final report

Project code: B.PBE.0034
Prepared by: Steve Hughes
SARDI
Date published: June 2014
ISBN: 9781740362184

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

Australian Pastures Genebank - Transitional agreement

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Abstract

Australian is a signatory to the International Treaty on Plant Genetic Resource for Food and Agriculture (Treaty) and is custodian to the world's largest, globally unique and significant collection of pasture and forage genetic resources. Improved germplasm of pasture and forage species are the foundation of our national feedbase. Conservation and use of genetic diversity is fundamental to meeting new challenges and future proofing the feedbase. Australian pastures and forage collections were deteriorating and at risk of being mothballed. In 2011 all Australian States agreed to establish a national pastures genetic resource centre to be based at SARDI and in 2013 national Research & Development Corporations agreed in principle to co-invest in the Australian Pastures Genebank (APG). This projects purpose was to provide SARDI the opportunity to maintain the APG and enable the development of an agreed set of terms for its governance, management and operation.

Agreement for the funding, governance, management and operation of the APG has been achieved between SARDI and Meat & Livestock Australia, Grains Research and Development Corporation Dairy Australia Australian Wool Innovation and the Rural Research and Development Corporation.

The outcomes of this project have provided an opportunity for Australia to meet its legal and moral obligations under the Treaty and support the conservation and management of Australia's pastures and forage genetic resources to International standards for the benefit of Australian Industry and global food security.

Executive summary

Australia is a signatory to the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) for pasture and forage species. Under this Treaty, Australia is required to maintain an updated store of genetic material for pasture plants used in this country, including both native and imported species.

Improved varieties of pasture and forage species are the foundation of Australia's ruminant livestock industries. Plant diversity is critical to helping grazing and mixed farming systems adapt and remain competitive in the challenge of a changing climate and offers plant breeders the tools to develop better plants which are more productive, resist pests and diseases, can survive through drought, saline soils, reduce our carbon footprint, adapt to changing environmental conditions or whatever other challenges the future may bring.

Australia is custodian of the world's largest and globally significant collection of pasture and forage genetic resources. Due to a lack of Industry and Government funding these collections are at risk. A national solution was required to secure their future.

All states agreed in February, 2011 to combine their collections into the national collection to be housed in Adelaide. The Australian Pastures Genebank (APG) will be led by the South Australian Research and Development Institute (SARDI) and will be based at the SARDI Plant Research Centre at the Waite Campus in Adelaide, South Australia. The APG will combine relevant seed and data currently stored from all significant State pasture and forage centres in NSW, QLD, SA, TAS, VIC and WA.

The APG will be the national hub for pasture and forage plant genetic resources in Australia preserving and protecting all pasture genetic resources critical for future plant breeding and the innovation of Australian grazing industries. The APG will also provide a source of genetic diversity for overseas programs and will fulfil Australia's international responsibilities to conserve and distribute seed for use in improving global food security. This will enable Australia to meet its obligations, legal and moral, under the International Treaty on Plant Genetic Resources for Food and Agriculture for pasture and forage species

In April, 2012 a meeting of representatives from Australian Government Department of Agriculture, Fisheries and Forestry (DAFF), Meat & Livestock Australia (MLA), Grains Research and Development Corporation (GRDC), Rural Research and Development Corporation (RIRDC), Dairy Australia (DA) and Australian Wool Innovation (AWI) (RDCs) agreed in principle to co-invest in the Centre. MLA commitment to the annual costs of the APG was $390,922, 49.5% of total costs.

The purpose of this project was to provide transitional funding to SARDI to maintain the APG for the 2013/14 financial year to enable the development with funding partners an agreed set of terms for governance, management and operation of the centre for the next four years.

As a result of negotiations between senior SARDI management and representatives from the RDCs and State departments, a fully executed contractual agreement for the funding and operation of the APG between SARDI and all RDCs has been achieved.

The RDCs have agreed to fund the APG and SARDI has agreed to operate the APG in accordance with the terms and conditions set out in the Agreement.

The Agreement is for a period of five years commencing 1 July 2013 and ending in the first instance June 30 2018. It is also acknowledged in the agreement that MLA has already paid its 2013/14 contribution in full through the support of this transitional project.

As per the Agreement, governance and management of the APG will be through the APG Steering Committee. The Committee will have a maximum of 13 members (6 voting and 7 non-voting). The Committee will be chaired by a representative from DAFF and voting members include a member form each of the 5 RDCs and 1 from SARDI. Non-voting members include State representatives, the chair and the APG Curator.

Operations and strategic direction of the APG will be overseen by the steering committee against a set of agreed objectives in accordance with the Treaty.

Through a transitional step, seed and data from current State pasture and forage collections would be consolidated into the APG for more efficient conservation and national and international utilisation. Regeneration will be undertaken at regional hubs in Qld, SA, Tas and Vic. To promote the efficient use of the seed associated ecological, biological and characterisation data will be consolidated into a web searchable central database (GRIN Global). The APG will operate under the framework of the Treaty and following the rules and standards of its Multilateral System. Accordingly, all pasture and forage accessions in the APG will be distributed under the Standard Material Transfer Agreement.

The outcomes of this project have provided an opportunity for Australia to meet its legal and moral obligations under the International Treaty on Genetic Resources for Food and Agriculture and support the conservation and management of Australia's pastures and forage genetic resources to International standards for the benefit of Australian Industry and global food security.

Table of Contents

1 Background

Australia is a signatory to the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) for pasture and forage species. Under this Treaty, Australia is required to maintain an updated store of genetic material for pasture plants used in this country, including both native and imported species.

Improved germplasm of pasture and forage species are the foundation of the national livestock feed base.

Access to pasture and forage genetic resources is critical to national food security in the challenge of a changing climate and will underpin our ability to continue to adapt grazing and mixed farming systems, and to maintain catchment and other environmental grasslands to cope with increasing climate variability. Australia is custodian of the world's largest and globally significant collection of pasture and forage genetic resources. Australia has been a major beneficiary from the importation and utilisation of genetic resources in pasture and forages. Over 90,000 accessions are currently held in State-based collections and include over 25,000 accessions of Annex 1 forage species that are not available anywhere else. These collections are unique and remain at risk and are becoming increasingly inaccessible to potential clients.

Australia requires a national approach to genetic resources of pastures and forages to benefit industry and the environment, and to support the policy objectives and operational mechanisms of the Treaty (PISC 20 2011).

All states agreed in February, 2011 to combine their collections into the national collection to be housed in Adelaide. The Australian Pastures Genebank (APG) will be led by the South Australian Research and Development Institute (SARDI) and will be based at the SARDI Plant Research Centre at the Waite Campus in Adelaide, South Australia. The APG will combine relevant seed and data currently stored from all significant State pasture and forage centres in NSW, QLD, SA, TAS, VIC and WA.

The APG will strategically acquire, document, conserve and make available plant genetic diversity of all plants important to agriculture in Australia other than crop or horticultural plants. This includes plants to be grown for livestock, crop rotation and the environment. The APG will be the hub for pasture and forage plant genetic resource activities in Australia and will improve the effectiveness and efficiency of germplasm introduction, conservation, phenotyping, genotyping and information management, which will enable researchers and breeders to better utilise pasture and forage germplasm for the benefit of the agriculture and the environment.

A value proposition was presented to national Research and Development Corporations demonstrating large and positive economic benefits for investment in the APG.

In April, 2012 a meeting of representatives from DAFF, RIRDC, GRDC, DA, AWI, and MLA agreed in principle to co-invest in the APG.

2 Objectives

The purpose of this project was to provide transitional funding to SARDI to maintain the APG for one financial year to enable the development with funding partners an

agreed set of terms for governance, management and operation of the centre for the next four years.

This project has allowed these objectives to be achieved.

3 Methodology

The development of an agreed governance structure, management and operation of the APG over the next four years was achieved through a series of meetings, discussions and negotiations between senior SARDI management and representatives from the Australian Government Department of Agriculture, Fisheries and Forestry, State departments and Industry leaders from Meat & Livestock Australia, Grains Research and Development Corporation Dairy Australia Australian Wool Innovation and the Rural Research and Development Corporation.

4 Results

4.1 Agreement for the funding and operation of the Australian Pastures Genebank

The outcome of this project has resulted in a fully executed contractual agreement for the funding and operation of the Australian Pastures Genebank between SARDI and Meat & Livestock Australia, Grains Research and Development Corporation Dairy Australia Australian Wool Innovation and the Rural Research and Development Corporation ("RDCs").

The RDCs have agreed to fund the APG and SARDI has agreed to operate the APG in accordance with the terms a condition set out in the Agreement. A summary of the terms and conditions set out in the Agreement are outlined below.

4.1.1 Term

The Agreement is for five years commencing 1 July 2013 until 30 June 2018 with a review in the fourth financial year to decide upon the terms and conditions for continuing to support the APG.

4.1.2 Governance and management

The governance and management of the APG has been agreed and will be through a steering committee. The APG Steering Committee will have a maximum of 13 members (Members) comprised of the following 6 voting and 7 non-voting Members:

a) 1 Member appointed by SARDI (Voting Member).
b) 1 Member appointed by each RDC party (Voting Members).
c) 1 Member appointed by each the stakeholder states, WA, QLD, NSW, VIC, TAS (Non-Voting Members).
d) The APG Curator (SARDI employed) shall be an ex officio Member (Non-Voting Member).
e) The chair will be a representative appointed by the Commonwealth Department of Agriculture, Food and Fisheries (who represent Australia at the International Treaty on Plant Genetic Resources for Food and Agriculture) (Non-Voting Member).

(a) and (b) are together the "Party Members"

(c) to (e) are together the “Non Party Members”

A Member may remove and replace any representative appointed by it at any time by notice in writing to the APG Steering Committee.

A Member of the APG Steering Committee that is unable to attend a Steering Committee meeting may choose to select a proxy to attend the meeting.

Full details of the functions and responsibilities of the APG steering committee are set out in Schedule 2 of the Agreement.

4.1.3 Funding model

As per the Agreement consensus has been reached to a five commitment- in the first instance to support the $789,741 annual cost of APG operations. Annual costs of operation were apportioned against expected gains to industry based on the Allen Groups Benefit Cost Analysis.
This amounts to cost-sharing being allocated as follows, with 2013/14 dollar commitments declared:

Cash contributor	$ pa GST (ex)
MLA contributes 49.5%	390,922
AWI contributes 18.07%	142,697
DA contributes 15.5%	106,615
GRDC contributes 15.5%	122,410
RIRDC contributes 2.6%	20,533
SARDI contributes (0.83%)	6,564
TOTAL (pa) (GST ex)	$ 789,741

It is also acknowledged in the agreement that MLA has already paid its 2013/14 contribution in full through the support of this transitional project.

4.1.4 Operations

All Parties have agreed that the Operations of the APG will be managed by a curator and key staff employed by SARDI to service the operations of the APG.

SARDI will operate the APG in accordance with the *International Treaty on Plant Genetic Resources for Food and Agriculture* to which Australia is a signatory

Operations of the APG for the next four years will be aligned against the following APG objectives:

a) The APG will combine relevant seed and data currently stored from all significant State pasture and forage centres in NSW, QLD, SA, TAS, VIC and WA.
b) Data will be publicly accessible online through GRIN Global and regeneration of material will be undertaken in environment specific locations that match species requirements with nodes agreed in WA, QLD, SA and TAS;
c) The APG will strategically acquire, document, conserve and make available plant genetic diversity of all plants important to agriculture in Australia other

than crop or horticultural plants. This includes plants to be grown for livestock, crop rotation and the environment;

d) The APG will be the hub for pasture and forage plant genetic resource activities in Australia and will improve the effectiveness and efficiency of germplasm introduction, conservation, phenotyping, genotyping and information management, which will enable researchers and breeders to better utilise pasture and forage germplasm for the benefit of the agriculture and the environment;
e) The APG will also provide a source of genetic diversity for overseas programs and will fulfil Australia's international responsibilities to conserve and distribute germplasm for use in improving global food security. This will enable Australia to meet its obligations, legal and moral, under the International Treaty on Plant Genetic Resources for Food and Agriculture for pasture and forage species;
f) Through a transitional step, seed from current State collections will be centered at SARDI for long term preservation and national and international utilisation. To promote the efficient use of the APG, associated ecological, phenotypic, pedigree, and genetic data would be consolidated into one central database managed from the same location; and
g) Such other objectives as are specified in the Project Brief.

5 Discussion/conclusions

The establishment of the Australian Pastures Genebank is a result of efforts from numerous past and present individuals. In the past 25 years there have been at least 16 reviews and discussion papers supporting the role and functions of pasture genetic resources, agreeing in principle to reform, however until now there has never been agreement and implementation.

The Agreement for the operation and funding of the APG is testament to the efforts of SARDI senior management and representatives from the Australian Government Department of Agriculture, Fisheries and Forestry, State departments and Industry leaders from Meat & Livestock Australia, Grains Research and Development Corporation, Dairy Australia, Australian Wool Innovation and the Rural Research and Development Corporation (RDCs). Acknowledgment from the RDCs that genetic resources are of public good and are needed to underpin technology advancements to their industry was critical towards supporting the Agreement.

The outcomes of this project have provided an opportunity for Australia to meet its legal and moral obligations under the International Treaty on Genetic Resources for Food and Agriculture and support the conservation and management of Australia's pastures and forage genetic resources to International standards for the benefit of Australian Industry and global food security.