

26 July 2019

## Field test GMF100001 - Annual Report to the Environmental Protection Authority (EPA)

This report relates to control 13 for the field test approval GMF100001 (ERMA200479), approved 14 December 2010. The report covers the period 1 June 2018 to 31 May 2019. This is the eighth annual report for the approval.

Note, currently no genetically modified trees or cuttings are planted on the field site under the field test approvals GMF99001 or GMF99005.

### Purpose of field test

To field test in containment *Pinus radiata* with genetic modifications to alter plant growth/biomass acquisition, reproductive development, herbicide tolerance, biomass utilisation, wood density, and wood dimensional stability.

### Field testing activities carried out

Inspections for unexpected radiata pine trees outside the field test site were conducted in October 2018 and April 2019. No unwanted trees were observed.

Between 6 June 2018 and 20 June 2018, trees in an experiment to modify biomass utilisation were felled prior to reaching eight years of age. Samples were collected for analysis. Prior to harvest the trees were inspected for the presence of reproductive material.

On 28 August 2018, one tree in an experiment to modify biomass utilisation was confirmed as dead and stacked in the non-mowing area inside the field test.

On 17 December 2018, 48 wild-type trees were transferred from the GMO glasshouse to the field test site. These trees comprise a potted experiment to investigate growth and will not be planted in the soil.

On 13 February 2019, five trees in an experiment to modify plant growth/biomass acquisition were confirmed dead because of disease and were stacked in the non-mowing area inside the field test.

On 2 and 3 April 2019, 31 transgenic trees in an experiment to modify plant growth/biomass acquisition were felled and stacked in the non-mowing area inside the field test. These trees were no longer required as data collection was completed for the experiment. Only wild-type trees remain growing in this experiment.

On 12 April 2019, two trees in an experiment to modify plant growth/biomass acquisition were confirmed dead because of disease and were stacked in the non-mowing area inside the field test.

During scheduled inspections for reproductive structures (between 1 June 2018 and 31 May 2019) 372 trees were identified that harboured immature reproductive structures in trials investigating plant growth/biomass acquisition and biomass utilisation. 365 of these trees were genetically modified whilst the rest were non-transformed wild-type controls. Table 1 gives details of these identifications.

**Table 1: Identification of immature reproductive structures during scheduled inspections. For transgenic trees the dates that the immature structures were removed and the trees carrying them were felled, are given. WT indicates wild type trees.**

Date of identification	Number of trees identified	Trait	Date of removal of structures from tree	Date of tree felling
8/6/2018	8	Biomass utilisation	8/6/2018	8/6/2018
14/6/2018	6	Growth/biomass acquisition	14/6/2018	14/6/2018 and
	26	Biomass utilisation	14/6/2018	19/6/2018
20/6/2018	2	Biomass utilisation	20/6/2018	20/6/2018
28/6/2018	4	Biomass utilisation	29/6/2018	12/7/2018
12/7/2018	1	Growth/biomass acquisition	13/7/2018	25/7/2018
23/8/2018	3	Growth/biomass acquisition	24/8/2018	5/9/2018
20/9/2018	1	Growth/biomass acquisition	20/9/2018	1/10/2018
18/10/2018	2 (WT)	Growth/biomass acquisition	18/10/2018	N/A
21/5/2019	6	Biomass utilisation	22/5/2019	29/5/2019
22/5/2019	20	Biomass utilisation	23/5/2019	29/5/2019 and 31/5/2019
23/5/2019	70 3 (WT)	Biomass utilisation	24/5/2019	29/5/2019, 30/5/2019, 31/5/2019 and 4/6/2019
24/5/2019	43 1	Biomass utilisation Growth/biomass acquisition	24/5/2019	29/5/2019, 30/5/2019, 31/5/2019 and 4/6/2019
27/5/2019	50 1 (WT)	Biomass utilisation	27/5/2019	28/5/2019, 29/5/2019, 30/5/2019, 31/5/2019 and 4/6/2019
28/5/2019	28	Biomass utilisation	28/5/2019	28/5/2019
29/5/2019	52	Biomass utilisation	29/5/2019	29/5/2019, 30/5/2019 and 4/6/2019
30/5/2019	3	Biomass utilisation	30/5/2019	30/5/2019
31/5/2019	41 1 (WT)	Biomass utilisation	31/5/2019	31/5/2019 and 4/6/2019

### **Unforeseen Incidents**

No incidents have occurred.

### **Activities relevant to engagement with Maori**

None

### **Results of the field test research which have been disseminated to third parties**

Results from the field test and field test associated activities form part of many of Scion's interactions with stakeholders. During the last year these have included:

Scientific presentations at academic conferences in New Zealand and internationally

- e.g. Queenstown Research Week 2018 - Applied Genetic Technologies Satellite, FGR Conference 2018, 5th international conference of the IUFRO working party 2.09.02: Somatic embryogenesis and other vegetative propagation technologies (2018). PEFC annual meeting in Zurich. Scion also disseminates information through participation in international research groups and fora e.g. Scion is a member of the EPSO Agri-technologies Working Group and a member of EU COST Action PlantEd.

Industry workshops and meetings

- Numerous tours and presentations to industry groups, and government representatives including, Presentation to the Interim Climate Change Committee (ICCC), Presentation to Forest Grower industry groups, Forest and Bird representatives, visiting international and local officials.

Outreach and other activities:

- Special contributors to the Royal Society Te Apārangi discussion paper and companion technical paper exploring the potential uses of gene editing for the primary industries in Aotearoa, and attendance at Royal Society industry workshops.
- Tours, presentations and discussions with University and high school students including Auckland university and Rotorua High School students.

### **Environmental impact research**

No environmental impact research was conducted.