

10 July 2020

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 2019 to 31 May 2020. This is the ninth annual report for the approval.

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

The Ministry of Primary Industries conducted an audit of Field Test activities on 27/6/2019 and the outcome was acceptable. No areas of non-compliance were identified.

Refresher training of approved users was conducted in August 2019.

780 trees for a new trial (Biomass Acquisition and Utilisable Biomass traits) were transferred to the Field Test site on 7/10/2019. These trees were planted on 16/10/2019.

99 transgenic trees plus 23 wild types (Biomass acquisition and utilisable biomass traits) were transferred to the Field test on 11/11/2019. These trees were planted on 25/11/2019.

The Ministry of Primary Industries conducted an audit of Field Test activities on 13/11/2019. The audit had an acceptable outcome and no issues were identified.

Two trees (utilisable biomass trait) were transferred to the Field test on 12/12/2019 and 19/12/2019, to replace trees that had died following the plantings in October.

On 19/3/2020, 26 trees (in a trial of Biomass Acquisition and Utilisable Biomass traits) that had died after planting, during a period of prolonged drought conditions, were removed and placed in the non-mowing area. On 24/3/20 and 7/4/20 additional dead trees were removed (two on each occasion).

On 24/3/2020 eight trees in the utilisable biomass trial were felled.

On 25/3/2020 two trees in a trial of utilisable biomass were felled.

Management of the Field Test was continued during the Covid-19 lockdown. Staff required to manage the Field test site were allowed access to work under essential work services requirements.

On 2/4/2020 all of the trees in the Biomass acquisition trial were felled, except for one which was felled later (29/04/2020). This gave surety to our ability to maintain containment should a large number of trees develop structures, and staff become unavailable during the Covid-19 lockdown. Thirty-six wild-type trees remained in the trial.

On 20/4/2020 samples were collected from six trees in a trial for utilisable biomass and the trees were felled.

Ministry of Primary Industries conducted an audit of the Field test activities on 14/5/2020. The outcome of the audit was acceptable, and no areas of concern were identified.

Details of reproductive inspections and outcomes are given in Table 1.

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 (non-transgenic) trees.

Date of identification	Number of trees identified - trait	Date of removal of structures from tree	Date of tree felling
4/6/2019	15 - Biomass Acquisition 39 - Utilisable Biomass	4/6/2019	4/6/2019 and 18/6/2019
6/6/2019	24 - Utilisable Biomass	6/6/2019	18/6/2019 and 19/6/2019
10/6/2019	42 - Utilisable Biomass	10/6/2019	18/6/2019, 19/6/2019, 21/6/2019 and 24/6/2019
14/6/2019	4 - Utilisable Biomass	14/6/2019	20/6/2019 and 21/6/2019
17/6/2019	9 - Biomass Acquisition 1 - WT	17/6/2019	17/6/2019
18/6/2019	48 - Utilisable Biomass	18/6/2019	18/6/2019 and 24/6/2019
20/6/2019	23 - Utilisable Biomass	20/6/2019	20/6/2019
21/6/2019	26 - Utilisable Biomass	21/6/2019	21/6/2019
24/6/2019	179 - Utilisable Biomass	24/6/2019	24/6/2019
2/7/2019	1 - Utilisable Biomass	2/7/2019	2/7/2019
10/7/2019	4 - WT		
11/7/2019	4 - Biomass Acquisition 4 - Utilisable Biomass	11/7/2019	11/7/2019 and 23/7/2019
25/7/2019	9 - Biomass Acquisition 3 - Utilisable Biomass	25/7/2019	26/7/2019 and 7/8/2019
7/8/2019	2 - Utilisable Biomass 9 - Biomass Acquisition 1 - WT	7/8/2019	7/8/2019 and 19/8/2019
22/8/2019	2 - Biomass Acquisition 4 - Utilisable Biomass	22/8/2019	22/8/2019 and 29/8/2019
5/9/2019	4 - Utilisable Biomass 1 - Biomass Acquisition	5/9/2019	5/9/2019
26/3/2020	2 - Utilisable Biomass	26/3/2020	26/3/2020
30/3/2020	190* - Biomass Acquisition	30/3/2020	2/4/2020
31/3/2020	152* - Biomass Acquisition 1 - Utilisable Biomass	31/3/2020 31/3/2020	2/4/2020 1/4/2020
1/4/2020	62* - Biomass Acquisition 3 - Utilisable Biomass	1/4/2020 1/4/2020	2/4/2020 1/4/2020
7/4/2020	13 - Utilisable Biomass 5 - Utilisable Biomass 12 - WT	7/4/2020 7/4/2020	7/4/2020 20/4/2020 and 21/4/2020
21/4/2020	1 - Biomass Acquisition 2 - Utilisable Biomass 36 - WT	21/4/2020	29/4/2020 and 1/5/2020

* During the inspection for reproductive structures on 26/3/2020, possible early stage reproductive structures were identified on a large number trees in a trial testing biomass acquisition. These structures were too young to confirm as reproductive and our existing protocol would be to monitor

them during the next inspection. It was decided to fell (kill) these trees as a contingency for staff becoming unavailable should Covid-19 infection become widespread and staff become unavailable.

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 latter part of the reporting period these have been limited by Covid-19 retractions but have included:

Scientific presentations at academic conferences in New Zealand and internationally

- Forest Growers Conference (Wellington), dissemination through participation and discussions through membership of international research groups e.g. the EU COST action PlantEd and the EPSO Agri-technologies working group.

Industry workshops and meetings

- Tours and presentations to industry groups (including Forest Growers Workshop), government representatives, visiting international (including German and Korean delegates) and local officials.

Outreach and other activities:

- Submissions and presentations to Waikato district plan, tours by high school and University Students.

Environmental impact research

No environmental impact research was conducted.