Precision Silviculture Programme

Powered by FOREST GROWERS RESEARCH

Funded by:

Ministry for Primary Industries
Manatū Ahu Matua

supported by forestgrowers commodity levy

Making every tree count

Introducing the Precision Silviculture Programme from Forest Growers Research, New Zealand.

Claire Stewart, Programme Manager

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Precision
Silviculture
Programme

Our production forests in New Zealand

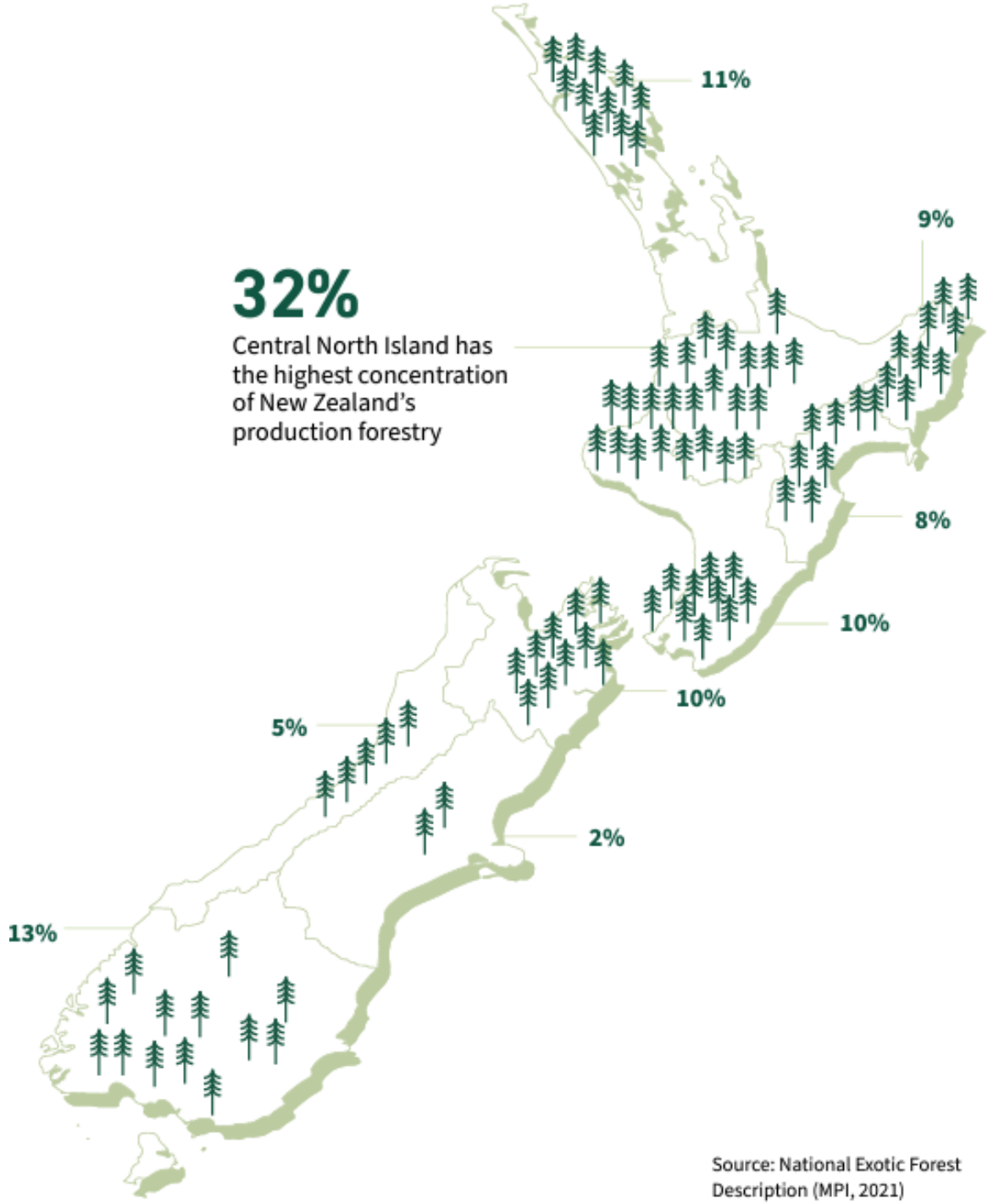
10.1M hectares
of forests in New Zealand, covering 38% of the land

8M hectares
of native forest

1.739M

hectares of planted production forest
This excludes non-production native and exotic forests that are part of parks, reserves, etc

0.4M hectares
of reserves, areas near bodies of water and infrastructure



Source: National Exotic Forest Description (MPI, 2021)

Tree species that make up our forests

90%

Radiata pine

Other species include: Douglas fir, eucalyptus, cypresses, redwoods, other exotic softwoods, and native tree species like tōtara

Source: National Exotic Forest Description (MPI, 2021)

Radiata pine (90%)
1,571,575 hectares

Douglas Fir (5.5%)
97,584 hectares

Other hardwoods (2.1%)
36,816 hectares

Other softwoods (1.9%)
33,997 hectares

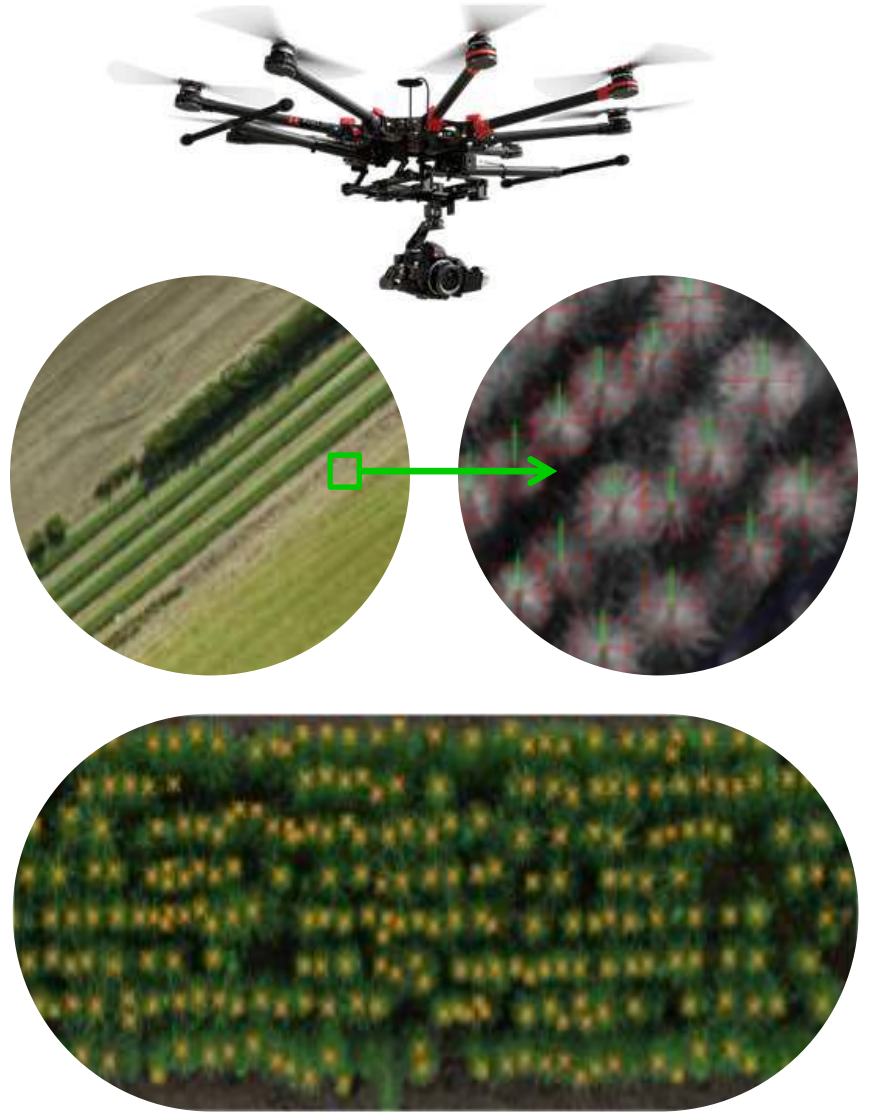
Precision Silviculture Programme

Critical point of transformation in New Zealand forestry. The programme is in year 2, let's look at some of the innovations underway.

Autonomous tree stock monitoring.

- Count and density
- Health status
- Height
- Historical changes
- Weed status
- Germination rate ratio
- Seedlot tracking

Close to real time analysis and reporting.



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First

Second

Third

Label

Label

REQUEST CAPTURE

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

BUTTON

LAST CAPTURE

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce convallis pellentesque metus id lacinia. Nunc dapibus pulvinar auctor.

CURRENT DATA

SEEDLING VALUE

$84 000 000

SEED SOWN

2,500,000

GERMINATION RATE RATIO

96%

LAST COUNT

2,388,655

AVERAGE HEIGHT - POST TOPPING

288mm

AVERAGE HEIGHT - PRE TOPPING

412mm

SEEDLING HEALTH

HISTORICAL DATA

© FGR

GOVOR®

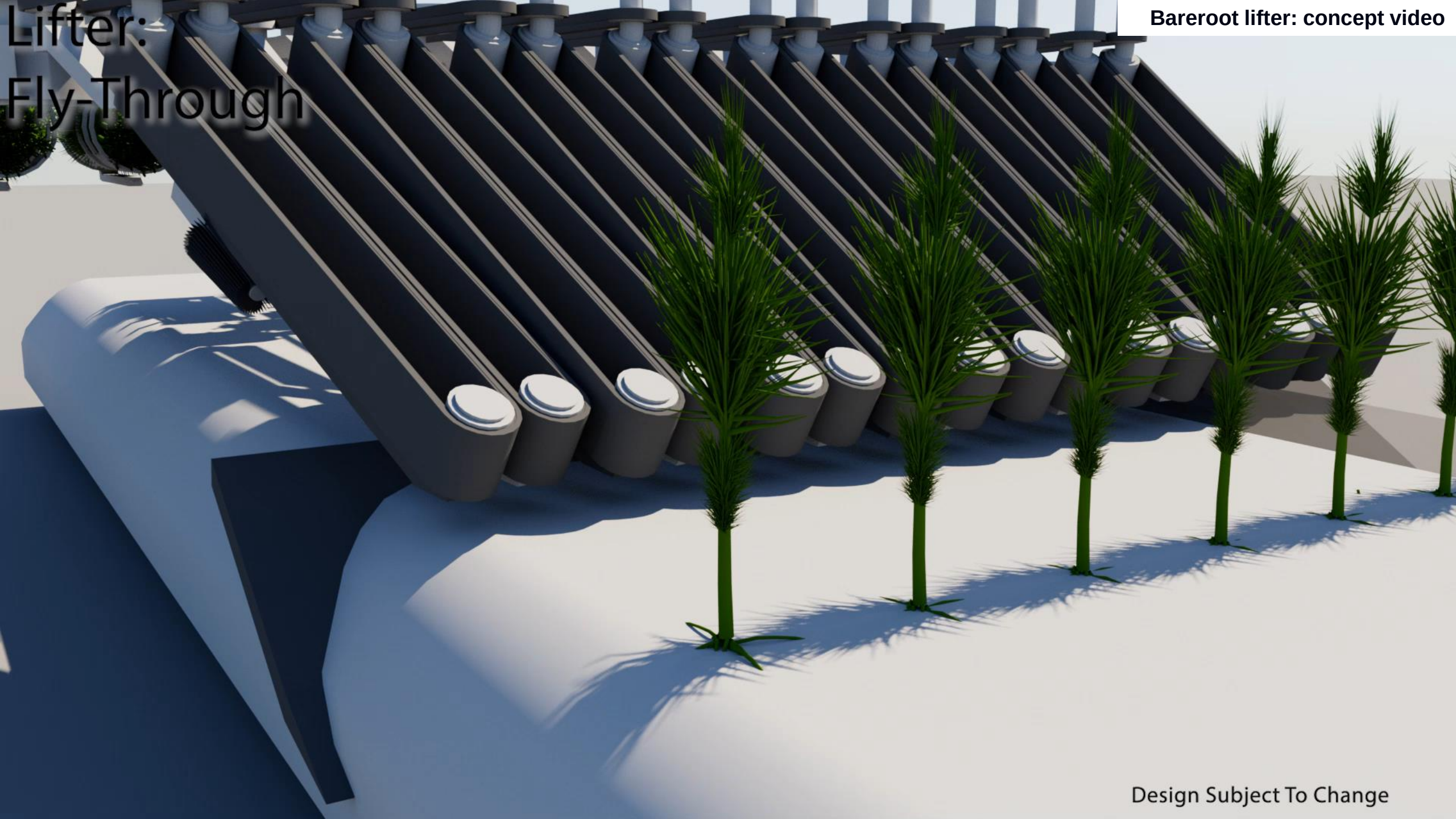
Electric, scalable. Powered by AI.

Lightweight electric tractor designed to automate outdoor manual labour tasks for row-based growers.

Uses IoT connectivity and GPS waypoints to autonomously tow and activate Smart Trailer Attachments.

Currently being trialled and evaluated for use as a ground base monitoring too that can also spray and mow.

© FGR


Lifter:
Fly-Through
Design Subject To Change

PlantIT- tree and box tracking app

- Traceability of seedlings from nursery to field.

- Quality assurance through to time of plant.

- Photograph and capture damaged stock.

- Trace boxes using GPS position.

- Soft launch June 2024.

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Planting and establishment innovation

GPS technologies for precision plant

Automated precision spraying

Mechanised planting evaluation

Technology adaption

Nutrition and vegetation management

Hydrogels

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Precision Spray Drone: Trials

Pruning

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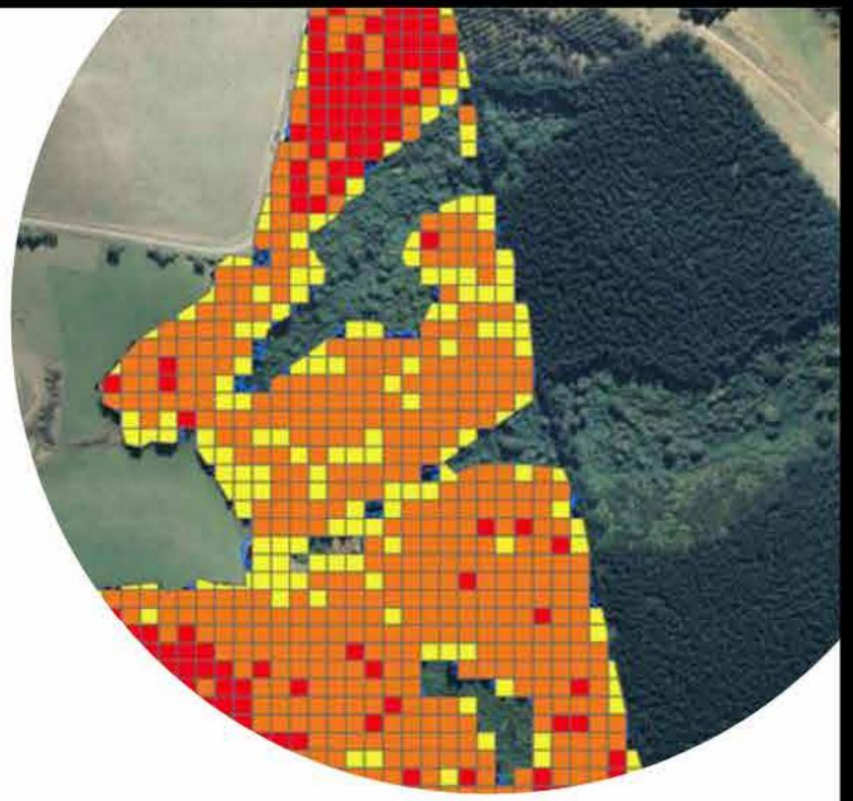
Real Time Thinning

INTERPINE INNOVATION

The future of tree thinning assessment.



Treetools offers pre and post thinning assessments to support forestry decision making.

Now available in BETA format, Treetools has been designed to support forest managers better direct thinning crews and will advance into a real time, in forest, application in future versions.

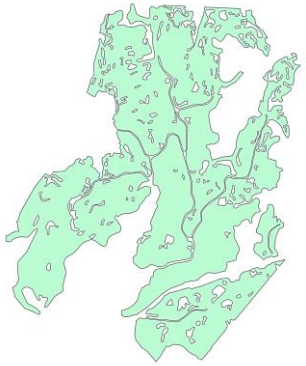
The first iteration leverages advanced data sources such as LiDAR and RGB imagery to deliver pre and post assessment thinning maps including tree location, stocking, derived gap analysis, digital surface model, tree height and digital crown area.

treetools

Area of Interest

…

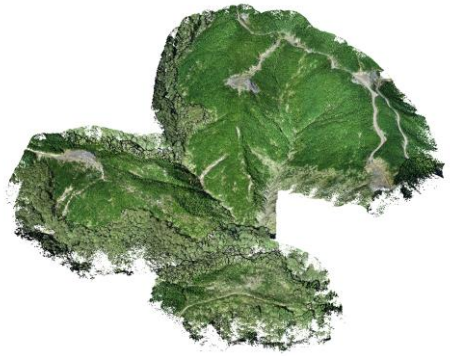
stand shape file



LiDAR Data

…

*.laz file



treetools

Digital Elevation Model
Canopy Height Model
Tree Peak Detection (incl. Height)
Crown Detection and Crown Metrics
Stocking / Tree Height Heat Map
ATLAS GeoMaster Summary Import
Regeneration Modelling
Tree Selection / Competition Index

products available for download
information stored for limited time
(i.e. 7 days)

Virtual Reality Thinning

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Perspective
Lit
Show
10
10°
0.25
4
Selected Actor(s) in
ConiferForestBiome_Procedural

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supported by forestgrowers commodity levy

And so much more…!

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