# C&E data in ECCDBs

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# 16/62 ECCDBs with C&E data

## (63% of ECCDB accessions)

- 7 Vegetable
  - Brassica, Chicory, Eggplant, Lactuca, Minor leafy, Spinach, Tomato
- 4 Cereals
  - Avena, Barley, Maize, Wheat
- 3 Starch, Sugar
  - Beta, Potato cult., Potato wild
- 2 Fruit
  - Prunus, Vitis

European Cooperative Programme for Plant Genetic Resources

| ECP/GR | N. traits | Char. | Eval. | N. accessions | N. observ. | Ratio obs/acc | Ratio obs/acc – n. traits |
|---|---|---|---|---|---|---|---|
| Potato cult. | 85 | 33 | 52 | 11,792 | 160,914 | 13.6 | 0.16 |
| Beta | 83 | 48 | 35 | 10,485 | 36,513 | 3.5 | 0.042 |
| Vitis | 71 | 59 | 12 | 15,936 | 49,780 | 3.1 | 0.044 |
| Avena | 66 | 39 | 27 | 32,694 | 169,799 | 5 | 0.079 |
| Potato wild | 55 | 0 | 55 | 10,341 | 33,256 | 3.22 | 0.058 |
| Eggplant | 44 | 31 | 13 | 5,022 | 854 acc. | | |
| Brassica | 31 | 24 | 7 | 23,630 | 1,268 acc. | | |
| Maize | 27 | 19 | 8 | 11,865 | 54,968 | 4.63 | 0.17 |

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ECP/GR

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|---|---|---|---|---|---|---|---|
| Prunus | 22 | 8 | 14 | 4,134 | 1,769 acc. | | |
| Minor leafy | 21 | 6 | 15 | 183 | 1,127 | 6.1 | 0.29 |
| Wheat | 21 | 8 | 13 | 164,352 | 19,222 only char. | 0.1 | 0.005 |
| Spinach | 12 | 9 | 3 | 2,017 | 1,878 | 0.93 | 0.078 |
| Tomato | 10 | 10 | 0 | 21,327 | 8,900 | 0.41 | 0.042 |
| Lactuca | 9 | 9 | 0 | 11,554 | 12,016 - 260 (wild) | 1.17 – 0.2 (wild) | 0.049 - 0.022 (wild) |
| Barley | 3 | 3 | 0 | 155,000 | 102,171 | 0.66 | 0.22 |
| Chicory | 1 | 0 | 1 | 1,634 | 22 | 0.013 | 0.013 |

# Type of evaluation data

| Trait category | Number of databases |
|---|---|
| Biotic stress | 11 |
| Quality | 9 |
| Phenology | 5 |
| Yield | 5 |
| Abiotic stress | 5 |

# On-line searchable vs. flat tables

## Searchable (10)

- Avena
- Barley
- Beta
- Eggplant
- Maize
- Potato cult.
- Prunus
- Tomato
- Vitis
- Wheat

## Flat tables ( 6 )

- Brassica
- Chicory
- Lactuca
- Minor leafy vegetables
- Potato (wild)
- Spinach

# How data are handled

## Flat tables:

- Explanation tables (read me; codes used for countries, institutes, species, collectors, etc.)
- Description of traits and scoring method for characterization (IPGRI, UPOV or other)
- Experiment description for evaluation data (site, date, people, methods, measure units)
- Standardized traits, but different notations accepted
- Excel tables with scores by each partner in different years

# How data are handled

Searchable DBs:

- **Avena and Beta**: values presented in different forms, both original data and also universal scores harmonized through algorithms to compare heterogeneous data; allows for different methodologies to be described
- **Barley - Eggplant - Maize – Prunus – Tomato – Vitis – Wheat** : Descriptors standardized. Searchable masks with drop down menus or free text – multiple fields connected by AND/OR – clear result - unclear methodology behind (descriptor values not easy to interpret – drop down menu ideal, and possibility to make more than one choice within descriptor – different scoring methods accepted (Vitis); different years of evaluation (Vitis); alternative scoring (wheat)

# How data are handled

Searchable DBs:

- Potato cult.: contributors can enter data on-line – data per variety (not per accession) each variety can be scored by multiple holders - multiple searches – all codes easily available – data transformed (taxa and cultivar names)

# Conchita

[pedigree] [parents] [similar varieties][tabulated data]


HIGHER TAXON: *Solanaceae*
GENUS: *Solanum L.*
*Solanum tuberosum L. cv.* Conchita
Pedigree:
Breeder:
Breeder's rights:
Synonyms:
National list:

| | |
|---|---|
| **ADMINISTRATION** | |
| **Country of origin** | PERU [18] |
| **Data source** | DEU001 [8] NEIKER [18] VRI RUSSIA [23] |
| **Plant health directive EC77/93, requirements** | Part tested [8] |
| **Plant material maintained as** | Tuber [23] In-vitro [8] |
| **Sample status** | Advanced cultivar [8, 18, 23] |
| **Test conditions** | Non organic [8] |
| **UTILISATION CHARACTERISTICS** | |
| **Dry matter content** | Medium [23] |
| **ENVIRONMENTAL STRESS FACTORS** | |
| **Frost resistance** | Medium [23] |

Source:

| | | |
|---|---|---|
| [8] | **Federal Research Centre of Agriculture, GERMANY** | 2005 |
| [18] | **NEIKER-Instituto Vasco de Investigación y Des, SPAIN** | 2005 |
| [23] | **N.I. Vavilov All-Russian Scientific Research, RUSSIAN FEDERATION** | 2005 |

# Other features of ECCDBs

- On-line data entry
- Link to pedigree
- Comparison with parents
- List of breeders
- Synonyms
- Pictures
- Visitor statistics
- Duplicate search
- Support of multiple taxonomy systems
- Taxonomy keys
- Literature DB
- Bibliography per accession
- Links to related databases
- Link to genes catalogue
- List of taxa
- Microsatellites lists
- Seeds available

# Other features of CCDBS

**Potato cultiv**.: on-line data entry; pedigree; comparison with parents; breeders; core collections; synonyms; pictures; visitors statistics

**Avena and Beta**: duplicate search; Taxonomy system

**Eggplant**: literature DB; bibliography per accession; pictures; related databases; seeds available

**Wheat**: List of genes. List of taxa; link to pedigree catalogue; link to genes catalogue

**Tomato**: Probable duplicates search; taxonomy key and links; literature; template for data submission

**Pyrus**: synonyms; pictures

**Vitis**: microsatellites list, pictures

# Conclusion

- Few available data – why?
  a) Missing data
  b) Lack of organization
  c) Resistance to share data
- Dependent on EU project funds (public domain)
  – Clarify incentives to generate/share data
- Standardization issue
  – Harmonize / transform data vs. leave data as they are received
- Many different ways to display data
  – Could be useful to set up a list of principles of a friendly database, i.e.:
  a) Always provide off-line downloadable
  b) Drop down menus
  c) Codes always explained
  d) Multiple choices possible
  e) Etc.