

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

GERMANY

05/12/2016

Article 4: General Obligations

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

Please select only one option

- Yes
 No

1A. If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:

> The Plant Treaty was endorsed by a national law: „Gesetz zu dem Internationalen Vertrag vom 3. November 2001 über pflanzengenetische Ressourcen für Ernährung und Landwirtschaft vom 10. September 2003“, Federal Law Gazette 2003, Part II, No 23, published in Bonn on 16 September 2003 (in German only). Germany has ratified the Treaty on 31 March 2004.

In Germany, the responsibilities for PGRFA are shared between the Federal as well as the Laender authorities and institutions. At the federal level, the Federal Ministry of Food and Agriculture (BMEL) holds the responsibility for genetic resources for food and agriculture including PGRFA and is inter alia the Focal Point for the Treaty. The framework for activities of the authorities and the private sector in the field of conservation and sustainable use of plant genetic resources in Germany is provided by the National PGR Programme (<http://www.genres.de/en/cultivated-and-wild-plants/regulatory-framework/national-programm/>). This programme explicitly includes measures for the implementation of the Plant Treaty.

In addition, BMEL's sector-specific strategy "Conservation of Agricultural Biodiversity, Development and Sustainable Use of its Potentials in Agriculture, Forestry and Fisheries" was drawn up. This strategy provides a framework for the national sectoral programmes formulated for plant, animal, forestry, and aquatic genetic resources.

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

Please select only one option

- Yes
 No

2A. If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:

> The conservation and use of plant genetic resources does not constitute an independent policy or legislative area. It is primarily influenced by trade, agricultural and environmental protection and nature conservation policies. In addition, special seed legislation, largely based on EU- provisions governs the exchange and trade of seed for the most important crops. Important legal acts that apply to plant genetic resources are inter alia:

- Nature Conservation Act (Bundesnaturschutzgesetz vom 29. Juli 2009 (BGBl. I S. 2542))
- Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641)).
- Verordnung über die Zulassung von Erhaltungssorten und das Inverkehrbringen von Saat- und Pflanzgut von Erhaltungssorten vom 21. Juli 2009 (BGBl. I S. 2107) (Regulation on the authorisation of conservation varieties and the marketing of conservation varieties of seed and planting stock, 21 July 2009 (Federal Law Gazette I, p. 2107)).
- Vierzehnte Verordnung zur Änderung saatgutrechtlicher Verordnungen vom 17. Dezember 2010 (BGBl. I S. 2128) (Fourteenth Regulation, amending seed-law regulations, 17 December 2010 (Federal Law Gazette I, p. 2128))
- Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641)).
- Commission Directive 2008/62/EC for the Acceptance of Agricultural Landraces and Varieties
- Commission Directive 2010/60/EU of 30 August 2010 providing for certain derogations for marketing of fodder plant seed mixtures intended for use in the preservation of the natural environment
- Commission Directive 2009/145/EC of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties
- Commission Directive 2008/90/EC of 29 September 2008 on the marketing of fruit plant propagating material and fruit plants intended for fruit production

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?

Please select only one option

- Yes
 No

3A. If your answer is 'yes', please provide details of such adjustments and any plans to make those adjustments:

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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?

Please select only one option

Yes

No

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

Please select only one option

Yes

No

5A. 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.

> Several surveys of in situ (including on farm) were conducted within projects, which were funded by the BMEL in cooperation with the Federal Office for Agriculture and Food (BLE). The number of Surveys and the species of crops, crop wild relatives and wild food plants surveyed/inventoried in situ (including on farm) were reported to FAO (Source: Monitoring 2nd GPA).

Crop/crop group/plant group Number of surveys/inventories conducted

Crop Wild Relatives (approx. 300 species) 1

Wild fruit 2

Apple 1

Wild grape 1

Ornamentals and Vegetables 1

Wild fruit 1

These are the some examples for corresponding projects (titles in German language).

- „Erfassung genetischer Ressourcen seltener und gefährdeter Baumarten in Deutschland“ (Flaum-Eiche, Elsbeere, Speierling) (14.10.2009 – 13.10.2012)

- „Bundesweite Streuobsterhebung mittels Fernerkundungsdaten -Erhebung Nordrhein-Westfalen“ (23.05.2013 – 23.01.2014)

- „Überlebenssicherung der Wildrebe *Vitis vinifera* L. ssp. *sylvestris* C.C. Gmel. in den Rheinauen durch gezieltes In-situ-Management (01.06.2008 – 30.11.2013)

- „Förderung der Erhaltung regionaler Arten- und Sortenvielfalt von Kultur- und Zierpflanzen in ländlichen Gärten am Beispiel des LWL-Freilichtmuseums Detmold, Westfälisches Landesmuseum für Völkerkunde“ (15.09.2011 - 14.12.2014)

- „Erhaltung der innerartlichen Vielfalt gebietsheimischer Wildobstarten in Sachsen“ (04.07.2012 – 03.07.2017)

To promote the Network of Genetic Reserves in Germany , BMEL/BLE started two further projects in 2015: a pasture plant species project (“Historical Grassland”) as well as wild celery project (*Apium* and *Helosciadium*).

Experiences from these projects will also contribute to the development of a national in situ conservation concept in Germany.

5B. 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?

Please select only one option

yes

No

6A. 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;
> X The species, subspecies and/or varieties subject to such threats;
• The sources (causes) of these threats;
X Any steps taken to minimise or eliminate these threats;
• Any difficulties encountered in implementing such steps:

The list of wild plant species of Germany subject to threat is available at:
<http://www.floraweb.de/pflanzenarten/namenssuche.html>.

The most important measure to minimize the threat of extinction of PGRFA is to conserve their natural habitats. This is aimed by numerous activities, including nature protection areas. See also answer to Q. 9. Threatened species (in situ-populations) may become extinct, so an effective measure to avoid these threats is to collect seed and conserve populations of these species in a complementary way within a Genebank (ex situ). The collection mission of approx. 300 species for Genbank for Crop Wild Relatives (Genbank WEL) was conducted within Germany and the seed is now conserved ex situ. The collection mission included threatened species of cwr. Details are reported in 2nd GPA-Reporting.

The Vitis sylvestris project (Überlebenssicherung der Wildrebe Vitis vinifera L. ssp. sylvestris C.C. Gmel. in den Rheinauen durch gezieltes In-situ-Management (01.06.2008 - 30.11.2013) was promoted and the threats for the last viable population in Germany (Ketsch island) were identified in detail. The individual wild grapes were collected and they are now conserved ex situ and in situ in a complementary manner. There are ongoing discussions with BLE-IBV and stakeholders to build up a genetic reserve for wild grape as a part of a Network of Genetic Reserves in Germany.

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?

Please select only one option

- Yes
 No

7A. If your answer is 'yes', please provide details of the measures taken:

> First priority is in-situ conservation; second on-farm use.

A good example for the collection of PGRFA in situ complementary conserved ex situ and relevant associated information on those plant genetic resources that are under threat is wild Grape (Vitis vinifera L. ssp. sylvestris C.C. Gmel.) (see Question 6). Within a further user-oriented project, funded by the BMEL/BLE: „Use of genetic resources of the European wild grapes for the breeding of mildew and black rot resistant grapes “ (01.08.2011 - 31.10.2016), these individual wild grapes of Ketsch island were successfully analysed for useful resistances.

The collection of approx. 300 species for Genbank for Crop Wild Relatives (Genbank WEL) was mentioned above. It comprises threatened species as well as species with potential use. An estimation of the potential use of all species (e.g. for breeding, for direct use) is already available, but further investigation is necessary. On-Farm conservation and use is often promoted by private initiatives (Networks, e.g. VEN, VERN);. There are also several projects funded by BMEL/BLE (titels in German language).

- „Förderung der Erhaltung regionaler Arten- und Sortenvielfalt von Kultur- und Zierpflanzen in ländlichen Gärten am Beispiel des LWL-Freilichtmuseums Detmold, Westfälisches Landesmuseum für Völkerkunde“ (15.09.2011 - 14.12.2014)
- „Erhaltung genetischer Ressourcen von Vitis vinifera L. durch innovative, nachhaltige Nutzung historischer Sorten in den Weinbaugebieten Saale-Unstrut und Sachsen“ (23.07.2012 - 30.06.2015)
- „Netzwerk Pflanzensammlungen in der Deutschen Zierpflanzen“ (01.06.2011 - 31.05.2017)
- „Erhaltung der innerartlichen Vielfalt gebietsheimischer Wildobstarten in Sachsen“ (04.07.2012 - 03.07.2017)
- „Förderung der Erhaltung regionaler Arten- und Sortenvielfalt von Kultur- und Zierpflanzen in ländlichen Gärten am Beispiel des LWL-Freilichtmuseums Detmold, Westfälisches Landesmuseum für Völkerkunde“ (15.09.2011 - 14.12.2014)

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

Please select only one option

- Yes
 No

8A. If your answer is 'yes', please provide details of the measures taken:

> The Act on the Joint Task for the Improvement of Agricultural Structure and Coastal Protection (Gemeinschaftsaufgabe "Verbesserung der Agrarstruktur und des Küstenschutzes" - GAK) forms the national legal basis to manage and conserve PGRFA on-farm. There are several measures within this program to support farmers efforts to manage and support PGRFA on-farm. Also a special measure is designed for that purpose titled "Conservation of Diversity of Genetic Resources in Agriculture" (see http://www.bmel.de/SharedDocs/Downloads/Landwirtschaft/Foerderung/GAK-Foerderungsgrundsaeetze/2015/Foerderbereich4-G.pdf?__blob=publicationFile). Besides several German

“Länder” have designed their own measures to that end.

At present two “German Länder”, in particular, have promoted on-farm management within Germany. In Brandenburg, within the framework of the cultivated landscape programme “KULAP 2007” (being funded since 2000), financial support is given to farmers for planting of old cultivated varieties and regional varieties threatened by genetic erosion. Brandenburg uses the “Red List of Endangered Native Crops” of BLE-IBV as a reference (Link: <http://pgrdeu.genres.de/information/themenlisten?lang=en>) for the promotion of these activities at farmers fields in Brandenburg. Details of Brandenburg are reported in 2nd GPA-Reporting. BMEL has established in 2005 a programme for model and demonstration projects for conservation, sustainable use and innovative approaches to the utilisation of agrobiodiversity and is also providing financial means by an annual budget specifically dedicated for conducting surveys and inventories in the area of biodiversity. An example for such a project is „On-farm-Erhaltung von alten Gemüsesorten durch Aufbau eines Netzwerkes“ (01.12.2012 – 30.11.2016).

Furthermore the Federal Program for Organic and Sustainable Farming (BÖLN) has 2011 included the promotion of plant genetic resources. Besides, there are special programmes in place to promote research, development and demonstration projects on renewable resources (Agency of Renewable Resources, FNR) and the funding of Innovative projects in public private partnerships (Programme for Innovation funding).

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

Please select only one option

- Yes
 No

9A. 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

9B. If such measures have been taken, please provide details of the measures taken:

> More than 2,800 species of our native flora (ca. 3.500 species) constitute what is internationally termed “crop wild relatives” (CWR) or they are wild species potentially usable for food and agriculture and are addressed in our National PGR Programme, because they are a significant resource for plant cultivation and use. The species remain in situ in their ecosystems, exposed to the dynamic evolution processes. Nevertheless, nature conserve measures being implemented for many years now – e.g. in environmental contracting – contribute to the goal of conserving plant genetic resources. Active conservation of genetic diversity on areas selected for the purpose will be all the more efficient and cost-effective, the more species are present within a manage area of land.

Whereas nature conservation and landscape management in Germany is regulated by the Federal Nature Conservation Act (BNatSchG), implementation of related measures is up to the “German Laender”.

Additionally, the biotope and species protection programme defines the actions and objectives necessary in respect of Germany’s wild flora and fauna and their habitats.

An opportunity to get an overview on the species of plants growing in the wild (fern and flowering plants), communities of plants, and the natural vegetation of Germany, is provided by the information on FloraWeb (<http://www.floraweb.de/>), produced by the Federal Agency for Nature Conservation (BfN). For the circa 3,500 species of plants growing in the wild, profiles of species characteristics can be called off; these include up to 55 separate items of information about taxonomy, systematic arrangement, biology, ecology, habitat, geographical distribution and stock-level situation, degree of endangerment and protection, as well as photos. Information on the degree of distribution in Germany is accessible via dynamically-produced maps as well as the interactive GIS “FloraMap” application.

The inputs come from databases and projects, run by BfN and its cooperation partners and updated on an ongoing basis. In the context of the reporting system for the “Natura 2000” European network of reserves, the species of plants found in these areas are likewise recorded at Land level, according to Annexes II-V of the FFH Directive; however, among the more than 1,000 species of animals and plants of the corresponding Annexes II-IV of the FFH Directive, no more than 50 species of fern and flowering plants are to be found in Germany at all. However, a substantially larger proportion of species of plants is recorded by means of the mapping of FFH habitats (Annex I) and outside of Natura 2000 areas in some instances, in the context of biotope mapping work by the “German Länder.”

The National PGR Programme defines actions for the promotion of the conservation of wild crop relatives. In agreement with these actions model and demonstration projects for the cwr of apple (*Malus sylvestris* (L.) Mill.) and grape wine (*Vitis vinifera* subsp. *sylvestris*) were promoted. In these project, a data survey and a genetic description were conducted. Within an inventory, the in situ conservation status of the material was assessed and measures for in situ management were developed.

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

Please select only one option

- Yes
 No

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

> PGRDEU is the central documentation of ex situ collections of plant genetic resources in Germany (Link: <http://pgrdeu.genres.de/exsitu>). PGRDEU includes data of the following ex situ collections of plant genetic resources for food and agriculture. The number of accessions of the respective genebank collection is given in brackets:

- Federal Central Genebank of the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) (149,651 accessions)
- German Genebank for Fruit Crops (DGO, 2,352 accessions)
- German Genebank for Grapevine (DGR, 4,136 accessions)
- German Genebank for Ornamentals (DGZ, 12,932 accessions)
- German Genebank for Crop Wild Relatives (Genbank WEL, 4,292 accessions)
- Genebank for Tobacco (784 accessions)
- Conservation cultures of native wild plants in Botanic Gardens (2,580 accessions)

PGRDEU comprises data of approximately 176.727 accessions (samples) of more than 3,000 crops. Users can search for taxonomic information and other information such as country of origin, name and number of accession and the maintaining institute.

In order to guarantee an efficient data exchange the data fields (descriptors) of PGRDEU are in accordance with the EURISCO exchange format, which is based on the "Multi-Crop Passport Descriptor List" of FAO and Bioversity International. BLE reports the passport data of the genebanks regularly to EURISCO.

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

Please select only one option

- Yes
 No

11A. 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 „Leibniz-Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK)“ with its Federal ex situ collection of agricultural and horticultural plants forms the core of the German ex situ conservation of PGRFA. The mandate of the genebank comprises the collection, conservation, and distribution of plant genetic resources. IPK-Genebank holds one of the most comprehensive collections world-wide and provides a major contribution to the prevention of extinction of both cultivated plants and crop wild relatives. As an international information centre for taxonomy of cultivated plants, the genebank possesses comprehensive reference collections including a herbarium.

In the last years, Germany was very successful in the establishment of de-central genebank networks (partly with sub-networks for groups of crops and species). The German Genebank Networks are organized as a network, in which institutions and involved parties with important collections of PGR work together, in order to jointly conserve the national inventory of these genetic resources as well as to make this material available for the use in breeding, training and research. However, the genebanks in Germany are the key to the successful implementation of the ex-situ conservation efforts, the partners have signed memorandums of understanding.

Structure of ex situ conservation networks:

German Genebank for Grapewine (DGR)

The German Genebank of Grapewine aims at the long-term conservation of grape-wine genetic resources in a scientific and efficient way. Main focus is the conservation of German grapevine varieties and varieties with sociocultural, local or historical relation to Germany.

The network of the genebanks are coordinated through the Julius Kühn-Institut (JKI) - Institute of Grapevine Breeding Geilweilerhof in Siebeldingen. The national and international documentation of grapevine genetic resources is supported by two databases, the European Vitis-Database and the International Vitis Variety Catalogue, which are both maintained by the genebank department of JKI, which is also responsible for the documentation of the genebank collection of DGR. BLE is partner of the DGR and is responsible for the integration in the international collaboration. The network of genebanks of the DGR makes a fundamental contribution to the National PGR Programme.

German Genebank for Fruit Crops

To assure a long term and efficient conservation of fruit genetic resources in Germany and their availability for research, breeding and fruit production as well as landscaping purposes the German Genebank for Fruit Crops (DGO) has been established. The DGO is a national network of Federal and Laender governmental institutions and also non-governmental organisations acting in a decentralised way. The Department of Breeding Research in Horticultural and Fruit Crops in Dresden-Pillnitz of the Julius-Kühn Institute (JKI) is responsible for the coordination of manifold activities in collecting fruit crop species and varieties. Up to now there are three networks, specific for fruit species, established namely a network for apples, a network for strawberry and a network for cherries. The scientific guidance is carried out by the consulting committee of the DGO. BLE is partner of the DGR and is responsible for the integration in the international collaboration.

German Genebank for Ornamentals (DGZ)

The German Genebank for Ornamentals is a genebank network based on crop specific networks and

coordinated by the Federal Plant Variety Office. It consists of the German Genebank for Roses (coordinated by EUROPA-Rosarium of the city of Sangerhausen)

German Genebank for Rhododendron and the recently established Genbank for seed-propagated ornamental plants and Genbank for vegetatively propagated ornamental plants. The Federal Plant Variety Office coordinates these networks and the DGZ. BLE is partner of the DGR and is responsible for the integration in the international collaboration.

Genebank for Crop Wild Relatives

The Genebank for Crop Wild Relatives ("Genbank WEL") was established from 2009 to 2014, funded by the Ministry of Food and Agriculture within a pilot and demonstration project. The network now consists of five universities with four botanical gardens and the BLE and is coordinated by the University Osnabrück. BLE is partner of the DGR and is responsible for the integration in the international collaboration. In the project phase the four botanical gardens and a further institute of a University were involved in collecting samples of about 300 wild species from the four regions of Germany in different natural environments. In addition, wild plant species and populations were collected, which are endangered. The seed samples and duplicates were then documented and stored in the collection-holding partners of the Genbank WEL. In this way, the ex situ conservation of diversity of cwr is assured.

BLE-IBV and BMEL are participating in the meetings of the advisory committees of DGO and DGZ. BLE takes care, that international processes are reflected thoroughly in the memorandum of understandings of the genebank networks (e.g. SMTA and MTA) and advises the national partners. The data of the holdings of the genebank were recently reported by BLE within the 2nd GPA reporting to FAO for the first time.

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

Please select only one option

yes

No

12A. If your answer is 'yes', please provide details of the main conclusions of these monitoring activities

> Within the DGR, the following projects were funded improve the genetic integrity of this collection (project title in German and funding number):

- Weiterentwicklung von Wissenstransfer- und Informationssystemen zur nachhaltigen Nutzung reben genetischer Ressourcen mit dem Förderkennzeichen:
- „Erhaltung genetischer Ressourcen von Vitis vinifera L. durch innovative, nachhaltige Nutzung historischer Sorten in den Weinbaugebieten Saale-Unstrut und Sachsen“ (23.07.2012 – 30.06.2015)
- „Überlebenssicherung der Wildrebe Vitis vinifera L. ssp. sylvestris C.C. Gmel. in den Rheinauen durch gezieltes In-situ-Management“ (01.06.2008 – 30.11.2013)
- „Erfassung reben genetischer Ressourcen in Deutschland (Pflanzjahr vor 1950, wurzelecht) in Deutschland“ (01.01.2007 - 31.03.2010)

Within the DGO, the following projects were funded improve the genetic integrity of this collection (project title in German and funding number):

- „Erhaltung der Süßkirschenvielfalt in der Gemeinde Hagen und der Kirschenstadt Witzenhausen“ (01.02.2007 – 31.12.2010)
- „Erhaltung von Malus sylvestris unter In-situ-Bedingungen im Osterzgebirge“ (15.03.2007 – 30.04.2011)
- „Pomologische Sortenbestimmung der Genbank Obst – Apfel“ (08.07.2009 – 07.07.2011)
- „Pomologische Sortenbestimmung der Gen bank Obst – Süß-Kirsche“ (04.12.2009 – 31.01.2012)
- „Pomologische Sortenbestimmung der Gen bank Obst – Sauer-Kirsche“ (04.12.2009 – 31.01.2012)
- „Molekulargenetische Sortenbestimmung der Genbank Obst – Apfel“ (12.01.2012 – 11.01.2014)
- „Molekulargenetische Sortenbestimmung der Genbank Obst – Süß- und Sauerkirsche“ (16.01.2012 – 15.01.2014)

IPK

Viability: Maintenance of viability is controlled by germination tests which are done after harvest and then regularly.

Degree of variation: is characterized by the trait homogeneity which is scored during the reproduction of the material.

Genetic integrity: is controlled by morphological characters only which will be compared. No molecular marker studies are done.

DGZ:

Within the DGZ, the following projects were funded improve the genetic integrity of this collection (project title in German and funding number):

Viability: Maintenance of viability is controlled by germination tests which are done after harvest and then regularly.

Degree of variation: is characterized by the trait homogeneity which is scored during the reproduction of the material.

Genetic integrity: is controlled by morphological characters only which will be compared. No molecular marker studies are done.

- „Beispielhafte Erfassung und Charakterisierung der genetischen Ressourcen von Zierpflanzen anhand der

Rose - Errichtung eines Genbanknetzwerkes für die Rose“ (01.10.2004 – 31.10.2007)

- „Dezentrales Genbank-Netzwerk Rhododendron“ (01.09.2007 – 30.06.2014)
- „Netzwerk Pflanzensammlungen in der Deutschen Genbank Zierpflanzen“ (01.06.2011 – 31.05.2017)

Genbank WEL

Viability: The seed samples are continuously stored at -18°Celsius in vacuum-sealed aluminum composite bags. For several WEL Accessions we performed germination tests before vacuum sealing.

Degree of variation: The degree of variation is not determined in the Genbank WEL. With the German-wide sampling of the WEL species in very different natural spaces, depending on the species, a different potential genetic variability is created.

The genetic integrity of ex situ collections of PGRFA been monitored in your country- No investigations into genetic Integrity take place in the Genbank WEL. On the basis of herbarium vouchers, however, appropriate investigations would be possible at a later stage.

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?

Please select only one option

Yes

No

13A. 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 Treaty mechanisms) and, where possible, details of any relevant projects:

> AEGIS

Implementation of the “European Genebank” (AEGIS) within the framework of the ECPGR:

The concept drawn up within the framework of the ECPGR, for an European integrated genebank system – “AEGIS” (“European Genebank”), emerged with Germany having a significant involvement. Its implementation, through the founding of AEGIS and the associated national activities, should be pursued as an equal priority task alongside the further development of AEGIS at European level. With AEGIS, the plan is for the resources available in Europe to be coordinated efficiently and deployed for the conservation of plant genetic resources. To this end, AEGIS member states’ institutions pursuing conservation goals take on an obligation, in a concept based on the division of labour, to conserve appropriate plant genetic resources long-term as European accessions, according to common standards, and also to make them available according to the conditions of the SMTA in the International Treaty, for research and cultivation work. The Member States thus go beyond the obligations stated in the International Treaty for Plant Genetic Resources – the latter envisages this approach solely for species referred to in Annex I. Germany is playing an active role in the further development of AEGIS, particularly in the ongoing activities for Allium and Avena and in the advisory committee of AEGIS. For the formal founding of AEGIS, a Memorandum of Understanding (MoU) was developed between nations. The nations thereby declare their entry into AEGIS. At the start of 2012, 30 states had signed this MoU. The involvement of institutions concerned with conservation within an AEGIS Member State is arranged via the “Associate Membership Agreement” (AMA). In Germany, the AMA has been concluded by the National Coordinator at the Information and Coordination Centre for Biological Diversity of the BLE, with the IPK, JKI and BSA. So called „European accessions “ are selected in a defined European process. The selected “European accessions” are long term conserved by the above mentioned German Associate Members. Recipients could access these accessions with the SMTA of the Treaty. The conservation standards are concluded in the „Quality Management System for AEGIS“. For more details, see the document at: Link: "<http://aegis.cgiar.org/aquas.html>. Up to now Germany has taken responsibility for the conservation of 7904 European accessions.

(Link: <http://www.ecpgr.cgiar.org/aegis/european-collection/european-accessions/Germany>, 20.10.2016).

BMEL is promoting a Capacity building project in Ethiopia, which includes the conservation and exploration of PGR since 2008

These includes inter alia:

→ The CD Seed project to strengthen the seed sector in Ethiopia and

→ The implementation of a specialized agricultural dialogue with the Republic of Ethiopia (FDA).

These activities are completed with another BMEL funded project about drought stress tolerance in cereals, also in Ethiopia. The activities include visits and support of German breeders, breeding scientists of German universities and Julius Kuehn-Institute for improving evaluation and breeding activities. The Ethiopian Genebank receives trainings and includes also instruments for the conservation of PGRFA.

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

Please select only one option

- Yes
 No

14A. 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

14B. If such policy and legal measures are in place, please provide details of the measures taken and any difficulties encountered in implementing them:

- > • Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641).
• Verordnung über die Zulassung von Erhaltungssorten und das Inverkehrbringen von Saat- und Pflanzgut von Erhaltungssorten vom 21. Juli 2009
• (BGBl. I S. 2107) (Regulation on the authorisation of conservation varieties and the marketing of conservation varieties of seed and planting stock, 21 July 2009 (Federal Law Gazette I, p. 2107).
• Vierzehnte Verordnung zur Änderung saatzgutrechtlicher Verordnungen vom 17. Dezember 2010 (BGBl. I S. 2128) (Fourteenth Regulation, amending
• seed-law regulations, 17 December 2010 (Federal Law Gazette I, p. 2128))
• Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641).
• Commission Directive 2010/60/EU of 30 August 2010 providing for certain derogations for marketing of fodder plant seed mixtures intended for use in the preservation of the natural environment
• Commission Directive 2009/145/EC of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties
• Commission Directive 2008/90/EC of 29 September 2008 on the marketing of fruit plant propagating material and fruit plants intended for fruit production

The use of plant genetic resources does not constitute an independent policy or legislative area. It is primarily influenced by trade, agricultural and environmental protection and nature conservation policies. In addition, special seed legislation governs the exchange and trade of seed for the most important crops.

In our National PGR Programme these policies and legislations are described. Chapter 4.3 defines the following measures for "Sustainable use of plant genetic resources".

- a) Taking agri-environmental measures further
- b) Further development of sustainable systems of use
- c) Developing and improving indicators for determining the degree of endangerment of plant genetic resources
- d) Promoting of Evaluation and Characterisation
- e) Opening up areas of potential for innovations offered by plant genetic resources
- f) by means of breeding research
- g) Broadening of genetic diversity by means of building-up composite crosses
- h) ("Evolutionary Plant Breeding")
- i) Marketing of "diversity products"

For each measure, there are further actions foreseen.

A lot of projects related to the use of PGR were reported in the 2nd GPA reporting.

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?

Please select only one option

- Yes
 No

15A. If your answer is 'yes', please provide details of the integration of such activities into the agriculture and rural development programmes and policies:

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

The Common Agricultural Policy (CAP) was reshaped 2014-2020: The European Union (EU) adopted the Regulation (EU) No 1305/2013 of the European Parliament and the Council of 17 december 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005. The new regulation provides for additional funding of various measures to enhance the environment and countryside (preservation of permanent green areas, diversity in the cultivation of crops on arable land, provision of "ecological priority areas" to 5% of arable land). Payments (premiums per hectare) can also be made for the cultivation of crop varieties threatened by genetic erosion as well as for specific action supporting the conservation and sustainable use of it.

Within the framework of the CAP special programmes of the "German Länder", like the KULAP 2000 in Brandenburg have been integrated into countries rural development programme (See also answer to Q. 8). In our National PGR Programme measures for information and documentation for the conservation and use are defined in Chapter 4.4:

- a) Building-up and expanding the institutional infrastructure of information
- b) Portal for ex-situ conservation cultures of native wild plants
- c) Building-up and expanding a documentation infrastructure between the Federal Government and the "German Länder" for the in situ- und on farm-activities
- d) National Inventory "PGRDEU"
- e) National infrastructure of information for characterisation and evaluation data
- f) Federal Information System "BIG" for Genetic Resources

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

Please select only one option

- yes
 No

16A. 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

16B. 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:

> The CD-Seed Project (see also Q 13) for capacity development in the Ethiopian genebank, breeding and seed sector is essentially financed by the BMEL and cofinanced by GFPI and KWS SAAT AG on the German breeders side. The Ethiopian Biodiversity Institute (EBI) and Ethiopian Agricultural Research (EIAR) are supported in Addis as well as in their regional institutes. Capacity building for the Ethiopian Genebank (EBI) is supported by IPK. The "Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH manages the project. CD-Seed is long term oriented and should be carried out in five phases of three years each. The focus is on the evaluation and use of plant genetic resources, the strengthening of the breeding of wheat and barley and the seed supply in the small-scale farming sector.

European Cooperative Programme for Plant Genetic Resources (ECPGR)

Germany is actively involved in the ECPGR. This collaborative programme for plant genetic resources among most European countries is aiming at facilitating the long-term in situ and ex situ conservation on a cooperative basis as well as improving the utilisation of plant genetic resources in Europe. ECPGR is structured into networks of 18 Crop Working Groups and 3 thematic groups, in which German experts are nominated as representatives for all Working Groups actively participating (Crop Working Groups: Allium, Avena, Barley, Beta, Brassica, Cucurbits, Fibre Crops, Forages, Grain Legumes, Leafy Vegetables, Malus/Pyrus, Medicinal and

Aromatic Plants, Potato, Prunus, Solanaceae, Umbellifer Crops, Vitis, Wheat; Thematic Working Groups: Wild species Conservation in Genetic Reserves, On-farm Conservation and Management, Documentation and Information)

Aims of ECPR: National, Sub-regional and Regional Programmes in Europe collaboratively, rationally and effectively conserve ex situ and in situ PGRFA, provide access and increase utilization (Long term goal) and further aims are

1. AEGIS is operational. Accessions in AEGIS are characterized and evaluated.
2. Quantity and quality of data in EURISCO, including in situ and on-farm data, have been increased. Functionality of EURISCO meets users' expectations.
3. In situ and on-farm conservation and management of priority crop wild relative (CWR) and landrace (LR) populations are implemented throughout Europe. Mechanisms are in place for more effective utilization of the conserved germplasm.
4. Commitment and regular resources of national governments are sustained or increased, and commitments and resources of the European Commission (EC), as well as of other potential donors towards ECPGR are increased.
5. Relations with users of germplasm are strengthened.
6. Organizational structure and secretarial support are adequate to effectively sustain the operations of ECPGR.

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?

Please select only one option

- Yes
 No

17A. If your answer is 'yes', please provide details of the measures taken

> Germany support a special project in Ethopia on conservation and sustainable use of PGRFA (details in answers to Question 13 und 16)

Germany supports the work of the Global Crop Diversity Trust, which is an essential element of the funding strategy of the ITPGRFA. The Trust also provides technical assistance to developing countries.

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

Please select only one option

- Yes
 No

18 A. 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?

Please select only one option

- Yes
 No

19 A. 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 benefit 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

19B. If such measures were taken, please provide details of the measures taken and any difficulties encountered in implementing them:

> The Treaty introduces the Farmers' Rights as a recognition of the contribution of local and indigenous communities and farmers in the past, present and future. In this regard, On-farm conservation is implemented in the specific European legal framework ((see Question 2) such as the

- Commission Directive 2008/62/EC for the Acceptance of Agricultural Landraces and Varieties
- Commission Directive 2010/60/EU of 30 August 2010 providing for certain derogations for marketing of fodder plant seed mixtures intended for use in the preservation of the natural environment
- Commission Directive 2009/145/EC of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties
- Commission Directive 2008/90/EC of 29 September 2008 on the marketing of fruit plant propagating material and fruit plants intended for fruit production and in the relating German legal framework:
- Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641).
- Verordnung über die Zulassung von Erhaltungssorten und das Inverkehrbringen von Saat- und Pflanzgut von Erhaltungssorten vom 21. Juli 2009
- (BGBl. I S. 2107) (Regulation on the authorisation of conservation varieties and the marketing of conservation varieties of seed and planting stock, 21 July 2009 (Federal Law Gazette I, p. 2107).
- Vierzehnte Verordnung zur Änderung saatgutrechtlicher Verordnungen vom 17. Dezember 2010 (BGBl. I S. 2128) (Fourteenth Regulation, amending
- seed-law regulations, 17 December 2010 (Federal Law Gazette I, p. 2128))
- Verordnung für das Inverkehrbringen von Saatgut von Erhaltungsmischungen vom 6. Dezember 2011 (BGBl. I S. 2641) (Regulation on marketing seed from conservation mixes, 6 December 2011 (Federal Law Gazette I, p. 2641).

In order to protect and promote farmers rights in Germany, BMEL invites farmers and gardeners association as well as other stakeholders in the process of introducing new seed legislation.

When marketing seed and planting stock, for certain species the Seed Trade Act (short form: "SaatG") must be taken into account. Based on EU Directives the Seed Trade Act, together with the regulations issued in that regard, regulate the marketing of seed and planting stock and the authorization of plant varieties. For all species not listed in the directory of species associated with the Seed Trade Act (SaatG), no authorization of the varieties is necessary for the seed to be traded. In the context of the law governing seed hitherto in force, it was difficult to commercially market seed from farmers varieties, old varieties and landraces, which were either not authorised or no longer authorised in the law on seed-variety protection; this was because, for the most part, these varieties are not able to fulfill the exact requirements of registration testing (distinctness, uniformity and stability) and provide proof of their regional cultivation value. As such varieties also form plant genetic resources, the EU law facilitates the marketing of varieties of seed and propagation material which appear to merit conservation as a genetic resource. These EU directives were implemented in national law in 2009, initially for agricultural species, in a Directive on Conservation Varieties; in December 2010, this was supplemented by stipulations on conservation varieties and amateur varieties of vegetable. This helps to safeguard biological diversity in agriculture and horticulture. Conservation varieties can be registered in a simplified procedure if they are significant for conservation as a genetic resource. An official recognition of the seed is not necessary as a prerequisite for marketing it; however, the seed must fulfill the same quality requirements as other certified seed (or respectively standard seed in the case of species of vegetable).

The first conservation varieties (the winter softwheat variety "Goldblume" and "Luxaro"; winter rye variety "Likoro"; the potato varieties "Heideniere", "Ackergold", "Bamberger Hörnchen" and „Rosemarie"; broad bean "Herz Freya") are registered by the Federal Plant Variety Office. The current status can be viewed on the internet pages of the Federal Plant Variety Office.

In December 2011, a further EU Directive was implemented in national law with regard to marketing of seed

mixtures.

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 1 to the Treaty that are under the management and control of your Government and in the public domain?

Please select only one option

- All
 Partially
 None

20A. If your answer is 'all', please provide details of any difficulties encountered in including Annex 1 PGRFA in the MLS:

> No difficulties were observed.

The latest information on ex situ collections can be found in our National Inventory on Plant Genetic Resources PGRDEU

Link: http://pgrdeu.genres.de/index.php?tpl=ex_situ

20B. If your answer is 'partially', please provide details of:

The extent to which Annex 1 PGRFA have been included in the MLS

The crops that have been included in the MLS; and

The difficulties encountered in including Annex 1 PGRFA in the MLS:

>

20C. If your answer is 'none', please provide details of the difficulties encountered in including Annex 1 PGRFA in the MLS:

>

21. Has your country taken measures to encourage natural and legal persons within your jurisdiction who hold Annex 1 PGRFA to include those resources in the MLS?

Please select only one option

- Yes
 No

21A. If your answer is 'yes', please provide details of:

The natural or legal persons within your jurisdiction that included Annex 1 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 1 PGRFA in the MLS:

> X The natural or legal persons within your jurisdiction that included Annex 1 PGRFA in the MLS;

X The crops that have been included in the MLS by these persons; and

• Any difficulties these persons encountered in including Annex 1 PGRFA in the MLS:

Germany encouraged the plant breeders to contribute plant genetic resources to the MLS and make these PGR publicly available. In the initiative "Varieties for Diversity", the German plant breeders, represented by the Federal Association of German Plant Breeders (BDP), provide a collection of new varieties for the MLS (<http://pgrdeu.genres.de/tsorten?lang=en>). More information on the varieties can be found via the National Inventory of Plant Genetic Resources in Germany (PGRDEU) (pgrdeu.genres.de/tsorten).

A further example for the improvement of the involvement of natural and private actors in the MLS in Germany is the participation of a Company (Hermann Cordes Baumschule) and a private person (Hans-Joachim Bannier) as partners in DGO (apples). (Partner DGO: <http://www.deutsche-genbank-obst.de/traeger/index>).

21B. If your answer is 'no', please provide details, in particular details of any difficulties encountered in encouraging these persons to include Annex 1 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 1 PGRFA, in accordance with the conditions set out in Article 12.4 of the Treaty?

Please select only one option

- Yes
 No

22A. If your answer is 'yes', please provide details of such measures:

> Germany reported in detail about the steps and the appropriate measures within these steps taken to provide facilitated access to Annex 1 PGRFA, in accordance with the conditions set out in Article 12.4 of the Treaty during the 2nd technical consultation on information technology support for the implementation of the MLS of ABS of the international Treaty in Rome, 2-3 December 2008. This is documented as German case study in document IT/GB-3/TCIT-2/08/Inf.1

Step 1: Information of Relevant Stakeholders

Step 2: Introduction of the SMTA

Step 3: Inclusion of Material into the MLS at Genebank Level

Step 4: Inclusion of Material into the MLS by the Contracting Party

More details are available through the website of PGRDEU (<http://www.genres.de/pgrdeu/>).

Through written communication, the Treaty Secretary was informed about the German contribution to the MLS. The accessions that are provided by German Genebanks using the SMTA are on-line available under http://pgrdeu.genres.de/index.php?tpl=ex_situ

22B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex 1 PGRFA:

>

23. Has facilitated access been provided in your country to Annex 1 PGRFA pursuant to the standard material transfer agreement (SMTA)?

Please select only one option

- Yes
 No

23A. If your answer is 'yes', please provide the number of SMTAs entered into:

> SMTA: Annex I (IPK, Genbank WEL, DGO, DGR)

Year Number of SMTA accessions

2007 19 397

2008 326 8812

2009 575 13175

2010 512 10911

2011 1085 15436

2012 1223 16884

2013 1148 17194

2014 1093 26495

2015 1051 30020

total 7032 139324

23B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex 1 PGRFA pursuant to the SMTA:

>

24. Has the SMTA been used voluntarily in your country to provide access to non-Annex 1 PGRFA?

Please select only one option

- Yes
 No

24A. If your answer is 'yes', please indicate the number of such SMTAs entered into:

> SMTA: Non-Annex-I (IPK)

Year Number of SMTA accessions

2007 15 499

2008 258 5766

2009 341 7545

2010 569 10903
2011 1130 18639
2012 1219 15987
2013 1051 12227
2014 986 11239
2015 1037 13919
total 6606 96724

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?

Please select only one option

- Yes
 No

25A. If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:
> Entitlements under private law contracts such as the SMTA may be enforced in Germany under appropriate German Civil Law Code following the rules of procedure of the German Code of Civil Procedure.

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

Please select only one option

- Yes
 No

26A. If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:
> Germany is member to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the New York Convention), and recognizes and enforces foreign arbitral awards.

27. Have there been any emergency disaster situations in respect of which your country has provided facilitated access to Annex 1 PGRFA for the purpose of contributing to the re-establishment of agricultural systems?

Please select only one option

- Yes
 No

27A. If your answer is 'yes', please provide details of such emergency disaster situations and the Annex 1 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

28A. If your answer is 'yes', please provide details of any information made available regarding Annex 1 PGRFA (e.g. catalogues and inventories, information on technologies, results of scientific and socio-economic research, including characterisation, evaluation and utilisation):

> The latest information on ex situ collections and the MLS-Status (Annex I-PGRFA) can be found in our National Inventory on Plant Genetic Resources PGRDEU. The accessions in the German Genebanks including their MLS-Status were reported in the 2nd GPA-Reporting Format to FAO.

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

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

Please select only one option

- Yes

> see 29B

- No

29A. 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.

29B. If access to technologies was provided, please provide details of the access provided:

> In the third Meeting of the platform for the co-development and transfer of technologies in Rome, Italy, 7 September 2015, Germany (Sarah Sensen) reported about the EVA II-activities. In cooperation with private breeders existing and newly added evaluation data from genebanks and other collections are systematically collected and processed by the JKI and then presented to users in a database (EVA II). So far, EVA II comprises valuable evaluation data for barley and wheat. In order to integrate information of relevant data on genetic resources for cultivated and wild flora in Germany of different databases the Federal Information System Genetic Resources (BIG, www.big-flora) was developed in 1998 by four partner institutions with extensive databases on wild and cultivated plants (IBV, IPK, the Federal Agency for Nature Conservation (BfN) and the Department of Special Botany and the Botanical Garden of the Ruhr University Bochum on behalf of the Association of Botanical Gardens) in Germany.

Other access to technologies for the conservation, characterisation, evaluation and use of Annex I PGRFA is provided through technical assistance, reported in the answer to Q. 16 and 17.

The German National Genebank of Agricultural and Horticultural Plants at IPK as a rich cooperation with other Genebanks, which also includes technical assistance to these partners, where appropriate.

30. Has your country provided for and/or benefitted from capacity building measures in respect of Annex 1 PGRFA?

Please select only one option

- Yes
 No

30A. 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.

30B. If your country provided for and/or benefitted from such measures, please provide details:

> In the Second German National Report on conservation and sustainable utilisation of plant genetic resources for food and agriculture, it is resumed, that in the framework of international collaboration, Germany has continued its support of activities of FAO, including its CGRFA, the CGIAR, the GCT and the Treaty) with regard to PGR. Corresponding national measures like the implementation of the SMTA under the Treaty have been undertaken. Another important activity supported by Germany took place at the European level within the

European Cooperative Programme for Plant Genetic Resources (ECPGR) with the development of the European Search Catalogue for Plant Genetic Resources (EURISCO), the further improvement and operation of European Central Crop Databases (ECCDB) and the work towards the implementation of a European Genebank Integrated System (AEGIS). In November 2011, a delegation of German Experts advised the Japanese Government about the German Case study and support for the implementation of the MLS of ABS of the Treaty also with answering their questions.

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?

Please note that this question differs from question 15 as it only concerns Annex I PGRFA and is more specific.

Please select only one option

Yes

No

31A. If your answer is 'yes', please indicate whether the implementation of the plan was promoted through:

National actions

International cooperation

31B. If the implementation of the plan was promoted, please provide details:

> FAO's Global Plan of Action is extremely important and has influenced the German framework for PGR from the beginning. On the other hand, Germany has shaped its National PGR Programme to support the implementation of 2nd GPA. Detailed information about the implementation of the 2nd GPA was given in the report on the implementation of the GPA. Germany supports also international programmes and organisations focused on conservation of genetic resources in harmony with the 2nd GPA as mentioned above.

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?

Please select only one option

- Yes
 No

32A. 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:

> ICARDA (Syrian Arab Republic): 1 SMTA (Annex 1)

CIMMYT (Turkey): 1 SMTA (Annex 1)

Note: Only IRACs (2 SMTA see above) are mentioned, because the definition of other international institutions is unclear and therefore not included.

32B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex 1 PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty

>

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?

Please select only one option

- Yes
 No

33A. 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:

>

33B. If your answer is 'no', please provide details of any difficulties encountered in providing access to non-Annex 1 PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty:

> Only IRACs are mentioned (no SMTA provided), because the definition of other international institutions is unclear and therefore not included.

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?

Please select only one option

Yes

No

34A. If your answer is 'yes', please provide details of such activities:

> See answer to Q. 13 (esp. on ECPGR).

Also Germany supports DivSeek – an autonomous initiative of plant research institutions to integrate genomic research data into other relevant information domains, which the Treaty Secretariat co-facilitating. BLE and IPK have become DivSeek Partners by endorsing the DivSeek Charter.

JKI is the German partner of the Global Wheat Initiative. As the Federal Research Centre for Cultivated Plants the JKI represents the interests of the BMEL in the network. Frank Ordon of JKI has served as chairman of the Research Committee of the Wheat Initiative since 2014, also Dr. Bettina Pellio (BLE) is involved in the initiative's Institutions' Coordination Committee (ICC). (www.wheatinitiative.org/about-us/countries-international-research-centres)

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?

Please select only one option

Yes

No

35A. If your answer is 'yes', where possible, please provide details of such channels and the amount of the financial resources involved:

> List of BMEL/BLE funded German projects and financial resources provided:

GCP/INT/115/GER (GenRes 2012-1), 01.01.2012 – 31.12.2015, 737.767,00 Euro

This project will support the activities of the Global Crop Diversity Trust to ensure the conservation and availability of Genetic Resources of Sweet Potato. The funds available under the Agreement between the Trust and BMEL will contribute to the first four years of funding for the sweet potato collection held by CIP (Centro internacional de la papa, Peru).

GCP/INT/114/GER (GenRes 2012-2), 01.01.2012 – 31.12.2015, 191.675,00 EUR

This project will support the activities of the Global Crop Diversity Trust to ensure the conservation and availability of Genetic Resources of Forages. The funds available under the Agreement between the Trust and BMEL will contribute to the first four years of funding for the Forages collection held by the International Livestock Research Institute (ILRI, Ethiopia).

GCP/GLO/281/MUL, 2012 – 2014, 450.000 EUR

Germany contributed to the “Second call for proposals under the Benefit Sharing Fund of the International Treaty on Plant Genetic Resources for Food and Agriculture” 450.000 € between 2012 and 2014.

DivSeek I (GenRes 2015-3), 01.09.2016 – 01.09.2018, 591.490 EUR

Phenotypic data describing genebank accessions play a critical role in understanding the value of collections and facilitates their more targeted and effective use in breeding programs. A wealth of characterization and evaluation data is generated during seed multiplication, accession regeneration and screening activities. A mechanism to broadly share such data alongside increasingly detailed genotypic data is a fundamental requirement for the DivSeek initiative and would be an important contribution to the Multilateral System established under the Treaty.

DivSeek II (Genesys Catalogue) (GenRes 2016-1), 590.940,00 EUR

The goal of this project is to build a metadata-based catalog of phenotypic datasets associated with the genebank accessions discoverable on Genesys. A global gateway to genetic resources conserved ex situ around the world, Genesys currently holds the passport data of 2.6 million accessions from 447 genebanks. Developed and managed by the Crop Trust, it contributes to the Global Information System (GLIS) stipulated in Article 17 of the International Treaty

Artikel 17 GCP/INT/019/GER, 01.01.2014 – 30.06.2015, 120.400,00 EUR

The overall objective of the project is to contribute to the design and implementation of the global information system pursuant to Article 17 of the Treaty.

GLIS – inpreparation, GCP/GLO/685/GER (GenRes 2016-X), 01.12.2016 2016 – 30.10.2019, In preparation

The project will contribute to the implementation of the newly adopted Programme of Work (PoW) on the Article 17 of the Treaty through three main components: a) development of a set of core services and activities to connect existing and future plant genetic resources information systems and datasets; b) the development and promotion of standards for germplasm description and documentation c) the organization of training activities to document and exchange non-confidential information associated to the germplasm in the Multilateral System of the Treaty and other useful information for plant breeders, farmers and researchers.

FKZ: 2813IL03 , Call reference: German-Israel Cooperation, Project title: Dissection of Wild Emmer Wheat QTLs Conferring Drought Resistance, Geographical focus: Israel, 1.11.2014 - 31.10.2017, 106.504,00 EUR (114.808,00€) Project partners: Julius Kühn-Institut, Institut für Resistenzforschung und Stresstoleranz in cooperation with Israeli partners (Hebrew University of Jerusalem, Faculty of Agriculture, Food and Environment, Rehovot; Haifa University, Institute of Evolution, Haifa, Israel)

Drought will gain evident importance as a yield limiting factor in wheat production worldwide. However, genetic variation for drought stress tolerance in adapted wheat genotypes is quite limited. Wild relatives, like emmer wheat (*T. diccoides*), are a valuable resource for improving drought stress tolerance in *T. durum* and *T. aestivum*, therefore. QTL for drought stress tolerance have been identified already in *T. diccoides*. The aim of this project is to saturate these with molecular markers and to transfer the shortest QTL carrying fragments into adapted wheat genotypes to improve drought stress tolerance. To achieve this, the already identified QTL will be saturated with molecular markers by genotyping the original mapping population with the 90k iSelect chip, genotyping by sequencing (GBS) and by employing the genome zipper. In a next step respective QTL regions will be fine mapped in order to narrow down their size and they will be introgressed into adapted Israelian and German cultivars. Besides this expression analyses will be conducted to get more detailed information.

FKZ: 2813FS01, Call reference: Nutrition – diversified Agriculture, Project title: Genome wide association studies to improve drought stress tolerance in Ethiopian wheat (*Triticum durum*) and barley (*Hordeum*

vulgare) accessions", Duration: 1.1.2014 - 31.12.2017, Budget: 442.973,00 €

Projektpartners: 1) Julius Kühn-Institute, Institut für Resistenzforschung und Stresstoleranz, 2) Ethiopian Institute of Agricultural Research (EIAR)

The aim of the project is to identify drought stress tolerant barley and durum wheat varieties in Ethiopia and to determine the genes involved in the drought tolerance. Based on these results PCR markers will be developed which enable accelerated introgression of drought tolerance. The results shall be basis for expansion of cultivation areas and securing yields in these cultures.

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

Please select only one option

Yes

No

36A. If your answer is 'yes', please provide details of such national activities and the amount of the financial resources involved:

> The activities of the German Genebanks were reported in the 2nd GPA-Reporting Format to FAO.

The following German Genebanks (see Q. 10) provide national conservation activities within the crop/crop group/plant group(ID): (IPK - Agricultural and vegetable crops, DGO - Fruit crops, DGR - Grape vine, DGZ - Ornamentals, Genbank WEL - CWR, Tabak-Tobacco).

Also public and/or private genetic enhancement (including base-broadening) programme as well as public crop breeding programmes which has been active during the reporting period and targeted taxon and crop were reported in the 2nd GPA-Reporting Format to FAO.

Additionally see answer also the BMEL-/BLE funded Projects listed in Q. 8 and Q.12

About this reporting format

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

Please select only one option

Yes

>

No

37A. If your answer is 'yes', please provide details on such difficulties:

>

37B. 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:

> Lessons learnt at national level (see German Case Study IT/GB-3/TCIT-2/08/Inf.1):

- Early and comprehensive information of the relevant stakeholders on the national implementation of the MLS and the SMTA by the respective authorities is important.
- Existing "infrastructure" for cooperation such as a National Programme for PGRFA with a National Coordination Committee and a National Inventory (documentation system) should be used as much as possible.
- The text of the SMTA is not self-explanatory, especially for users not speaking UN languages. There is a need for assistance through experts giving guidance and / or a courtesy translation in the national language. Explanatory notes, FAQs etc. are useful in order to facilitate the implementation of the MLS and the SMTA at national level.
- General guidelines on how to include material into the MLS at the collection level (e.g. identification of public domain accessions) could be helpful.

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:

>

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:

>