

EURISCO as central information system for data sharing

– Current status and options for EVA –

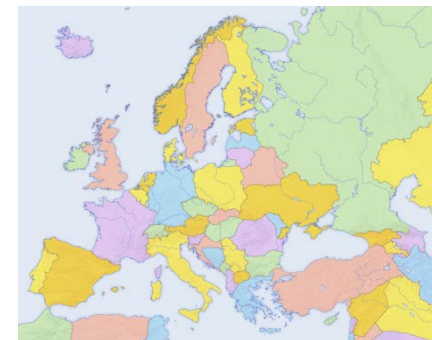
EVA Workshop, 2–3 April 2019, Durrës, Albania

Stephan Weise



Background

- What is EURISCO?
 - European information system for plant genetic resources
 - Search catalogue for *ex situ* collections
 - Accession-level information system
- Purpose
 - Provides passport data and phenotypic data about plant germplasm accessions maintained in Europe
 - Assists in meeting national obligations
 - Food and Agriculture Organization of the United Nations (FAO)
 - Convention on Biological Diversity (CBD)
 - International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)



https://upload.wikimedia.org/wikipedia/commons/8/81/Europe_countries_map_2.png

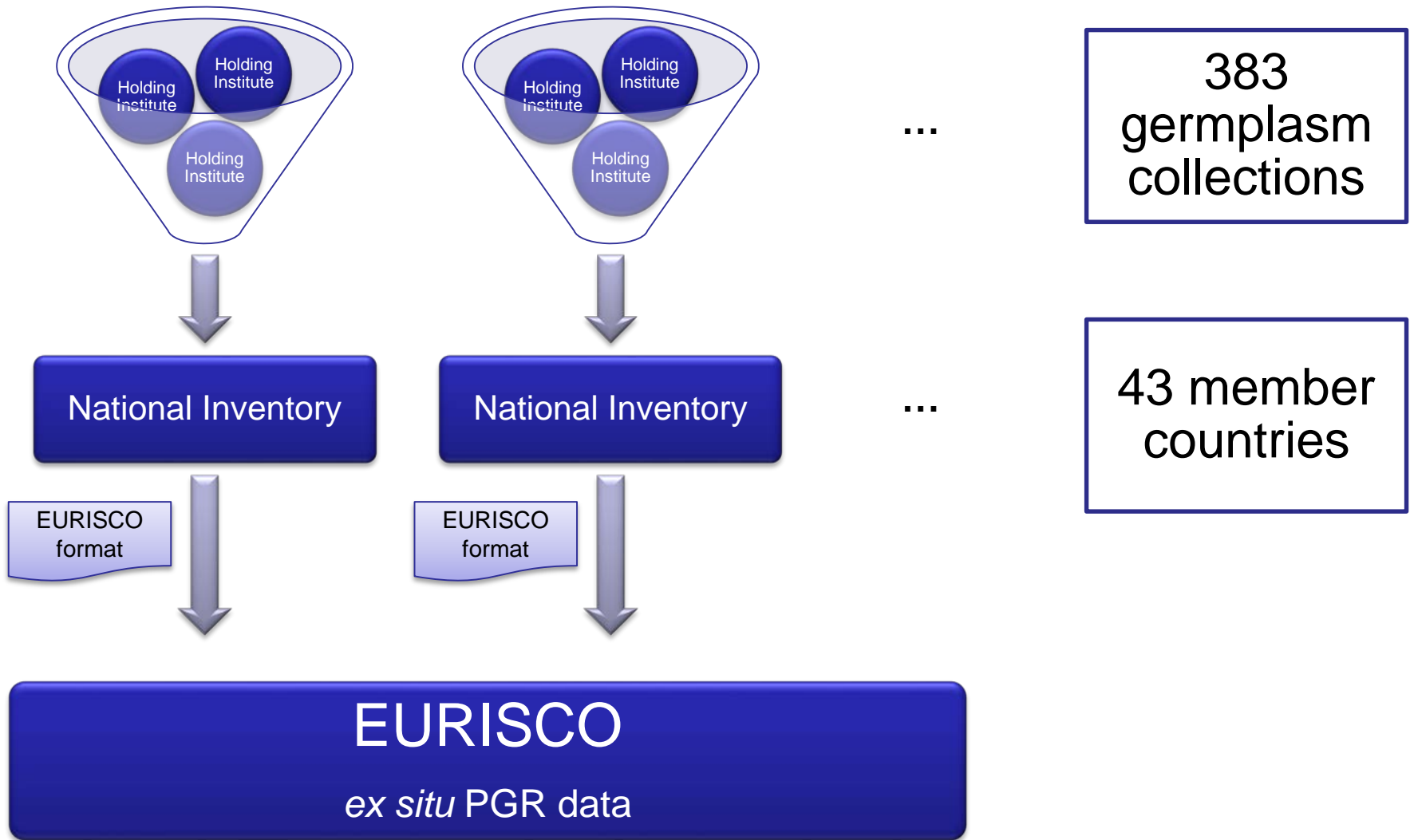
Development

- Started in 1999 (EU project EPGRIS)
- 43 countries involved
(Nordic Countries → NordGen)
- National collections represented by
National Inventories (NIs)
- Network of National Focal Points (NFPs)
links NIs ↔ EURISCO



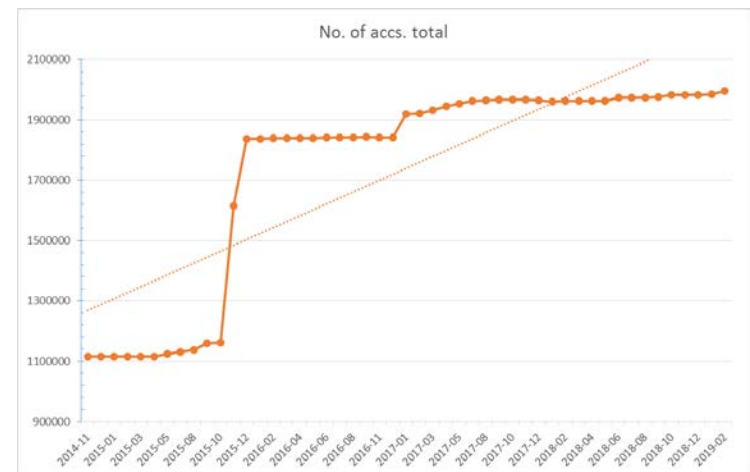
https://upload.wikimedia.org/wikipedia/commons/8/81/Europe_countries_map_2.png

Data flow



Contents of EURISCO

- 1,995,218 accessions
- 6,405 genera
(including synonyms, spelling variants)
- 43,495 species names
(unique combinations genus + species, including synonyms)
- 436,901 MLS accessions
- 56,727 AEGIS accessions
- 39,811 DOIs



as of 2019-03-01

Taxonomic composition

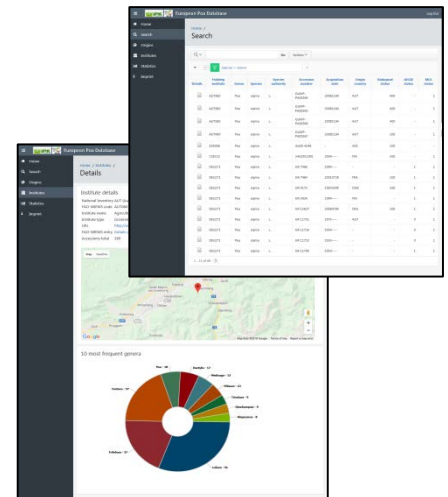
Genus	Species	No. accs.	Total
<i>Arabidopsis</i>	<i>thaliana</i>	684,964	685,188
	others	224	
<i>Triticum</i> (wheat)	<i>aestivum</i>	138,516	194,562
	<i>durum</i>	16,625	
	<i>turgidum</i>	14,816	
	<i>monococcum</i>	1,980	
	<i>spelta</i>	3,232	
	others	19,393	
<i>Hordeum</i> (barley)	<i>vulgare</i>	107,268	122,512
	<i>spontaneum</i>	5,934	
	others	9,310	
<i>Zea</i> (maize)	<i>mays</i>	64,988	65,122
	others	134	
<i>Phaseolus</i> (garden bean)	<i>vulgaris</i>	47,069	52,783
	<i>coccineus</i>	3,111	
	others	2,603	

Genus	Species	No. accs.	Total
<i>Solanum</i> (tomato, potato, eggplant, etc.)	<i>lycopersicum</i>	19,977	52,318
	<i>tuberosum</i>	14,820	
	<i>andigenum</i>	2,814	
	<i>melongena</i>	2,131	
	others	12,576	
<i>Avena</i> (oat)	<i>sativa</i>	33,424	41,561
	<i>sterilis</i>	2,193	
	<i>byzantina</i>	1,976	
	others	3,968	
<i>Pisum</i> (pea)	<i>sativum</i>	33,275	36,309
	others	3,034	
<i>Malus</i> (apple)	<i>domestica</i>	25,166	32,763
	others	7,597	
<i>Vitis</i> (grape)	<i>vinifera</i>	25,844	30,197
	others	4,353	
others			681,903
	Total		1,995,218

as of 2019-03-01

Collaborations

- Genesys (Crop Trust)
 - Regular synchronisation of passport data
 - European hub for Genesys
- FAO-WIEWS
 - Synchronisation of passport data (non-regular)
- Germinate (JHI)
 - Close interlinking
- GLIS (ITPGRFA)
 - EURISCO will provide a service for registering accessions (under implementation)
- ECPGR crop working groups
 - Backend support for crop portals
- AEGIS
 - Flagging via EURISCO



Web interface



European Cooperative Programme for Plant Genetic Resources ECP/GR eurisco Finding seeds for the future

Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Home News

Home

Welcome to EURISCO

The European Search Catalogue for Plant Genetic Resources (EURISCO) provides information about 1.9 million accessions of crop plants and their wild relatives, preserved *ex situ* by almost 400 institutes. It is based on a network of National Inventories of 43 member countries and represents an important effort for the preservation of world's agrobiological diversity by providing information about the large genetic diversity kept by the collaborating institutions.

Between 2003 and 2014, EURISCO was hosted and maintained by Bioversity International, Rome, Italy. Since 2014, EURISCO is being maintained at the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben, Germany. The central goal of EURISCO is to provide a one-stop-shop for information for the scientific community and for plant breeders. EURISCO contains both passport data and phenotypic data.

EURISCO is being maintained on behalf of the Secretariat of the European Cooperative Programme for Plant Genetic Resources (ECPGR), in collaboration with and on behalf of the National Focal Points for the National Inventories.

How to obtain germplasm:
EURISCO does not provide the possibility to order accessions directly. The requests should be addressed to the holding institutions. More information can be found [HERE](#).

Search EURISCO

- Quick search
- Advanced search
- Export EURISCO data
- C&E data

EURISCO newsletter

Subscribe / unsubscribe

Regions of origin

Statistical overview

- 1,961,985 Accessions
- 372 Institutes
- 43 Countries
- 6,317 Genera
- 42,974 Species
- 418,679 MLS accessions
- 34,364 AEGIS accessions
- 22,906 DOIs

Site rating

Your rating: ☆☆☆☆☆

Submit

Average: ☆☆☆☆☆

data of The Netherlands updated

data of Montenegro updated - New AEGIS accessions

data of the Czech Republic updated - New C&E data

accessions per National Inventory

821,524
200,717
175,928
4,025
1,323
271
101
436
167
85
303,198

accessions per genus

Arabidopsis	682,191
Triticum	189,104
Hordeum	121,589
Zea	61,849
Phaseolus	52,179
Avena	41,299
Solanum	38,944
Malus	31,875
Pisum	30,455
Vitis	30,049
other	682,451

Statistical overview of the composition of the EURISCO data. More detailed information can be found at the [statistics section](#).

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EURISCO: The European search catalogue for plant genetic resources

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ABSTRACT

The European Search Catalogue for Plant Genetic Resources, EURISCO, provides information about 1.8 million crop plant accessions preserved by almost 400 institutes in Europe and beyond. EURISCO is being maintained on behalf of the European Cooperative Programme for Plant Genetic Resources. It is based on a network of National Inventories of 43

typical characterisation of genebank accessions, i.e. collecting information about traits such as disease resistance, drought tolerance and yield components. These data are usually generated on selected material, resulting in non-orthogonal, highly incomplete data sets. Nevertheless, the analysis of these data allows meaningful results, e.g. the identification of promising new alleles (5). Around the world, there are about 1800 genebank collections conserving PGRFA. Thereof about 625 collections are maintained in Europe

46 (sub)versions since 2014

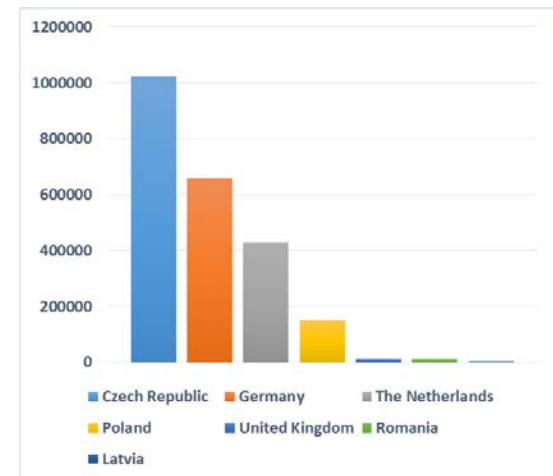
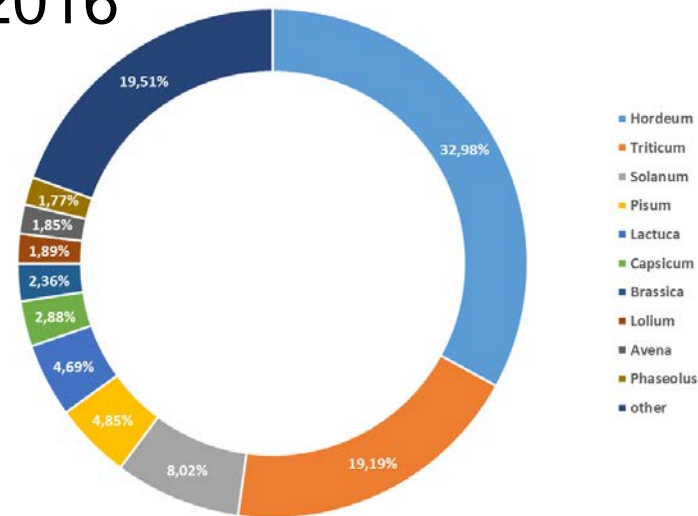
Passport data in EURISCO

- Four standard searches:
 - Taxonomy (incl. synonyms)
 - Accession
 - Biological status
 - Collecting site
- Advanced search
- Different user-specific export features

The screenshot displays the EURISCO website interface. At the top, the EURISCO logo is visible with the tagline "Finding seeds for the future". The navigation bar includes "Home", "About", "Search", "CSE data", "Statistics and documents", and "Imprint / Data Protection Policy". The main content area is titled "Passport data" and features a sidebar with navigation options: "National inventory", "Holding institute", "Accession", "Taxonomy", "Acquisition/storage", "Collection", "Donor", "Breeder", and "Other". The "National inventory" section is expanded, showing details for the "Portuguese Bank of Plant Germplasm, Braga, Portugal". The "Taxonomy" section lists the Genus as *Brassica*, Species as *oleracea*, Species Authority as L., Subtaxa as *var. acephala*, and Subtaxa Authority as DC. The "Collection" section provides the following information: Collecting Number 38/2014 A, Collecting Institute Code PRT001, Collecting Date 2014-03-25, Collecting Latitude 40.338611, Collecting Longitude -7.130556, Collecting Elevation 872, and Collecting Site Portugal, Guarda. A map of the region around Guarda, Portugal, is shown below the collection details. The "Donor", "Breeder", and "Other" sections are currently empty.

Phenotypic data in EURISCO

- Extension available since summer 2016
- Currently, 2,286,154 records of data from seven countries
 - Czech Republic
 - Germany
 - Latvia
 - The Netherlands
 - Poland
 - Romania
 - United Kingdom
- 81,759 accs. with phenotypic data



as of 2019-03-29

Search for phenotypic data

Filter C&E data by genus

Genera *

- Brassica
- Capsicum
- Chondrilla
- Cicerbita
- Cucumis
- Eruca
- Ixeridium
- Linum
- Lupinus
- Mycelis

Apply Reset

Allium
Hordeum
Lactuca

Genus	Count
Lactuca	105,021
Solanum	77,663
Capsicum	50,736
Triticum	37,301
Hordeum	32,852
Brassica	27,355
Spinacia	17,913
Cucumis	17,460
Pisum	17,233
Linum	14,354
other	29,712

Wizard-based searches for

- Genus
- Species and trait
- Experiment
- Trait

Filter C&E data by species and traits

Genus * Lactuca

Species *

- Lactuca aculeata Boiss.
- Lactuca altaica Fish. & Mey.
- Lactuca biennis (Moench) Fern.
- Lactuca homblei De Wild.
- Lactuca raddeana Maxim
- Lactuca saligna L.
- Lactuca sativa L.
- Lactuca sativa x serriola
- Lactuca serriola L.
- Lactuca tatarica (L.) C. A. Mey.
- Lactuca canadensis L.
- Lactuca dregeana DC.
- Lactuca georgica L.
- Lactuca perennis L.
- Lactuca indica L.
- Lactuca quercina L.

Traits *

- Leaf color intensity ((3=light, 5=medium, 7=dark[...]))
- Leaf margin undulation (At harvest maturity[...])
- Leaf shape ((1=narrow elliptic, 2=el., [...]))
- Leaf shape ((1=round, 2=ovate, 3=obov[...]))
- Leaf vein prickles (1=not present, 9=present[...])
- Leaf vein prickles (-[...])
- Leaf venation (At harvest maturity (1 = n[...]))
- Nasonovia ribisnigri (Resistance to Nasonovia r[...])
- Nitrate content (Mean nitrate content of t[...])
- Pemphigus hirsarius ((1=very resistant, 2=resil[...]))

Apply Reset

Filter C&E data by experiment

The report below lists all experiments, which contain characterisation & evaluation (C&E) data. Please use the search bar below to define filters.

Go Rows 10 Actions

Experiment Start Year between 1967 and 2012

1 - 10 of 782

Experiment Description	Dataset Remark	Experiment Start Year	Experiment End Year	Details
Sowing date = February 2, Planting date = April 17, IVT glasshouse XII, heated, soil culture, 2 stems, 4 plants per field, collection no. 567-659, experimentalist H. Roelofszen and G. Pet, standard = Bruinsma Wonder	Test data CGN	1980	-	contained traits
Sowing date February 18, Planting date April 8, IVT glasshouse XII, heated, soil culture, 2 stems, 5 plants per field, collection no. 444-543, experimentalist L. de Groot and G. Pet, standard = Bruinsma Wonder				
Sowing date = March 15, Planting date = April 26, IVT glasshouse XII, heated, soil culture, 2 stems, 5 plants per field, collection no. 660-762, experimentalist L. de Groot and G. Pet, standard = Bruinsma Wonder				
Sowing date = February 28, Planting date = April 13, IVT glasshouse XII-IX, heated, soil culture, 2 stems, 5 plants per field, collection no. 763-869, experimentalists L. de Groot and G. Pet, standard = Bruinsma Wonder				
Sowing date = February 24, Planting date = April 18, IVT glasshouse no. XII, heated, soil culture, 2 stems, 5 plants per field, collection no. 871-934, experimentalists L. de Groot and G. Pet, standard = Bruinsma Wonder				
Sowing date = March 11, Planting date = April 26, IVT glasshouse XII, heated, soil culture, 2 stems, 5 plants per field, collection no. 935-981, experimentalist L. de Groot and G. Pet, standard = Bruinsma Wonder				
Sowing date = March 13, Planting date = May 1, IVT glasshouse II-I, heated, soil culture, 2 stems, 5 plants per field, collection no. 982-1021, experimentalist G. Pet, standard = Bruinsma Wonder				
Sowing date = March 20, Planting date = April 28, IVT glasshouse no. II-II, soil culture, 1 stem, 5 plants per field, collection no. 1476-1574, experimentalist G. Pet, standard = Sonatine				
Sowing date = January 31, Planting date = March 31, IVT Glasshouse no. 12-7, heated, soil culture, 2 stems, 5 plants per field, collection no. 33-65, experimentalist G. Pet, Standard = Claessee				
Sowing date = January 29, Planting date = March 28, IVT glasshouse no. 12-5, heated, soil culture, 2 stems, 5 plants per field, collection no. 1-111, experimentalist G. Pet, standard = Claessee	Test data CGN	1979	-	contained traits

1 - 10 of 782

0.03 s

Traits in selected experiment

Go Rows 10 Actions

1 - 10 of 26

Trait Name	Trait Remark	Trait Method	Details
Fruit corrugation	-	(0=smooth, 3=slightly corrugated, 5=medium, 7=corrugated, 9=very corrugated)	SCORES
Fruit attitude	-	Bruinsma Wonder+7 (1=very drooping, 3=drooping, 5=horizontal, 7=semi-erect, 9=erect)	SCORES
Flower attitude	-	Bruinsma Wonders+7 (1=very drooping, 3=drooping, 5=horizontal, 7=semi-erect, 9=erect)	SCORES
Mature fruit color	-	(A=dark red, B=light r, C=orange, D=salmon, E=canary, F=sulphur, G=green, I=brown, J=light orange, K=white, a-b=both in one fruit)	SCORES
Tobacco mosaic virus	-	determined at natural infection (0=no symptoms, +=symptoms present)	SCORES
Stem anthocyanin content	-	Bruinsma Wonder+3 (0=absent, 1=very little, 3=little, 5=medium, 7=much, 9=very much)	SCORES
Fruit ribbing	-	(0=absent, 1=very little, ..., 9=very high)	SCORES
Flower color	-	(A=white, B=filly-white, C=light green, D=light purple, E=dark purple, F=yellow, G=white/anthocyanin)	SCORES
Fruit outerwall thickness	-	Measurement, 9=9mm or more.	SCORES
Fruit cracking tendency	-	(1=none, 3=slight, 5=medium, 7=medium to severe, 9=severe)	SCORES

1 - 10 of 26

0.12 s

Example I – material selection

Select genus, species and traits of interest

European Cooperative Programme for Plant Genetic Resources
ECP/GR eurisco Finding seeds for the future EURISCO Intranet

Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Filter by species and traits Filter by genus Filter by experiment Filter by trait

Home > C&E data > Search by species and trait

Filter C&E data by species and traits

Genus * -- Select genus --

Species * -- Select up to five species --

Traits * -- Select up to five traits --

Apply Reset

Search EURISCO

- > Quick search
- > Advanced search
- > Export EURISCO data

release 1.4.3

European Cooperative Programme for Plant Genetic Resources
ECP/GR eurisco Finding seeds for the future EURISCO Intranet

Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Filter by species and traits Filter by genus Filter by experiment Filter by trait

Home > C&E data > Search by species and trait

Filter C&E data by species and traits

Genus * TRITICUM

Species * *DURUM DESF. *ISPAHANICUM HESLOT

Traits * plant

Plant - Height (cm) (average height in centime[...])

Plant - height (Rating score (1=dwarf<35 [...]))

Plant - tuft shape (at tillering) (Rating score (1=very ere...

Powdery mildew - plant - resistance (Rating score (1=v...

Apply Reset

Search EURISCO

- > Quick search
- > Advanced search
- > Export EURISCO data
- > C&E data

release 1.4.3

European Cooperative Programme for Plant Genetic Resources
ECP/GR eurisco Finding seeds for the future EURISCO Intranet

Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Filter by species and traits Filter by genus Filter by experiment Filter by trait

Home > C&E data > Search by species and trait

Filter C&E data by species and traits

Genus * TRITICUM

Species * *DURUM DESF. *ISPAHANICUM HESLOT

Traits * *Plant - Height (cm) (average height in centime[...])

Apply Reset

Search EURISCO

- > Quick search
- > Advanced search
- > Export EURISCO data
- > C&E data

release 1.4.3

Example I – report of values

The screenshot displays the eurisco web application interface, which is used for searching and reporting CAE (Crop Attribute Evaluation) data. The interface is divided into several sections:

- Header:** Includes the eurisco logo and navigation links like Home, About, Search, CAE data, Statistics and documents, and Imprint / Data Protection Policy.
- Filtering Section:** Allows users to filter data by species and traits. The current filters are Genus: TRITICUM, Species: DURUM DESF. and ISPAHANICUM, and Trait: Plant - Height (cm) (average height in certime). Buttons for 'Apply' and 'Reset' are present.
- Search Section:** Includes a search bar and options for 'Quick search' and 'Advanced search'.
- Table of Results:** Displays a list of results with columns for Experiment Description, Trait Name, Species, ACCENUMB [%], Score, Score Link, Origin Country, Biological Status, and Details. A red arrow points to the 'Download' button in the 'Actions' column of the first row.

Refine result

- Sort
- Filter
- Download

Experiment Description	Trait Name	Species	ACCENUMB [%]	Score	Score Link	Origin Country	Biological Status	Details
Field characterization an[...]	Plant - Height (cm) average h[...]	POL003 Triticum durum Desf.	27009	96.70	-	Morocco	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average h[...]	POL003 Triticum durum Desf.	27009	92.70	-	Morocco	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average h[...]	POL003 Triticum durum Desf.	27009	97.00	-	Morocco	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27009	99.30	-	Morocco	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27019	104.30	-	-	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27019	107.00	-	-	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27019	112.70	-	-	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27019	96.30	-	-	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27021	107.00	-	-	Traditional cultivar/landrace	Accession details
Field characterization an[...]	Plant - Height (cm) average height in certime[...]	POL003 Triticum durum Desf.	27021	112.30	-	-	Traditional cultivar/landrace	Accession details

Example I – report of experiments

- Refine result
- Sort
 - Filter
 - Download

eurisco
Finding seeds for the future

Filter by species and traits | Filter by genus | Filter by experiment | Filter by trait

Home > C&E data > Search by species and trait

Filter C&E data by species and traits

Genus * TRITICUM
Species * DURUM DESP. / SPANANCIUM HESLOT
Traits * Plant - Height (cm) (average height in centim...)

Apply | Reset

Show All | Scores for selected species and traits | Experiments with selected species and traits

Experiments with selected species and traits

The report below comprises all experiments, which contain at least one (not necessarily all) of the selected species/trait. When clicking on the link to the traits contained in these experiments, only those traits will be shown, which were used for scoring the selected species. Please use the search bar below to define filters.

Go Rows 10 Actions

1 - 10 of 38

Select Columns

- Filter
- Rows Per Page
- Format
- Flashback
- Reset
- Help
- Download

Filter

Filter Type @ Column

Column
Experiment Start Year

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Finding seeds for the future

Filter by species and traits | Filter by genus | Filter by experiment | Filter by trait

Home > C&E data > Search by species and trait

Filter C&E data by species and traits

Genus * TRITICUM
Species * DURUM DESP. / SPANANCIUM HESLOT
Traits * Plant - Height (cm) (average height in centim...)

Apply | Reset

Show All | Scores for selected species and traits | Experiments with selected species and traits

Experiments with selected species and traits

The report below comprises all experiments, which contain at least one (not necessarily all) of the selected species/trait. When clicking on the link to the traits contained in these experiments, only those traits will be shown, which were used for scoring the selected species. Please use the search bar below to define filters.

Go Rows 10 Actions

Experiment Start Year between 1977 and 1980

1 - 4 of 4

Experiment Description	Dataset Remark	Experiment Start Year	Experiment End Year	Details
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1977	1977	contained traits
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1978	1978	contained traits
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1979	1979	contained traits
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1980	1980	contained traits

1 - 4 of 4

5:22 h

release 1.4.3

Example I – scores

The screenshot shows the EURISCO website interface. At the top, there is a navigation bar with 'Home', 'About', 'Search', 'C&E data', 'Statistics and documents', and 'Imprint / Data Protection Policy'. Below this, there are filter options: 'Filter by species and traits', 'Filter by genus', 'Filter by experiment', and 'Filter by trait'. The main content area is divided into two sections. The top section, 'Trait details', includes a 'Distribution of scores' donut chart and 'Descriptive statistics' for 'Plant - Height (cm)'. The statistics table shows values for Minimum, Maximum, Average, Stddev, Variance, First Quartile, Median, and Third Quartile. Below this, there are 'Additional filters' for 'Species' and 'Origin Country'. The bottom section, 'Accession scores for selected trait', features a search bar and a table with columns for NICODE, INSTCODE, Species, ACCENUMB, Score, Score Link, Origin Country, Biological Status, and Details. A red arrow points from the 'Origin Country' column header in the table to a dropdown menu in the adjacent image.

Trait Name	Minimum	Maximum	Average	Stddev	Variance	First Quartile	Median	Third Quartile
Plant - Height (cm)	53.3	134	105.99	14.39	207.15	97.35	107.15	116.525

NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Origin Country	Biological Status	Details
POL	POL003	Triticum durum Desf.	27521	104.6	-	Portugal	Breeder's line	Accession details
POL	POL003	Triticum durum Desf.	27292	109.3	-	Spain	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27294	122.8	-	Poland	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27308	106.3	-	Spain	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27002	78.3	-	Italy	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27332	102	-	Portugal	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27019	104.3	-	-	Traditional cultivar/landrace	Accession details
POL	POL003	Triticum durum Desf.	27018	99.6	-	Italy	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27023	105	-	Tunisia	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27025	109.3	-	Portugal	Breeder's line	Accession details

Descriptive statistics

This image shows a close-up of the 'Origin Country' filter dropdown menu. The menu is open, displaying a list of countries: Argentina, Austria, Bulgaria, Canada, and Chile. A search bar at the top of the dropdown is labeled 'Filter...'. The 'Origin Country' header is highlighted in blue. A red arrow points from the 'Origin Country' column header in the table above to the top of this dropdown menu.

Additional filters, e.g. origin country

Example I – scores

Group values

Accession scores for selected trait

Go Rows 10 Actions

Origin Country

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Origin Country : Algeria							
NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Biological Status	Details
POL	POL003	Triticum durum Desf.	27515	114.6	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27430	98.1	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27325	106.6	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
Origin Country : Argentina							
NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Biological Status	Details
POL	POL003	Triticum durum Desf.	27141	116.3	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
Origin Country : Austria							
NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Biological Status	Details
POL	POL003	Triticum durum DESF.	27234	126.3	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum DESF.	27153	83.3	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
Origin Country : Bulgaria							
NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Biological Status	Details
POL	POL003	Triticum durum Desf.	27237	110.6	-	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum durum Desf.	27085	134	-	Traditional cultivar/landrace	Accession details
POL	POL003	Triticum durum Desf.	27026	116.6	-	Traditional cultivar/landrace	Accession details
Origin Country : Canada							
NICODE	INSTCODE	Species	ACCENUMB	Score	Score Link	Biological Status	Details
POL	POL003	Triticum durum Desf.	27243	117	-	Breeder's line	Accession details

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0.03 s

Example II – trait selection

Search for trait of interest

lodging resistance

Go Rows 10 Actions

- All Columns
- Trait Name**
- Trait Remark
- Trait Method
- Trait Group
- Details

Trait Remark	Trait Method
-	µmol/100 g dry weight in s
-	µmol/100 g dry weight in m

EURISCO intranet

Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Filter by species and traits Filter by genus Filter by experiment **Filter by trait**

Home > C&E data > Search by trait > Experiments using trait

Experiments using selected trait

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Experiment Description	Dataset Remark	Experiment Start Year	Experiment End Year	Details
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1977	1977	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1978	1978	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1979	1979	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1980	1980	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1981	1981	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1982	1982	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1983	1983	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1984	1984	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1985	1985	scores
Field characterization and evaluation of Triticum durum collection	This dataset contains Characterization and evaluation data of Triticum durum	1986	1986	scores

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0.76 s

release 1.4.3

Search EURISCO

- > Quick search
- > Advanced search
- > Export EURISCO data
- > C&E data

Filter experiments containing the selected trait

Example II – scores

eurisco Finding seeds for the future

EURISCO Intranet

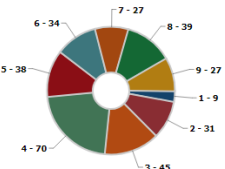
Home About Search C&E data Statistics and documents Imprint / Data Protection Policy

Filter by species and traits Filter by genus Filter by experiment Filter by trait

Home > C&E data > Traits in experiment > Trait details

Trait details

Distribution of scores



Descriptive statistics

Trait Name	Minimum	Maximum	Average	Stddev	Variance	First Quartile	Median	Third Quartile
Lodging resistance	1	9	5.08	2.24	5	3	5	7

Experiment description: Field characterization and evaluation of Triticum durum collection

Trait name: Lodging resistance

Trait method: Rating score from 1 (very sensitive) to 9 (very resistant)

Additional filters

Genus: -- All genera of selected trait --

Origin Country: -- All origin countries of selected trait --

Accession scores for selected trait

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NICODE	INSTCODE	GENUS	ACCENUMB	Score	Score Link	Origin Country	Biological Status	Details
POL	POL003	Triticum	27223	9	-	France	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27221	3	-	Spain	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27219	8	-	Turkey	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27220	5	-	-	Breeder's line	Accession details
POL	POL003	Triticum	27218	4	-	Union of Soviet Socialist Republics	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27216	2	-	Union of Soviet Socialist Republics	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27217	5	-	Greece	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27215	4	-	Austria	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27213	2	-	-	Breeder's line	Accession details
POL	POL003	Triticum	27214	5	-	United States	Advanced or improved cultivar (conventional breeding methods)	Accession details

0.13 s

release 1.4.3

Create charts

Accession scores for selected trait

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Go Rows 10 Actions

Format





- Select Columns
- Filter
- Rows Per Page
- Format
- Flashback
- Reset
- Help
- Download
- Chart
- Group By
- Sort
- Control Break
- Highlight
- Compute
- Aggregate
- Pivot

NICODE	INSTCODE	GENUS	ACCENUMB	Score	Score Link	Origin Country	Biological Status	Details
POL	POL003	Triticum	27223	9	-	France	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27221	3	-	Spain	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27219	8	-	Turkey	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27220	5	-	-	Breeder's line	Accession details
POL	POL003	Triticum	27218	4	-	Union of Soviet Socialist Republics	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27216	2	-	Union of Soviet Socialist Republics	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27217	5	-	Greece	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27215	4	-	Austria	Advanced or improved cultivar (conventional breeding methods)	Accession details
POL	POL003	Triticum	27213	2	-	-	Breeder's line	Accession details
POL	POL003	Triticum	27214	5	-	United States	Advanced or improved cultivar (conventional breeding methods)	Accession details

0.13 s

Example II – scores

Chart [x]

Chart Type:    

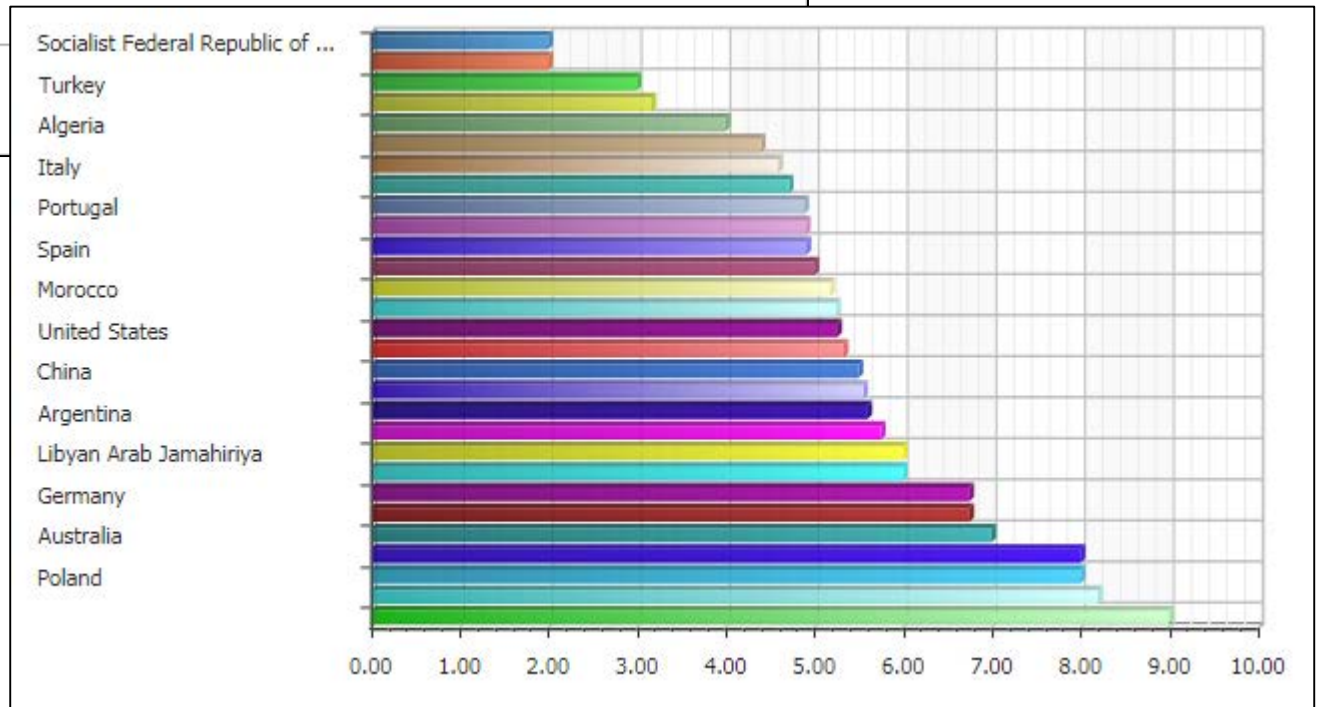
Label: Axis Title for Label:

Value: Axis Title for Value:

Function:

Sort:

Chart settings



The challenge: Diversity of data

Lots of “standards” to express traits

- Different trait names/synonyms
- Different rating scales (nominal, ordinal, metric)

Different amounts of meta information

- When, where, how, by whom?
- Experiment set-up, treatment etc.

Different means of data management

- DBMS, flat files, mainly Excel files

Challenges for EURISCO

- Use of phenotypic traits
 - Lots of different traits, methods, scales
 - About 600 germplasm collections in Europe, around 400 in EURISCO

→ ***Unlikely to get to a standardisation***
- Information technology diversity
 - Different data management systems (DBMS, flat files, Excel)
 - Different level of IT support
 - Varying IT affinity
 - problem of acceptance of sophisticated solutions

→ But needed: one-size-fits-all method

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Current approach

- Data standardisation
 - No standardisation of trait, scale or experimental design
 - Pragmatic approach: Import of existing data as-is to reach critical mass
 - Data exchange
 - Only standardisation of exchange format
 - As simple as possible
 - As few fields as possible
- “minimum consensus”
- Data management
 - Highly abstracted, following the single-observation concept (van Hintum et al. 1992)
 - Omitting fine-grained metadata



Data upload in three steps

File parsing and upload via Java tool

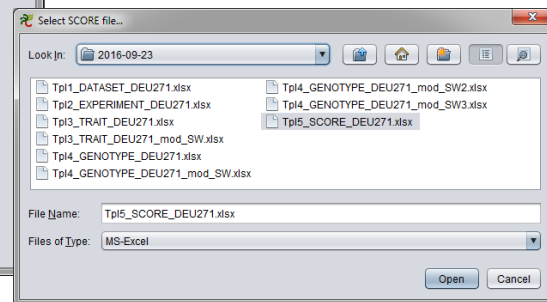
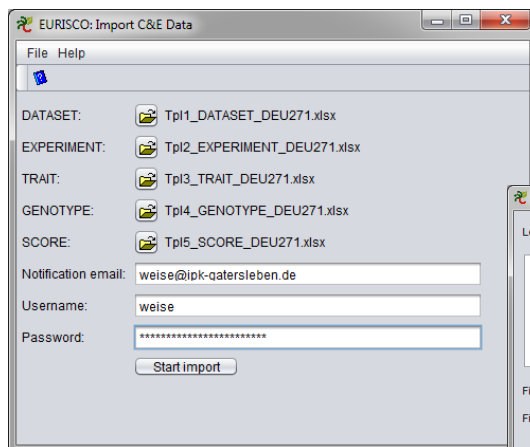
- data owner

Data integrity checks

- EURISCO management

Approval / withdrawal of data for publishing on the EURISCO website

- *data owner/NFP*



Current limitations

- Only non-confidential phenotypic data
- Only data of accessions listed in EURISCO
- NFPs must approve data before publication
- No embargo periods
- Limited comparability

What could be improved?

- Through an EVA project, it could be possible to support:
 - Data harmonisation
 - Harmonisation of experiment set-up, treatment etc.
 - Start with minimum approach
 - » E.g. MIAPPE (Krajewski et al. 2015)
 - » Better description
 - Desirable: harmonised protocols
 - Better structuring of traits/methods/scales
 - Support for crop experts (ECPGR crop working groups)
 - Focus on most active groups at the beginning
 - Improve comparability
 - » Mapping onto ontology terms
 - » E.g. Crop Ontology (Arnaud et al. 2012)
 - Support the mapping process by tools, e.g. suggestion of ontology terms

What could be improved?

- Through an EVA project, it could be possible to:
 - Provide an intranet platform for project partners
 - Use existing infrastructure for project-specific phenotypic data (in a separate intranet)
 - Exchange format
 - Upload and check tools
 - Provide features for searching/filtering/downloading data
 - Based on users' requirements
 - Extension for privileged access (data embargo period)
 - Data could be published automatically after expiration
 - Also non-EURISCO material could be managed
 - Handling this data after embargo period needs to be discussed
 - Ensure a supportive documentation unit (providing templates, standards, facilitating data flow)



M. Grau / IPK

THANK YOU FOR YOUR ATTENTION