

# Forest Biosecurity Research Strategy 2023-2030

## Summary table - project rankings

This is a summary table revised after 18 August 2022 FBC meeting – it identifies the lead organisation – and it edits some priorities and groups others to remove duplication etc.

It also indicates if research is currently being conducted.

Rank	Research Priority	Lead Organisation	Research Underway	Research adequate?
1	Understanding the potential impact on radiata pine and Douglas-fir of pathogens and insects currently not present in NZ. E.g., <i>Lecanosticta acicola</i> , <i>Lymantrid monacha</i> ; <i>Phytophthora pinifolia</i> , <i>P. ramorum</i> , <i>Dothistroma pini</i> , various bark beetle species etc.	FBC	FGR project on “Pre-emptive biosecurity” – covers <i>L acicola</i> , <i>D pini</i> , <i>L monacha</i> to some extent	NEEDS MORE
2	Realising the opportunity to increase plantation and tree species’ resistance and resilience to increased stress. This includes tree breeding, genetic technologies such as gene editing, microbiomes manipulation, and silvicultural treatments, e.g., mixed species planting.	RPBC	Scion “Tree Root Microbiome” and “Resilient Forests”, RPBC, Lincoln Univ, The Tree Lab	NEEDS MORE
3	Understanding the risk posed by the emergence of new insect pests and pathogens or the changing activity and potential impact of existing ones. This includes advances in surveillance and diagnostic technology.	FBC	Scion together with SPS is keeping an eye on this – but more effort needed	NEEDS MORE
4	Investigating nursery pathway risk to forests and the opportunity to reduce this risk by applying greater biosecurity measures including Plant Pass.	FBC	Scion SSIF funds to work on this, Plant Pass yet to be introduced to forest nurseries; plans made	NEEDS MORE
5	Developing solutions to foliar diseases of radiata pine and Douglas-fir as alternatives to copper spraying.	FBC	Objective of an RFP and some work underway – needs more work	NEEDS MORE
6	Need for baseline of current insect and pathogen species present in NZ including native species. This includes a baseline of pathogens currently in forest nurseries.	MPI	As for #4	VERY LITTLE
7	Assessing alternatives to radiata pine and Douglas-fir including biosecurity risk of contingency species and carbon forestry species.	FGR/RPBC	FGR has conducted a review but little research going into contingency species	NEEDS MORE
8	Researching and or adapting remote sensing and chemical delivery technologies (e.g., UAVs etc).	FBC	Scion and others working in this area	NEEDS MORE
9	Investigating operational biosecurity risk to forests and the opportunity to reduce the risk associated with equipment movement etc. Investigating guidelines to reduce biosecurity risk, e.g., KDB guideliens.	FBC/EnvCom	FBC working on this with MPI – kauri protection guidelines; previous Scion logging truck work	NEEDS MORE
10	The impact of non-forestry “pests” on forest operations and trade.	FBC/MPI	Nothing specifically underway although FOA kept informed through Plant Council	VERY LITTLE
11	Implications of the Emissions Trading Scheme and potential insect and disease problems that may arise from plant-and-leave forestry.	MPI/FBC	Nothing underway but issue has been raised with MPI	VERY LITTLE
12	Understanding increasing social, cultural, environmental concerns – chemicals, aerial spraying.	FBC/FGR	There has been past work, Scion and others doing some research. Current RFP	NEEDS MORE
13	Assessing radiata pine and Douglas-fir productivity losses caused by needle diseases and other disorders.	FBC/FGR	Scion has research underway with industry; has been previous work done as well, e.g., Dothi	NEEDS MORE
14	Attraction of current/new pests to new species and their ability to jump host plant species to radiata pine.	FBC/MPI	Low level activity but FBS does look out for this	NEEDS MORE
15	Reduce the need for and/or the cost of <i>Dothistroma</i> spraying. Also fully understanding the impacts of drift spraying copper on the aquatic environment.	DCC/EnvCom	DCC constantly seeking cost reduction; impact on aquatic ecosystems a gap	NEEDS MORE
16	Understanding the potential for a “biosecurity” interruption of the log and green lumber trade because of real or perceived biosecurity threats.	FPEC/FBC	Previous research investigated this but little current activity or awareness raising	VERY LITTLE
17	Understanding societal attitudes around the application of molecular technologies and other new technologies.	FGR/RPBC	Other organisation are working on this – e.g., BioHeritage; Royal Society. FOA to stay informed	NEEDS MORE
18	Developing new methods/systems to provide greater assurance of pest-free log and lumber exports outside STIMBR’s mandate, e.g., research the forest-to-market pathway approach.	STIMBR/FPEC	S Pawson research being written up – check	NEEDS MORE
19	Ensuring strong linkages with international scientists and technology suppliers as resources, and in some cases technology availability remain limited in New Zealand.	Scion/FGR	Scion has strong international links but wants to do more	NEEDS MORE
20	Changes to science structure and greater emphasis on Te Tiriti – implications to forest biosecurity govt research funding; addressing declining forestry biosecurity science capability.	FGR	Just a matter of keeping an eye on things and making submissions when appropriate	NEEDS MORE
21	Ensuring adequate funding and training or recruitment in taxonomy.	MPI	Need to encourage MPI and MBIE to invest research projects to build capability	NEEDS MORE