



Food and Agriculture  
Organization of the  
United Nations



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

## Data required for the assignation of Digital Object Identifiers in the Global Information System - v.1

23 September 2016

This document describes data to be provided when registering Plant Genetic Resources for Food and Agriculture (PGRFA) in the Global Information System (GLIS) through the Digital Object Identification (DOI) service. It does not include detailed formatting instructions, which will be provided by the Secretariat of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) of FAO in forthcoming technical documentation; nor does it provide [guidelines on the use of DOIs](#), which are addressed in a separate document. This document builds upon the results of the Global Survey on Descriptors required for PGRFA<sup>1</sup>.

Only PGRFA that physically exist can be registered in the Global Information System.

Based on the information contained in this document, additional training material will be developed and also a few more use cases. The first use case for genebanks is provided in Table 1 as an example.

Descriptors are grouped into the following classes:<sup>2</sup>

1. **Mandatory descriptors.** Values for these descriptors must be provided for every sample of PGRFA in GLIS; the holder is not given the option to enter “unknown”, “not applicable” or “other”, or to leave the field empty; a sample cannot be registered until valid values have been entered for all mandatory fields.
2. **Highly recommended descriptors.** These descriptors are applicable to all types of PGRFA. Valid values must be entered if known, but missing values are allowed, so omission of values does not prevent sample registration.
3. **Context-dependent descriptors.** These are applicable only to certain types of PGRFA. Their use is highly recommended in the appropriate context, i.e. values should be given if available and applicable. Missing values are allowed.

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<sup>1</sup> Report and Analysis of the Global Survey on Descriptors required for PGRFA material, 2015. FAO:  
<http://www.fao.org/3/a-bp470e.pdf>

<sup>2</sup> These classes form an objective classification intended to enhance data quality through helping the registrant to enter correct data. They do not correspond to any subjective classification by “importance” of the descriptors. A mandatory descriptor is not necessarily any more “important” than a highly recommended or context-dependent descriptor. For example, the name of a variety or the country of provenance of a sample may be considered critically important; but they are not always known or applicable and therefore cannot be treated as mandatory.

## 1. Mandatory Descriptors

### M01. Location where the sample is held

Please, specify the location where the PGRFA is maintained by selecting the first applicable form. Select one of the following:

- 1 FAO-WIEWS Institute code<sup>1</sup> (use this if you are acting for an organization and your organization is registered in WIEWS) [INSTCODE]<sup>2</sup>
- 2 Your PID from Easy-SMTA (use this if you have a PID but not an institute code)
- 3 Organization name and address (use this if you are acting for an organization and your organization does not have an institute code or a PID)
- 4 Individual name and address (use this if you are acting as an individual in your own right and you do not have a PID)
- 5 Geographical coordinates (latitude & longitude) (use this for PGRFA held *in situ* where none of the previous forms are applicable)

### M02. Sample unique identifier

The identifier that you use to identify your PGRFA sample to distinguish it from other PGRFA held by you. Specify precisely one identifier for the sample. Make sure that it is unique among the PGRFA held by you, and sufficient to enable you to identify the sample when you see this identifier, for example if a future GLIS user contacts you or your successor about it.<sup>3</sup>

To accommodate the diversity of systems and standards used by different holders of PGRFA, no restrictions are placed on the form of this identifier or what you choose to call it, other than it must be whatever you use to distinguish the sample from others that you hold, and you do not re-use this identifier for future samples. It may, for example, be an identifier that you have created in accordance with a syntax you have defined for the specific purpose of identifying the sample in your records. There are many forms and terms for such identifiers used by different communities, such as accession ID [ACCENUMB], Selection ID, Selection Number, Derivative name, Population ID, Seed lot ID, Catalogue entry, Designation, Preferred Name, Preferred ID, Permanent Unique ID [PUID] etc. Alternatively, if you acquired this sample from someone else and, instead of creating your own germplasm identification system, you identify it using whatever term you were given by the provider<sup>4</sup>, then specify that term here. Again there are many forms, such as cultivar name or common name or the provider's own sample ID [DONORNUMB] (which could be any of the identifiers listed above) or even a sample ID created by a collector when collecting a sample from *in situ* conditions [COLLNUMB].

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<sup>1</sup> <http://www.fao.org/wiews>

<sup>2</sup> Italicized terms in square brackets refer to the equivalent descriptor in the FAO/Bioversity Multi-Crop Passport Descriptors (MCPD: <http://www.bioversityinternational.org/e-library/publications/detail/faobioversity-multi-crop-passport-descriptors-v21-mcpd-v21/>)

<sup>3</sup> GLIS will register an error if you attempt to register a second sample with the same sample unique identifier; and a warning if this sample unique identifier duplicates any other identifier you have registered for another sample

<sup>4</sup> The practice of identifying samples using the identifier supplied by the provider is deprecated in many cases. Any organization with a formal germplasm data management system would and should assign its own internal identifiers to the germplasm it manages. The option is included only to accommodate communities without such formal germplasm data management systems.

### M03. Date<sup>1</sup>

[ACQDATE]

Date on which you became the holder of the sample.

### M04. Method<sup>2</sup>

Considering the date given for the previous field (Date), what event occurred on that date that resulted in you becoming the sample holder?

Choose one of the following:

- 1 **Acquisition:** you acquired the sample from someone else. In this case the date is the date you acquired it. A few examples for illustration:
  - You are a genebank manager and you acquired a new accession (from any source, *ex situ* or *in situ*).
  - You are a farmer and you bought a variety from the local market or obtained it from some other source.
  - You are a breeder or other researcher and obtained a sample from a collaborator, genebank or any other source outside your own breeding or research programme.
- 2 **Harvest - Derived variant:** You previously obtained a variable sample (segregating population and/or physical mixture), and this sample is a pure line or one component that you have selected out of the mixture. The date is the date you harvested the pure line or component of the mixture. A few examples for illustration:
  - You acquired a sample from someone else, found that it was a mixture of distinctive types, and selected one of those distinct types to be the sample that you are registering.
  - You acquired a sample from someone else, found that it was continuously variable in one or more traits, and selected one type to be the sample that you are registering.
  - You acquired a sample from someone else, but to ensure genetic purity you subjected the original sample to one or more generations of purification methods such as single-seed descent, single-plant selection, forced self-pollination or the creation of dihaploid plants.
  - You acquired a sample from someone else, but you are concerned about the possible loss of genetic integrity of the original sample under your maintenance (for example through unintentional cross-pollination with other varieties, admixture of seeds from other varieties, random genetic drift, or adaptation to a different environment) and therefore you do not want to use the same DOI for the sample you are registering.
- 3 **Harvest - Novel distinct PGRFA:** You are a breeder (including farmer-breeder) or other researcher, and the sample is a novel variety or breeding or research material that you have created, distinct from its parents, through a process that includes at least one innovative step such as crossing, induced mutation, genetic modification. The date is the date you first harvested the novel distinct material that you are registering.
- 4 **Observation - Natural:** You hold the sample *in situ* and it appeared on your land without your intervention. The date is the date you first observed it on your land.
- 5 **Observation - Inherited:** The sample is one that you have inherited from your predecessor in title. The date is the date you inherited it. A few examples for illustration:

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<sup>1</sup> Dates are also accepted when only year or year and month are defined.

<sup>2</sup> Note: this is a key field whose value determines what context-specific descriptors are applicable. It has no equivalent in the MCPD because all genebank accessions have the same value. Some specific examples are given by way of illustration, but these are not exhaustive: you are not expected to try to fit your case into these examples, and GLIS will not record the specific details.

- You have taken on the role of managing a research collection and you don't know how your organization acquired or created the sample.
- You are a farmer and the sample is a traditional variety which you have been maintaining on-farm since you became responsible for the farm.

### **M05. Genus or crop name**

Specify one or both of the following:

- 1 Genus [GENUS]  
The generic epithet of the scientific name.
- 2 Common name of crop [CROPNAME]  
Common name of the crop, e.g. 'malting barley', 'macadamia', 'maïs'. More than one common name may be provided.

## **2. Highly Recommended Descriptors**

### **R01. Targets**

One or more URLs where further information about the sample can be obtained. This may be:

- 1 A URL to your own web site where you have published information about the sample
- 2 A URL to any other public data repository where you have placed your data
- 3 A URL to e-journals or other online resources where you have published experimental results using the sample

### **R02. Biological status**

[SAMPSTAT]

This describes the conditions of provenance of the sample. It follows the MCPD classification.

This and the method (above) are the two fields whose value determines what context-specific descriptors are applicable.

### **R03. Additional taxonomic category**

Provided genus has a non-missing value, finer levels of classification should be given if known:

- 1 Species [SPECIES]  
Specific epithet of the scientific name
- 2 Species authority [SPAUTHOR]  
Authority for the specific epithet
- 3 Subtaxa [SUBTAXA]  
Any additional infra-specific taxon: subspecies, variety, form, Group
- 4 Subtaxon authority [SUBTAUTHOR]  
Authority for the subtaxon at the most detailed level

### **R04. Names**

[ACCENAME]

One or more registered names or other designations, such as the name of a landrace, traditional variety or modern cultivar, or some other name or designation used to identify a breeder's selection or elite line or variety

### **R05. Other identifiers**

Any other identifiers, including permanent unique identifiers that have been assigned to identify the sample. It does not include identifiers for other samples that you believe maybe similar to this sample. Each identifier should be supplied in the form of a pair of values, ID Type and ID Value:

- 1 ID Type: the type of ID, selected from a list of valid types, such as LSID, UUID, catalogue ID etc.
- 2 ID value: the identifier itself.

### **R06. MLS status**

*[MLSSTAT]*

The status of the sample with regard to the Multilateral System of Access and Benefit-Sharing (MLS) of the International Treaty on Plant Genetic Resources for Food and Agriculture.

0. Not available under the MLS
1. Available under the MLS; may be further specified as follows:
  - 1.1 The sample is of a crop listed in Annex I and is under the management and control of a Contracting Party to the Treaty and in the public domain
  - 1.2 The sample is in an international collection under Article 15 of the Treaty
  - 1.3 The holder received the sample with an SMTA
  - 1.4 The holder has voluntarily placed the sample in the MLS
  - 1.5 The sample is derived from, and distinct from, material previously received from the MLS, is still under development and not yet ready for commercialization, and may be made available at the discretion of the developer, with an SMTA.

### **R07. Physical existence**

This is available only post registration. If a sample is permanently lost after being registered, the PGRFA holder should record the fact by changing this descriptor value to “Historical record”.

- 1 Sample exists (default)
- 2 Historical record

## **3. Context-dependent Descriptors**

### **3.1 Context: material you acquired from someone else**

These descriptors apply when method is Acquisition (see M04).

#### **C01. DOI of provider's sample**

If you know the DOI of the sample held by the provider, specify it here. If you specify this DOI, values of other descriptors will be automatically filled as appropriate based on the corresponding values of the parent DOI. Use this information to verify that you have the correct parent DOI.

If you do not provide the DOI of the sample held by the provider, you will need to all other relevant descriptors for which you have data.

#### **C02. Provider's location**

*[DONORCODE], [DONORNAME]*

Location or name of the person or organization that provided the sample to you, following equivalent rules to M01).

**C03. Provider's sample unique identifier** [DONORNUMB]  
Unique identifier used by the provider to identify the sample under the provider's management.

**C04. Country of provenance<sup>1</sup>** [ORIGCTY]  
The country in which the sample was either collected or bred or selected, or the first country in the known history of the sample.

### 3.2 Context: material previously collected from *in situ* conditions

These descriptors apply to all PGRFA that you hold *ex situ* and that were previously collected from *in situ* conditions, either collected by you or your organization, or collected by someone else and subsequently transferred to you.

**C05. Collector's location** [COLLCODE], [COLLNAME], [COLLINSTADDRESS]  
Location of the home base of the person(s) or organization(s) that originally collected the sample from *in situ* conditions, following equivalent rules to location to M01

**C06. Collector's sample unique identifier** [COLLNUMB]  
Identifier assigned by the collector(s) to the sample collected.

**C07. Collecting mission identifier** [COLLMISSID]  
If the sample was collected as part of an organized collecting mission during which other samples were collected, and the collectors assigned a code to identify the mission, specify that mission identifier here.

**C08. Location where sample was collected** [COLLSITE]  
Location information below the country level that describes where the sample was collected. This might include the distance in kilometres and direction from the nearest town, village or map grid reference point, (e.g. 7 km south of Curitiba in the state of Parana).

**C09. Latitude** [LATITUDE / DECLATITUDE]  
Latitude of the location where sample was collected

**C10. Longitude** [LONGITUDE / DECLONGITUDE]  
Longitude of the location where sample was collected

**C11. Uncertainty** [COORDUNCERT]  
Uncertainty of the latitude/longitude coordinates of the location where sample was collected. This value is typically provided by georeferencing software.

**C12. Geodetic datum** [COORDDATUM]  
The geodetic *datum* or spatial reference system upon which the latitude/longitude coordinates of the collecting location are based.

**C13. Georeferencing method** [GEOREFMETH]  
The method used to estimate latitude/longitude coordinates of the location where the sample was collected.

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<sup>1</sup> Equivalent at least in some cases to the "country of origin". Country of provenance is used here with a practical definition applicable to PGRFA that avoids potential confusion with country of origin as defined in the Convention on Biological Diversity.

**C14. Elevation***[ELEVATION]*

Elevation of collecting site expressed in metres above sea level.

**C15. Collecting date***[COLLDATE]*

Date on which the sample was collected. Dates are also accepted when only year or year and month are known.

**C16. Collecting source***[COLLSRC]*

A description of the nature of the location where the sample was collected. It follows the MCPD classification.

### 3.3 Context: material is a derived variant

These descriptors are for samples where method is = Harvest – Derived variant (see M04)

**C17. DOI of the variable sample**

You are encouraged first to register a DOI for the sample from which you derived the new sample. If you have done so, specify it here. If you specified this DOI, values of other descriptors will be automatically filled as appropriate based on the corresponding values of the previous DOI.

If you do not provide the DOI of the variable sample, you will need to provide values for all other relevant descriptors for which you have data.

### 3.4 Context: material is novel distinct PGRFA created by you

These descriptors are for samples where method is = Harvest - Novel distinct PGRFA (see M04)

**C18. DOI(s) of ancestral sample(s)**

List the DOIs of any samples that you acquired from others and that you used to create this novel distinct PGRFA. DOIs can be specified for any or all ancestral samples acquired from others, regardless of the precise relationship between the ancestral DOIs and the DOI of your novel distinct PGRFA. The relationship can include any type or combination of innovation and selection, over any number of intervening generations.

If you specified at least one ancestral DOI, values of other descriptors will be automatically filled as appropriate based on the corresponding values of the ancestral DOIs.

If you do not provide the DOI of the variable sample, you should provide values for all other relevant descriptors for which you have data.

Usage: if your sample is PGRFA under development (and defined as such in the MLS status descriptor above) and you intend to use the GLIS/Easy-SMTA system for transferring the material to others, then you can simplify and streamline the process of generating the SMTA by specifying here the DOIs of the samples you received from the Multilateral system.

Note: to specify the ancestry or pedigree of your sample more fully, use the format described in C20.

### 3.5 Context: material bred

These descriptors apply to all PGRFA that were bred with human intervention and have information on how it was bred, whether by you or by someone else, *in situ* or *ex situ*.

#### **C19. Breeder's location**

[BREDCODE], [BREDNAME]

Location where the material was bred, following equivalent rules to M01.

#### **C20. Ancestry**

[ANCEST]

The pedigree (e.g. 'Hanna/7\*Atlas//Turk/8\*Atlas') or other description of the ancestry of the sample and how it was bred (e.g. 'mutation found in Hanna', or 'cross involving amongst others Hanna and Irene').



**Table 1. Use case for genebanks: Mapping to MCPD V.2.1 descriptors**

<b>1. Mandatory Descriptors</b>		
<b>GLIS descriptor</b>	<b>GLIS Description</b>	<b>MCPD equivalent for genebanks</b>
M01. Location where the sample is held	The location where the PGRFA is maintained	Institute Code [ <i>INSTCODE</i> ]
M02. Sample unique identifier	The identifier that you use to identify your PGRFA sample to distinguish it from other PGRFA held by you	Accession Number [ <i>ACCENUMB</i> ]
M03. Date	Date on which you became the holder of the sample	Acquisition date [ <i>ACQDATE</i> ]
M04. Method	Considering the date given for field M03 Date, what event occurred on that date that resulted in you becoming the sample holder	N/A
M05. Genus or crop name	Genus or common crop name. Specify one or both	Genus [ <i>GENUS</i> ] Common crop name [ <i>CROPNAME</i> ]
<b>2. Highly recommended Descriptors</b>		
R01. Targets	One or more URLs where further information about the sample can be obtained	N/A
R02. Biological status	This describes the conditions of provenance of the sample	Biological status of accession [ <i>SAMPSTAT</i> ]
R03. Additional taxonomic category	Species: Specific epithet of the scientific name Species authority: Authority for the specific epithet Subtaxa: Any additional infra-specific taxon: subspecies, variety, form, Group Subtaxon authority: Authority for the subtaxon	Species [ <i>SPECIES</i> ] Species authority [ <i>SPAUTHOR</i> ] Subtaxon [ <i>SUBTAXA</i> ] Subtaxon authority [ <i>SUBTAUTHOR</i> ]
R04. Names	One or more registered names or other designations, such as the name of a landrace, traditional variety or modern cultivar, or some other name or designation used to identify a breeder's selection or elite line or variety	Accession Name [ <i>ACCENAME</i> ]
R05. Other identifiers	Any other identifiers, including permanent unique identifiers that have been assigned to identify the sample. It does not include identifiers for other samples that you believe maybe similar to this sample	Persistent unique identifier [ <i>PUID</i> ]
R06. MLS status	The status of the sample with regard to the Multilateral System of Access and Benefit-Sharing (MLS) of the International Treaty on Plant Genetic Resources for Food and Agriculture	MLS status of the accession [ <i>MLSSTAT</i> ]
R07. Physical existence	Describes whether the sample is still available or permanently lost after being registered	N/A

### 3. Context-dependent Descriptors

#### 3.1 Material you acquired from someone else

C01. DOI of provider's sample	DOI of the sample held by the provider	N/A
C02. Provider's location	Location or name of the person or organization that provided the sample to you	Donor institute code [DONORCODE] Donor institute name [DONORNAME]
C03. Provider's sample unique identifier	Unique identifier used by the provider to identify the sample under the provider's management	Donor accession number [DONORNUMB]
C04. Country of provenance	The country in which the sample was either collected or bred or selected, or the first country in the known history of the sample.	Country of origin [ORIGCTY]

#### 3.2 Material previously collected from *in situ* conditions

C05. Collector's location	Location of the home base of the person(s) or organization(s) that originally collected the sample from <i>in situ</i> conditions	Collecting institute code [COLLCODE] Collecting institute name [COLLNAME] Collecting institute address [COLLINSTADDRESS]
C06. Collector's sample unique identifier	Identifier assigned by the collector(s) to the sample collected	Collecting number [COLLNUMB]
C07. Collecting mission identifier	The identifier, if any, of the mission during which the sample was collected	Collecting mission identifier [COLLMISSID]
C08. Location where sample was collected	Location information below the country level that describes where the sample was collected	Location of collecting site [COLLSITE]
C09. Latitude	Latitude of the location where sample was collected	Latitude of collecting site [DECLATITUDE] [LATITUDE]
C10. Longitude	Longitude of the location where sample was collected	Longitude of collecting site [DECLONGITUDE] [LONGITUDE]
C11. Uncertainty	Uncertainty of the latitude/longitude coordinates of the location where sample was collected	Coordinate uncertainty [COORDUNCERT]
C12. Geodetic <i>datum</i>	The geodetic <i>datum</i> or spatial reference system upon which the latitude/longitude coordinates of the collecting location are based	Coordinate datum [COORDDATUM]
C13. Georeferencing method	The method used to estimate latitude/longitude coordinates of the location where the sample was collected	Georeferencing method [GEOREFMETH]
C14. Elevation	Elevation of collecting site	Elevation of collecting site [ELEVATION]
C15. Collecting date	Date on which the sample was collected	Collecting date of sample [COLLDATE]
C16. Collecting source	A description of the nature of the location where the sample was collected	Collecting/acquisition source [COLLSRC]

<b>3.3 Material is a derived variant</b>		
C17. DOI of the variable sample	If available, the DOI of the sample from which you derived the current sample	N/A
<b>3.4 Material is a novel distinct PGRFA created by you</b>		
C18. DOI(s) of ancestral sample(s)	List of the DOIs of any samples that you acquired from others and that you used to create this novel distinct PGRFA	N/A
<b>3.5 Material bred</b>		
C19. Breeder's location	Location where the material was bred	Breeding institute code <i>[BREDCODE]</i> Breeding institute name <i>[BREDNAME]</i>
C20. Ancestry	The pedigree or other description of the ancestry of the sample and how it was bred	Ancestral data <i>[ANCEST]</i>