NZDFI NEW ZEALAND DRYLAND FORESTS INITIATIVE
breeding tomorrow's trees today

C/- Marlborough Research Centre
Private Bag 1007
85 Budge Street
Blenheim 7240

t 03 577 2377
e info@nzdfi.org.nz
w www.nzdfi.org.nz

Project Update - December 2014 – June 2015

NEWS FROM THE PAST FEW MONTHS –

Forest Operational Research and Extension Programme - SFF 13-024 project: Enabling growers to maximise value from planting durable eucalypts

There have been inspections of a number of trial sites planted in 2013 and 2014 including:

- NZ Redwood Company's two sites near Hunterville and Taumarunui.
- Lake Taupo Forest Trust, Mission Bay, Taupo.
- Ed Saathof, Crownthorpe, Central Hawkes Bay.
- Hawkes Bay Regional Council, Waihapua forest, Hawkes Bay.
- Williams/Greater Wellington Regional Council, Ngaipu, Wairarapa.
- Roger Clifton, Motueka Valley, Nelson.
- Warwick Lissaman, Awatere, Marlborough.
- Robb MacBeth, Waiau Valley (two sites), Nth Canterbury.

Aside from deer damage in the younger trials at NZRC's Hunterville site, establishment has been successful and there has been good growth at all sites visited including at Robb MacBeth's sites in north Canterbury where a severe drought has developed since planting.

No new trial sites are planned for planting this coming spring.

A view across the new trials planted at Waihapua forest by Hawkes Bay Regional Council last year. While there is a lot of 'fleabane' weed around the eucalypt seedlings, this acted as a nurse crop in the NZ Redwood Company's trial planted in 2013 near Hunterville where the fleabane died back the following winter leaving the eucalypt seedlings in the clear.

Geoff Thorpe with a 7 month old E. bosistoana seedling in the new Lake Taupo Forest Trust trial planted last year in pine cutover and pumice soils.

The upgrade of the NZDFI website has continued with some landowners that host NZDFI trials now having their own page. Check this link: http://nzdfi.org.nz/research-trials/trial-sites/wairarapa/atkinson/

Open access for site visits is possible for trials on public land including at Tect Park, Waihapua Forest and Rewanui Farm Park. Visits may be possible to other sites on private land by contacting NZDFI.

There has also been a link established with the University of Canterbury School of Forestry web site where all the NZDFI PhD scholarship research projects are listed. Check this link: http://www.forestry.ac.nz/research/NZDFI-ResearchProjects.shtml

Several short videos that cover eucalypt establishment techniques in grassland and pine cutover have been completed. Another short video is a 12 month time lapse of the trial that was planted in 2013 by Warwick Lissaman on his property in the Awatere Valley, south Marlborough. These can all be viewed on the web site. http://nzdfi.org.nz/grower-information/growing-ground-durable-eucalypts/growing-regimes/establishing-ground-durable-eucalypts-2/

There's been continuing interest in the NZDFI R&D programme with presentations given to the Marlborough Regional Forests Committee; at Hawkes Bay Regional Council's Field day at Waihapua forest and to the Primary Production Committee at Parliament House.

The New Zealand Dryland Initiative Project also won the Supreme Award at the 2015 Cawthron Marlborough Environment Awards (CMEA) dinner on 13th March in Blenheim. The judges were "*impressed by the well thought through strategic and collaborative approach to the project development which combines grassroots, commercial and scientific elements"*. Winning this award is therefore recognition of the huge gains already made by NZDFI's innovative research team through their collaboration with the diverse group of smart and motivated landowners that host the NZDFI's trials. So a big thanks to the CMEA Trust.

On 12th May the CMEA Trust and NZDFI held a combined evening seminar at the Marlborough Research Centre preceded by a field trip. This event was attended by 58 people and included a visit to Marlborough Lines workshop to see and hear about the company's use of hardwood cross arms in their electricity network.

Geoff Hoare talking to attendees about the use of hardwood crossarms in Marlborough Lines electricity network.

On 3rd June NZDFI held a field trip and seminar in and around Martinborough in southern Wairarapa. This seminar was attended by over 40 people with an interest in sustainable land use, including vineyard owners/managers; organic farmers and farm foresters. The seminar covered (i) the potential for ground durable eucalypts as a land-use option in the Wairarapa, and (ii) the exciting opportunities for using the highly durable timber as an alternative to treated pine in vineyard posts, fence posts and poles, and in many other applications. A big thanks to the local speakers for preparing for this event and for all giving excellent presentations.

NZDFI's Extension team chair, Clive Paton speaking to attendees about the use of naturally durable E. cladocalyx strainer posts and stays in his vineyard near Martinborough.

AGMARDT project: Matching elite high value eucalypts to productive drylands

The University of Canterbury's AGMARDT project on matching two NZDFI durable species *(E. bosistoana* and *E. globoidea)* to dry land sites in Marlborough is progressing well.

The two meteorological stations in the North Island were relocated and another was established at Atkinson's in southern Wairarapa. In addition temperature sensors have been set up at Lake Taupo Forest Trust trial site to see how cold the winter frosts are.

The new weather station at the site of the E. globoidea breeding population planted at Atkinsons in south Wairarapa with the Aorangi Range behind.

Last summer two University of Canterbury summer scholarship students working under UC's AGMARDT project were able to re-measure most of NZDFI's existing PSP's and to establish another 27 new PSP's bringing the total to 129. Data was successfully recorded by the students using a new i pad mini throughout the summer. UC/NZDFI PhD student Serajis Salekin is analysing the data to establish the variation in species performance across the sites where PSP's have now been measured at least twice.

Collaboration continues with Scion Research through their SLMACC hardwood productivity research project. They have completed re measurement of the *E. globoidea* PSP's in the North Island and also established a number of new PSP's. Many of Scion's PSP's are in older stands so when data from these is combined with NZDFI's data from younger trials it is anticipated this will be sufficient to provide the basis of a growth model for this species.

NZDFI's Tree Improvement Programme

There continues to be rapid growth of some species within our breeding populations of *E. bosistoana*, *E. globoidea* and *E. quadrangulata*. This has required completing further assessments of growth and form followed by marking up poorer performing trees and then thinning to remove these.

Some of the thinned trees have had discs cut from the felled stem that are being used by UC/NZDFI PhD student Gayatri Mishra in her research of heartwood formation and the chemical basis of natural durability.

In addition, work has continued with the development of a suitable increment corer that can be used by UC/NZDFI PhD student Yanjie Li in his research for superior trees with abundant heartwood rich in extractives.

Over this summer UC/NZDFI PhD student Huimin Lin will be monitoring the temporal differences in insect attack and severity on the growth and recovery of *E. bosistoana* in one of our breeding populations.

New Funding

In March, while NZDFI were not successful with a 'Eucalypts for Bees' application to MPI's Sustainable Farming Fund, the University of Canterbury School of Forestry was successful with an application for over $450,000 to fund a three year research project on minimising growth strain in eucalypts. This SFF project 407602 has been awarded to grow thousands of two year old trees from over 100 families of *E. bosistoana* at Murray's Nurseries in Woodville. These trees will be cut down and an innovative splitting test that allows screening to find the best individuals will be used to select individuals for vegetative propagation research using cuttings taken from coppice regrowth.

Then on 19th May, Science and Innovation Minister Steven Joyce announced the Government will invest $5 million over seven years via a new MBIE research partnership that is led by Future Forests Research (FFR), in collaboration with Scion, the University of Canterbury, and the Marlborough Research Centre.

The partnership will deliver funding to FFR to establish research contracts with Scion for research on Douglas fir, cypresses and non durable eucalypts; and with the University of Canterbury (UC) and the Marlborough Research Centre (MRC) for delivery of the NZDFI's durable eucalypt research programme.

The Government's approval is for $710,000 per year over the seven year period, to be matched dollar for dollar by industry co-funding. Scion will be investing a further $550,000 per annum from their core funding. This will deliver a huge boost to NZDFI's durable eucalypt research programme as the combined allocation to UC and MRC is $0.5 M per annum. The new partnership commenced from 1st July.

IN THE PIPELINE

- **NZDFI Field day and seminar in Hawkes Bay on Wednesday 4th November 2015**

NZDFI is running a third and final seminar combined with a field trip in Hawkes Bay on Wednesday 4th November 2015 and supported by the Sustainable Farming Fund. This will be open to all-comers and attendees will make an afternoon visit to Ben McNeill's property at Waimarama commencing at 2pm. Ben started growing ground-durable eucalypts over 20 years ago. Several NZDFI trials are sited on his property and there is also a Permanent Sample Plot set up by Scion in a 20 year old stand of *E. globoidea.*

The seminar will cover the potential for ground durable eucalypts as a land-use option on lower quality land in the Hawke's Bay. It will also provide an overview of NZDFI's tree breeding and wood durability research and UC's research focus on matching durable eucalypt species to sites. In addition, an update will be provided on growth and productivity research of *E. globoidea* by Scion.
Registrations for this workshop will be open later this year.

- **Pruning workshops 2016**

Five pruning workshops are being planned between January and May 2016.
A programme with sites and dates for these workshops will be circulated later in this year.

- **Permanent Sample Plot measurement summer programme**

University students will be employed by NZDFI this summer to undertake further re measurement PSP's and to establish more PSP's in new sites where trees have grown to sufficient size. Additional PSP's will be established to extend the range of site types and to better understand the variation in species performance between and within sites.

A final word from Paul....

It was the seventh anniversary since the NZDFI was formally established on 1st July 2008 by a collaborative group of diverse organisations and companies that shared the long term vision for New Zealand to become a world leader in breeding durable eucalypts and to diversify NZ's timber supply with a valuable sustainable hardwood industry on NZ's east coast regions.

This past seven years have been both challenging and rewarding in bringing together the people and resources needed to provide the foundation to achieve this vision. I appreciate and thank all of you that have supported NZDFI in getting this far as your commitments have contributed to NZDFI now being a partner of FFR's new Speciality Wood Products Partnership research programme.

This partnership will ensure much-needed funding for a seven year programme that includes Marlborough Research Centre continuing critical field work and management of NZDFI's breeding trials and for the University of Canterbury's world leading team of new researchers to develop elite germplasm and best practice management systems for NZ forest growers to produce high quality durable wood products for domestic and international markets.

Anyone wanting further information and you can encourage others to contact:

Paul Millen, NZDFI Project Manager 03 574 1001 p.millen@xtra.co.nz

SUPPORTERS: