

Minutes of the PRUNDOC meeting

20-21 April 2015, Leuven, Belgium

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Participants:

Name	Institute	Country	Role
Eva-Maria Gantar	Education and Research Centre for Viticulture and Pomology Klosterneuburg	Austria	PRUNDOC partner
Marc Lateur	Centre Wallon de Recherches Agronomiques (CRA-W)	Belgium	PRUNDOC partner
Marine Blouin	Institut National de la Recherche Agronomique (INRA)	France	European <i>Prunus</i> Database (EPDB) curator PRUNDOC partner
Monika Höfer	Julius Kühn-Institute (JKI)	Germany	PRUNDOC partner
Pavlina Drogoudi	Institute of Plant Breeding and Phytogenetic Resources	Greece	PRUNDOC partner
Daniela Giovannini	C.R.A.-Unità di Ricerca per la Frutticoltura di Forlì (CRA-FRF)	Italy	<i>Prunus</i> WG Chair PRUNDOC partner
Gunars Lacis	Latvia State Institute of Fruit-Growing	Latvia	PRUNDOC partner
Stein Harald Hjeltnes	Njøs næringsutvikling	Norway	PRUNDOC Coordinator
Vladislav Ognjanov	Institute for Fruit Growing & Viticulture	Serbia	PRUNDOC partner
Pavol Hauptvogel	Research Institute of Plant Production	Slovakia	PRUNDOC partner

Draft Agenda:

1. Welcome and presentation of the participants
2. Administrative and scientific obligations
3. AEGIS standard procedures
4. ECPGR agreed list of First Priority Descriptors (FPDs)
5. Presentation of candidates to AEGIS
6. Agreed list of 100 accessions for uploading in EURISCO
7. Agreed list of 30 accessions for SSR identification
8. Procedures for delivery of data to EURISCO/EPDB
9. Guidelines for selection of Most Appropriate Accessions (MAAs)
10. How to exchange material safely in the future?
11. New project?

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Introduction

This meeting took place as part of the project “Identification of a representative set of *Prunus domestica* accessions of European origin, well documented and characterized, to be included into the AEGIS system (PRUNDOC)”, funded by the ECPGR Activity Grant Scheme (Phase IX) First Call.

See the Activity Proposal:

http://www.ecpgr.cgiar.org/fileadmin/templates/ecpgr.org/upload/ACTIVITY_GRANT_SCHEME/First_call_successful_proposals/7.PRUNDOC_activity_proposal.pdf

AEGIS standard procedures

Presentation by Stein Harald Hjeltnes

It was explained that all institutes have to respect some criteria to offer accessions to AEGIS:

- **Country requirements:** Country has to sign the Memorandum of Understanding (MoU) to become AEGIS member;
- **Institute requirements:** signature of the Associate Membership Agreement with the National Coordinator; registration in FAO-WIEWS;
- **Quality requirements:** Minimum standards to run, traceability, Standard Material Transfer Agreement (SMTA).

Some comments were made:

- France, Greece and Serbia have not signed the MoU, hence are not yet members of AEGIS.
- The SMTA is not used by all the participants. Some use a simplified MTA. Procedures followed seem to be quite different between institutes. We need to clarify (*see section on Exchange of material below*).

The AEGIS simplified procedure to select accessions was then presented to participants, and a **selection procedure for *Prunus* accessions** was proposed and discussed.

DECISIONS:

→ **Participants decided to include candidates from non-member countries.** One aim of the project is to propose relevant accessions to be included in AEGIS.

→ **Accessions to be selected for AEGIS collection** have to be:

- bred in the country and genetically unique
- **or** known to have originated in the country (chance seedling of known origin, landraces)
- **or**, if of unknown origin, known to have been present/cultivated in the country for a long time
- **or** introduced material to Europe with breeding, research, education or historical interest.

In each case, the origin should be referenced.

First Priority Descriptors and Second Priority Descriptors for Plum

Presentation by Daniela Giovannini

Characterization and Evaluation Descriptors

The two concepts of FDP and SPD were explained:

- **First Priority Descriptors (FPDs)** are the descriptors that should be prioritized as they are the most important and effective in describing and distinguishing different genotypes
- **Second Priority Descriptors (SPDs)** are those deemed useful to supplement FPD.

The list of FPDs and SPDs was endorsed for peach by the *Prunus* WG in 2013, and the selection of FPDs and SPDs for cherry is under progress.

The participants agreed to introduce a third concept:

- **PRUNDOC Priority Descriptors (PPDs)**: a subset of 10 FPDs that all PRUNDOC Partners will have to use to describe their accessions.

It was proposed to PRUNDOC participants to **choose PPDs, FPDs and SPDs for plum**, among different references: [CPVO](#), [EPDB](#), [BBCH](#), [IBPGR](#), [ObstDeskriptoren NAP](#).

DECISIONS:

→ PPDs, FPDs and SPDs identified by participants (more details in Annex):

→ **PPDs: 10 descriptors**

- Fruit: size
- Fruit: shape (in lateral view)
- Fruit: skin ground colour (after removing bloom)
- Fruit: skin overcolour (after removing bloom)
- Fruit: colour of flesh
- Fruit: degree of adherence to flesh
- Phenology: time of beginning of flowering
- Phenology: time of beginning of fruit ripening
- Fruit: eating quality (sensorial assessment of global taste)
- Fruit: sensorial evaluation of sugar/acid balance

→ **FPDs: 14 descriptors**

- 10 PPD descriptors +
- Fruit: flesh firmness
- Stone: shape (in lateral view)
- Fruit: SSC (soluble solids content, ° Brix)
- FRUIT: TA (titratable acidity, meq/l)

→ **SPDs: 20 descriptors**

- Tree: vigour
- Tree: habit
- Leaf blade: shape
- Flower: diameter
- Flower: arrangement of petals
- Flower: petal size

- Flower: petal shape
- Fruit: depth of suture towards stalk end
- Fruit: depression at apex
- Fruit: depth of stalk cavity
- Fruit: extent of skin overcolour (blush)
- Fruit: skin bloom
- Fruit: flesh juiciness
- Fruit: flesh texture
- Stone: size
- Stone: length/width ratio
- Susceptibility: fruit cracking
- Susceptibility: monilia
- Susceptibility: PPV
- Self-fertility of flowers

Additional data

DECISIONS:

- For each of the 30 accessions which will be analysed by SSR:
 - One picture of fruits on tree, and one picture of fruits on light grey background will be taken
 - A morphometric study of the kernel will be done (EM Gantar)

For pictures on a set-up according to NAP descriptors

Some advices were shared about taking pictures of fruit:

For picture on the tree:

- a white paper should be placed under the fruits in order to better spread the light
- white and black paper band should be used for bracketing (“set the white balance”), and obtain more authentic colours

For pictures on light grey background:

- a light grey paper should be used (photocopy with centimetre), and it should be covered by a transparent plastic sheet (more resistant to fruit juice)
- pictures should be taken between 11:00 and 14:00, in front of a window, indirect light
- fruits should be ‘natural’ (i.e. with ‘pruine’)
- retouches could be done after shot

Stone description

Eva-Maria Gantar presented the taxonomic approach she used to determine subspecies in plum and wild plums based on kernel/endocarp morphometrics. She proposed to use this approach on the 30 accessions chosen for the SSR analysis.

Workplan

Task	People involved	Deadline
Check scales and descriptors to be used	M Blouin, D Giovannini	May 2015
Describe the PRUNDOC accessions selected for AEGIS (at least 100 accessions) using PRUNDOC Priority descriptors	PRUNDOC partners	November 2015
Send a protocol/provide an example for taking the picture of hanging fruit on the tree and of fruits in the lab	M Lateur	May 2015
Take pictures for the 30 accessions selected for SSR analysis, and keep a sample of 12 kernels	PRUNDOC partners	November 2015
Check and send a protocol for PPV susceptibility assessment	V Ognjanov	2015

Passport descriptors

The description of PRUNDOC accessions, as well as of all other *Prunus* accessions that will be offered to AEGIS in future, must be accompanied also by the Minimum Passport Descriptors agreed by the *Prunus* WG in 2010 ([link](#)).

DECISIONS:

- 6 **mandatory descriptors** were presented and agreed:
- ACCENUMB: Accession number (i.e. unique identifier for a given accession within a genebank collection)
 - ACCENAME: Accession name (if existing)
 - INSTCODE: Holding Institute FAO code
 - GENUS
 - SPECIES (i.e. list of species validated by the ECPGR *Prunus* WG)
 - ORIGCTY: Country of origin of the variety (not to be confused with the country of the donor!)

Although not mandatory, the importance of using the following passport descriptors was highlighted:

- DONORCODE (FAO-WIEWS code of the institute which provided material of that accession, if any), and
- DONORDESCR (i.e. name of that institute) which will be particularly useful to trace duplicates in the European Collection. Everyone can add other field(s) (e.g.: subspecies).

Collection and site description

DECISION:

- PRUNDOC Participants should provide the most relevant information about the experimental conditions under which the characterization/evaluation data provided were recorded

Information to be provided should concern:

- **Climate and soil description:**
 - latitude and longitude
 - minimum, maximum and average monthly temperatures
 - total yearly rainfall amount and distribution in the year
 - soil texture; pH; active limestone %, etc.

- **Collection design description:**
 - tree spacing and training system
 - number of trees/accession evaluated
 - age of the trees evaluated
 - rootstock used
 - standard management practices as related to tree (e.g. pruning, thinning, phytosanitary treatments), soil (e.g. weeding, permanent sod between rows) and water management.

- **Reference cultivars available:** well known worldwide and especially by the evaluator.

Currently no descriptors are used in EPDB or EURISCO for most of above items. A methodology to store and share this kind of information has to be defined.

Workplan

Task	People involved	Deadline
Define a procedure for storing information about experimental conditions		
- Prepare a proposal, based on the future developments of EURISCO	- M Blouin	-May 2015
- Propose modifications and, in the end, agree upon a way of proceeding	- PRUNDOC partners	-July 2015

AEGIS candidates

DECISIONS:

- Participants decided that only *Prunus domestica* and *Prunus insititia* accessions **grown for fruits** will be accepted as the set of the 100 accessions to be selected and described in PRUNDOC.
- Accessions of the two species used as rootstock can be offered by PRUNDOC Participants but not counted in the 100 candidates for AEGIS.

Each partner presented their AEGIS candidates for the PRUNDOC Project. The Latvian partner proposed to include also two Estonian accessions, and the Slovak partner proposed accessions from Romania, Bulgaria, and Bosnia and Herzegovina. The table below shows the country of origin and the number of accessions selected by PRUNDOC Partners during the meeting.

Accessions selected by PRUNDOC Partners during the meeting

	Country	Number of accessions selected
Partner countries	Austria	12
	Belgium	7
	France	15
	Germany	14
	Greece	8
	Italy	13
	Latvia	7
	Norway	5
	Serbia	15
	Slovakia	7
	Total	103
Other countries	Bosnia and Herzegovina	2
	Bulgaria	2
	Estonia	2
	Romania	2
	Total	8
GRAND TOTAL		111

Workplan

Task	People involved	Deadline
Check possibility to include extra-project country accessions	G. Larcis, P. Hauptvogel	May 2015
Send to PRUNDOC Coordinator the list of selected accessions (with name, and, if possible, number)	All partners	May 2015

List of 30 accessions for SSR identification

DECISION:

→ Each partner should select her/his 3 accessions for SSR identification. One supplementary accession must be selected (to be analysed if supplementary budget available).

If they decide and if they pay, partners can add supplementary accessions (maximum 200€/accession).

Workplan

Task	People involved	Deadline
Send protocol for sampling	SH Hjeltnes	April 2015
Select 3+1 accessions	All partners	May 2015
Send the sample	All partners	May-June 2015

Procedures for delivery of data to EURISCO/EPDB

Presentation by Marine Blouin

Procedure for EURISCO

The only way to import data to EURISCO is **through the National Focal Points** (for legal reasons).

Procedure for EPDB

For **EPDB**, each partner will have to **fill an Excel template**, with descriptors in columns, and data by accession in rows. This template will be created by the DB curator with the descriptors selected by the PRUNDOC Partners.

The EPDB structure was built for incorporating data by accession and by year (= one row in the xls template). It cannot aggregate several annual data.

DECISIONS:

- PRUNDOC priority descriptors, the 6 mandatory passport descriptors, and experimental conditions descriptors need to be all filled in EPDB. So the Excel template must highlight them.
- Data which will be included in EPDB for PRUNDOC project **will not be annual data, but average data**.

Workplan

Task	People involved	Deadline
Check how to deal with averages in EPDB	M Blouin	May 2015
Prepare and send Excel Template (with manual)	M Blouin	June 2015
Add needed descriptors to EPDB	M Blouin	November 2015
Fill Excel Template and send it to DB manager	All partners	November 2015
Import data to EPDB	M Blouin	December 2015

Guidelines for selection of MAA

Guidelines for the selection of MAAs (Most Appropriate Accessions) are needed in order to deal with identical accessions offered by different countries. In this respect, criteria for decision were defined and prioritized by the PRUNDOC Partners.

DECISIONS:

- **Criteria for selection of MAAs are (in order of priority):**
 - 1. No quarantine diseases**
 - 2. Accession maintained in its country of origin**
 - 3. Accession verified, and well characterized**
 - 4. Quality standards** of genebank sufficient to insure the quality of the accession

Workplan

Task	People involved	Deadline
Write the guidelines	SH Hjeltnes	October 2015
Validate them	All partners	December 2015

Exchange of material

Two criteria should be considered for exchange of material:

- Health status
- Documents to provide upon transfer of material

Discussion about health status:

- In all collections, there are some important diseases which might limit the exchange of material, in particular quarantine diseases (PPV, ESFY phytoplasma) or quality diseases;
- Costs to control and eliminate these diseases are too high;
- A 'low-cost' way for **ESFY phytoplasma sanitation**, with hot water treatment, was mentioned by EM Gantar. There is a need for more information about this;
- Creating a disease-free **back-up duplicate** (by *in vitro*/ cryo storage, or green-house storage, and using thermotherapy) is an interesting but costly solution.

Discussion about documents to join with transfer of material:

- Depending on the Institute and on national rules, different documents are needed for exchange: SMTA, simplified MTA, plant passport, phytosanitary passport...
- The SMTA required in AEGIS procedure, is considered as a very complex document by PRUNDOC partners, and for this reason is not commonly used
- We need to clarify our procedures for exchanging our material.

Workplan

Task	People involved	Deadline
Get information about ESFY sanitation	EM Gantar	2015
Share information on our way of exchanging material	All partners	2015

New project

The Second Call of the ECPGR Activity Grant Scheme could be useful for PRUNDOC next step:

- More partners and more plum species could be included
- A proposition could be:
 - o Create a **catalogue** to describe European accession for breeders, nurseries and the interested public; this catalogue could present:
 - descriptors, agronomic value
 - procedure for management and multiplication of the material
 - key to join CPVO
 - ethnobotanical issues

- **Phytosanitary issue for AEGIS:** Overview of sanitary practice in each collection ; Assessment of sanitary status and study for sanitation cannot be included(too much work needed)
- The kick-off meeting for this new project could be longer, in order to combine it with the final meeting for PRUNDOC.

Workplan

Task	People involved	Deadline
Develop this new project	P Drogoudi, M Blouin	May 2015

ANNEX – DESCRIPTORS

IBPGR #	UPOV #	EPDB #	DESCRIPTOR NAME	PPD	FPD	SPD	COMMENTS
6.1.2.	1		Tree: vigour			x	
	2		Tree: density of crown				
6.1.1.		39	Tree: habit			x	
	8		One-year-old shoot: size of vegetative bud				
	9		One-year-old shoot: shape of vegetative bud				
	18		Leaf blade: shape			x	
	19		Leaf blade: angle of apex (excluding tip)				
	20		Leaf blade: shape of base				
	24		Leaf blade: incisions of margin				
6.2.1.	31		Flower: diameter			x	
	36		Flower: arrangement of petals			x	
	37		Flower: petal size			x	
	38		Flower: petal shape			x	
	39		Flower: petal undulation of margins				
6.2.5.	43	34	Fruit: size	x	x		In grams
6.2.6.	44	40	Fruit: shape (in lateral view)	x	x		
	45		Fruit: symmetry (in ventral view)				
	46		Fruit: depth of suture towards stalk end			x	
	47		Fruit: depression at apex			x	
	49		Fruit: depth of stalk cavity			x	
6.2.8.	50	36	Fruit: skin ground colour (after removing bloom)	x	x		
6.2.9.		41	Fruit: skin overcolour (after removing bloom)	x	x		
		42	Fruit: extent of skin overcolour (blush)			x	
4.2.4			Fruit: skin bloom			x	
4.2.3.	51		Fruit: colour of flesh	x	x		
	52		Fruit: flesh juiciness			x	
6.2.11	53		Fruit: flesh firmness		x		Subjective assessment
6.2.12			Fruit: flesh texture			x	
6.3.3.	54	37	Fruit: degree of adherence to flesh	x	x		
6.3.1.			Stone: size			x	
6.3.2.	55	35	Stone: shape (in lateral view)		x		With 12 stones
			Stone: ratio length / width			x	New descriptor
	59		Stone: width at base				
	60		Stone: shape of apex				
4.2.1.	61	38	Phenology: time of beginning of flowering	x	x		With at least stage BBCH 61 ; Stages 65 and 69 can complete
4.2.2.	62**	33*	Phenology: time of beginning of fruit ripening	x	x		With stage 89
6.2.10			Fruit: eating quality (global taste)	x	x		
			Fruit: SSC		x		
			FRUIT: TA		x		
			Fruit: sensorial analysis of sugar/acid ratio	x	x		
6.2.13		43	Susceptibility: fruit cracking			x	
			Susceptibility: monilia			x	
			Susceptibility: PPV			x	If test available
6.2.2			Self-fertility of flowers			x	
6.2.3			Bearing habit				
			TOTAL	10	14	20	