

Country Report on the implementation
of the International Treaty on Plant
Genetic Resources for Food and
Agriculture
(ITPGRFA)

AUSTRALIA

01/05/2019

ANNEX 2

STANDARD REPORTING FORMAT PURSUANT TO SECTION V.1 OF THE PROCEDURES AND OPERATIONAL MECHANISMS TO PROMOTE COMPLIANCE AND ADDRESS ISSUES OF NON-COMPLIANCE

International Treaty on Plant Genetic Resources for Food and Agriculture Draft

Standard Voluntary Reporting Format

Introduction

1. Pursuant to Article 21 of the Treaty, the Governing Body has adopted a resolution that includes, amongst others, provisions on monitoring and reporting (Resolution 2/2011). Pursuant to this Resolution, each Contracting Party is to submit to the Compliance Committee, through the Secretary, a report on the measures it has taken to implement its obligations under the Treaty in one of the six languages of the United Nations (Section V.1).
2. The first report is to be submitted within three years from the approval of this standard format. The Governing Body approved this standard format at its Fifth Session.
3. This standard format has been developed to facilitate reporting and monitoring of the implementation of the Treaty. The use of this standard format is voluntary. A Contracting Party may use another reporting format if it so wishes.

Article 4: General Obligations

1. Are there any laws, regulations procedures or policies in place in your country that implement the Treaty?

Yes

No

If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:

Australia continues to implement the Treaty under existing laws, regulations and policies. Treaty obligations are taken into account while developing or amending relevant policies that underpin aspects of relevant agriculture sector strategies. For example, the Grains Industry National Research, Development and Extension Strategy 2014 includes:

- Consolidation of previously dispersed crop germplasm collections in the Australian Grains Genebank, in Horsham Victoria
- Consolidation of previously dispersed pasture and forage germplasm collections in the Australian Pastures Genebank in Adelaide, South Australia.

Both genebanks include Annex 1 crops and make accessions available using the SMTA.

The *in situ* conservation of wild crop relatives is supported by Australia's Biodiversity Conservation Strategy 2010–2030. This strategy functions as a policy 'umbrella' over other more specific national frameworks. These include:

- National Framework for the Management and Monitoring of Australia's Native Vegetation
- The Australian Weeds Strategy
- Australian Pest Animal Strategy
- Australia's Strategy for the National Reserve System 2009–2030

The frameworks aim to conserve natural resource biodiversity which includes some indigenous wild types of Annex 1 crops relevant to the Treaty.

The *Environment Protection and Biodiversity Conservation Act 1999* ensures conservation of biodiversity with national or international significance. Under this Act, once a species has been listed as threatened, recovery plans can be developed and implemented to stop the decline and support the recovery of the species concerned.

2. Are there any other laws, regulations, procedures or policies in place in your country that apply to plant genetic resources?

Yes

No

If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:

Australia has comprehensive national and state-level laws governing access to genetic resources in accordance with the Convention on Biological Diversity. Plant genetic resources covered under Annex 1 of the Treaty are exempted from these laws.

The *Plant Breeder's Rights Act 1994* applies to plant genetic resources, including Annex 1 crops. It implements the International Convention for the Protection of New Varieties of Plants (UPOV Convention) and supports implementation of the Treaty.

The *Patents Act 1990* and the *Plant Breeder's Rights Act 1994* provide a framework for intellectual property protection for new plant varieties and patentable inventions derived from plant genetic resources.

The *Food Standards Australia New Zealand Act 1991* and the *Gene Technology Act 2000* safeguard genetic resources by providing regulatory systems for food safety and the safety of genetically modified organisms.

3. Is there any law, regulation, procedure or policy in place in your country that needs to be adjusted / harmonized to ensure conformity with the obligations as provided in the Treaty?

Yes

No

If your answer is 'yes', please provide details of such adjustments and any plans to make those adjustments:

Article 5: Conservation, Exploration, Collection, Characterisation, Evaluation and Documentation of Plant Genetic Resources for Food and Agriculture

4. Has an integrated approach to the exploration, conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) been promoted in your country?

Yes

No

This has been undertaken on an industry-by-industry basis, by key agricultural industries. For example, the Grains Industry National Research, Development and Extension Strategy 2014 provides for an integrated approach to conservation and sustainable use of PGRFA relevant to the Australian grains industry.

5. Have PGRFA been surveyed and inventoried in your country?

Yes

No

If your answer is 'yes', please provide details of your findings, specifying species, sub-species and/or varieties, including those that are of potential use:

A number of native Australian species are closely related to Annex 1 species. These include species of the *Atriplex*, *Cajanus*, *Citrus*, *Dioscorea*, *Glycine*, *Gossypium*, *Ipomoea*, *Musa*, *Oryza*, *Solanum*, *Sorghum* and *Vigna* genera. However, only native Australian species of the *Cajanus*, *Citrus*, *Dioscorea*, *Ipomoea*, *Musa*, *Oryza*, *Solanum*, *Sorghum* and *Vigna* genera are relevant to Annex 1.

The Australian Pastures Genebank (APG) is in the process of finalising rationalisation of collections and the transition of seed from State collection into the national centre. The APG currently holds over 84,000 accessions of temperate and tropical pasture and forages unique to the national collection of which over 76,000 are unique to Australia.

The Australian Grains Genebank (AGG) scoped the size of Australia's grain crop and wild relative's *ex-situ* collections. Approximately 200,000 distinct accessions were identified and incorporated into the AGG. This included valuable Australian native wild relatives of *Cajanus*, *Oryza*, *Glycine*, *Gossypium*, *Sorghum* and *Vigna*.

All commercial grain crops grown in Australia originate from overseas (i.e. they are not native to Australia). As a result, the majority of the AGG collection has been sourced from international genebanks, research organisations and private industry. The Australian native species collection of more than 1,500 accessions held by the AGG are considered unique to Australia.

Other important Australian PGRFA that are threatened, under-conserved and underutilized include food and fodder plants of indigenous Australians. These "bush foods" are threatened in their natural environment and are also missing in genebank collections and therefore not yet generally available for use. For example, one species of *Ipomoea* (*I. polpha* subsp. *latzii*) is considered rare and used as a food source by indigenous Australians.

If your answer is 'no', please indicate:

- Any difficulties encountered in surveying or inventorying PGRFA;
- Any action plans to survey and inventory PGRFA;
- The most important PGRFA that should be surveyed and inventoried:

6. Has any threat to PGRFA in your country been identified?

Yes

No

It should be noted that, some of Australia's Annex 1 wild crop relatives are listed as extinct (e.g. *Musa fitzalanii*), endangered (e.g. *Solanum dissectum*, *Solanum johnsonianum*, *Solanum sulphureum*, *Atriplex yeelirrie*) and vulnerable (e.g. *Solanum dunalianum*, *Solanum karsense*, *Atriplex infrequens*, *Poa sallacustris*) under the *Environment Protection and Biodiversity Conservation Act 1999*.

If your answer is 'yes', please indicate:

- The species, subspecies and/or varieties subject to such threats;
- The sources (causes) of these threats;
- Any steps taken to minimise or eliminate these threats;
- Any difficulties encountered in implementing such steps:

7. Has the collection of PGRFA and relevant associated information on those plant genetic resources that are under threat or are of potential use been promoted in your country?

Yes

No

If your answer is 'yes', please provide details of the measures taken:

There is a requirement for applicants seeking Plant Breeders Rights to deposit propagating material of the plant variety for storage in a genetic resource centre.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) has developed the Indigenous Relatives of Crops Collection. This collection contains some 2000 accessions of the Australian *Glycine* species (non-Annex 1) and 400 accessions of 17 *Gossypium* species (non-Annex 1). This collection now functions more as a herbarium rather than an active seed bank and has not been used in research programs for several years.

8. Have farmers and local communities' efforts to manage and conserve PGRFA on-farm been promoted or supported in your country?

Yes

No

If your answer is 'yes', please provide details of the measures taken:

Australian farmers are free to grow the crop varieties they deem appropriate for their conditions. As such, there are no formal activities based around ensuring farmers and local communities conserve and manage domesticated PGRFA.

The Australian Government invested \$1 billion through both the National Landcare Programme Phase I (2014-18) and Phase II (2018-2023) to support natural resource management, sustainable agriculture and protect Australia's biodiversity. Although management and conservation of plant genetic resources for food and agriculture is not a specific mandate of the Landcare programme, it is expected that sustainable use of farmlands may help to protect wild crop relatives *in situ*.

There is a growing social movement based around traditional (primarily horticultural) crop varieties. This movement is characterized by smallscale "backyard" farmers. Organisations that support such activity include: the Seed Savers' Network and heirloom seeds sellers.

9. Has *in situ* conservation of wild crop relatives and wild plants for food production been promoted in your country?

Yes

No

If your answer is 'yes', please indicate whether any measures have been taken to:

Promote *in situ* conservation in protected areas;

Support the efforts of indigenous and local communities.

If such measures have been taken, please provide details of the measures taken

Australia's extensive network of national parks and state reserves (under the National Reserve System) provide natural habitat for the preservation of native flora. The reserve system includes more than 10,500 protected areas covering approximately 19.63 per cent of the country (over 150 million hectares).

Within the National Reserve System, the Indigenous Protected Areas (IPAS) programme assists Indigenous communities to voluntarily dedicate their land or sea country as Indigenous Protected Areas (IPAs) since 1997. Most IPAs are dedicated under International Union for Conservation of Nature (IUCN) Categories 5 and 6, which promote a balance between conservation and other sustainable uses to deliver social, cultural and economic benefits for local Indigenous communities.

IPAs combine traditional and contemporary knowledge into a framework to leverage partnerships with conservation and commercial organisations and provide employment, education and training opportunities for Indigenous people. By supporting the conservation efforts of indigenous communities, IPAs help to support *in situ* conservation of wild crop relatives.

Should *in situ* conservation be required, both state and national legislation allows for the declaration of threatened (or similar) species status, which gives legislative authority to conservation measures.

Commercialisation of Australian native food plants may provide impetus for *in situ* conservation efforts from the private sector. Australia is promoting the use of native plant genetic resources through the research of AgriFutures (formerly Rural Industries Research and Development Corporation). A key feature of AgriFutures New and Emerging Plant Three-Year RD&E Plan (January 2015 – June 2018) was a focus on native foods to support production research to lift productivity and supply consistency. Within the program, new species were also investigated for potential to add to the appeal and profitability of industry. Industry associations/lobby groups such as Australian Native Food and Botanicals also advance the development of markets for, and recognition of, Australian native foods.

10. Are there any *ex situ* collections of PGRFA in your country?

Yes

No

If your answer is 'yes', please provide information on the holder and content of such collections:

The Australian Pastures Genebank (APG) was established in 2014 with funding from five research and development corporations and substantial in-kind contributions from state agencies. The APG is a consolidation of forage collections previously held at Commonwealth Scientific Industrial Research Organisation (CSIRO) and State deposits including the Australian Tropical Crops and Forages Collection in Queensland, the Australian Medicago Genetic Resource Centre in South Australia, the Australian Trifolium Genetic Resource Centre in Western Australia, and smaller but significant pasture collections in Tasmania, Victoria and New South Wales. The APG is managed by the South Australian Research and Development Institute (SARDI) and is located in Adelaide, South Australia.

The APG currently has 84,838 accessions of predominantly wild material represented by 462 genera, 2921 taxa of 2623 species of temperate and tropical pastures and forages from 178 countries. The APG is responsible for the acquisition, documentation, conservation and distribution of plant genetic diversity of Australia's current and prospective pasture and forage plants for agriculture and the environment. The APG supports the conservation and utilisation (domestically and internationally) of germplasm as the basis for enhanced agriculture and environmental preservation now and into the future.

The APG maintains the world's largest collection of Medicago, Trifolium, serradella, Biserulla and tropical forages.

Major APG germplasm holdings of tropical species of grasses, legumes and shrubs include:

- *Cenchrus, Desmanthus, Digitaria, LabLab, Leucaena, Paspalum, Panicum* and *Stylosanthes*.

Major APG germplasm holdings of temperate pasture species of grasses, legumes and shrubs include:

- *Atriplex, Biserulla, Dactylis, Festuca, Lolium, Medicago, Onobrychis, Orinthopus, Trifolium* and a diverse collection of over 2500 accessions of Australian native grasses, legumes and shrubs.

The APG collection is predominantly wild accessions collected by Australian scientists from 178 countries over the last 70 years. The collection also includes a small mix of cultivars, breeding lines, weedy relatives, land races and mutant accessions. The conservation value of the germplasm is high. More than 90 per cent of the germplasm is unique in the world of *ex situ* seed banks.

The Australian Grains Genebank (AGG) was established in 2013 and is funded by the Victorian State Government and the Grains Research and Development Corporation. The AGG is the consolidation of grain crop genetic resources previously held by Australian Winter Cereal Collection New South Wales, the Australian Temperate Field Crops Collection Victoria, and the Australian Tropical Crops Collection Queensland. The AGG is managed by Agriculture Victoria and is located in Horsham, Victoria.

The AGG holds approximately 200,000 accessions of tropical through to temperate species of grain species and their relatives, with the collection growing by approximately 4,000 new accessions each year. The AGG mandate is the acquisition, documentation, conservation and distribution of plant genetic resources of actual or potential value grain crop species in support of the Australian grains industry for the development of more resilient and productive grain crop varieties. The AGG has strong collaborative relationships with Australian and international organisations for both access to new diversity for Australia, and for distribution of material.

Major AGG germplasm holdings of cereals include:

- *Avena, Hordeum, Oryza, Pennisetum, Secale, Setaria, Sorghum, Triticum* and *Zea*. The major legume and pulse germplasm holdings include *Arachis, Cyamopsis, Cajanus Carthamus, Cicer, Glycine, Lathyrus, Lens, Lupinus, Phaseolus, Pisum, Vicia* and *Vigna*.

The major oilseed germplasm holdings include:

- *Arachis, Brassica, Gossypium* and *Helianthus*.

Commercial grain crops grown throughout Australia are not native to Australia. As a result, the AGG collection consists mainly of internationally sourced germplasm. The collection includes cultivated species as released varieties, materials under development and landraces, and their associated progenitor and wild relatives. Approximately 1,500 accessions are considered globally unique. These unique species are primarily composed of Australian native wild relatives of *Cajanus, Elymus, Oryza, Glycine, Gossypium, Sorghum* and *Vigna* and others. The only duplicates of these samples exist in the Svalbard Global Seed Vault.

11. Has the development of an efficient and sustainable system of *ex situ* conservation of PGRFA been promoted in your country?

Yes

No

If your answer is 'yes', please indicate the measures taken to promote *ex situ* conservation, in particular any measures to promote the development and transfer of technologies for this purpose:

The establishment of the Australian Grains Genebank (AGG) and Australian Pastures Genebank (APG) ensure that mandated grain, pasture and forage species are acquired, documented, conserved, maintained and distributed for the benefit of food security

Australia's nationalised approach supports participation in the global system of genebanks and provides access to secure, diverse plant genetic resources for developing new, improved and better-adapted crops and foods in Australia and world-wide.

The APG and AGG are implementing GRIN-Global as an internet-based genebank information management system. GRIN-Global is a germplasm resource information network (GRIN) jointly developed by the US Department of Agriculture's Agricultural Research Service, Bioversity International, and the Global Crop Diversity Trust. GRIN-Global will allow online access to accession information and facilitate the availability of the material in the Treaty's multilateral system.

12. Has the maintenance of the viability, degree of variation, and the genetic integrity of *ex situ* collections of PGRFA been monitored in your country?

Yes

No

If your answer is 'yes', please provide details of the main conclusions of these monitoring activities:

These activities are conducted within the Australian Pastures Genebank (APG) and the Australian Grains Genebank (AGG). Both genebanks are working towards world's best practice in accordance with FAO 2013 Genebank Standards. The APG is in the process of finalizing the transition of all seed inventory from state genebanks. The AGG is currently securing access to additional collections of Lupins from Western Australia and Australian native Glycine collections from Canberra.

Baseline viability

The APG is currently establishing baseline seed viabilities in partnership with Seed Services Australia in accordance with International Seed Testing Association (ISTA) Standards. An audit on the current viability of inventory associated with 71,023 accessions with seed received to date (excluding the Western Australia collection) was undertaken in June 2018. The audit considered the quantity and quality of seed and held in the APG long term 'Base' collection in accordance with international standards. In summary, 39,053 accessions or 55 per cent of the APG collection has good quality and quantities of seed for long term conservation and utilisation. 30,330 accessions or 43 per cent of the APG collection have insufficient quantities or quality of seed and are flagged for regeneration and 1,640 accessions or 2 per cent of the APG collection are considered as historical records only as seed failed to germinate.

Additionally a total of 9,406 accessions have not been viability tested in the last twenty years. This material is currently reported against healthy seed. Dependent on the outcome of germination results more accessions may require regeneration than those currently identified. Additionally, the regeneration backlog and current health of the APG collection does not consider the Western Australia collection.

The AGG has good baseline viability data for the winter cereal and tropical germplasm collections. The AGG is in the process of establishing the baseline viability for some of the temperate pulse and oilseed accessions. An audit of the seed quantity of all germplasm within the AGG was completed in September 2016.

Regeneration

Regeneration of the APG accessions is undertaken annually in partnership with state agricultural agencies and universities at four locations throughout Australia. Regeneration sites are selected that

best match the environment where the accession originated. Regeneration is conducted in accordance with established protocols to ensure the genetic integrity is maintained and that high quality pure seed is returned to the APG.

Approximately 1,000 high priority accessions are multiplied each year. Regeneration priority is based upon the current and/or future perceived importance of the species to Australian agriculture, the amount of seed in store, the known viability, the age of the seed, and the uniqueness of the accession.

Importantly whilst the APG collection has been rationalised at a national level from over 116,000 to around 84,800 unique accessions the extent of materials requiring monitoring and regeneration far exceeds available resources. Infrastructure improvements at the regeneration sites to increase capacity and support the biological sustainability of the collection are currently being considered. However even with this extra capacity there is a need to identify species of highest priority to Australia and rationalise the collection at a global level to reduce long-term demand on resources, increase efficiencies and strengthen international partnerships.

Regeneration of AGG germplasm occurs on an annual basis. Approximately 5,000 accessions are multiplied each year at Horsham (Victoria). An additional 750 accessions are multiplied in partnership with state agricultural agencies, universities and organisations at various locations around Australia to ensure high quality seed is produced. Regeneration priority is based upon the amount of seed in store, the known viability, the age of seed, and the improvement status of the accession (landraces and wild relatives have priority over varieties and breeding material). Regeneration is conducted in accordance with established protocols to ensure the genetic integrity is maintained and that high quality pure seed is returned to the AGG.

13. Has your country cooperated with other Contracting Parties, through bilateral or regional channels, in the conservation, exploration, collection, characterization, evaluation or documentation of PGRFA?

Yes

No

If your answer is 'yes', please indicate the other Contracting Parties with whom the cooperation was undertaken (where additional to cooperation through the Governing Body or other Treaty mechanisms) and, where possible, details of any relevant projects:

At the regional level, Australia provides financial and other support to the Secretariat of the Pacific Community which runs the Centre for Pacific Crops and Trees (CePaCT) seed bank in Fiji. CePaCT gives priority to the conservation of the region's staple crops: taro, yam, sweet potato, banana, cassava and breadfruit.

The Secretariat of the Pacific Community also formed the Pacific Agricultural Plant Genetic Resources Network (PAPGRen), with financial and technical assistance from Australia, New Zealand and Bioversity International. PAPGRen aims to promote the conservation and use of the genetic resources of crops of local importance in order to ensure long-term conservation and access to these genetic resources by Pacific island populations.

The former Australian Agency for International Development (AusAID, now integrated with the Department of Foreign Affairs and Trade) has provided funding for projects in the Pacific region that identify and evaluate CePaCT collections for climate-change tolerance traits, and work to introduce the traits into Pacific community breeding programs.

In 2010, an Australian representative participated in the Global Plan of Action meeting in Fiji. The representative provided advice on seed Genebank systems and the status of GrinGlobal database development and implementation.

The Australian Centre for International Agricultural Research (ACIAR) has also provided funding for regional projects. These projects include work on crop improvement and sustainable use of material derived from PAPGRen and the genetic resources of CePaCT.

ACIAR provides significant resources for international projects where Australian researchers collaborate with researchers from developing countries. ACIAR also provides significant core and project funding to the International Agricultural Research Centres (IARCs) of the CGIAR with significant funds going to the plant-based IARCs for both core work and specific germplasm-enhancement projects.

Several ACIAR projects support developing country partners, International Centres, and Australian scientists, to characterise, evaluate, document and use PGRFA. Most notably:

- Wheat breeding cooperation between India and Australia
- Modernisation of the Ethiopian sorghum breeding program
- Multi-location (Australia, Bangladesh, India and Myanmar) evaluation of a mini-core collection of mungbean assembled by the World Vegetable Centre
- Identification of new sources of resistance to Yellow Rust in wheat (Australia, Ethiopia, India, Nepal and Pakistan)
- Past project, finished June 2016: Evaluation and dissemination of improved varieties in Timor Leste: maize, groundnut, cassava, sweet potato, rice and multiple legumes.

The South Australian Research and Development Institute (SARDI) leads a pre-breeding project titled “The potential of wild crop germplasm to improve drought tolerance in Lucerne (*Medicago sativa*) to increase food production for a growing population with less water”. The project aims to evaluate the potential of wild relatives of Lucerne for their potential to increase the resilience of Lucerne to a changing climate. The project also aims to build capacity with scientists in Chile, Kazakhstan and Inner Mongolia. This project is being undertaken as part of the initiative "Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives" which is supported by the Government of Norway. The project is managed by the Global Crop Diversity Trust with the Millennium Seed Bank of the Royal Botanic Gardens, Kew and implemented in partnership with the APG.

The APG is currently collaborating with the International Center for Agricultural Research in the Dry Areas (ICARDA) to identify forage germplasm where large seed quantities could be provided by APG to the new ICARDA forage genebank in Lebanon. Germplasm supplied would minimize the need for ICARDA to multiply the seed and allow them to support national programs more immediately.

Article 6: Sustainable Use of Plant Genetic Resources for Food and Agriculture

14. Are there any policy and legal measures in place in your country that promote the sustainable use of PGRFA?

Yes

No

If your answer is 'yes', please indicate whether such policy and legal measures include:

Pursuing fair agricultural policies that promote the development and maintenance of diverse farming systems that enhance the sustainable use of agricultural biological diversity and other natural resources;

Strengthening research that enhances and conserves biological diversity by maximizing intra- and inter-specific variation for the benefit of farmers;

Promoting plant breeding efforts, with the participation of farmers, that strengthen the capacity to develop varieties particularly adapted to social, economic and ecological conditions, including in marginal areas;

Broadening the genetic base of crops and increasing the range of genetic diversity available to farmers;
Promoting the expanded use of local and locally adapted crops, varieties and underutilised species;
Supporting the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops and creating strong links to plant breeding and agricultural development;
Reviewing and adjusting breeding strategies and regulations concerning variety release and seed distribution.

If such policy and legal measures are in place, please provide details of the measures taken and any difficulties encountered in implementing them:

Australia's intellectual property laws relevant to PGRFA are reviewed regularly. The most recent review by the Australian Government Productivity Commission titled "Intellectual Property Arrangements" was made public in December 2016 and recommended several changes to the *Patents Act 1990* and *Plant Breeder's Rights Act 1994* that would be relevant to PGRFA.

The main aim of domestic conservation and use of PGRFA has been to adapt crops to environmental and climatic conditions, rather than supporting on-farm genetic diversity.

Article 7: National Commitments and International Cooperation

15. Has the conservation, exploration, collection, characterization, evaluation, documentation and sustainable use of PGRFA been integrated into your country's agriculture and rural development programmes and policies?

Yes

No

If your answer is 'yes', please provide details of the integration of such activities into the agriculture and rural development programmes and policies:

The Australian Government supports rural research and development, and provides funding to Australia's Research and Development Corporations (RDCs). As previously mentioned, the characterisation and evaluation of germplasm is a key activity of the RDCs.

16. Has your country cooperated with other Contracting Parties, through bilateral or regional channels, in the conservation and sustainable use of PGRFA?

Yes

No

If your answer is 'yes', please indicate whether the aim of such cooperation is to:

Strengthen the capability of developing countries and countries with economies in transition with respect to conservation and sustainable use of PGRFA;

Enhance international activities to promote conservation, evaluation, documentation, genetic enhancement, plant breeding, seed multiplication, and sharing, providing access to and exchanging PGRFA and appropriate information and technology, in conformity with the Multilateral System of Access and Benefit-Sharing under the Treaty.

See response to Question 13

If, in addition to cooperation through the Governing Body or other Treaty mechanisms, your country has cooperated with other Contracting Parties directly or through FAO and other relevant international organizations, please indicate such other Contracting Parties and, where possible, details of any relevant projects:

Article 8: Technical Assistance

17. Has your country promoted the provision of technical assistance to developing countries and countries with economies in transition, with the objective of facilitating the implementation of the Treaty?

Yes

No

If your answer is 'yes', please provide details of the measures taken:

The Australian Government is supporting The Centre for Pacific Crops and Trees (CePaCT) Genebank. Australia provided AUD\$186 553 in November 2016 to support CePaCT's recovery from the damage caused by Cyclone Winston. In 2016 Australia pledged AUD\$5 million for the Crop Trust Endowment Fund over three years (2016-2018). Australia has also provided AUD\$250,000 to the Pacific Community (SPC) to support development and adoption of a long term business plan for CePaCT.

The Australian Centre for International Agricultural Research (ACIAR) and the Australian Department of Foreign Affairs and Trade are providing funding to Bioversity to support the transition of the Coconut Genetic Resources Network (COGENT) to the Asia Pacific Coconut Community.

18. Has your country received technical assistance with the objective of facilitating the implementation of the Treaty?

Yes

No

If your answer is 'yes', please provide details of such technical assistance:

Article 9: Farmers' Rights

19. Subject to national law, as appropriate, have any measures been taken to protect and promote farmers rights in your country?

Yes

No

If your answer is 'yes', please indicate whether such measures were related to:

Recognition of the enormous contribution that local and indigenous communities and farmers of all regions of the world have made and will continue to make for the conservation and development of plant genetic resources;

The protection of traditional knowledge relevant to PGRFA;

The right to equitably participate in sharing benefits arising from the utilisation of PGRFA;
The right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of PGRFA;

Any rights that farmers have to save, use, exchange, and sell farm-saved seed / propagating material.

If such measures were taken, please provide details of the measures taken and any difficulties encountered in implementing them:

Australia's legislation for intellectual property protection of new plant varieties, the *Plant Breeder's Rights Act 1994*, protects and promotes the conditioning and propagation of farm-saved seed by exempting such acts from infringement of plant breeder's rights.

Indigenous Protected Areas (IPA) are an essential component of Australia's National Reserve System. IPAs were established in 1997 to support Aboriginal and Torres Strait Islander peoples to choose when, where and how they will manage their own country, combining traditional knowledge with western science and are areas of land and sea country owned or managed by Indigenous groups. IPAs deliver cost-effective environmental, cultural, social, health and wellbeing, and economic benefits to Indigenous Communities – protecting cultural heritage and providing employment, education and training opportunities.

Australian Native Food and Botanicals (ANFAB) is the peak national body which represents all interests in the Australian native food and botanical sector. ANFAB helps to guide the sustainable development of the Australian native food and botanicals sector by supporting ethical engagement with Indigenous peoples and facilitating research and innovation.

Article 11: Coverage of the Multilateral System

20. Has your country included in the Multilateral System of Access and Benefit-Sharing (MLS) all PGRFA listed in Annex I to the Treaty that are under the management and control of your Government and in the public domain?

All

Partially

None

If your answer is 'all', please provide details of any difficulties encountered in including Annex I PGRFA in the MLS:

No difficulties.

If your answer is 'partially', please provide details of:

- The extent to which Annex I PGRFA have been included in the MLS;
- The crops that have been included in the MLS; and
- The difficulties encountered in including Annex I PGRFA in the MLS:

If your answer is 'none', please provide details of the difficulties encountered in including Annex I PGRFA in the MLS:

21. Has your country taken measures to encourage natural and legal persons within your jurisdiction who hold Annex I PGRFA to include those resources in the MLS?

Yes

No

If your answer is 'yes', please provide details of:

- The natural or legal persons within your jurisdiction that included Annex I PGRFA in the MLS;
- The crops that have been included in the MLS by these persons; and
- Any difficulties these persons encountered in including Annex I PGRFA in the MLS:

No difficulties.

If your answer is 'no' please provide details, in particular details of any difficulties encountered in encouraging these persons to include Annex I PGRFA in the MLS:

Article 12: Facilitated access to plant genetic resources for food and agriculture within the Multilateral System

22. Has your country taken measures to provide facilitated access to Annex I PGRFA, in accordance with the conditions set out in Article 12.4 of the Treaty?

Yes

No

If your answer is 'yes', please provide details of such measures:

Adopted the Standard Material Transfer Agreement (SMTA) and established a register of all materials dispatched under the SMTA.

The APG implemented the SMTA in 2014, while the AGG implemented the SMTA in 2013.

If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex I PGRFA:

23. Has facilitated access been provided in your country to Annex I PGRFA pursuant to the standard material transfer agreement (SMTA)?

Yes

No

If your answer is 'yes', please provide the number of SMTAs entered into:

The Australian Grains Genebank and the Australian Pastures Genebank use the SMTA when providing access to all PGRFA in their collection.

See response to Question 32 for the number of SMTAs entered into.

If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex I PGRFA pursuant to the SMTA:

24. Has the SMTA been used voluntarily in your country to provide access to non-Annex I PGRFA?

Yes

No

If your answer is 'yes', please indicate the number of such SMTAs entered into:

The Australian Grains Genebank and the Australian Pastures Genebank use the SMTA when providing access to all PGRFA in their collection.

See response to Question 33 for the number of SMTAs entered into.

25. Does the legal system of your country provide an opportunity for parties to material transfer agreements (MTAs) to seek recourse in case of contractual disputes arising under such agreements?

Yes

No

If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:

See response to Question 26.

26. Does the legal system of your country provide for the enforcement of arbitral decisions related to disputes arising under the SMTA?

Yes

No

If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:

Australia has a range of Intellectual Property (IP) laws which could be used to enforce SMTA domestically.

27. Have there been any emergency disaster situations in respect of which your country has provided facilitated access to Annex I PGRFA for the purpose of contributing to the re-establishment of agricultural systems?

Yes

No

If your answer is 'yes', please provide details of such emergency disaster situations and the Annex I PGRFA to which access was provided:

Article 13: Benefit-sharing in the Multilateral System

28. Has your country made any information available regarding Annex I PGRFA?

Yes

No

If your answer is 'yes', please provide details of any information made available regarding Annex I PGRFA (e.g. catalogues and inventories, information on technologies, results of scientific and socio-economic research, including characterisation, evaluation and utilisation):

All passport data provided by the states as associated with seed collections deposited has been captured, cleaned, standardised, transformed and loaded into the Australian Pastures Genebank (APG) GRIN Global database system. The accession data includes over 50 fields of information aligned to FAO multi-crop passport descriptors such as accession identifier(s), taxa, origin, date received and/or collected, collector(s) and/or donor(s), individuals and institutes, source, improvement status and principle attributes. Provincial information on the accessions site of collection included location comments, latitude, longitude, elevation and fields detailing the habitat, landscape, drainage, salinity, pH and soil characteristics of the site.

In May 2018, the APG launched a new public website to facilitate user access to its collection of seeds and data. Seeds can be ordered online through APG GRIN Global catalogue including associated passport and trait observation data recorded over the last four years:

<https://apg.pir.sa.gov.au/gringlobal>

Accession passport data of the most value to plant breeders and researchers includes latitude and longitude of the collection site. In 2017 the APG validated all geo-coordinate data populated against an accession. Validation errors were detected in over 10,900 accessions, predominantly older

collections predating GPS. In collaboration with GENESYS data information managers the APG were able to correct errors for over 6,100 accessions. Invalidated coordinates associated with the remaining 4,800 accessions have been removed from the APG GRIN Global web site for future correction and loading.

In September 2018 the APG updated passport data and intellectual property for all accessions on the global public web portal GENESYS-PGR: <https://www.genesys-pgr.org>

In addition to passport data, the APG has received historical evaluation and characterisation data associated with the accessions.

A data audit was undertaken in 2017 and the APG have identified over 5 million data points associated with characterisation and evaluation traits documented against the APG accessions. Temperate species are best described with 5.1 million data points and tropical accessions associated with over 600,000. Traits are associated with breeding targets for abiotic and biotic stress tolerance, nutrition, quality and performance traits. The data currently exists in different file formats, both hard and soft copies as provided by the States. Future efforts will be required to clean, standardise and transform these historical datasets for loading into GRIN Global and enable utilisation and public availability.

The Australian Grains Genebank (AGG) has databases that house all passport and inventory information that is available upon request to any user. In October 2016, the AGG, with the assistance of APG, made a subset of passport data for all accessions available on the public web portal GENESYS-PGR. The AGG is working towards using GRIN Global in a similar fashion to the APG.

29. Has your country provided or facilitated access to technologies for the conservation, characterisation, evaluation and use of Annex I PGRFA?

Yes

No

If your answer is 'yes', please indicate whether your country:

Has established or participated in crop-based thematic groups on utilisation of PGRFA;

Is aware of any partnerships in your country in research and development and in commercial joint ventures relating to the material received through the MLS, human resource development and effective access to research facilities.

If access to technologies was provided, please provide details of the access provided:

30. Has your country provided for and/or benefitted from capacity building measures in respect of Annex I PGRFA?

Yes

No

If your answer is 'yes', please indicate whether such measures were related to:

Establishing and/or strengthening programmes for scientific and technical education and training in conservation and sustainable use of PGRFA;

Developing and strengthening facilities for conservation and sustainable use of PGRFA;
Carrying out scientific research and developing capacity for such research.

If your country provided for and/or benefitted from such measures, please provide details:

See response to Question 13

Article 14: Global Plan of Action

31. Has your country promoted the implementation of the Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture?

Yes

No

If your answer is 'yes', please indicate whether the implementation of the plan was promoted through:

National actions;

International cooperation;

If the implementation of the plan was promoted, please provide details:

Implementation of the Global Plan of Action is inherent in national level activities of the Australian genebanks and RDC funding priorities.

International cooperation has been promoted as outlined in Question 13.

Article 15: Ex Situ Collections of Plant Genetic Resources for Food and Agriculture held by the International Agricultural Research Centres of the Consultative Group on International Agricultural Research and other International Institutions

32. Has facilitated access to Annex I PGRFA been provided in your country to the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (IARCs) or other international institutions that have signed agreements with the Governing Body of the Treaty?

Yes

No

If your answer is 'yes', please indicate:

- To which IARCs or other international institutions facilitated access was provided;
- The number of SMTAs entered into with each IARC or other international institution:

If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex I PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty:

The total number of international SMTAs for Annex 1 plant species made by the Australian genebanks is provided in Table 1.

Table 1: The number of SMTAs (international and domestic) provided by Australian genebanks for Annex 1 plant species. The Treaty membership status of each country is also provided.

Country	Total number of Annex 1 grain SMTAs	Total number of Annex 1 pasture SMTAs	Total number of Annex 1 SMTAs	Treaty Member
Algeria	1	0	1	Yes
Argentina	6	0	6	Yes
Australia	1389	54	1443	Yes
Belarus	1	0	1	No
Belgium	1	0	1	Yes
Burkina Faso	1	0	1	Yes
Canada	19	0	19	Yes
China	0	2	2	No
Columbia	0	1	1	Signature
Cyprus	1	0	1	Yes
Czech Republic	9	0	9	Yes
Finland	0	1	1	Yes
France	7	1	8	Yes
Germany	4	3	7	Yes
Hungary	1	0	1	Yes
India	8	0	8	Yes
Iran	8	0	8	Yes
Ireland	1	0	1	Yes
Italy	4	1	5	Yes
Japan	3	0	3	Yes
Jordan	1	0	1	Yes
Mexico	1	0	1	No
Morocco	2	0	2	Yes
Netherlands	3	1	4	Yes
New Zealand	0	1	1	No
Pakistan	5	1	6	Yes
Papua New Guinea	1	0	1	Yes
Portugal	1	0	1	Yes
Russia	0	1	1	No
South Africa	3	0	3	No
Spain	5	0	5	Yes
Switzerland	2	1	3	Yes
Syria	2	0	2	Yes
Taiwan	1	0	1	No
Tanzania	4	0	4	Yes
Tunisia	1	0	1	Yes
Turkey	6	1	7	Yes
United Arab Emirates	1	1	2	Yes
United Kingdom	7	1	8	Yes
United States	19	0	19	Yes
Uruguay	0	1	1	Yes
Total International	142	18	160	
Total Domestic	1389	54	1443	
Overall Total	1531	72	1603	

33. Has access to non-Annex I PGRFA been provided in your country to IARCs or other international institutions that have signed agreements with the Governing Body of the Treaty?

Yes

No

If your answer is 'yes', please indicate:

To which IARCs or other international institutions access was provided;

The number of MTAs entered into with each IARC or other international institution:

Table 2 outlines the number of STMAS provided by the Australian genebanks for non-Annex 1 plant species.

Table 2: The breakdown of SMTAs provided by Australian genebanks via country for non- Annex 1 plant species. The Treaty membership status of each country is also provided.

	Total number of Non- Annex 1 grains STMAS	Total number of Non- Annex 1 pasture STMAS	Total of Non- Annex 1 SMTAs	Treaty Member
Algeria	0	1	1	Yes
Argentina	0	1	1	Yes
Australia	126	78	204	Yes
China	0	4	4	No
France	1	5	6	Yes
India	3	0	3	Yes
Iran	5	1	6	Yes
Italy	1	0	1	Yes
Japan	1	0	1	Yes
Jordan	1	0	1	Yes
Morocco	1	0	1	Yes
Pakistan	1	0	1	Yes
Poland	1	0	1	Yes
Sweden	0	1	1	Yes
Switzerland	1	1	2	Yes
Tanzania	0	1	1	Yes
Thailand	0	1	1	Signature
Turkey	1	1	2	Yes
United Arab Emirates	0	1	1	Yes
United Kingdom	1	3	4	Yes
United States	3	1	4	Yes
Total International	21	22	43	
Total Domestic	126	78	204	
Overall Total	147	100	247	

If your answer is 'no', please provide details of any difficulties encountered in providing access to non-Annex I PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty:

Article 16: International Plant Genetic Resources Networks

34. Has your country undertaken any activities to encourage government, private, non-governmental, research, breeding and other institutions to participate in the international plant genetic resources networks?

Yes

No

If your answer is 'yes', please provide details of such activities:

See previous response to Question 13.

Article 18: Financial Resources

35. Has your country provided and/or received financial resources for the implementation of the Treaty through bilateral, regional or multilateral channels?

Yes

No

If your answer is 'yes', where possible, please provide details of such channels and the amount of the financial resources involved:

Australia is a strong supporter of Treaty objectives. Since 2009, the government has voluntarily contributed over AUD\$2.5 million to the Treaty.

Contributions include:

- In 2010, **AUD\$1 million** was provided to the Benefit-Sharing Fund (BSF) to support the distribution of the non-monetary benefits of the multilateral system to developing countries through capacity building, technology transfer and information exchange projects.
- In 2013, **AUD\$150 000** was provided for publication of a report investigating the potential of monetary payments for the exchange of plant genetic resources under the multilateral system.
- In 2014, **AUD\$101 000** was provided to engage a team of experts to undertake research into the economic, policy and legal implications of potential changes to the multilateral system. These studies underpin Working Group deliberations.
- In 2016, **AUD\$1 million** was provided to the BSF. The BSF supports the conservation of seed materials and greater access to genetic resources to assist farmers in adapting to climate related stress factors.

Alongside these contributions, the government engages in capacity building activities throughout the Asia Pacific region (See previous response to Question 13). Details of these funding arrangements are publically available via government portfolio agency websites.

36. Has your country provided financial resources for national activities for the conservation and sustainable use of PGRFA?

Yes

No

If your answer is 'yes', please provide details of such national activities and the amount of the financial resources involved:

See previous response to Question 8.

About this reporting format

37. Have you encountered any difficulties in completing this reporting format?

Yes

No

If your answer is 'yes', please provide details on such difficulties:

- The report is lengthy with a number of repetitive questions.
- The questions could be clarified with definitions where specific meaning is intended. For example, the use of the word “promoted” in Question 31 is ambiguous. Similarly, Question 19 could be interpreted around broader issues of land rights. Within Australia this could encompass diverse issues such as; mining and foreign investment.
- It is not clear how the data is will be used, what sort of analysis will be conducted and how the data will be collated.
- The objective of the report is not clear.
- Reporting of SMTA figures appears redundant as such data should already be held by the governing body (via Easy SMTA).

If you have suggestions for improvement of this reporting format, please share them:

General remarks on the implementation of the ITPGRFA

38. You may use this box to share any advice you may have arising from your country’s experience with implementation of the Treaty:

39. You may use this box to share any additional information that may be useful to provide a broader perspective of difficulties in implementation of the Treaty:

Feedback from commercial plant breeders has been that the ongoing (perpetual) compliance costs of the SMTA make it highly unattractive to use the SMTA to access PGRFA through the MLS.

Easy SMTA is too difficult to use. Additionally, plant breeders appear confused about their obligations for payment under SMTA. This should be made clearer with all payments and reporting being conducted through Easy SMTA.

40. You may use this box to share any additional information that may be useful to provide a broader perspective of measures that could help to promote compliance: