying the names of companies that purchased land between 2017 and 2020, it is estimated that at a gross area level, 26,543 hectares of the 77,780 hectares of farms sold into exotic forestry (or around 34 percent) was to carbon farming companies – that is, forestry that will not be harvested. (While we acknowledge that not all this gross area of land will be planted, this point relates to the amount of overall land sold to carbon farming companies)

It is difficult, however, to get this information without studying land sales titles.

Buyers are not currently required to indicate their intent if carbon farming, and there is also very poor reporting by regional councils of forestry plantings in their region.

It was also identified that pure carbon farming activity (i.e. land that is not intended to be harvested) currently does not require a consent under the NES-PF. This means that it is also not subject to the same environmental requirements as production forestry. This is a major risk to communities and is something B+LNZ wants to see addressed.

4 Integration of forestry on farms is a better solution

The report also highlights that in addition to the increase in whole-farm sales, there has also been strong interest by farmers in integrating trees within their farms. This highlights opportunities for the integration of trees as a good way for farmers to manage their landscapes, and potentially contribute to meeting climate change targets.

The report found that between 2018 and 2020 over 47,000 ha of land was approved under two government schemes alone – One Billion Trees and Crown Joint Venture programmes – to be converted into exotic, indigenous and mānuka planting within sheep and beef farms (12,124 ha of this was native trees and 35,265 ha in exotics). We understand most of this funding activity happened in 2019 and 2020.

While farmers can be slow to take up new programmes due to concerns about red tape, these two programmes were very successful in a short amount of time. This success highlights farmer interest in the opportunity to integrate trees on their farms, and the importance of providing the right incentives to drive interest and action.

There is also likely to have been more conversion of land into exotic or native forestry **within** sheep and beef farms during this time, funded privately by farmers, in addition to the two schemes. From its discussions with farmers B+LNZ is aware of far more land being converted within farms, outside of the two government schemes.

B+LNZ therefore believes the total 139,500 ha of land taken out of sheep and beef production identified by BakerAg is a minimum amount.

B+LNZ's position is that there are significant opportunities for New Zealand to meet its climate change targets through encouraging the integration of trees within farms rather than the current policy settings which are encouraging whole farm conversions. The sector's view is that integration is a win-win situation where New Zealand can meet its climate obligations and still maintain livestock production – which is in line with provisions in the Paris Agreement about food production.

These recent plantings within farms are on top of the 1.4 million ha of woody vegetation already on sheep and beef farms, which sequester a large amount of carbon but for which farmers do not get recognition.

The Government needs to develop effective incentives for tree planting within farms including recognition of the sequestration and biodiversity benefits that are delivered by native vegetation. There is currently a mismatch between recognising and providing credit for the sequestration on carbon farms and not recognising the sequestration occurring on sheep and beef farms.

The sheep and beef sector is committed to playing its part to meet New Zealand's international climate change commitments and has shown this through its commitment and delivery of He Waka Eke Noa, the partnership between the primary sector, government and Māori. It has already reduced its emissions by 30 percent since the early 1990s – one of the few sectors to have achieved this.

We want to build on these gains and integrate sensible tree planting into sheep and beef farms rather than see wholesale conversions, which is socially, economically, and environmentally unsustainable.

Next steps

B+LNZ wants to be part of the conversation to urgently address the issues raised by the report. We have already put forward a range of potential policy solutions to the issue of wholesale land-use change as a starting point. We're calling on the Government to work with us and other industry groups to develop and implement options before the effects on New Zealand's food production and on its rural communities become much worse.