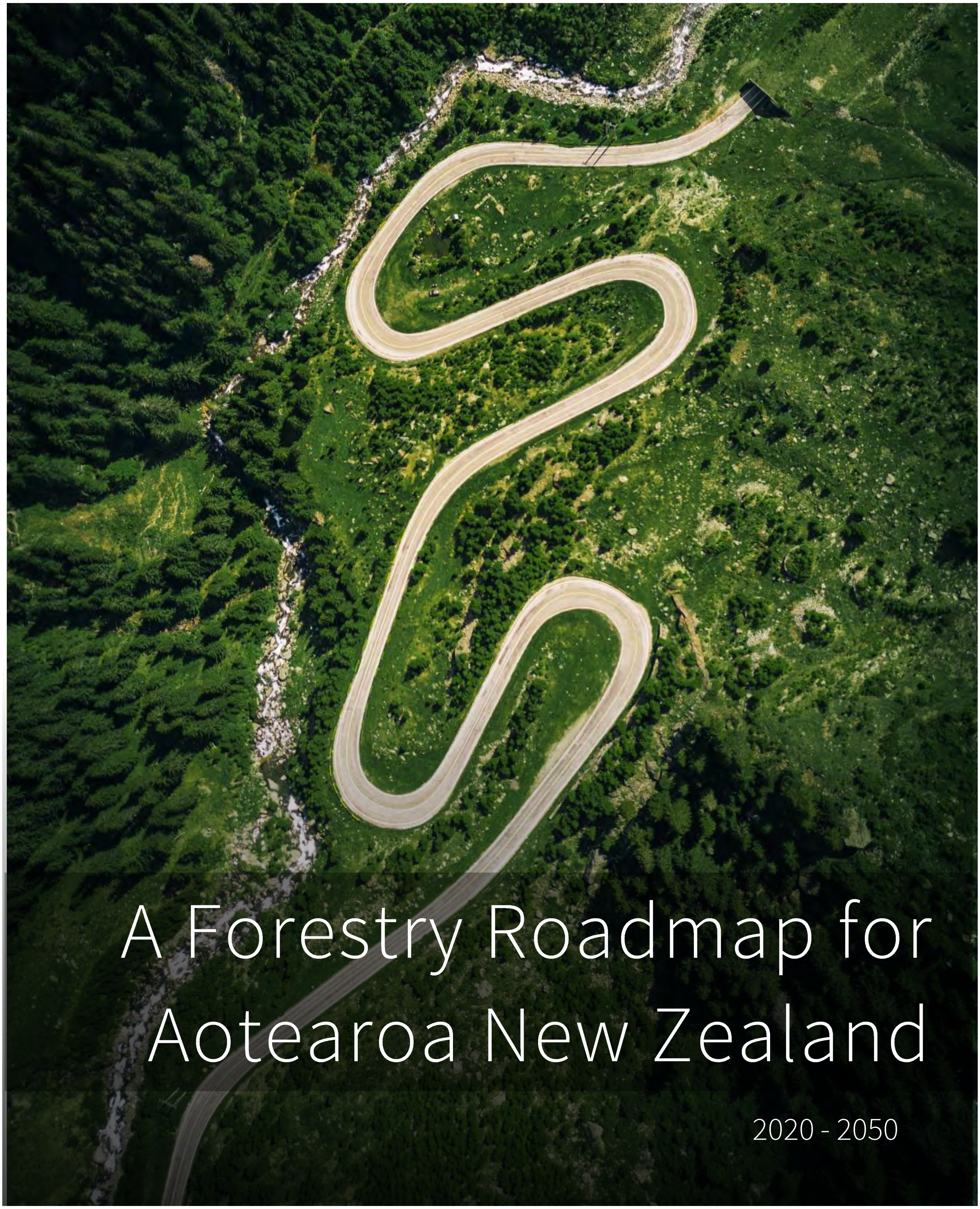


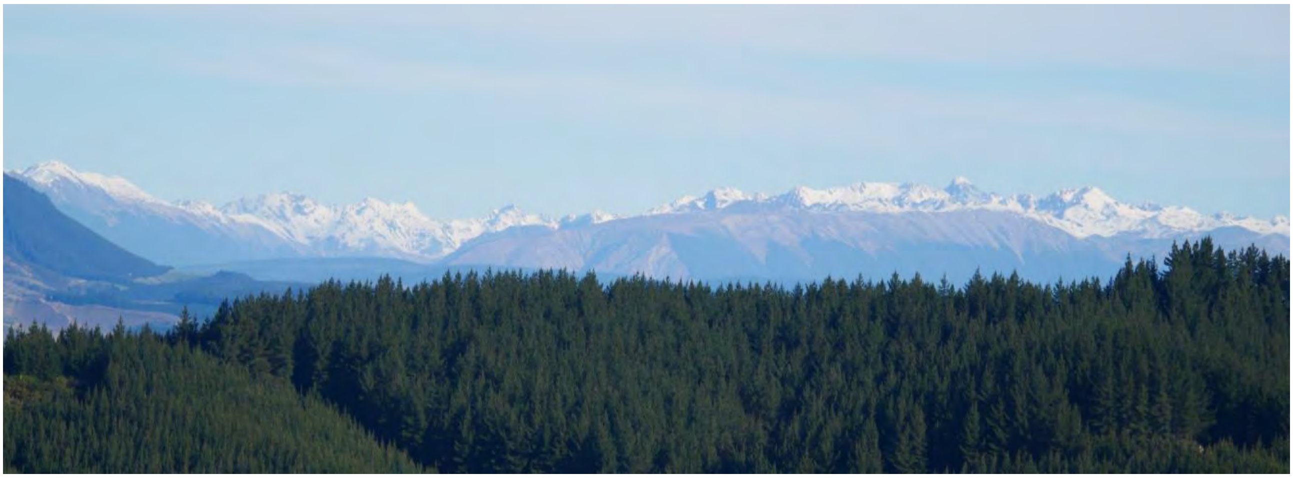
A Forestry Roadmap for Aotearoa New Zealand

2020 - 2050

forestgrowers levy trust inc

New Zealand Farm Forestry Association

Forest Owners Association



Vision for 2050:

Forestry will be New Zealand's **number 1** primary sector and exemplify the best plantation forest management in the world

01

Tree growth and forest production efficiency will have both doubled.

02

Our increasingly diverse forests will provide valuable products tailored to our customers' needs.

03

People will be attracted to work in forestry because they will be safe, valued and well-trained.

04

Expanding commercial plantation forestry will have been the prime means of achieving New Zealand's net zero carbon goal by 2050, while providing other substantial environmental and social benefits.

05

Our licence to operate will have widespread support.

Purpose:

This Roadmap for our forest growing sector (large and small scale) clarifies the drivers and priorities for other key stakeholders, such as science providers, government, and the wider industry.

The Roadmap provides a touchstone for the work stream committees which the New Zealand Forest Owners Association (FOA) and the New Zealand Farm Forestry Association (FFA) operate. It will guide, and be guided by, their own more specific strategic efforts.

The Roadmap has benefited from a wide range of contributors. It has a high-level focus and is not intended to be prescriptive in setting quantified goals that are dependent on commercial investment decisions, but it does attempt to be ambitious in defining pan-industry goals. It offers a strategic influence on the forest growing sector and it will help guide the allocation of pan-industry funding.

A long-term horizon (30 years) has been part of the consideration but the goals and impact are on a realistic nearer-term planning timeframe.

The future forest growing environment will be different.

The forest growing sector will be shaped by three key influences over the next decade and beyond.

Technological changes have transformed parts of the sector over the past 30 years and offer the same potential over the next 30 years.

Technology has; improved safety and working conditions through automation and robotics; accelerated genetic improvement and responded to threats and new opportunities more rapidly and more cheaply through new biotechnology developments.

Technologies have enabled information to be gathered and processed on a scale unheard of until recently.

Technology also presents disruptive threats, such as mass scale 3D and 4D printing of natural cellulose fibres produced in bio-reactors, competing against forest products such as biomaterial products and solid wood.

Changes in the wider environment for forestry, particularly in response to climate change, the flow-on domestic policy settings and the influence of these on consumers and the community will increasingly influence forest growers in the future.

A world-wide transition to a bio-economy, circular and low carbon economy presents enormous opportunity for forestry. Planting trees is being encouraged by governments world-wide for environmental and social reasons.

Forests provide many other services and benefits besides wood production, and wood remains valued as a traditional centuries-old construction material.

A strong advantage over other materials is that wood can be grown sustainability with a low environmental footprint. Forests also provide feedstock for an increasing range of biomaterials which will be favoured in a low carbon world.

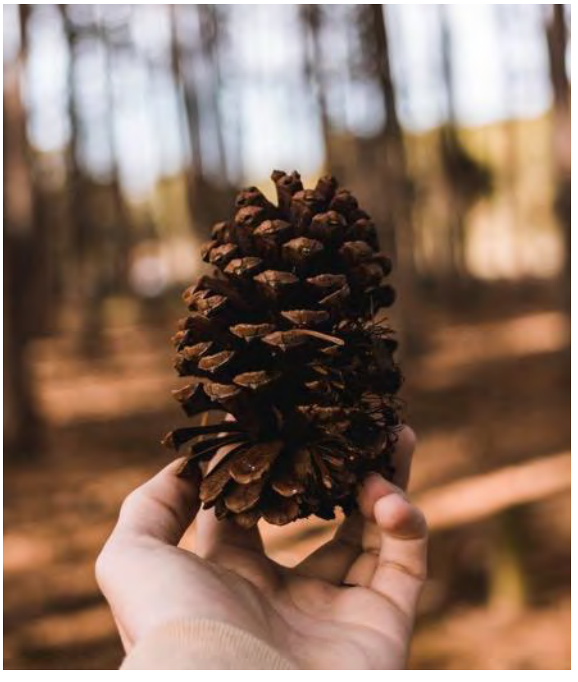
Societal expectations are shifting and will increasingly influence how we conduct our business.

Investors, consumers and society want to know more about how an organisation acts and impacts on the environment and community. They have a low tolerance to risks to the well-being of workers and adjacent communities.

Industries using manual labour in difficult conditions and with poor health and safety or environmental performance will struggle to attract high calibre people and constraints will increase.

Commercial forest growing is reliant on herbicides, fungicides and pesticides, yet community pressure is growing against the continued use of these chemicals. These changes in community attitudes need to be factored in and alternative solutions built into all that the forest growing sector does in the future.

The impact on how we do business:



Forests will provide a broader range of products and services. Timber will remain an important mainstay, but its relative value will have diminished alongside other products and services.

Forest growers will have more options for generating income. This parallels a transformation in the processing part of the value chain where the emerging bio-economy will see processing facilities producing much more than just wood products.

Many traditional drivers for forest growers will remain the same – growing wood products better and more efficiently than anyone else. We will need to be more aware of our customers' operating environment, and prospects. This will drive us to better understand and manage the downstream forest to market value chain. At times, this will also mean trade-offs.

Genetics will be transformational, and will need to play a much more prominent role than it has, if we are to remain internationally competitive. Successfully responding quickly, whether to markets or environmental challenges and opportunities, will rely on our ability to use safe gene technology to enhance existing breeding work.

Climate change presents forest growers with new challenges – new pests and diseases, new weeds and more volatile weather systems. The increasing frequency of high energy storms is already testing current forest management systems and threatening forestry's social licence to operate.

Landowners will more often manage "their" resources in partnership with the wider society, including iwi. The licence to operate entails many facets, including social, cultural, consumer, customer and investor expectations.

What New Zealand forestry could look like in 30 years (one rotation, one generation).

Core themes and associated key outcomes for our sector to remain a cornerstone industry for New Zealand are set out in the table below.

Themes	Outcomes
Our resource	– The full spectrum of benefits across the forestry sector are recognised (monetary and non-monetary). – We have increased our resilience through diversification in our planting of species and varieties. – We think about the full tree and forest products, that is the fibre – not just the logs. – Amalgamation of small woodlots to achieve economies of scale has contributed to the sustainable supply for domestic wood processing.
Our products	– Our products are strongly sought after, and a premium is being paid for NZ branded wood products. – We grow high quality, cost efficient fibre that the customer demands We have planted species in our forests to meet different needs and products.
Our performance	– The NZ forestry growing industry is competitive, sustainable and profitable. – The NZ forestry processing industry is competitive, sustainable and profitable. – Our forests represent the best plantation forest management in the world.
Our innovation	– We are underpinned by good science in a partnership that is continually revolutionising the forestry sector. – NZ forestry is recognised internationally for innovation and uptake of new technology.
Our people	– Statistics confirm forestry is a safe industry - we look after all our people all the time. – We attract (and keep) the right new people to grow the industry. – A culture of diversity and inclusiveness is core to the industry and our leaders. – A range of forestry training opportunities are eagerly sought after and available, while most school students are exposed to the prospect of a career in the sector. – Credible, independent, certification of those engaged in the production and marketing, of forests is the norm.
Our stakeholders	– Backed by a wood first policy and a wood-aware construction sector the use of timber has significantly increased. – Independent, certification of those engaged in the production, and marketing, of forests is the norm. – Our forests provide a feedstock for our customers in solid wood, fibre, energy and bio-material products. – Regional forest development plans are in place that support and underpin wood processing. – Market access through innovation and robust systems is ensured for all our products. – In partnership with government and other primary sectors we operate a biosecurity system that is able provides the ability to respond quickly and effectively to existing and emerging biological threats. – Māori participation in the forest industry has developed to a major level with commensurate levels of ownership and governance.
Our community	– We have a social licence to operate – this is based on measurement and verification of the environmental, social and governance (ESG) considerations. – We have strong community connection and endorsement – forestry is “loved and embraced”.

Key areas of focus for the forest growing sector to achieve its 30-year goal.

To achieve the above outcomes , we identified that the sector will need to focus on the areas set out below.

The two pillars represent the external drivers and opportunities we must respond to if we are to remain relevant. The rows and boxes represent the matters we can control.

Our goals align with our focus areas

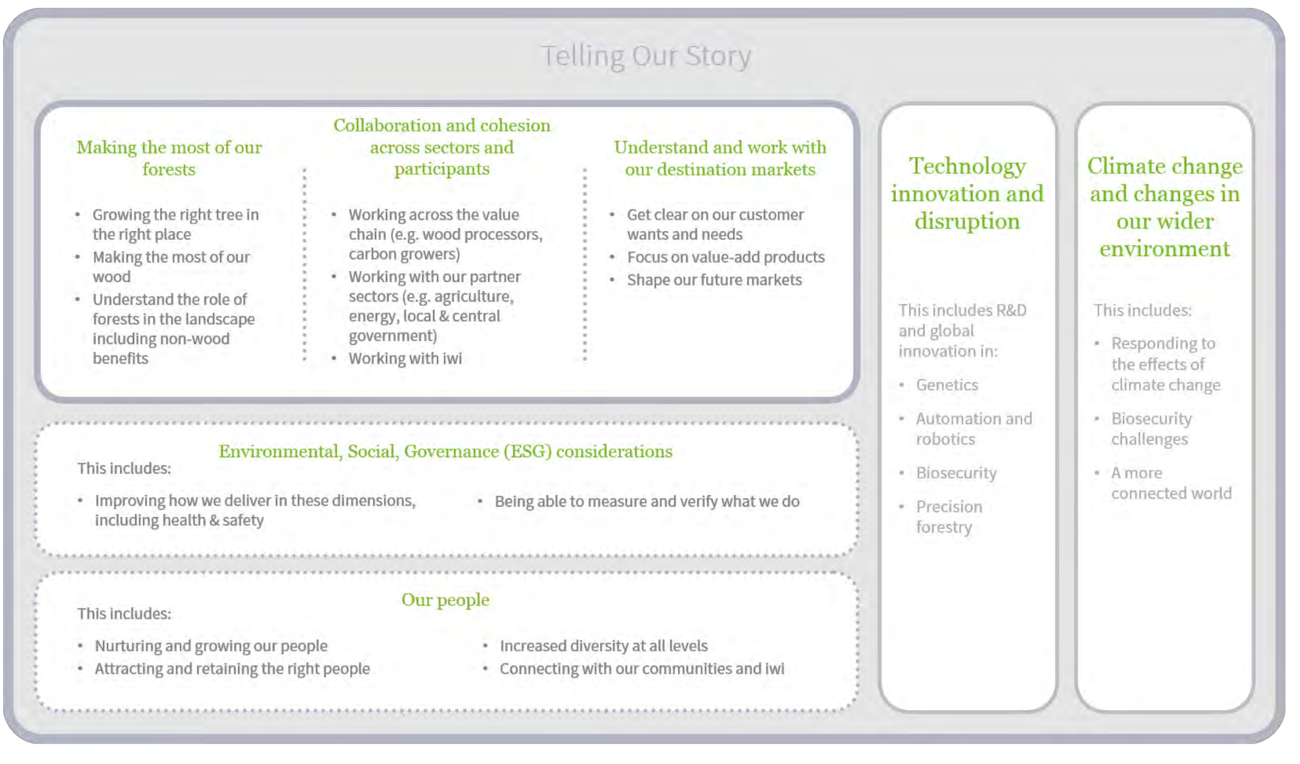


FIGURE 1 FOCUS AREAS TO SET THE SECTOR UP FOR THE FUTURE

Productivity

Value

Our people

Carbon goals

What matters to New Zealanders

Telling our story

What we need to do now – our priorities for action

The following priorities for action have been developed from the collective input received and the areas of focus above.

This is where we will need to put our effort if we are to meet the challenges and grow the place of commercial forestry in New Zealand

These are mutually reinforcing. All priorities will need to respond to the external drivers and opportunities.

Tree growth and forest production efficiency will have both doubled.

Actions include:

- Improving germplasm, with enhanced targeting towards planting sites and end uses.
- Creating tools to make forests resilient to climate change and extreme weather.
- De-risking the growing of alternative commercial species.
- Developing new approaches to silviculture and tree management including greater integration of land use.
- Recovering greater value from the whole tree, including converting residues into value added products.

Focus on productivity

Our increasingly diverse forests will provide valuable products tailored to our customers' needs.

To pitch our products into a world awash with options, we need understand our customers and our markets better. Actions include:

- Analysis of our current markets and products – both ours, and our competitors.
- Assessment of market trends, including where our new markets might be.
- Engagement with customers – both current and future.
- Higher-quality, value-add products e.g. thermal modification.

Focus on value

People will be attracted to work in forestry because they will be safe, valued, and well trained.

Our workforce is ageing. To position our sector for the future we need to make our sector more attractive to a workforce that is increasingly diverse and has a much greater range of career choices available.

Actions include:

- Improving our safety culture.
- Increasing and improving our training opportunities and qualifications so that we attract and retain the right people and the right mix of people.
- Encouraging the development and introduction of new technologies that are safe and more efficient.

Focus on our people

Expanding commercial plantation forestry will have been the prime means of achieving New Zealand's net zero carbon goal by 2050, while providing substantial other environmental and social benefits.

We need to determine and promote the full value we can accrue from our forests – not just from a commercial perspective, but also from an environmental and community good perspective. Carbon sequestration is a well recognised benefit but there are other good reasons for growing trees.

Actions include:

Promotion of wood for:

- Mid-rise construction.
- Mass timber application.

Promotion of our forests for:

- Environmental services including carbon sequestration, water protection, biodiversity, waste treatment, nutrient regulation and erosion control.
- Community services including employment, education, food sources and recreation.

Focus on carbon goals

Our licence to operate will have widespread support.

We must lift our game across the sector to anticipate new challenges to our licence to operate and with it our profitability and sustainability. This includes changes to what we do, how we do it and what we communicate.

Actions could include:

- Further enhancing health and safety for our industry workers.
- Demonstrating the need for, and safety of, genetic technology to improve our forest trees.
- Correcting common misconceptions about different trees' ability to sequester carbon.
- Tailoring our trees and forest management to soil and climatic conditions.
- Emphasising the shared interest of all New Zealanders in biosecurity.
- Escalating the resilience of our forests.
- Gathering good evidence of our improving environmental, economic, safety, social and governance performance and footprint.
- Illustrating the advantages of diverse investment sources for our industry.
- Managing our poor performers.
- Telling our forest story effectively.

Focus on what matters to New Zealanders

Telling our forest story

We need to tell our great forest stories to both New Zealand and to the world, adequately resourcing a mix of communications platforms. This includes the means to equip foresters and forest industry players themselves, within consistent and compatible messaging, to communicate their views and experiences to a broad public audience.

The communications should tell the story of;

- The benefits of plantation forestry to the atmosphere, landscape, waterways, biodiversity and recreation.
- The economic significance and growth potential for plantation forestry to our national, regional, iwi and farm economies.
- Our actions to reverse the publicly perceived negatives of the forest industry.
- The qualities and value-added uses of our timber, for example mid-rise construction.
- Advocating for local and central government to adopt wood first procurement policies.
- The opportunities available through careers in forestry.

Focus on what we are doing well and telling New Zealand about it

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