Albanian National Inventory Development and Status

EURISCO NFP regional Training Workshop for Southeast Europe
19-21 May, 2015, Tirana, Albania

Belul Gixhari,
NFP for Documentation in Albanian Genebank
(Agricultural University of Tirana)
**Documentation - Type of data**

- **Genebank data**
  - Exploring and Collecting data.
  - Acquisition and Registration data.
  - Sample Processing and Germplasm testing data.
  - Conservation type data.
  - Storage and Monitoring data.
  - Characterization & Evaluation data/Experimental data.
  - Regeneration data.
  - Some Molecular Markers data.
  - Documentation and Information data.
  - Distribution data.
  - Equipment's and Collection Security data.
  - etc
Source of data

exploitations/collecting data

On farm conservation

STANDARDS

1. Exploration Skeds 2015.
2. Collecting Skeds 2015.
3. Collecting Labels (General model).
4. Collecting Cartels (General model).
5. Olive I Bardhi Tiranes
6. Olive Ulliri i zi i Tiranes

9. Eurisco descriptors final version vers-1
10. EURISCO Descriptors Version 2 Full
11. MULTI-CROP PASSPORT DESCRIPTORS 2012 V.2
Source of data - ex situ seed collection
Source of data

- Sample processing
- Germplasm testing
- Conservation
Field collection data

Characterization & Evaluation

Regeneration

Experimental data
On Farm data

In situ
On farm conservation

Ex situ
On farm conservation

Belul Gixhari, Albanian Gene Bank

EURISCO Workshop, Tirana, 19-21 May, 2015
## In Situ, On Farm data (1\textsuperscript{st} steps of documentation)

<table>
<thead>
<tr>
<th>Crops / Accession</th>
<th>In Situ</th>
<th>On farm</th>
<th>In Situ/On Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit Trees (landraces listed 633 acc.)</td>
<td>163</td>
<td>130</td>
<td>293</td>
</tr>
<tr>
<td>Vitis sp.</td>
<td>2</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td>Olive trees (1000-3000 years old)</td>
<td>116</td>
<td>40</td>
<td>156</td>
</tr>
<tr>
<td>Citrus</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Medicinal (wild species)</td>
<td>403</td>
<td>0</td>
<td>403</td>
</tr>
<tr>
<td>Phaseolus (landraces)</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Zea mays (landraces)</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total (accession)** 1269

**Genus** 63

**Species** 76

Farmers engaged with PGR (on farm) 13

Farmers (listed as potential in the future) 45
Agricultural Institutions data

ATTC Shkodra:
- Maize & Medicinals

ATTC Lushnja:
- Wheat & Vegetables

ATTC Fushe - Kruja:
- Forages & Legumes
- Grasses

CGR - Tirana
- Genebank

ATTC Vlora:
- Fruit Trees
- Olive & Citruses

ATTC Korca:
- Fruits & Cereals

Tobacco Station
- Cerrik-Elbasan
Main databases

= according to Research Groups and Crops.

1. Arable crops (cereals, forages, industrials, medicinal & aromatic plants) and germplasm management database.

2. Horticulture crops (vegetables, fruit trees, grapevine, subtropicals, olive & citrus) database.

3. Documentation (database, documentation, information, publication) data.
Acquisition and Registration (Standards & Genebank Rules)

Accepted for long-term preservation

- Mandate species
- Within region
- Information of identity
- Seed quality
- Seed quantity
- Passport data
- Specific characteristic
• Sample Seed Processing and Storage.
  • Seed cleaning = YES
  • Seed drying = YES
  • Seed moisture content = YES
  • Seed package = YES

• Germplasm testing.
  • Viability Testing = YES
  • Health diagnosis (Purity + Health Testing) = YES (partially)
  • Trans-gene detection (OMG testing). = NO

• Use of Molecular Markers (=Realized only in some crops)

• Conservation Types.
  • Seed bank conservation. = YES
  • Field bank conservation. = YES
  • In vitro bank conservation. = NO
  • Cryo-bank conservation. = NO
  • Vegetative bank conservation = YES (Some crops)
  • DNA bank conservation. = NO
ALB Plant Genetic Resources Inventory

1. **Home (genebank) Inventory of PGR (> 3700 acc.)**
   - ex situ seed collection = 2510 accession.
   - ex situ field collection = 644 accession.
   (82 genera and 128 species)
   (with standard data + raw data)

   &

2. **ALB National Inventory (NI) in EURISCO (= 2111 acc.)**
   = 2111acc (= 33 genera, 62 species),
   (with standard data)
Genebank (15 years) activity has:

- carried out over 44 exploration-collecting missions.
- in all different districts of Albania.
- collected over 4,000 different samples/accessions.
- of more than 80 genera and 130 different species.
Albania NI Development

"Success" Stories

CGR - Tirana
• Genebank

4000 accessions
80 genera
130 species
ALB NI Development

ALB NI in EURISCO

- Dec. 1998 = 0 accession
- Dec. 2014 = 2111 accessions.
- May 2015 ~ 4070 accessions (checking process)

ALB NI is present on-line in: http://eurisco.ecpgr.org/
http://eurisco.ipk-gatersleben.de/
Albania NI in EURISCO

= 2111acc (= 33 genera, 62 species),

Genebank = 1839 accessions.
ATTC Vlora = 272 accessions.

Breeding Materials = 976 acc. (= 6 genera, 25 species)

Collected Materials = 1135 acc. (31 genera, 40 species)

COLLECTED - NO-GOEDATA = 446 acc (26 species)

COLLECTED + GEODATA = 689 acc (18 genera, 19 species).

96% of NI in EURISCO is represented by Albanian accessions.
### Albania National Inventory (NI)

#### Accessions by country of origin
(data only for **Old genebank Inventory** = 2687 acc.)

<table>
<thead>
<tr>
<th>Country of origin</th>
<th>Accessions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>2193</td>
<td>81.6%</td>
</tr>
<tr>
<td>Italy</td>
<td>70</td>
<td>2.6%</td>
</tr>
<tr>
<td>Germany</td>
<td>58</td>
<td>2.2%</td>
</tr>
<tr>
<td>USA</td>
<td>40</td>
<td>1.5%</td>
</tr>
<tr>
<td>France</td>
<td>30</td>
<td>1.1%</td>
</tr>
<tr>
<td>North Corea</td>
<td>25</td>
<td>0.9%</td>
</tr>
<tr>
<td>Lituania</td>
<td>24</td>
<td>0.9%</td>
</tr>
<tr>
<td>Greece</td>
<td>22</td>
<td>0.8%</td>
</tr>
<tr>
<td>Czeck...</td>
<td>17</td>
<td>0.6%</td>
</tr>
<tr>
<td>Nederland</td>
<td>12</td>
<td>0.4%</td>
</tr>
<tr>
<td>Austria</td>
<td>11</td>
<td>0.4%</td>
</tr>
<tr>
<td>China</td>
<td>11</td>
<td>0.4%</td>
</tr>
<tr>
<td>Russia</td>
<td>10</td>
<td>0.4%</td>
</tr>
<tr>
<td>Romania</td>
<td>10</td>
<td>0.4%</td>
</tr>
<tr>
<td>unknown</td>
<td>87</td>
<td>3.2%</td>
</tr>
<tr>
<td>Other 15 countries</td>
<td>67</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

More than 80% of accessions are from Albania. Accession origin from Italy, Germany, USA and France range from 1% to 3%.
Characterization, evaluation and molecular data.

- **Pea 28 acc.** (15 QL traits + 23 QN characters) + **14 RBIP markers**
- **Grass pea 12 acc.** (10 QL traits + 14 QN characters)
- **Tobacco 22 acc.** (10 QL traits + 14 QN characters)
- **Maize 104 acc.** (10 QL traits + 21 QN characters)
- **Haricot 117 acc.** (5 QL traits + 4 QN characters)
- **Apple 12 acc.** (8 QL traits + 4 QN characters)
- **Plum 14 acc.** (12 QL traits + 16 QN characters)
- **Olive 6 acc.** (18 QL traits + 16 QN characters) + **14 SSR markers**
- **Olive 24 acc.** (18 QL traits + 27 QN characters)

Total = 222 acc. / AGB accessions in EURISCO = 1839 acc. = 12%.
SEEDNet Project (2009-2010):

COLLECTED = 630 acc.  
( = 27 genera, 36 species).

Contribution: = 630 acc.  
New areas surveyed & collect  
= 12 new genera,  
= 17 new species.

FAO Project (2013-2014):

COLLECTED = 528 acc.  
( = 40 genera, 52 species).

Contribution: = 528 acc.  
New areas surveyed & collect  
= 18 new genera,  
= 25 new species.
ACTUAL STATUS OF ALB (NI)

**ALB NI total (May 2015):**
Breeding + Collecting Materials = 4070 acc.
(86 genera, 128 species).

<table>
<thead>
<tr>
<th>Genebank</th>
<th>ACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTC Vlorata</td>
<td>272</td>
</tr>
<tr>
<td>Total</td>
<td>4070</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>ACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td>3154 ACC (Ex situ base collection)</td>
</tr>
<tr>
<td>Trees</td>
<td>916 ACC (Field collections)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4070 ACC</strong></td>
</tr>
</tbody>
</table>

(##. checking process)
**Database formats:**

Data are recorded in Excel, Word, Word, Access, photo, etc., formats, according to International Standards and Descriptors.
### Quality of data

Different collecting missions used different data formats. Problems are:
- the right **English** word when more than one exist, and
- especially **geographical data** (= different formats).

<table>
<thead>
<tr>
<th>LATITUDE</th>
<th>LONGITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>40°15'41.77&quot;N</td>
<td>40°15'41.77&quot;N</td>
</tr>
<tr>
<td>40°29'31.19&quot;N</td>
<td>40°29'31.19&quot;N</td>
</tr>
<tr>
<td>0211813.30E</td>
<td>0192327.06E</td>
</tr>
<tr>
<td>020.0900</td>
<td>19.1500</td>
</tr>
<tr>
<td>0412327.06N</td>
<td>0411813.30N</td>
</tr>
<tr>
<td>040.0900</td>
<td>042.1500</td>
</tr>
</tbody>
</table>
Quality of data (CAPFITOGENE Tools)

More than 95% of collected accessions with geo-data were situated within ALB.

~ 3% (57 acc. of 1771 collected acc. with geo-data) were out of ALB.
PGR documentation

WEB based approaches

CGR (Centre of Genetic Resources)
https://qendraeresursevegjenetike.wordpress.com

AUT (Agricultural University of Tirana)
http://www.ubt.edu.al

EURISCO
http://eurisco.ipk-gatersleben.de;

Genesys
http://www.genesys-pgr.org

SESTO
http://sesto.nordgen.org

WIEWS
http://www.pgrfa.org/WIEWS/
QENDRA E RESURSEVE GJENETIKE BIMORE

Një dritare e hapur për të ardhmen

Qendra e Resurseve Gjenetike


https://qendraeresursevegjenetike.wordpress.com
Thank you