Challenges of commercialisation of heterogeneous material

Riccardo Bocci – Rete Semi Rurali (IT)
Riccardo.bocci@semirurali.net
Presentation:

- Some insights from Italy
- How the marketing of populations was applied
- Some preliminary ideas for registration and certification
- Tomato
2010-2014
Creating diversity

2014-2019
Studying diversity dynamics and seed systems

2017-2021
Supporting an enabling environment
Enlarging the crops involved

This project received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 722230.
SOLIBAM Bread Wheat Evolutionary Population

- 200 parental lines
- 1996 crosses
- Grown in Tuscany and Sicily since 2010
• After certified seed became commercially available in 2017 thanks to 2014/150 EU
Research Goal

Assessing adaptation of same Evolutionary Population (EP) to two different regions
## Is there specific

<table>
<thead>
<tr>
<th>Entry</th>
<th>Name</th>
<th>Type</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOLIBAM Tenero Floriddia</td>
<td>Population</td>
<td>ICARDA - Syria</td>
</tr>
<tr>
<td>2</td>
<td>SOLIBAM Tenero Li Rosi</td>
<td>Population</td>
<td>ICARDA - Syria</td>
</tr>
<tr>
<td>3</td>
<td>SOLIBAM Tenero Rosati</td>
<td>Population</td>
<td>ICARDA - Syria</td>
</tr>
<tr>
<td>4</td>
<td>SOLIBAM Selezione Tenero Floriddia</td>
<td>Population</td>
<td>ICARDA - Syria</td>
</tr>
<tr>
<td>5</td>
<td>COBRA A</td>
<td>Population</td>
<td>ORC - UK</td>
</tr>
<tr>
<td>6</td>
<td>COBRA Y</td>
<td>Population</td>
<td>ORC - UK</td>
</tr>
<tr>
<td>7</td>
<td>COBRA Q</td>
<td>Population</td>
<td>ORC - UK</td>
</tr>
<tr>
<td>8</td>
<td>Piemonte Tenero Mix</td>
<td>Old varieties mixture</td>
<td>Italy</td>
</tr>
<tr>
<td>9</td>
<td>Vecchie Varietà Mix</td>
<td>Old varieties mixture</td>
<td>Italy</td>
</tr>
<tr>
<td>10</td>
<td>Varietà Moderne Mix</td>
<td>Modern variety mixture</td>
<td>Italy</td>
</tr>
<tr>
<td>11</td>
<td>Maiorca</td>
<td>Local variety - Sicily</td>
<td>Italy</td>
</tr>
<tr>
<td>12</td>
<td>Andriolo</td>
<td>Local variety – Tuscany</td>
<td>Italy</td>
</tr>
<tr>
<td>13</td>
<td>Frassineto</td>
<td>Old variety</td>
<td>Italy</td>
</tr>
<tr>
<td>14</td>
<td>Emese</td>
<td>Modern variety – control</td>
<td>Hungary</td>
</tr>
</tbody>
</table>

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Mean yield and stability (three years and 4 locations)
A well defined graphical identity

The rules on IPRs, the seeds are not protected by PVP but there is an open source pledge

The name of the CCP, SOLIBAM

The history of the CCP and the breeding process

The «social» rules you agree on opening the seed wrap
From seed to flour.
This procedure should describe the material put on the market, characterising it for the consumers. It should be flexible and able to adapt to the changes of the HM after some year of cultivation (e.g. by a new description).
Agronomic description (e.g. macro characters, with ranges);

Description of the breeding methods;

Use/qualitative description (i.e. quality characteristics of the HM relevant for the consumers);

No VCU and DUS testing, but trials under control of the breeder;

Traceability/Identification (no classical scheme of seed production such as base-first and second reproduction);
All the certification process should be perceived by the breeders/seed companies not burdensome or useless, but on the contrary should help to maintain seed quality in the seed systems with a certain degree of flexibility and openness.
Certification

Sending a sample to the official body by July for testing in the lab and in official experimental fields;

Field visits (not named "control" or inspection in order to have the focus on their positive aspects and not on "control") to check some parameters (e.g. pests, weeds, production, health) related to seed quality,

Yearly meetings between "breeders/authorities" for facilitating the process of certification and checking problems and possible solutions
And now tomato...

• MAGIC population
  • Three organic farms, 400 plants of the MAGIC population, alongside 5 Spanish local varieties and 20 Italian local varieties, for a total of 425 entries;

• SOLIBAM population
  • grow in each of the four participating organic farms 400 plants following the local agronomic practices;
Agronomic evaluation of EBP materials: **YIELD**

- Multi-environmental trials (4 years, 3 different locations)
- 2 populations: AUT DBA and *mix48*
- 13 EBP pure lines: selected from the EBP populations
- 9 controls: commercial varieties & recently developed lines selected through conventional breeding programs

**EBP populations and EBP pure lines characterised by HIGH YIELD**

Controls characterized by lower yield in “low productivity” environments (*P*≤0.05)
Genetic diversity of EBP materials

Initial population (AUT DBA & mix48)
genetic diversity

mix48 evolution under contrasting conditions (PG-IT, RI-IT, HU, UK & SY)
genetic changes
CCPs and Climate changes..