



A Strategy for the NZ Cypress Industry

Workshop report and draft action plan

Produced by the Cypress Strategy Working Group



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1. Context

This document follows from Discussion Document produced by the Cypress Strategy Working Group in August 2020.

Twenty participants from across the cypress value chain took part in a workshop in Wellington (October 28th 2020) (Appendix 1). We were also grateful for comments made from people who were unable to attend the workshop, which were circulated at the workshop (Appendix 3).

Participants worked through a conventional strategic planning framework for the NZ cypress industry, led by facilitator Richard Thompson. A record of discussions is available (Appendix 2).

As an early part of this SWP project, the Cypress Strategy Working Group discussed ideas around the future of cypress forestry, and the areas where we feel it is important to focus future efforts. We suggested that:

For the cypress industry to succeed, overall aims must include to:

- *enhance existing and develop new regionally based value chains so that they become sustainable*
- *plant new cypress forests ‘in the right place’ and at the right scale, to provide the foundation for sustainable value chains*
- *continue cypress research by securing funding, thereby ensuring that NZ cypress forestry remains economically competitive and environmentally and socially acceptable over the very long term.*

The outcomes from the workshop have been added to, with information collated as part of the Cypress Working Group’s earlier efforts, plus comments from people who were unable to attend.

2. Towards a strategic plan: workshop outcomes and future actions

2.1 A vision for the NZ cypress industry: where we want to be

“Cypress – New Zealand’s No.1 naturally durable softwood species”

Components of the vision include:

“Cypresses can be easily chosen and grown under a range of regimes with confidence to produce a sustainable supply of timber, and a wide range of timber products. Supply will match demand in both domestic and export markets at prices which reward all those in the value chain for their investment.”

- Cypress should be an easy, safe choice for all growers – can be selected and grown with confidence
- Domestic processors should be confident of a supply of good quality cypress logs at a fair price
- Cypress timbers should be an easy choice for domestic construction – can be obtained and used with confidence
- Cypress logs and cypress products should be highly valued (‘a premium product’) in both domestic and export markets
- Cypress has a strong, sustainable supply chain, with products and services which generate good returns for all those in the value chain
- Cypress has a valued role in de-risking the NZ forest industry in the face of climate change and other biotic and abiotic threats.
- Cypresses have a range of end use products and grown under a range of regimes.
- The export market should support the domestic market.
- Cypresses must deliver much better returns than radiata.

2.2 A mission: - working regionally to ensure a sustainable cypress industry

Although planted cypresses are widespread across New Zealand, a strategic approach to developing a viable cypress forest industry will include identifying key regions where a critical mass of forests of different cypress species and types of timber can best be encouraged. This should lead to sustainable cypress processing industries in those regions, enabling growers to focus on producing volumes and grades of timber for known markets. Export markets may also have potential and while these should not be ignored, experience suggests they should not be relied on either.

People promoting cypress forestry will need to engage with national government; also local government and Te Uru Rākau representatives in key target regions. Landowners and forest growers including Māori, farmers and farm foresters, forest industry organisations and other industry groups are other essential partners. The commitment of people throughout the supply chain will be needed, and existing and new regional processing operations will need to be encouraged.

Demonstration sites and trials will generate enthusiasm and provide evidence of the potential of different cypress species and growing regimes. Cypresses are considered to be an ideal woodlot species, but there may also be opportunities to grow them at scale.

Growers need a clear value proposition in terms of what they offer as an alternative or addition to radiata pine or another alternative species; therefore, it is essential that markets are defined, and full economic data are available.

Funding mechanisms for continuing research and development in all aspects of cypress production need to be secured, and a structure to support cypress (and other alternative species) identified and established.

2.3 An action plan for the NZ cypress industry: themes from the workshop

Workshop participants agreed that actions could be divided into a series of themes, aligned largely to different sectors of the cypress value chain. These themes are:

1. Genetics, breeding and propagation
2. Cypress selection, establishment and silviculture
3. Harvesting and processing
4. Markets and marketing

In addition, two over-arching themes were evident:

- the need for up-to-date, easily accessible, and good quality information across all sectors of the value chain
- the importance of collaboration between and within sectors.

Theme 1: Producing cypresses: breeding and propagation

GOALS

“That canker resistant stock is readily available to growers when they need it and is suited to their region and site type.”

In more detail:

- There will be a range of canker-tolerant genetically superior species/hybrids and growing regimes to suit different owner objectives, site-types and scales of operations
- Cypresses can be grown with confidence – canker must be overcome.
- Regional differences will be recognised, and planting stock developed accordingly – both in terms of different growing conditions and in terms of maximising any advantages of particular regions in supplying certain markets.
- Research into growth, form and wood properties should also be incorporated into breeding goals, but canker tolerance is the over-riding priority.

Proposed actions:

- Ensure Scion’s research plan is closely aligned with industry goals (N.B See Appendix 4 - Scion Research Plan), and secure funding for agreed priorities
- Close collaboration between Scion and the NZFFA Cypress Development Group
- Continued/increased involvement of industry partners (i.e., corporates and private landowners) in hosting breeding and demonstration trials.
- ?? Proseed/nurseries – what role for them?

Theme 2: Growing cypresses: selection, establishment and silviculture

GOAL

“That cypress is an easy, safe choice for growers, and that growers have the information they need to select the right species for the right site and manage their trees cost-effectively for known markets.”

In more detail:

- That the choice of which cypress to grow where and under what regime is an easy one to make for growers at all scales and on all site types
- That new regimes are researched and developed, including (i) short rotation/small piece size regimes (ii) continuous cover forestry, and (iii) second and later rotations
- There will be easily available, up-to-date information for all growers on species choice, establishment and management for all regimes (without re-inventing the wheel)
- Silviculture will be linked to regional processing and markets
- Information will include comprehensive, accurate financial and growth/yield data, so full feasibility/commerciality can be assessed.

Proposed actions:

- Identify regional ‘hubs’ where cypress can become the dominant alternative species, and investment in growing and processing can be encouraged
- Develop models of new clonal forestry (*C. ovensii*) and short-rotation regimes (underway) and incorporate these in decision support tools for growers
- Monitor existing PSPs and trials and ensure information is made available in meaningful ways to growers
- Establish and maintain new operational trials e.g. of continuous cover and short rotation regimes. Report on these trials
- Update the NZFFA Cypress Growers Handbook and make available in a way that is easily accessible to all growers. It is likely that the future growers of cypresses will not be current corporate forestry companies. Ensure information is available for large scale overseas investors.
- Update the Cypress Calculator to create a full economic evaluation tool covering different regimes; ensure it is user-friendly
- Provide regional case-study information from properties operating under different regimes e.g. continuous cover, sawlog, short rotation etc
- Ensure information resources remain up-to-date.
- Understand the impact of wind, drought and climate change on cypresses.
- Refine the options for cypresses to produce carbon – do MPI carbon tables need updating?

Theme 3: Harvesting and processing cypresses

GOAL - Harvesting

“There will be suitable, safe harvesting systems at all scales and a strong, fair and well-connected value chain.”

GOAL – Processing

“That domestic processors will have access to a sustainable supply of good quality logs at a fair price and will produce a range of new and traditional products for sale into premium markets.”

In more detail:

- That suitable (cost-effective and safe) systems for cypress harvesting at all scales and all piece-sizes exist – this may include collective harvesting of small-scale woodlots
- There will be standardised systems of valuing trees and logs
- Growers can be confident that their logs will be bought and processed locally
- Domestic processors can be confident of a supply of logs at the quality they need and price that is fair to both buyers and sellers
- That grading standards (for logs and lumber) are developed and applied consistently across the industry.

Proposed actions

- Improve national resource information for cypresses (and other specialty species) (i.e., an alternative to NEFD data)*
- Support research into small-scale harvesting systems, including the introduction of new technologies
- Where small-scale harvesting is occurring successfully, make case-study information available*
- Develop NZFFA Farm Forestry Timbers website to become a sales hub for growers
- Support work to develop an industry association for small-scale sawmillers/processors*
- Develop grading standards and ensure they are well-publicised and taken up by the processors.
- Consider collective harvesting of many small woodlots in an area (more cost effective).
- Improve the market for co-products (oils etc) to increase the returns.

* SWP/FGR work underway

Theme 4: Cypress markets and marketing

GOAL

“NZ-grown cypress and cypress products are recognised as a premium product and are in high demand across a wide range of sustainable domestic and international markets.”

In more detail:

- Develop an ‘NZ cypress’ brand
- Develop market acceptance of all cypress species inc. Ovens cypress and *C. lusitanica*
- Ensure that cypress timber and products are recognised and highly valued by architects, builders, joiners and all other potential domestic end users
- Develop alternatives to traditional products – e.g. engineered or thermally modified products

Proposed actions:

- Domestic markets are identified and understood – what do builders and architects want?
- Future domestic and international market opportunities are clearly defined (30-50 year time frame)
- Product branding is developed and industry uptake enabled
- Marketing campaign/s based on cypress strength (e.g. natural durability) or new names (e.g. ‘golden cypress’)
- Market information is readily available to sellers and buyers – various options for website development, either just for NZ cypress or as part of a broader strategy for all NZ-grown alternative species – see <https://www.woodsolutions.com.au/>
- Exemplars of product use are promoted
- Develop a ‘buyers club’ – e.g. use the FFT website
- Understand what specifiers want/need to be able to use cypresses

Themes 5 and 6: Communications and collaboration

GOALS

- That an organisational structure is identified and established to lead the NZ cypress industry forward
- That easily accessible, accurate and relevant information to support decisions should be readily available at all stages in the value chain
- That the whole industry shares a long-term vision of a sustainable NZ cypress industry.

3. Next steps

Proposed next steps are as follows:

1. Tidy up this document and circulate to the core Cypress Strategy Working Group for feedback
2. Circulate to the wider working group (i.e. all those who attended the workshop/provided comments)
3. Suggest a further meeting of this group with some specific objectives
 - a. To identify an organisational structure to lead strategy development from now on
 - b. To draft a list of priority projects and possible sources of funding

Ultimately develop a table something like this:

	Priority 1-5	AgMardt	SFFF	SWP/FGR/FGLT plus Scion core funding	Others – e.g. 1BT, PGF, industry partners
Theme					
Breeding and propagation Goal 1 Goal 2 etc					
Establishing and growing Goal 1 Goal 2 etc					
Harvesting and processing Goal 1 Goal 2 etc					
Markets and marketing					
Communications					
Collaboration					
Steering group/project management					

4. Possible sources of funding for cypress industry development

4.1 AGMARDT

The Agricultural and Marketing Research and Development Trust, ([AGMARDT](#)) strategically invests in programmes that enable individuals and businesses to innovate, to be industry leading, and to exploit valuable opportunities – all with the ultimate vision of driving continued growth of New Zealand’s diverse agricultural sectors.

1. Market Insight Investment (\$50k - \$400,000k, matched dollar for dollar)

- i. **Consumer and Market Insight** - AGMARDT will consider funding assistance for businesses, or established industry groups, to undertake market research and consumer insight activities within specific international markets.
- ii. **Establishing Collaborative Relationships** - AGMARDT will consider providing funding for businesses or industry groups to enable them to explore the prospect of developing collaborative relationships that are beneficial to the agribusiness community in New Zealand.

2. Accelerator loans (\$100,000 to \$300,000)

Accelerator loans support New Zealand agribusinesses that may require additional short-term capital to further enhance projects that are commercial in nature or close to commercialisation and which would not otherwise attract commercial funding.

AGMARDT Accelerator Loans provide an opportunity to initiate further business growth by assisting Applicants to:

- Fund expansion requirements to improve capacity and efficiencies within their business and immediate supply chain
- Adopt new technologies, production and processing capabilities to add value within the New Zealand agribusiness sector
- Initiate distribution and/or marketing programmes to enhance early adoption and speed to market within the agribusiness sector
- Develop proven prototypes to commercialisation
- Fund acceptable website and software development
- Partially fund start-up projects in conjunction with approved commercial Bank lending where additional capital is required

3. Capability development for industry and wider interest groups

Financial assistance is available to help build management and leadership skills and gain experience in international markets

4.2. Sustainable Food and Fibre Futures

MPI’s [Sustainable Food and Fibre Futures \(MPI\)](#) programme can support:

- the development of a new product or service, or a better way of doing something

- feasibility studies, such as exploring the development of a solution to an industry issue, or the viability of a new product
- applied research which has a practical application and addresses a real issue in the industry or helps pursue an opportunity.

Co-investment is required at different levels depending on the fund type. For predominantly commercially-orientated proposals a maximum of 40% of the total cost will be contributed by MPI.

Funding type	MPI amount	Length
Small grant	Up to \$100,000	Up to 1 year
Grant	Up to \$2 million	Up to 3 years
Small partnership	\$2 million to \$5 million	3 to 5 years
Partnership	Over \$5 million	5 years or more

4.3 SWP/FGR/Forest Growers Levy Trust

4.4. Others – e.g. 1BT, PGF

4.5 Industry partners

Appendix 1. Workshop participants, Wellington, 28th October 2020

People who took part in consultation	Gordon Williams, Pamu/Landcorp Kevin Reardon, Forme Consulting Les Dowling, PF Olsen Marcus Musson, Forest360 Gabrielle Walton, Summerhill Timbers
Scion staff	Rosie Sargent Toby Stovold
NZFFA Cypress Development Group	Patrick Milne Gary Fleming Vaughan Kearns
Te Uru Rākau	Dougal Morrison Harry Livesey
Future Foresters	Jack Palmer (Forme Consulting) Rachel Rose
Cypress Strategy Working Group	Marco Lausberg, Angus Gordon, Harriet Palmer Paul Millen (Vineyard Timbers)
Workshop facilitator:	Richard Thompson

N.B: See Appendix 3 for comments from people unable to attend.

Appendix 2. Record of workshop discussions

Developing a vision for the NZ cypress industry

Components of the vision for the industry include:

- ‘Cypress’ should be NZ’s dominant naturally durable softwood
- Cypress should be an easy, safe choice for growers – can be selected and grown with confidence
- Cypress timbers should be an easy choice for domestic construction; should be considered a premium product
- Cypress logs and products should be valued in both domestic and export markets
- That there should be sustainable supply of a product which is highly valued, and generates good returns for all those in the value chain

Cypress - New Zealand’s No. 1 naturally durable softwood species

How do we get there: the mission

“Cypresses can be easily chosen and grown with confidence to produce a sustainable supply of timber, and a range of timber products which matches demand in both domestic and export markets at prices which reward all those in the value chain for their investment.”

- There will be a range of (genetically superior) species/hybrids and growing regimes to suit different owner objectives, site-types and scale of operations
- Cypresses can be grown with confidence – canker must be overcome
- There will be easily available, up-to-date information for growers on species choice, establishment and management (without re-inventing the wheel)
- There will be cost-effective harvesting systems for growers at all scales
- There will be a strong, well-connected value chain, and timber processors can be confident of a supply of logs at the quality and price they need
- Cypress timbers (not just macrocarpa) will be highly valued in a range of markets
- That a ‘NZ cypress’ brand or brands should be developed and become highly recognisable in both domestic and export markets.

Strengths, weaknesses, opportunities and threats

Strengths	Weaknesses
<p>Not radiata!</p> <p>Highly versatile range of species – ‘jack of all trades’ – grow almost everywhere</p> <p>Grows fast on right sites</p> <p>Resource exists</p> <p>Skill/expertise/documented knowledge exists</p> <p>Research and development legacy</p> <p>Amenable to clonal forestry</p> <p>Fits with ‘conventional’ (i.e. radiata) regimes</p> <p>History of breeding work – improved germplasm available</p> <p>Over 500 PSPs and in good condition – so there is much more data available</p> <p>Some species – sterile (no wilding threat)</p> <p>Shade tolerant – suitable for continuous cover regimes</p> <p>Frost and snow tolerant</p>	<p>Expensive – to plant and manage</p> <p>Long rotations</p> <p>Canker – macrocarpa +/- other species</p> <p>Site sensitivity</p> <p>Fluting</p> <p>Soft bark</p> <p>Causes abortion in cattle</p> <p>Kaka and cicada – pests in some places</p> <p>Under-developed genetic resource</p> <p>Still some poor genetics going into the marketplace</p> <p>CRI dominance/ownership of improved germplasm – slows down progress</p> <p>Confusion over IP ownership</p> <p>Does not recover from fire (unlike eucalypts and redwoods)</p> <p>Different species – confusion for growers; problems with standards/building code</p>

<p>More drought tolerant than e.g. radiata Naturally durable Smells good (some species) Attractive grain Even density Wide range of products and applications Easy timber to mill, season and finish Harvested timber can be kept for a long time with decay Well-recognised as a product (macrocarpa at least) Markets exist – domestic and ? export (coffins in China, but seems to have disappeared for now) Some cypresses already in the building code</p>	<p>Lack of knowledge about some aspects Variability in existing growing resource Variability in wood properties inc durability Disconnect between sectors of value chain Lack of small-scale harvesting options – restricts supply Lumpy supply Lack of industry ‘expert group’ Poor resource (NEFD) data Negative public perception (firewood/shelterbelt trees) Poor performance for corporates Lack of awareness (buyers, architects, end users) Lack of standards (data x education x specification) Doesn’t take coatings easily – may be a problem with fire retardants Carbon profile lower/slower than radiata Lack of financial/market information – fundamentals of commercial case not available Slower to dry than pine, needs air-drying first then kiln drying Higher microsite sensitivity compared to pine Confusion around various species and hybrids</p>
<p>Opportunities</p>	<p>Threats</p>
<p>Canker resistance Scaling up nursery production (clones) can be containerised Continuous cover forestry Long rotations – more carbon; more volume Short rotation and production thinning potential (new technology inc. spindleless lathes) Better erosion protection than some species Good species for second rotations – let pine pay for the infrastructure Sustainable chain of custody Market resilience/diversity – import and export Focus on ‘the best’ – create one or more outstanding products Different species – allows differential marketing – so don’t just market as ‘cypress’ More growers and species = more choice = bigger overall market (e.g. wine industry) Innovative technology – engineered timbers Branding/telling the story of where the timber comes from Small-scale/green alternative = good story Higher value niche markets Thirst for alternatives to radiata; - both growers and markets Regionalisation – make the most of different species x different regions Strengthening the value chain - collaboration Regional collaborations/relationships in value chain – inc. small-scale processors Farm Forestry Timbers website becomes web-based marketplace for <u>growers</u></p>	<p>Climate change – fire, disease, storms, droughts, insect pests No new planting – downward spiral, declining resource (liquidation of estate) Confusion between different species (unlike e.g. redwood) Substitution – other species Small-scale harvesting becomes even less viable (compliance costs) Variability causes quality problems/market issues Wariness around consenting Dogmatic thinking Substitution – other materials, other products Products used wrongly – reputational damage Export markets – outcompete domestic markets Export markets – collapse Competitors’ cartels protect own markets (anti-cypress) Councils are conservative – harder to specify new products Legislation threats – i.e. what if harvesting with non-acceptable systems is not allowed?</p>

'Timber -first' policies or construction Essential oils/fine chemicals Business case examples Lift from a minor species classification to higher prominence	
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Developing some goals and an action plan

Genetics and propagation

OVER-ARCHING GOAL

That landowners have the information they need to give them confidence to plant the right (canker resistant) species in the right place, and manage it cost-effectively for a regional market they can be confident will exist in future.

That quality, genetically superior planting stock is available when and where needed.

GOAL: That canker resistant stock is available to growers when they need it, in whatever region – i.e. grow the right species for the region

We need to 'de-risk' landowners' decisions throughout NZ – which means fine-tuning advice/knowledge on what species/hybrid can be planted with confidence where.

GOAL

Planters have comprehensive, accurate information (including models, financial data etc) to assist with decision making.

This can be linked to future regional processing strategies – so growers are growing for a market they can be confident will exist in future.

GOAL

Collate and update existing information (updated Cypress Growers' Handbook).

Sites and silviculture

Linked to above; silviculture will be linked to markets/regional supply chains

Big gap – continuous cover forestry – develop regimes/learn from growers already trying it

Harvesting and processing

GOAL: Suitable (economic and safe) systems for harvesting at all scales and all piece sizes

Needed – technology for small-scale growers – R & D and people with skills/motivation.

Need to overcome compliance issues. Environmental impacts of small-scale harvesting are low.

GOAL: growers can be confident their trees will be processed locally and economically

- Development of regional/catchment schemes
- Small-scale processing systems and economics
- Collective harvesting across lots of small woodlots

- Mix of products – including some new ones and co-products

Markets and marketing

GOAL: cypress is recognised and highly valued across a range of sectors

- Grading standards developed and widely adopted
- Markets are understood – what do builders and architects want?
- Market information readily available
- Products are well-branded
- Exemplars are promoted – throughout the value chain, from the breeders and growers to the end users
- Marketing campaign perhaps based on new names – e.g. ‘golden cypress’
- Develop a ‘buyers club’ – e.g. use the FFT website
- Develop a ‘NZ Cypress’ website

Some elements run across all themes – collaboration/information sharing/extension/decision support

Appendix 3: Comments from people unable to attend

John Moore, Timberlands Ltd

My vision is for an industry producing quality appearance and structural timber for interior and exterior uses. This material would be used in high-end residential and commercial buildings. Volumes are unlikely to be large, but a resource of 10,000-20,000 ha of good quality stands would presumably support a number of smaller-scale processors producing high quality products.

I've been giving this some thought and have discussed aspects of this with Dean and Vaughan. For Timberlands our focus is developing an economically attractive proposition for cypresses. Pruning is unlikely to be an option for us, so we're more focused on an unpruned regime targeting a product with sound knots. The recent sawing study gives us hope that this is a viable option. We have a number of poor-quality cypress stands and I would like to get some better-quality stands in our estate to show what the potential of the species really looks like. For our company to put more effort into cypresses we need to show that there is an acceptable return on investment. An unpruned regime with a 20-year rotation would seem to provide this, so I would like to see this given some real attention. What are the barriers we need to overcome to make this a reality?

Allan Laurie, Laurie Forestry

My vision for sawmilling/utilisation sector

5 – 10 years I believe will be a steady prolife for cypress sector albeit resource becoming more and more constrained. Little room for growth.

10 – 20 years out I see two things – a decline to almost non-existent *Macrocarpa* resource and a transition to a lower quality *Leyland*/mixed resource.

The quality will be lower, the timber looks and acts very differently to *Macrocarpa* but may replace the characteristics found in *Lawson*. We should be turning our minds to how we build *Leyland* market acceptance.

Strategic policies

There is only one we really need – fix canker. If we fix that we can promote the species and the rest will take care of itself.

Other comments

The work Vaughan [the NZFFA CDG's trial work] is doing is critical but may not land a solution to canker. Future research work should focus on this. I am far from convinced the solution lies in genetics.

We were told *Leylands* would be resistant to Canker. I have Fern Down and Leighton Green and they are riddled with it.

Re. short rotation regimes: My wide experience trying to mill young cypress has not been good. Even in older trees the best option is quarter sawing to ensure limited surface cracking. Surface cracking is one of the largest issues with drying to ensure retention of good appearance grade lumber qualities. The recovery of quarter sawn lumber in small logs is almost nil.

Peter Oliver, City Forests

We abandoned our Cypress strategy several years ago after running out of new land sites for them and following our experiences with trying to grow them on cutover sites and harvesting and marketing them. Essentially it came down to the basic economics of the species when deployed at scale in a scaled up working forest environment – the typical corporate situation. We have found that the economic and marketing

differences are not even close to those of our major species - especially radiata on the good sites that cypress species need in order to be successfully grown as a crop. In short, the conclusion I came to after many years of trying with cypresses, were that they are best suited for a woodlot situation where they can supplement other farm income and where they don't have to pay their own way in the same way they do for us. Especially where small parcel harvesting can take advantage of the sometimes stellar prices available the timber rather than quickly flooding what is a small domestic market for them.

Woodlot forestry and plantation forestry are two quite different animals in my view, with plantation forestry essentially being a scale business to which cypresses are not particularly well suited. We have often found that farmers and farm foresters just don't understand the drivers of our large-scale plantation business. I often say to them, think of the difference between a large farm and a lifestyle block, as the comparison is apt.

Mark Dean, Ernslaw One

I firmly believe that in the 5-10 year time horizon there will continue to be a demand for both finishing grades and naturally durable landscape products/outdoor tables etc. However this is largely based on mining an existing resource of older farm plantings and one or two large scale suppliers. Export log sales with very good prices will further reduce supply to the point where substitution is likely. Other species could include durable eucs, Redwood etc - as already seen in Bunnings.

Both canker and lower growth/long rotations are significant hurdles to corporate cypress growers. Scale is another issue. Although there is steady demand from local sawmills, it can be quickly swamped with large volume supply with negative impacts on log price.

If we can solve canker then the reputation of the timber will see the species planted by woodlot owners at least.

For corporate foresters the economics of pruning and challenges of managing weeds on second rotation sites mean we should continue to develop regimes that suit the species and potential markets. For example small piece size at higher stocking and 20-25 year rotations suits cypresses well, and assuming suitable products can be produced may suit corporate investment time frames and encourage planting at scale on some sites.

Paul Adams, Rayonier-Matariki

Whilst species performance (growth rate, disease susceptibility) and financial returns are the main factors that impact on grower's decisions to plant cypress, I believe the case has been made for re-invigorating the cypress industry in NZ.

In my view the key points to address include:

1. Level of confidence in the success and availability of canker resistance genotypes
2. Desired annual log volume and grades to be available to domestic processors and the place for export volumes
3. Estate size necessary to deliver these volumes and grades
4. Options for developing plantation nodes in a number of more suitable regions
5. Options for designing a strategy supporting small growers (5 – 15 ha planting projects)
6. Options for a marketing strategy for promoting the benefits of cypress as part of the portfolio of alternative species in NZ

7. Working with MPI, Te Uru Rakau to promote these alternative species as part of the continuum of species available for forestry, farm and conservation purposes. This would include highlighting the place for short, medium and long term forestry projects and species. Ties in with point 6 and 7.

Other factors include:

1. Development and availability of hybrid cypresses
2. Funding mechanisms for continuing research and development in silviculture and processing options
3. Understanding the role that cypresses have for resilience to changing climate

Mike Baker, Hancock FM NZ

My vision:

- That the NZ cypress programme has developed genetically improved cypresses, including hybrids, that offer substantial productivity gains (MAI%?), wood quality improvement (measure?) and disease resistance.
- That market opportunities (i.e. in 30-50 years) domestically and internationally are clearly defined.

The key priorities:

1. forestry research plan particularly continued work with genetic improvement/hybrids (to ensure cypresses are still progressing in their improvement, rather than slipping further and further behind radiata (as it improves with clones/genomics etc)

(2,3 and 4 are all interlinked in regards to the value proposition of cypresses)

2. identifying markets for cypress timbers of all types
3. educating growers on cypress forest management
4. modelling forest productivity and economic recovery

(2,3,4 then affect 5)

5. work regionally to encourage new forests
6. Industry partnerships to build support and capability

The key is having a clear vision and value proposition so that it is clear to investors where the opportunities are with cypresses and the attractiveness to invest (what do they offer as an alternative to or complement radiata).

Comment

A number of years ago, HFM NZ did a review of alternatives to radiata pine and identified cypresses as a potential contingency species in case radiata was to succumb, particularly to a serious biotic disease.

Cypresses still sit in that same category i.e. as a contingency, though not as a true replacement for radiata pine (in regards to similar markets/value chains etc – another Pinus species or Pinus hybrid would likely realistically fit this)

From HFM's perspective (and I would say for NZ industry) it is still important for development work with cypresses to continue as least for risk mitigation, so NZ has options if radiata was to truly succumb.

It is likely to take the commitment of a new large investor/investors to have it as their strategy and vision to back cypresses to plant at scale. For those currently in the radiata game, it is difficult to justify planting of cypresses at scale at this time.

Ben Douglas, Hawke's Bay Regional Council

To make a replanting decision, we will choose the species that best meets our objective for site. The key considerations for us and probably many other growers are whether it will survive and establish well and whether we will make a decent return in the future or if we risk tying up land for many years for next to no return.

On the former, we are a bit gun-shy particularly with the impact of climate change on the Hawkes Bay environment and consequent die off issues with our admittedly poorly suited to site *Eucalyptus regnans*. We need to be confident species we choose can survive and thrive.

On the latter, we can only base our decision in that regard on available market information. The stronger the data the easier to justify to, in our case Councillors, in others' case shareholders or future generations. I know that's a chicken and egg thing with developing markets but the more access there is to real proven data the easier to make our decision. \$ / tonne for different grades is great, but important to have just a basic break down of \$ / ha return for different regimes – i.e. pruned or not - in layperson's terms.

There is a bit of debate around the merits of pruning or not and from what I understand export prices and the cost of pruning currently make unpruned higher volumes a better option financially, but again easy access to real data would be invaluable. Other priorities we consider in replanting decisions are:

- Aesthetic value
- Ability to graze around the trees and therefore control weeds and fire risk without harm to the trees or stock
- Whether the timber needs treatment and will therefore at some point become a waste liability

I visited a house site with Wilton Hartree, a local portable sawmiller, the other day – his son's house- and all the framing timber except the ceiling and underfloor timber was *C. lusitanica*. It looked great (though will be gibbed over) and the builders thought it was great stuff and preferred it to pine. They weren't having any issues with splitting as is often reported with mac. Promoting projects like that would be a good thing. Also, the tiny home movement would be a good market I would have thought, with the cost of housing only going up and those people being probably more conscious of issues with treated timber.

Appendix 4: Scion's cypress research plan 2020-2030: summary

The outline research plan below was put together by Scion, and includes input from the NZFFA Cypress Development Group.

The six categories align with the six proposed focus areas of the strategy:

- Implementing a cypress forestry research plan
- Modelling forest productivity and economic feasibility
- Educating growers on cypress forest management
- Identifying markets for cypress timbers of all types
- Working regionally to encourage new cypress forests
- Building industry partnerships to enhance support and capability

The framework illustrates progress to date in the focus areas, and includes topics which have not been started but which have been identified as being on the 'wishlist' of those involved in Scion and the Cypress Development Group.

Year	Details		Completed since 2015 by SWP/Scion and/or CDG	In progress (0/5 - not started, 5/5 complete)	Yet to be contracted workplans	Longer-term wishlist
Implementing cypress forestry research plan						
2016-17	Breeding/characterisation of hybrids	Cypress breeding, towards establishment of new C. lusitanica population: Phenotypic assessment, estimation of breeding values and selection.	CDG trials and Scion trials			
2016-17		Maintaining of cypress stool plants and establishment of clonal blocks MS1-4: Setting of cuttings.				
2016-17		Cypress breeding, establishment of new C. lusitanica population. MS1&2: Collect cones and extract seed				
2016-17		Cypress breeding, establishment of new C. lusitanica population. MS3&4: Sow seed into nursery bed, select and plant trials				
2017-18		Est new progeny trials - C lusitanica + hybrids				
		Make latest material available for planting				
2018-19		Cypress breeding - macrocarpa: Maintain plants in nursery				
2018-19		Cypress breeding - lusitanica: Breeding progress analysis and paper				
2019-20		Cypress breeding - macrocarpa: Establish C. macrocarpa breeding trials				
		Progeny test Proseed macrocarpa and lusitanica breeding selection		On-going (3/5)		
		Investigate cypress nutrition in relation to cypress health and growth		On-going (3/5)		
		Framing trials - multi species: field trials established	Scion multi-species trials			
	Breeding Populations Management	3rd generation C lusitanica				
		Macrocarpa canker tolerance/initiate a programme to improve our understanding of cypress canker and its influence on growth		On-going (Scion trials) 3/5	2021-22 onwards	
	Long-term performance monitoring (PSPs)	PSP installation and monitoring (inc in site/species mapping trials)			2021 onwards	
		Identify good cypress stands; develop a programme and protocols to collect growth information; implement	Done			
	Nursery research/propagation	Improving rooting percentage of desired clones				
		Attempt to repropagate and rejuvenate the Barr Hybrid clone		? Underway 2/5		
		Programme to evaluate the use of endophytes (trichoderma)		Underway 3/5		
	Nutrition/siting/management	Need to identify key nutrient needs of cypress/ideal fertility range.				
		Interactions between pruning, thinning and canker				
2016-17	Wood properties	Assessing the wood properties of 20 year old unpruned cypress - sawing study to assess appearance grade recovery		Nearly complete 4/5		
2018-19		Trials linking non-destructive tests to graveyard samples				
2019-20		Set Up Legacy In-Ground and Above Ground Durability Trials				
2019-20		Annual assessment of all trials				
2019-20		Hybrids - heartwood and durability testing		On-going 3/5	2021-2025 and beyond	
2019-20	Processing	Assessing Dimensional Stability: A report with data on the long and short term dimensional stability				
2019-20		Identifying processing opportunities for key specialty tree species (Woodscape). Technical report with wood supply by regions & species as tables & graphs.				

	Heat treatment/novel products	Thermal modification for durability - C. lusitanica, C.ovensii					
		Outdoor durability of C. ovensii					
		Framing durability 1 species/clone					
		Characteristic stiffness of C. lusitanica					
	Utilisation	Improved grading system for cypress					
		Improved interpretation of building regulations as they apply to cypress					
Modelling forest productivity and economic recovery; forest management							
2019-20		Models of three clonal regimes		Ongoing 3/5			
		Upgrade the Cypress Calculator to create a full economic evaluation tool - ultimately to include models of short rotation/unpruned regimes (as per workplan proposal, Oct 2019).					
		Development of continuous cover systems: development of regimes to maximise returns from the ETS					
Educating growers on cypress forest management							
		SFF Project - Information Notes and videos on cypress management (2015)					
		Update Cypress Handbook					
		More information for growers - e.g. siting, prevention of toppling, weed control, stocking, pruning and thinning regimes					
		Information for growers on management regimes to minimise risk of canker					
Identifying markets for cypress timbers of all types							
		Develop marketing and promotion protocols to improve marketing of cypresses.					
		Explore potential for a NZ-grown cypress brand.					
		Describe and quantify NZ and overseas markets for cypress timbers; include review of predictions of market trends e.g. related to demand for naturally durable timbers					
		Analysis of potential Pacific Rim markets. What is the potential for cypress in e.g. Japan, China, Taiwan, South Korea?					
		Assess main imported timbers which compete with cypress - e.g. yellow cedar, western red cedar and others. How can cypress be positioned to out-compete these timbers, both in NZ and overseas?					
Industry partnerships to build support and capability							
		NONE					
Working regionally to encourage new forests							
		NONE					

Appendix 5: Background to the project

The MBIE/FGR Specialty Wood Products (SWP) Research Partnership programme has a key research aim: **“RA1.3 Delivering specialty wood products to export markets through embedding regional strategies”**.

Following a mid-term programme review of the SWP programme by MBIE in late 2018, the SWP Project Steering Group decided that a strategy should be developed for the NZ cypress forest industry. The MBIE requirement is for a ‘business case’ to encourage investment in the cypress industry. The main organisations involved in developing this strategy are Forest Growers Research, Scion, and the NZFFA Cypress Development Group. A Work Plan (SWP-WP120) was approved in 2019, laying out a series of activities to be completed in 2020 as the first stage towards development of a comprehensive strategy for cypress forestry in New Zealand.

The Work Plan document draws on several earlier papers and presentations produced as part of the negotiations which have preceded the approval of SWP-WP 120 including:

- Cypress strategy discussion document for the SWP PSG (Paul Millen and Bruce Manley, Nov 2019)
- Cypress strategy – presentation to the Working Group (Paul Millen, Nov 2019).

The framework proposed for the cypress strategy closely follows a framework which was developed for durable eucalypts under the MBIE/FGR Specialty Wood Products (SWP) research aim R.A 1.3.

The Cypress Strategy Working Group

The Cypress Strategy Working Group comprises:

- Marco Lausberg – Project Manager, Specialty Wood Products Research Partnership (SWP)
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- Toby Stovold toby.stovold@scionresearch.com
- Harriet Palmer harriet.e.palmer@gmail.com

Contact any of these people if you have any comments on this document or a strategy for the cypress industry in general.

Appendix 6: Additional notes

Theme 1: Breeding and propagation

Research into cypress forestry in New Zealand has been on-going for several decades, led first by the NZ Forest Research Institute and now by Scion. Work continues into breeding new canker-resistance macrocarpa as well as improved *C. lusitanica* hybrids, and into looking at ways of sawing and treating cypress timbers to extend the range of markets they can enter.

Scion has significant cypress research resources in the form of trials, permanent sample plots (PSPs), and timber processing research capacity. Scion staff have considerable expertise in areas ranging from cypress genetics and breeding through silviculture to harvesting and processing. In recent years, the NZFFA's Cypress Development Group have also become involved in research, often providing support for Scion by provision of e.g. sawmilling facilities and trial sites.

As part of SWP-WP 120, Scion have updated their cypress research plan (Appendix 4) and set out a 15-year plan for future research activities. From here the challenge facing the cypress industry will be to rank the research activities and secure funding and any other resources needed for the proposed research to go ahead. There will also need to be agreement on ownership of IP and other outputs such as germplasm.

Theme 2: Growing cypresses

Working regionally to encourage new cypress forests

Although planted cypresses are widespread across New Zealand, a strategic approach to developing a viable cypress forest industry will include identifying key regions where a critical mass of certain cypress species and types of timber can best be encouraged. This should lead to the survival/expansion of the domestic cypress processing industry in that region, and/or the development of a value chain focussing on exports.

People promoting cypress forestry will need to engage with local government and Te Uru Rākau representatives in key target regions, as well as with farmers and forest growers including Māori, forest industry organisations and other industry groups. The support of people throughout the supply chain will be needed.

Demonstration sites and trials will also be needed to generate enthusiasm and provide evidence of the potential of different cypress species and growing regimes.

Ensuring growers have the information they need to make decisions around new planting

Growers need to be confident that cypress forestry is an economically and environmentally sustainable land use, and one which can complement their other enterprises and operations.

A significant amount of expertise on growing cypresses exists amongst a small group of farm foresters, and ideally this expertise will be shared, developed and extended to a much broader group of potential growers.

A plethora of information resources for growers already exists, but in forms and places that are not easily accessible; also many of the resources are out-of-date. Concise, accurate, and easily accessible extension resources are needed.

In addition, more needs to be done to explore regimes other than conventional sawlog production, particularly short rotation/no-prune regimes, and continuous cover regimes.

Existing cypress experts can educate all those directly involved in making land-use decisions involving forest establishment about cypress as a land-use option. This could include forest growers, farmers and Māori landowners as well as forestry consultants and regional council land management advisers.

Extension activities could include direct engagement with landowners and their advisers, including regional council land management advisers. Easily accessible information will be needed in a range of media. Forestry consultants may well need to upskill and diversify away from radiata pine, and there needs to be means for them to do this – for example, via workshops or other professional development tools.

Modelling forest productivity and economic feasibility

All forest growers want to plant trees with improved growth and form as well as known wood properties. Growers also need suggested regimes (e.g. longer sawlog vs short rotation joinery products) to manage their forest investment and to assess the potential economic feasibility each of these regimes offers.

Cypress growth models have been developed in the past, but these now need updating to include newer cypress species (e.g. Ovens cypress and newer *C. lusitanica* clones). Models also need to be extended to a wider range of site types. From this work, the aim should be to produce site/species matching guides for growers.

Milestones 4 and 6 of the current SWP-Work Plan 120 (of which this document is a part) involve using data from permanent sample plots (PSPs) to produce an economic evaluation of Ovens cypress. This will be a first step in the development of better cypress growth models.

When combined with information about potential markets, growth models and site/species matching information will mean that growers can make better informed and more confident decisions about the feasibility of establishing and managing cypresses under different regimes.

Theme 6: Collaboration

The NZ Farm Forestry Association's Cypress Development Group (CDG) is the only industry structure in place to support and promote the cypress industry. The CDG represents small forest owners; both large and small forest owners have the opportunity to be involved with specialty species research and development via the Specialty Wood Products Research Partnership (SWP) and Forest Growers Research (the NZ Farm Forestry Association is a partner in the SWP). However, at present the cypress-growing sector is quite disparate, with only weak links between e.g. the research sector, nurseries, growers, the processing and marketing sectors, and local and national government.

Any investment e.g. in cypress breeding – can only be made if there is confidence in the future, so it is essential that the whole industry shares a long-term vision of a sustainable NZ cypress forest industry.

One possible key role of the strategy will be to identify ways to bring representatives of the cypress value chain together, and to identify an organisational structure which can work cohesively to support the industry – e.g. by coordinating funding bids or promoting cypress products in domestic or off-shore markets.

The need to take a strategic regional approach did not receive much attention at the workshop, but there is a strong feeling that different regions have different strengths when it comes to growing, processing and marketing cypress, and that these differences should be recognised, communicated at all stages in the value chain, and capitalised on.