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



The International Treaty
**ON PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

Item 3.2 of the Provisional Agenda

**INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

**THIRD MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE
GLOBAL INFORMATION SYSTEM**

Rome, Italy, 21 – 22 June 2018

**Development and Promotion of Standards as Outlined in Objective 3 of
the Programme of Work on the Global Information System**

I. INTRODUCTION

1. Objective 3 of the Programme of Work on the Global Information System (GLIS) adopted by the Governing Body through Resolution 3/2015 deals with the development, implementation and promotion of standards for documentation of plant genetic resources for food and agriculture (PGRFA) to facilitate interoperability among existing systems in the context of Article 17 of the International Treaty. Crop documentation standards, which are one of the recurrent needs highlighted by users of PGRFA, are essential for improving the quality of the documentation and a key tool to prevent limitations to the data exchange in this domain.
2. The use of standards to describe biodiversity contributes to the achievement of a number of the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development, particularly SDG 15 – by helping halt the loss of crop biodiversity around the globe; SDG 2 – by promoting sustainable agriculture and working to end hunger, and combating climate change (SDG 13).
3. This document provides an overview of the status of the crop descriptors, analyses the current demand from PGRFA users and stakeholders in the context of the International Treaty, and presents a path for the development and promotion of crop documentation standards.

**II. ADVANCING ON THE IMPLEMENTATION OF CROP STANDARDS UNDER
OBJECTIVE 3**

Background

4. Biodiversity depends on agriculture. Conservation and sustainable use of PGRFA are fundamental to ensuring food security. Essential information about biodiversity is instrumental to halting the loss of crop biodiversity by promoting sustainable agriculture while sustaining climate change adaptation. However, documentation standards describing biodiversity are lacking for many crops and data are scattered across various genebank information systems, preventing breeders and other users from finding germplasm with useful traits for crop improvement.

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5. By Article 5.1 of the International Treaty, Contracting Parties undertake to cooperate to promote the development of an efficient and sustainable system of *ex situ* conservation. They commit to giving “due attention to the need for adequate documentation, characterization, regeneration and evaluation” with the view to improving the sustainable use of plant genetic resources for food and agriculture. The FAO’s *Second Global Plan of Action on Plant Genetic Resources for Food and Agriculture* (the Second GPA) also calls for action to strengthen and standardize characterization and evaluation data.

6. Furthermore, the Second GPA¹ recognizes the importance of facilitating the introgression of desired traits into breeding materials as an effective approach to manage the collections and increase the use of germplasm. Doing so requires some level of harmonization of documentation, characterization and evaluation, based on the adoption of common standards for data exchange.

7. In this context, characterization and evaluation standards provide a universally understood ‘language’ for plant genetic resources data. They help users to meet the International Treaty objectives of conservation and sustainable use of all plant genetic resources.

Activities under Objective 3

8. Activities (a) and (e) of the Work Programme on GLIS deal with the development of a common standard for Permanent Unique Identifiers applied to PGRFA and the development of technical standards required for interoperability between different PGRFA information systems, respectively. Both activities have been extensively discussed since the first meeting of the Scientific Advisory Committee.

9. Activity (b) relates to the development of further training and capacity development material, including e-learning material.

10. Activity (c) relates to the recommendation of common standards for data and metadata and the development of further standards (e.g. for phenotypic data).

A Global Demand

11. During the preparation of the Global Consultation for the development of the Programme of Work, documentation experts of Contracting Parties, stakeholders and PGRFA users recurrently indicated the development of new standards for crop documentation and the review of some of the oldest ones, as a priority. Since the approval of the Programme of Work, the Secretariat has received from users and partners of GLIS, requests to continue the improvement of data quality through the work on crop standards for characterization and evaluation. In particular, standards for phenotypic data.

12. During the last decade, some information initiatives and projects have been steadily improving access by breeders and other users to the germplasm they need in genebanks around the world. In most of these initiatives there was a component on the development of characterization and evaluation data related to crop standards. Nowadays, the international community can avail itself of at least 22 international agreed crop standards. However, there are still 42 crops and forages in *Annex I* of the International Treaty without a minimum set of descriptors to increase their utilization. Nevertheless, priorities for such development have not yet been set within the Treaty to tap into existing expertise and capacity and support the international community in the review of existing crop standards and for the development of new ones.

III. THE WAY FORWARD

Priority setting

13. In previous discussions, in the context of the implementation of the International Treaty, it was decided to prioritize the development of new crop standards taking into account the *Annex I*

¹ <http://www.fao.org/3/a-mm468e.pdf>

in the list of priorities. In total, 22 *Annex I* crops for which a “key access and utilization data standard” is available, can be found in *Appendix 1*.

14. A way forward for the implementation of Objective 3 could be:
- To use the *Annex I* of the International Treaty as the initial priority list to select crops for which key descriptors were not developed and where there are standards not widely used yet and may benefit from additional revision, consensus at international level and promotion;
 - To build upon the outputs of previous projects and to review some of the oldest descriptors, those that have more than 25 years, have been widely tested and used and for which there is a global demand from networks and big projects and initiatives for review;
 - To consider the development of documentation standards for other crops not included in *Annex I* according to their importance for plant breeding, food security and nutrition, and climate change challenges.
15. In *Table 1*, the Secretariat makes a proposal for the consideration and advice of the Scientific Advisory Committee regarding the candidate crops that may benefit from the development of international standards or an update of the existing ones.

Table 1. List of candidate crops that may benefit from the development of an international standard or an updating of the existing one.

	Annex I Crops	Genera	Year of publication	Type of action	Priority in the workplan (1=High;2=Medium;3=Low)
Food crops					
	Asparagus	<i>Asparagus</i>	none	Develop	3
	Pea	<i>Pisum</i>	none	Develop	1
	Oat	<i>Avena</i>	1985	Review	1
	Brassica complex	<i>Brassica and Raphanus</i>	1990	Review	2
	Strawberry	<i>Fragaria</i>	1986	Review	1
	Sunflower	<i>Helianthus</i>	1985	Review	1
	Major aroids	<i>Xanthosoma</i>	1989	Review	2
	Rye	<i>Secale</i>	1985	Review	2
Legume forages			1984	Review	2
		<i>Lupinus</i>	1981	Review	1
Legume forages			1985	Review	2
Other crops	Cocoa	<i>Theobroma cacao</i>		Review	3
	Amaranth	<i>Amaranthus</i>		Review	3

16. The development of those minimum standards for access to, and utilization of PGRFA will be done:
- a. **Consultation.** Through the establishment of informal crop consultation groups for the development of the first set or its review, where already available. The consultation will include curators, breeders and crop specialists (at least five crop specialists including an expert from the CGIAR and at least one representative from a regional network);
 - b. **Validation.** Through the validation of the minimum crop standards by a broader group of stakeholders from around the world;
 - c. **Resources.** Using existing technical expertise and capacity;
 - d. **Harmonization.** Applying across-crop standards for harmonizing the descriptors between different crops and facilitating their incorporation into relevant platforms (i.e. GRIN-Global, Genesys, EURISCO);
 - e. **Publicity.** Making all the steps for each crop and the results available online.

17. With regards to the timeline, the first activities would contemplate soft starting-up phase in the second semester of 2018, through electronic means, aiming at publishing three standards at least per year, including the new ones and the revisions.

18. It may also be suggested, in contributing to the implementation of Objective 3, that a section on crop descriptors be considered for inclusion in training workshops and capacity building events with a focus on characterization and evaluation standards to facilitate their adoption.

IV. ADVICE SOUGHT

19. The Committee is invited to consider the proposal and advise on the prioritization of crops standards and on the desirable targets for this activity in the context of Objective 3 of the Programme of Work on GLIS.

Appendix 1

List of Annex I crops for which a “key access and utilization data standard” is available²

	#	CROP NAME
FOOD CROPS	1	Banana
	2	Barley
	3	Beans
	4	Breadfruit
	5	Cassava
	6	Chickpea
	7	Coconut
	8	Cowpea
	9	Potato
	10	Faba bean
	11	Finger millet
	12	Grass pea
	13	Lentil
	14	Maize
	15	Pearl millet
	16	Pigeonpea
	17	Rice
	18	Sorghum
	19	Sweet potato
	20	Taro
	21	Wheat
	22	Yam

² <https://www.bioversityinternational.org/e-library/publications/descriptors/>