



**Food and Agriculture
Organization of the
United Nations**



**International Treaty
on Plant Genetic Resources
for Food and Agriculture**

Toolbox for Sustainable Use of PGRFA

User Guide

2023

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Why the Toolbox?

Recognizing the need to increase and enhance activities relevant to the goals of [Article 6](#) of the International Treaty, and to address specific constraints identified as negatively affecting the capacity of national and regional programmes for its effective implementation, the Governing Body of the International Treaty, requested the development of a toolbox to assist countries in designing and implementing measures to promote sustainable use of plant genetic resources for food and agriculture (PGRFA). Hence the: [Toolbox for Sustainable Use of PGRFA](#) was developed.

What is the Toolbox?

The Toolbox is an online database of resources on the sustainable use of PGRFA. It contains publications, reports, research and studies, and other relevant information resources from various organizations and bodies worldwide, including research and academic institutions, intergovernmental bodies, and national and international agricultural research institutions.

The Toolbox contains two different repositories of resources relevant to the sustainable use of PGRFA: **technical resources** and **policy resources**.

What can we do with the Toolbox?

- Searching for technical and policy resources, in particular about sustainable use of PGRFA
- Submitting new information resources
- Providing feedback on the use of the Toolbox

How to access to the Toolbox?

The Toolbox is accessible in the [International Treaty website](#) in three different ways.

1. Through the *Tools* menu

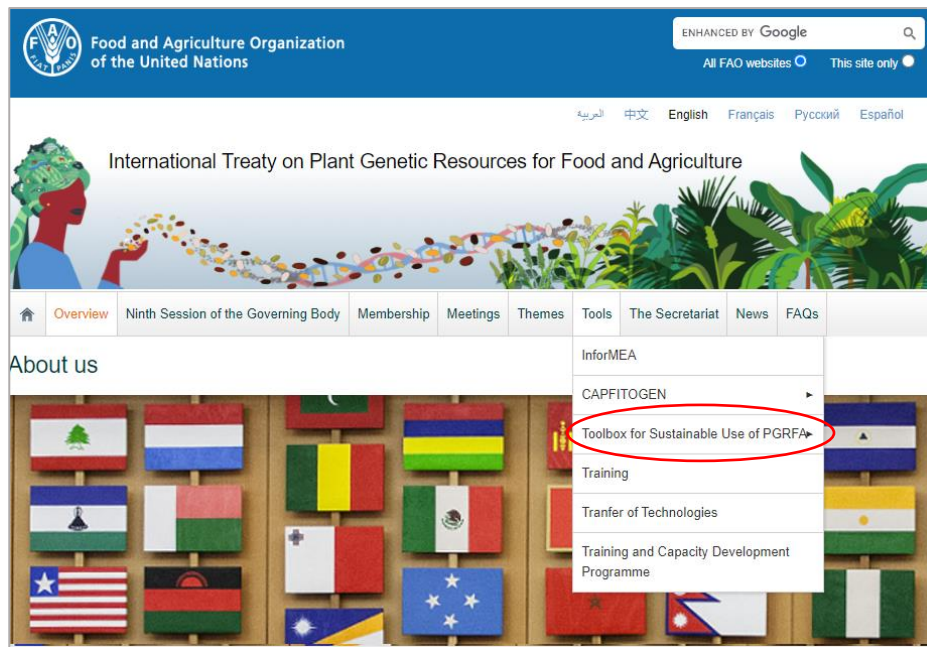


Figure 1. Access the Toolbox through the “Tools” menu in International Treaty website

2. Through the theme “*Conservation and Sustainable Use*”

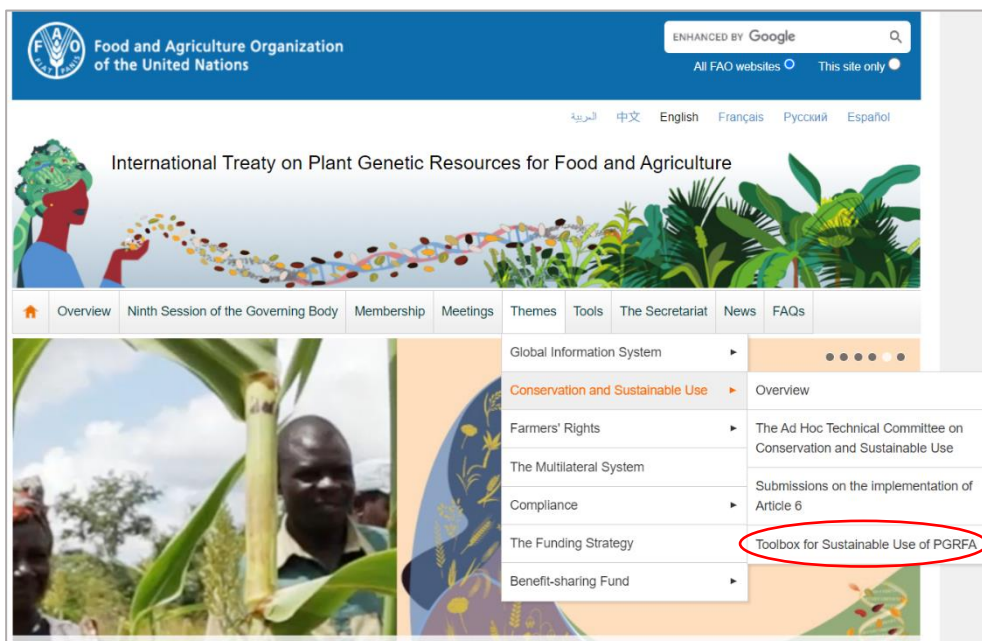


Figure 2. Access to the Toolbox in GLIS portal

Then the databases are reachable by clicking on these links:

Toolbox for Sustainable Use of PGRFA



Overview

About the Toolbox

Recognizing the need to increase and enhance activities relevant to the goals of Articles 5 and 6, the Governing Body of the International Treaty requested the development of an online system to assist all stakeholders involved in different aspects of the global PGRFA use: The Toolbox for Sustainable Use of PGRFA.

The Toolbox is for anyone seeking information or guidance on policies, strategies and activities that can promote and enhance the conservation and sustainable use of PGRFA, particularly at national and local levels. Users are expected to be from a wide range of stakeholder groups, including those working in or associated with public research institutes and gene banks, government agencies, farmers' associations, agri-based non-governmental organizations (NGOs), local and indigenous community entities, seed networks, educational establishments, international bodies, networks and services, private plant breeding companies, and the commercial seed and plant production industries, as well as independent plant breeders, farmers and seed producers.

Using the Toolbox

The Toolbox has two primary components – web pages highlighting and summarizing key areas of relevance in promoting and enhancing the sustainable use of PGRFA, and a database facilitating access to a selection of resources to aid users in the development of sustainable use initiatives.

Resources are classified according to thematic areas, subject area(s) and specific subject categories as well as by the primary geographical area of relevance, language, publication date and format. Most resources are open access and freely available for download from the Internet.

Users can access resources via a search function in each subject area web page (technical resources or policy resources)

Toolbox for Sustainable Use of PGRFA

[Overview](#)

[Article 6](#)

[Technical resources](#)

[Policy resources](#)

Conservation and Sustainable Use

[Overview](#)

[The Ad Hoc Technical Committee on Conservation and Sustainable Use](#)

[Submissions on the implementation of Article 6](#)

[Toolbox on Sustainable Use of PGRFA](#)

Figure 3. Access through the Toolbox's webpage on the International Treaty's website

3. Through the GLIS portal

The screenshot shows the FAO website header with the logo and navigation menu. The 'Tools' menu is open, showing a list of options. The 'GLIS Portal' option is circled in red. Below the menu, there is a section for the 'Toolbox for Sustainable Use of PGRFA' with an image of farmers and a sidebar with links to 'Overview' and 'Article 6'.

Global Information System	Scientific Advisory Committee
Conservation and Sustainable Use	GLIS Portal
Farmers' Rights	Digital Object Identifiers (DOI)
The Multilateral System	DOI experiences
Compliance	FAQs
The Funding Strategy	Selected documentation and links
Benefit-sharing Fund	CWR Descriptors
	Outreach events

Figure 4. Access to the GLIS portal through the International Treaty's website

The screenshot shows the GLIS portal homepage with a grid of service icons. The 'TOOLBOX FOR SUSTAINABLE USE OF PGRFA' icon is circled in red. The page includes a header with navigation links and a main content area with a grid of service icons and their descriptions.

<p>SOURCES OF PGRFA Ex situ In situ On-farm Others</p>	<p>ADDED VALUE CHAIN Genomics and phenomics Breeding Other useful links</p>	<p>USERS' THEMES Plant breeding Farmers' networks Policy and legislation Research Publishing and metadata</p>	<p>SEARCH Resolve DOIs Find PGRFA Find MLS material Find DOI registrants Find WIEWS institutions</p>	<p>DOCUMENTATION Technical documentation Digital Object Identifiers Descriptors Taxonomy and tools</p>
<p>TOOLBOX FOR SUSTAINABLE USE OF PGRFA Technical resources Policy resources User guide Submit a resource!</p>	<p>HELP-DESK Need assistance with the system? Send us an email! Frequently Asked Questions</p>			

Figure 5. Access to the Toolbox through the GLIS portal

How to Navigate?

1. Language

The Toolbox user interface is available in English, French, Spanish and Arabic. The user can choose the interface language through the pull-down menu placed at the top right of the home page (see below).



Figure 6. Language selection

Resource titles and descriptions may not be available in all languages. If a resource title or description are not available in the desired language, the Toolbox displays the English version. It is worth mentioning that the language in which the resource is described (title, description, and various other attributes) and the resource language itself can be different. For instance, a title and description in English can point to a resource available in Spanish.

The Toolbox makes extensive use of controlled vocabularies (predefined lists of terms) that can be associated to a resource to describe it and, as the terms are translated in all Toolbox languages, make it more easily findable, regardless of the user's language.

2. Technical and policy resources

The Toolbox resources are classified into two categories: **technical** and **policy resources**. This classification is due to the different description required for each category. When entering the Toolbox, the user is asked to first choose the category of resource: Technical Resources or Policy Resources.

The Technical repository contains technical resources related to crop diversity, plant breeding techniques and approaches, training, or capacity building, crop wild relatives and farming systems.

The Policy repository contains policy framework on legislation and policies, agreements, principles, declarations, strategies, and Action Plans, miscellaneous.

3. Searching for resources

Choosing one of the resource themes (Technical or Policy) leads the user to the corresponding search form, shown below.

Technical Resources [Help on this page](#)

Include results in other languages

Free text search

Keywords

Subjects

Resource type

Publication year Since Until

Regions

[Clear search form](#) [Search](#)

Figure 7.
Search form
for Technical
Resources

Keywords

Categories

Resource type

Publication year Since Until

Regions

[Clear search form](#) [Search](#)

Figure 8.
Search form for
Policy
Resources

On the same page, under the “search field” or “search box”, a list of matching resources is displayed. If more than 5 resources are found matching the search parameters, a pager control appears at the bottom of the page (see below).

The number of resources matching the search criteria entered in the form is displayed on the right of the blue strip.

Please keep in mind that entering text or selecting values in two or more controls will be interpreted as “AND”, i.e. the resources found will have to comply, at the same time, with all criteria entered in different search form controls. As explained above instead, choosing two or more items in the same control finds resources that are associated to one or more of them. For instance, if we type “crop production” in the Free text search control and then choose “Africa” and “Asia” in the Regions control, the search will find all resources that have the characters “crop production” in the title or in the description **and** are associated to Africa **or** to Asia **or** both.

Technical Resources Help on this page

Include results in other languages

Free text search

Keywords

Subjects

Resource type

Publication year Since Until

Regions

Number of records: 255

1) A case for crop wild relative preservation and use in potato

Crop wild relatives (CWR) offer a critical resource to address food security needs by providing genetic diversity for crop improvement, leading to increased plasticity and productivity of farming systems. However, plant breeders typically have not developed systematic or comprehensive strategies for...

Subject: **Crop wild relatives, neglected and underutilized species**
 Regions: **Global**
 Publication year: **2013**

2) Biodiversity of Turkey Contribution of Genetic Resources to Sustainable Agriculture and Food Systems

This book presents selected genetic resources and their contribution to sustainable agricultural practices and food systems. The paramount objective of this book is to create public awareness about the value of biodiversity by bringing this information to a broader public audience as well as to the attention...

Subject: **Crop diversity**
 Regions: **Europe**
 Publication year: **2018**

3) Data Management in Community Seed Banks

Community Seed Banks (CSBs) collect and record different types of data that can be stored and analysed to support actors in managing crop diversity. Databases are efficient tools to store and manage information in CSBs. A survey was conducted to identify how DIVERSIFOOD seed savers' and farmers...

Subject: **Farming Systems**
 Regions: **Europe**
 Publication year: **2019**

4) Developing sustainable food value chains – Guiding principles

Aimed at policy-makers, project designers and field practitioners, this publication provides the conceptual foundation for a new set of FAO handbooks on sustainable food value chain development. It defines the concept of a sustainable food value chain, presents a development paradigm that integrates...

Subject: **Seed system**
 Regions: **Global**
 Publication year: **2014**

5) Diversified Food System: Policy to Embed Crop Genetic Diversity in Food Value Chains

Current food systems and associated agricultural practices have led to a loss of crop diversity. The re-introduction of diversity in the agrifood systems is a complex process that involves a variety of realms, the mobilisation of multiple forms of knowledge and the active participation of all the diverse...

Subject: **Crop diversity**
 Regions: **Europe**
 Publication year: **2019**

Figure 9. List of found resources

The search form consists of fields and controls allowing the user to precisely define the resources. Below, a brief description of the controls is provided.

4. Refine your search

Include results in other languages

This control, checked by default, also finds resources available in languages other than the user's one. For instance, searching for resources applicable to Europe could result in resources available in French or Spanish that will not be displayed if the user's language is English, and this control is not checked.

Include results in other languages

Free text search

Entering some text into this box will look for resources containing that text in their title or description. The text is compared as is. For instance, entering "global" would find resources containing "global", "globally", "globality" and so on in their title or description. If two or more words are type into this box, the entire content will be used. For instance, typing "food system" will also find "food systems" but not "food shortage" or "global system".



The screenshot shows a search interface for 'Policy Resources'. At the top, there is a checkbox labeled 'Include results in other languages' which is checked. Below this is a text input field labeled 'Free text search'.

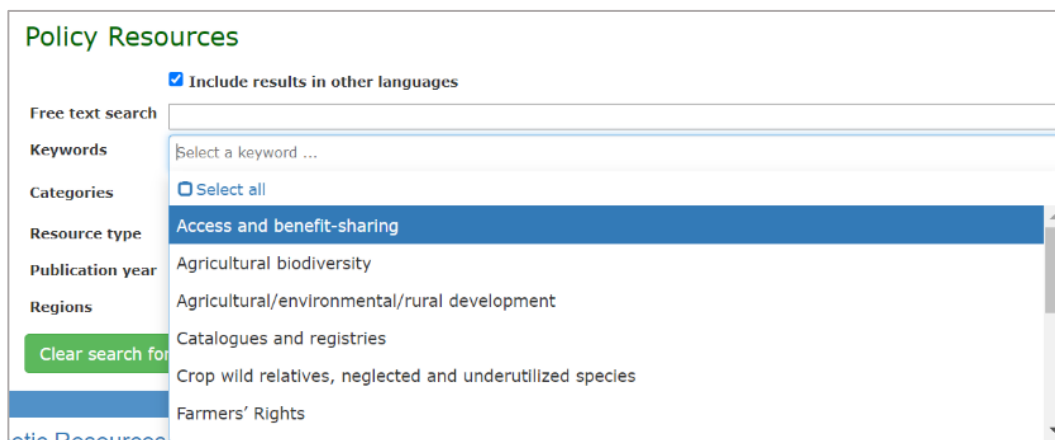
Figure 10. Free text research to refine the search

Keywords, Subjects (or Categories) and Regions

These are drop-down lists allowing the user to choose one or more terms from the corresponding list. Clicking in the box next to the label will display a scrollable list of terms that can be selected by clicking on a specific term. To reduce the number of items displayed it is possible to type some characters in the "Select a ..." text box at the top. Repeating the process adds a new term to the list displayed in the box. To remove one term from the box, click the little "x" next to it. To empty the box, click the "x" on the far right. Terms added to the control will be searched in "OR", i.e. the resources found will be associated to one or more terms. For instance, choosing regions "Europe" and "Africa" will find resources associated to Europe, Africa or both.

Agricultural biodiversity x

The control "Subjects" for technical resources is replaced by "Categories" for policy resources and can be used in the same way.

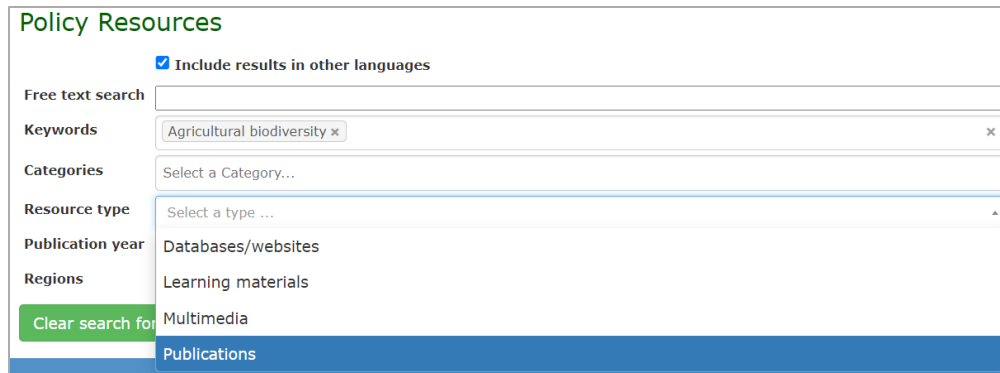


The screenshot shows the 'Policy Resources' search interface with a scrollable list of terms for keywords. The list includes: 'Access and benefit-sharing', 'Agricultural biodiversity', 'Agricultural/environmental/rural development', 'Catalogues and registries', 'Crop wild relatives, neglected and underutilized species', and 'Farmers' Rights'. The 'Agricultural biodiversity' term is highlighted in blue. There is also a 'Clear search for' button and a 'Select all' checkbox.

Figure 11. Scrollable list of terms for keywords

Resource type

This control is a pull-down list from which the user can choose one term.

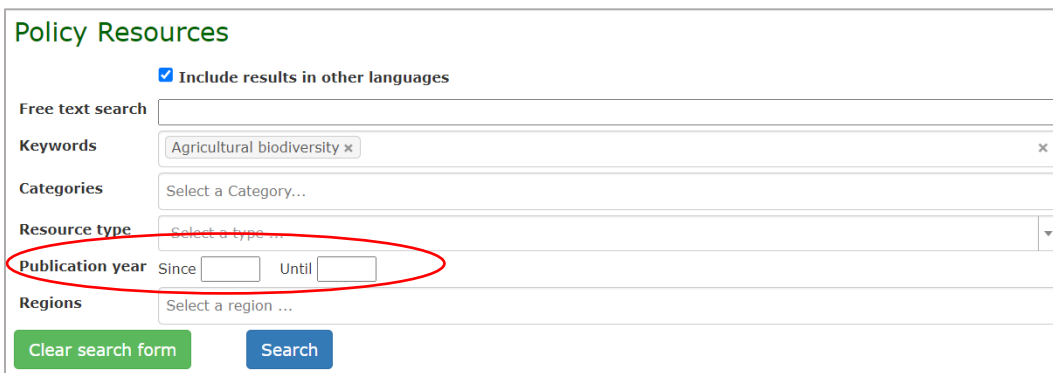


The screenshot shows a search form titled "Policy Resources". It includes a checkbox for "Include results in other languages" which is checked. Below this are fields for "Free text search", "Keywords" (containing "Agricultural biodiversity"), "Categories" (with a "Select a Category..." dropdown), "Resource type" (with a dropdown menu open showing "Select a type ..." and options "Databases/websites", "Learning materials", "Multimedia", and "Publications"), "Publication year", and "Regions" (with a "Select a region ..." dropdown). There are also "Clear search form" and "Search" buttons.

Figure 12. List of resource type to refine the search

Publication year

This control is implemented as a year range. Typing a year in “Since” will restrict the search to resources published in or after that year. Typing a year in “Until” will restrict the search to resources published up to that year inclusive. Typing the same year in both will find resources published in that year. Entering a “Since” year which is earlier than the “Until” year will result in resources published in the year range, including the extremes.



The screenshot shows the same search form as Figure 12, but with the "Publication year" field highlighted by a red circle. The field contains "Since" and "Until" input boxes. The "Resource type" dropdown is now closed. The "Clear search form" and "Search" buttons are visible at the bottom.

Figure 13. Publication year to refine the search

Clear the search form

Pressing this button will remove any value or selection applied to the search controls.

Clear search form

Search

Pressing this button will search for resources matching the controls as they are at the time. If no resource is found, “No matching resources found” is displayed.

Search

Export as Excel

Pressing this button compiles an Excel document with the found resources and a description of the query that was used to find them.

The screenshot shows a search interface for 'Policy Resources'. It includes a search bar, a 'Free text search' field, and several filter options: 'Keywords' (Agricultural biodiversity), 'Categories' (Miscellaneous), 'Resource type' (Select a type...), 'Publication year' (Since/Until), and 'Regions' (Select a region...). At the bottom, there are three buttons: 'Clear search form' (green), 'Search' (blue), and 'Export as Excel' (orange, circled in red). A 'Help on this page' button is in the top right corner.

Figure 14. Export as excel the search

Displaying resource details

Clicking the resource title displays the corresponding detail page where all information available about the resource is presented (see below).

A case for crop wild relative preservation and use in potato

Crop wild relatives (CWR) offer a critical resource to address food security needs by providing genetic diversity for crop improvement, leading to increased plasticity and productivity of farming systems. However, plant breeders typically have not developed systematic or comprehensive strategies for the characterization and use of CWR for cultivar improvement. Potato (*Solanum tuberosum* L.) provides an excellent case study for the use of CWR germplasm in addressing global food security needs. International cooperation and collaboration are critical to collect, characterize, and use CWR in anticipation of future production needs. Both ex situ and in situ preservation of wild potato species are essential to assure a comprehensive conservation plan. Top priorities include a coordinated inventory of gene bank holdings followed by re-collection of CWR and new collection where gaps exist. Access to CWR genetic diversity will continue to be critical as breeders face the challenge of developing cultivars that fit into new production systems, especially in response to climate change. With the advent of the genomics era, new visions of germplasm use strategies are emerging. In addition to filling gaps in collections, it will be important to expand efforts to characterize and use potato CWR. A systematic and integrated strategy is needed to evaluate CWR in gene banks for traits to continue breeding progress.

Theme	Technical Resources
Subject	Crop wild relatives, neglected and underutilized species
Publisher	Crop Science
Publication year	2013
Regions	Global
Languages	English
Resource type	Publications
Resource link	https://access.onlinelibrary.wiley.com/doi/epdf/10.2135/cropsci2012.11.0627
Keywords	Agricultural biodiversity; Crop wild relatives, neglected and underutilized species; Food security; Role of genebanks

[Go to resources list](#)

Figure 15. Resource detail page (Technical)

The detail page for Policy Resources is quite similar, with “Category” instead of “Subject”. From this detail page, clicking the “Go to resources list” brings the user back to the list of found resources, with the search form as it was, on the same page where the resource title was clicked.

Submitting resource proposals

Users and interested organizations and professionals working on sustainable use of PGRFA are invited to submit new technical and policy information resources for inclusion in the Toolbox. This can be obtained by filling in the form accessible through the link “Submit a resource!” available in the home page (see below). The same button is also available at the top right of the search page.

Submit a resource!

Submit CSU Toolbox resource Help on this page

Fields marked with * are required

First name *

Last name *

Gender

Email *

Job title

Organization

Type of Organization

Website of Organization

Country *

Correspondence language

Title of information resource *

Description of information resource *

Publication year *

Resource link

Comments

Figure 16. Resource submission form

The form contains information to be filled in some of which are mandatory (those marked with a red asterisk). A Comments text box is available for any additional information or clarification. For instance, if a submitter is unsure about some aspects of the submission, they can ask the Toolbox Editor to contact them at the email provided. The “Help on this page” button provides some clarifications on the form fields.

When the form is complete, please click the “Submit” button. Once submitted, the form cannot be edited or deleted. All submissions will be validated by the Toolbox Editor before being published in the Toolbox.

Providing feedback

Users are invited to provide feedback on the Toolbox or the resources available.

Feedback

Clicking on this button opens the email’s edition.

Requiring help

Some pages, such as the search form, may require some clarifications. In this case, an orange button “Help on this page” is present at the top right of the page (see on the right). Clicking the button displays a new window that can be resized and moved as appropriate. Close the window to continue.

Help on this page

CONTACT

Secretariat, International Treaty on Plant Genetic Resources for Food and Agriculture

Website: <https://www.fao.org/plant-treaty/overview/en/>

Email: PGRFA-Treaty@fao.org

The Toolbox - <https://www.fao.org/plant-treaty/tools/toolbox-for-sustainable-use/overview/en/>

Contact – pgrfa-treaty@fao.org