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# Agro-forestry Development Species

## Demonstration Sites Summary

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Craig R. Neumann, Ian Filmer, Trevor J. Hobbs,

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# Executive Summary

A series of FloraSearch woody crop field trials were established between 2004 and 2010 in South Australia by the Department of Environment, Water (DEW) to evaluate the potential of native plants species to produce biomass for wood fibre, bioenergy, eucalyptus oil, fodder and carbon sequestration industries. Sites were established at Murray Bridge, Roseworthy and Lucindale in 2004-2005 to undertake preliminary species performance evaluation and limited experiments to evaluate the influences of planting density and harvesting on regrowth. This work was conducted in partnerships with allied government departments in Western Australia, Victoria and New South Wales, CSIRO and the Future Farm Industries Cooperative Research Centre (CRC) as part a national network of woody crop trial sites.

In 2006, more detailed studies commenced at the Monarto Research Site to establish genetic collections of most prospective species, including a suite of prospective FloraSearch "development" species in provenance trials. This FloraSearch project was completed in 2014 with release of the report *Performance of Native Plant Species in South Australian Woody Crop Trials – FloraSearch 4* (Hobbs et al. 2014)

The unpaid volunteers of the Farm Forestry Landcare Network decided to do what they could to further both, the knowledge surrounding some of the better performing eucalypt species from the Monarto Research Site and preserve the genetics of the most promising ones. A report written in 2018 provides information about what the Farm Forestry Landcare Network aims to achieve. It describes the trees chosen for inclusion in the demonstration site plantings. It gives a summary of the networks practical learnings surrounding growing the trees and establishing demonstration plantings. Finally, it provides details and assessments of each of the demonstration sites established across the South Australian Murray Mallee and Upper South East under the Farm Forestry Landcare Network's, Demonstration Site Program.

It is envisioned that the report will be added to each year as the Demonstration Sites develop. New assessments will be added for each site and new sites will also be included as funding and land becomes available. The information about the trees and planting methods will also be added to and improved each year.

## Background

The Farm Forestry Landcare Network (FFLN) is a volunteer organisation that represents an alliance between landholders, farm forestry practitioners, agricultural industries, researchers, non-government agencies, local governments and the Government of South Australia to facilitate sustainable landuse and industries using farm forestry options.

The Group has been around for a long time under different names. It was previously known as the Agro-Forestry Working Group, when supported by Regional Development Australia Murraylands & Riverland. Then it was known as the Agro-Forestry Entrepreneurship Hub under the Chaffey Learning Exchange. The current name harks back to the group's early links to the Coorong Farm Forestry Network supported by Coorong Tatiara Local Action Plan in 1998 and is currently receiving support from The Murray Mallee Local Action Planning Association.

The potential of farm forestry to enhance our landscapes and communities from the economic benefits of wood product industries (e.g. firewood, timber, fibre, biofuels) and ecological benefits of more perennial farming systems (e.g. biodiversity, carbon sequestration, soil health) is immense. The FFLN encourages these sustainable developments under a shared vision of prosperous communities, vibrant industries and a healthy environment.

The success of this group is bound to the concept of open and productive sharing of ideas, learnings, information and scientific developments to enable truly collaborative and informed decisions on the best

land management and industry options. The network uses the best science and genetic materials developed during the operations of the FloraSearch project and trials and combines these resources with extensive practical experience of a diverse range farmers, landholders and facilitators of community-led revegetation and farm forestry activities.

The FFLN's program of trials provide the most recent addition to these learnings by testing establishment techniques and improved genetics in real-world situations.

The aims of the Farm Forestry Landcare Network are:

1. The promotion of agro-forestry knowledge and opportunities.
2. Map the provision of agro-forestry knowledge, courses, services, demonstration sites, and local champions. Develop case studies to help farmers understand methods, benefits and opportunities. Provide a package of skills and resources to develop the market.
3. Establish demonstration sites of tree species suited to lower rainfall farming.
4. Develop a range of tree species suited to lower rainfall farming.
5. Work with policy initiatives to leverage the reach of government initiatives.
6. Drive interest in agro-forestry to achieve critical mass to support investment in harvesting and processing equipment and infrastructure. This includes:
  - Challenges to farmers (e.g. productivity challenge).
  - Focusing on non-productive land (e.g. sandhills).
  - Addressing salinity (soaks/seeps).
  - Options for farmers that are resistant to the establishment of environmental plantings in these instances.

In South Australia there are only a few viable agro-forestry opportunities, yet the integration of trees into the agricultural landscape is expected to play an important part of the future agricultural mix, particularly in relation to:

- Sustainable, and carbon neutral, home heating.
- Soil conservation and enrichment.
- New crops to cater for low rainfall farming.
- Global demand for timber.
- Australia's deficit of \$2 billion in forest products.
- A focus on renewable products and energy sources.
- Carbon farming and sequestration.
- Diversified rural economies.
- Oil production.
- Seed banks.

Only eucalypts were included in the demonstration sites. Firstly, because most of the other genera present at Monarto had expired having exceeded their natural life spans. Secondly, because growers expressed a

desire to establish long lived plantations in the absence of any immediate market other than firewood. Thirteen selections were made to cover a range of growing conditions and products. Those being:

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|--|-------------------------|----------------------|
| • <i>Eucalyptus cladocalyx</i> [Bundaleer]                 | Sugar Gum               | Tree                 |
| • <i>Eucalyptus cladocalyx</i> [Kersbrook]                 | Sugar Gum               | Tree                 |
| • <i>Eucalyptus cneorfolia</i> [Kingscote]                 | K.I. Narrow Leaf Mallee | Mallee               |
| • <i>Eucalyptus horistes</i> [WA]                          | Oil Mallee              | Mallee               |
| • <i>Eucalyptus loxophleba ssp. Lissophloia</i> [WA]       | York Gum                | Small tree or Mallee |
| • <i>Eucalyptus occidentalis</i> [Gibson]                  | Flat Top Yate           | Tree                 |
| • <i>Eucalyptus occidentalis</i> [Jerdacuttup]             | Flat Top Yate           | Tree                 |
| • <i>Eucalyptus oleosa ssp. oleosa</i> [Mallala]           | Red Mallee              | Mallee               |
| • <i>Eucalyptus petiolaris</i> [Koppio]                    | Eyre Peninsula Blue Gum | Tree                 |
| • <i>Eucalyptus polybractea</i> [Inglewood]                | Blue Mallee             | Mallee               |
| • <i>Eucalyptus porosa</i> [Glenloth]                      | Mallee Box              | Tree or Mallee       |
| • <i>Eucalyptus camaldulensis x globulus</i> [Saltgrow 35] | Saltgrow hybrid gum     | Tree                 |
| • <i>Eucalyptus camaldulensis x grandis</i> [Saltgrow 06]  | Saltgrow hybrid gum     | Tree                 |

