

## Appendix 1: Description of organisms approved

1.1.1 The approved host organism is *Pinus radiata*:

Class: Pinopsida  
 Order: Pinales  
 Family: Pinaceae  
 Genus: *Pinus*  
 Species: *Pinus radiata* D. Don  
 Common names: Monterey pine, radiata pine, pine tree.

1.1.2 The approved genetic modifications (GM) and traits for the host organism are:

Genetic Modification	Trait
<p><b>Vectors:</b> Using standard plasmid vectors used in plant transformation.</p> <p><b>Donor Genetic Material:</b> Genomic or complementary DNA derived from plants, bacteria, fungi, animals and viruses including standard promoters and other gene regulatory elements, reporter and selectable marker genes, protein purification tags and origins of replication.</p> <p><b>Exclusions:</b></p> <ul style="list-style-type: none"> <li>• Modifications that use genetic material from humans or from native flora and fauna.</li> <li>• Genetic material that increases the pathogenicity, virulence, or infectivity of the host organism.</li> <li>• Modifications that result in the intentional production of known<sup>1</sup> vertebrate toxins (LD<sub>50</sub> &lt; 100 µg/kg).</li> </ul> <p>GM trees will be generated using standard tissue culture and molecular biology techniques.</p>	<p>Trees that have modifications of genes involved in the following traits:</p> <ul style="list-style-type: none"> <li>• reproduction</li> <li>• herbicide tolerance</li> <li>• wood density</li> <li>• plant growth</li> <li>• biomass acquisition</li> <li>• biomass utilization</li> <li>• wood dimensional stability</li> <li>• identification (eg, selection marker and reporter genes).</li> </ul> <p>Multiples traits may be stacked as long as the combination of traits does not fall under the exclusions listed in this table.</p>

<sup>1</sup> In this context “known” means that there is published material in the peer-reviewed scientific literature indicating that the material is or may be associated with the trait.

## Appendix 2: Controls required by this approval

For words in **bold**, a definition is provided in the interpretations section of the table below (Control 16).

Control Number	Description of the control
1	The <b>approval holder</b> must ensure compliance with the following controls.
<b>Organisms and activities approved:</b>	
2	This approval is limited to field testing the <b>approved organisms</b> .
3	Unless this Appendix 2 provides otherwise, the <b>approval holder</b> must conduct the field test in accordance with: (i) the application; and (ii) the information provided to ERMA New Zealand by the <b>approval holder</b> on 13 August 2010, in response to the section 52 further information request made on 23 July 2010.
<b>Containment:</b>	
4	Subject to controls 5 to 16, the containment facility used to contain the <b>approved organisms</b> must comply with the <b>Plant Standard</b> .
5	The <b>approval holder</b> shall arrange an external audit of the <b>field test site</b> at a minimum frequency of twice per year, including at least once during the period when reproductive structures may develop.
6	The <b>approval holder</b> is not required to comply with section 8.6 (vermin control programme) of the <b>Plant Standard</b> .
7	The <b>field test site</b> must be enclosed by a fence reasonably capable of preventing unauthorised entry into the <b>field test site</b> and the unauthorised removal of heritable material from the <b>field test site</b> .
8	The <b>field test site</b> must have no more than five entrances. These entrances to the <b>field test site</b> must be reasonably secured against unauthorised entry.
9	The <b>approval holder</b> must ensure that at any entrance to the <b>field test site</b> there is a <del>prominent sign clearly indicating that unauthorised entry to the field test site is</del> prohibited.
<b>Inspection and monitoring:</b>	
10	The <b>approval holder</b> must ensure that: (a) they remove from the <b>approved organisms</b> any developing male or female reproductive structures before they <b>mature</b> ; (b) each <b>approved organism</b> planted in the <b>field test site</b> must be inspected for the development of reproductive structures at intervals of no more than four weeks, except between 1 March and 30 June when the inspections must be at intervals of no more than 14 days; (c) the reproductive structure from the <b>approved organism</b> must be removed as soon as practicable after detection and within 24 hours.

<b>Killing the GM pine trees:</b>	
<b>11</b>	<p>(1) Reproductive structures removed in accordance with 10 (c) must be autoclaved or incinerated.</p> <p>(2) Any <b>approved organism</b> that develops a reproductive structure must be <b>killed</b> by being cut down within 14 working days of detection of the reproductive structure.</p> <p>(3) All <b>approved organisms</b> growing at the <b>field test site</b> must be <b>killed</b> by being cut down when they reach 8 years of age calculated from the date when embryo is clearly identifiable and is transferred to germination medium in tissue culture.</p> <p>(4) For the avoidance of doubt, the approval holder is not required to <b>kill</b> any non-heritable material.</p>
<b>Reporting:</b>	
<b>12</b>	The <b>approval holder</b> must notify ERMA New Zealand and MAF of the date that field testing activities commence and the date that field testing activities are complete or suspended.
<b>13</b>	<p>(1) Within 6 weeks of the conclusion of each 12 month period from the commencement date of the field testing activities, the <b>approval holder</b> must provide ERMA New Zealand with a report that ERMA New Zealand will make public covering activities under this approval in that period.</p> <p>(2) This public report must include a summary of:</p> <ul style="list-style-type: none"> <li>(a) all field testing activities carried out;</li> <li>(b) any unforeseen adverse effects and incidents that have occurred;</li> <li>(c) activities relevant to engagement with Māori;</li> <li>(d) results of the field test research which have been disseminated to third parties; and</li> <li>(e) environmental impact research.</li> </ul> <p>(3) Every fifth year the annual report must also contain an assessment of the outcomes and benefits achieved to date.</p>
<b>Post field test monitoring:</b>	
<b>14</b>	<p>(1) Twenty five years after the commencement of the field test or on 31 December 2035, whichever is the earlier, the <b>approval holder</b> must cease all field testing activities, kill all the <b>approved organisms</b> on the <b>field test site</b> and commence <b>post field test monitoring</b>.</p> <p>(2) <b>Post field test monitoring</b> must be carried out quarterly.</p> <p>(3) The <b>approval holder</b> must kill any <b>approved organisms</b> discovered on the <b>field test site</b> during <b>post field test monitoring</b>.</p> <p>(4) <b>Post field test monitoring</b> is complete when no <b>approved organism</b> is discovered growing at the <b>field test site</b> for a period of 12 continuous calendar months.</p> <p>(5) If an <b>approved organism</b> is discovered, the time frame starts again for another 12 calendar months.</p>

<b>Expiry of the approval:</b>	
15	This approval expires once the <b>post field test monitoring</b> is complete.
<b>Interpretation:</b>	
16	<p><b>Approval holder</b> means New Zealand Forest Research Institute Limited, trading as Scion.</p> <p><b>Approved organism</b> means genetically modified <i>Pinus radiata</i> with the approved genetic modifications and traits described in Appendix 1.</p> <p><b>Field test site</b> means the MAF approved outdoor field testing containment facility located within the Scion Rotorua campus.</p> <p><b>Killed</b> means making any biological material non-viable.</p> <p><b>Mature</b> means producing mature pollen and/or ova.</p> <p><b>Plant standard</b> means the MAF Biosecurity New Zealand and ERMA New Zealand Standard: <i>Containment Facilities for Plants: 2007</i>. Any reference to this Plant standard in these controls refers to any subsequent version approved or endorsed by ERMA New Zealand.</p> <p><b>Post field test monitoring</b> means carrying out inspections of the <b>field test site</b> for any stump regrowth or seedling germination of <b>approved organisms</b>.</p>