Conservation of AnGR in Slovenia

A. Cividini, D. Kompan, D. Bojkovski, M. Žan Lotrič
LIVESTOCK BREEDING ACT (2002)

(chapter 6):

CONSERVATION OF GENETIC VARIABILITY
AND GENETIC RESERVES OF FARM ANIMALS

- Article 66: Conservation of genetic variability
- Article 67: Biotic diversity in animal husbandry
- Article 68: Indigenous breeds
- Article 69: Monitoring and analysing of biotic diversity in animal husbandry
- Article 70: Special protection of the indigenous breeds of Apis Mellifera
The legal framework

The fate of the breed

MyPoW

Livestock breeding act

Rules on conservation of farm AnGR

Public service

Breeding organization

Agriculture low

Breeders!
Public Service (PS) for farm animal genetic resource conservation established an expert council.

- Members are: a representative of PS, a representative of each approved breeders' organizations, one representative of each of the other organizations performing specific tasks in the PS.
- Expert council gives its opinion to the annual program and annual reports and all the important questions regarding the work of PS.
In accordance with the Agriculture Law the Republic of Slovenia shall ensure and maintain genetic reserves for the species, breeds and strains of domestic animals in the form of a minimum number of domestic animals, doses of semen, ova or embryos and/or other biological material.
GENETIC RESERVES ARE DETERMINED BY THE REGULATION ON CONSERVATION OF FARM ANIMAL GENETIC RESOURCES

which determines the preparation of requirements for systematic activities ensuring an overview of the minimum reserves of genetic material for each breed of farm animals...
GENE BANK STORAGES

- Biotechnical faculty-Ljubljana (BF)
- Veterinary faculty-Ljubljana (VF)
- IC Preska
- IC Ptuj
<table>
<thead>
<tr>
<th>Breed</th>
<th>Type</th>
<th>Animals</th>
<th>Samples</th>
<th>Doses</th>
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<td><strong>667</strong></td>
<td><strong>715</strong></td>
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# Gene Bank Statistic for Sheep and Goat

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<tr>
<td>Bela Krajina sheep</td>
<td>Semen</td>
<td>9</td>
<td>30</td>
<td>293</td>
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<tr>
<td>Bovec sheep</td>
<td>Semen</td>
<td>10</td>
<td>30</td>
<td>402</td>
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<tr>
<td>Istrian sheep</td>
<td>Semen</td>
<td>8</td>
<td>24</td>
<td>240</td>
</tr>
<tr>
<td>Jezersko-Solčava sheep</td>
<td>Semen</td>
<td>8</td>
<td>23</td>
<td>230</td>
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<tr>
<td>Drežnica goat</td>
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<td>90</td>
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<td><strong>TOTAL</strong></td>
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<td>Breed</td>
<td>Type</td>
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<td>-----------</td>
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<tr>
<td>Dog</td>
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<td>62</td>
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<tr>
<td>Horse</td>
<td>Posavje horse</td>
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<td></td>
<td>Island</td>
<td>blood</td>
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<td>Troter</td>
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<td>SI Cold-Blooded</td>
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<tr>
<td></td>
<td>SI Worm-Blooded</td>
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</tr>
<tr>
<td></td>
<td>Lipizzan horse</td>
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</tr>
<tr>
<td></td>
<td>Galloper</td>
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…continued
# Tissue DEPOSITORY

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<th>DNA</th>
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</thead>
<tbody>
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<td>Cika</td>
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<tr>
<td></td>
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<td>semen</td>
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<td>Slovenian Brown</td>
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<tr>
<td></td>
<td>Black and White</td>
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<td>123</td>
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</tr>
<tr>
<td></td>
<td>lisasta</td>
<td>blood</td>
<td>217</td>
<td>✓</td>
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<tr>
<td>Pig</td>
<td>Krško Polje pig</td>
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<td>121</td>
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</tr>
<tr>
<td>Goat</td>
<td>Drežnica</td>
<td>blood</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Hen</td>
<td>Styrian Hen- Štajerka</td>
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<td>20</td>
<td></td>
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<tr>
<td>Honeybee</td>
<td>Karniolan Honeybee</td>
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</table>

…continued
<table>
<thead>
<tr>
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<th>Type</th>
<th>N</th>
<th>DNA</th>
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</thead>
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<tr>
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<td></td>
<td>semen</td>
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<td>Istriant sheep</td>
<td>blood</td>
<td>46</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>semen</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jezersko-Solčava sheep</td>
<td>blood</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>semen</td>
<td>120</td>
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<td></td>
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<td>Improved Jezersko-Solčava</td>
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<tr>
<td>Bela Krajina sheep</td>
<td>blood</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>semen</td>
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<td></td>
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<tr>
<td>Texel</td>
<td>blood</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>3958</td>
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</table>
CLASSIFICATION OF BREEDS

- local breeds (autochthonous and traditional)
- foreign breeds (alochthonous, exotic)

BREED is a group of geographically or regionally separated farm animals, originating from the same ancestors, sharing the same characteristics defined in breed standard.
# Register of breeds

<table>
<thead>
<tr>
<th>Breed group</th>
<th>No. of breeds</th>
<th>Breed prog.</th>
<th>Basic zootec. charact.</th>
<th>Gene bank</th>
<th>Tissue deposit bank</th>
<th>Breeding value</th>
<th>Zootec. assess. and measures</th>
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<tbody>
<tr>
<td>Autoch.</td>
<td>13</td>
<td>12 (92.3%)</td>
<td>13 (100%)</td>
<td>9 (68.2%)</td>
<td>13 (100%)</td>
<td>5 (38.4%)</td>
<td>13 (100%)</td>
</tr>
<tr>
<td>Tradition.</td>
<td>16</td>
<td>16 (100%)</td>
<td>16 (100%)</td>
<td>3</td>
<td>7 (43.8%)</td>
<td>13 (81.3%)</td>
<td>16 (100%)</td>
</tr>
<tr>
<td>Foreign</td>
<td>19</td>
<td>13 (68.4%)</td>
<td>19 (100%)</td>
<td>1</td>
<td>7 (36.8%)</td>
<td>6 (31.6%)</td>
<td>19 (95%)</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>42 (85.4%)</td>
<td>48 (100%)</td>
<td>9 (18.8%)</td>
<td>27 (56.3%)</td>
<td>24 (50%)</td>
<td>48 (100%)</td>
</tr>
</tbody>
</table>
Conservation work-criteria

- Estimation of the population size
- Number of pure females and males
- Endangerment category (1-critical, 2-endangerment, 3-vulnerable, 4-at risk, 5-not endangered)
- Category of the use (1-local, 2-spread, 3-other)
- Morphological and biological characteristics
- Gene bank monitoring \((In situ, Ex situ)\)
- Approved breeding program
- Individual identification
- Measuring of production traits
- Breeding value
- …
Autochthonous breeds in Slovenia

- Styrian hen
- Carniolan Honeybee
- Karst shepherd
- Lipizzan horse
- Posavje horse
- Slovenian coldblooded horse
- Cika cattle
- Jezersko-solcava sheep breed
- Bovec sheep
- Bela Krajina Pramenka
- Istrian Pramenka
- Dreznica Goat
- Krskopolje pig

Autochthonous (historical documents, indigenous environment, breeding documentation, origin for five generations…)

Bovec sheep

- Upper valley of Soca; town of Bovec;
- Bovec sheep - dairy breed;
- Rams (45-50 kg), ewes (35-40 kg);
- well adapted; harsh grazing, poor rearing conditions;
- Mountain Krn, Kanin, Mangart; jun-sep;
- 138 rams; 2.300 ewes, at risk;
- 221 (300) kg; 6.3 % fat, 5.5 % proteins.
Bovec cheese

- 150 years; designation of origin;
- Mountains cheese dairy; other in the valley;
- 24% No, 38% Yes, 38% try the cheese;
- Production - high expenses, scarce of feed;
- Marketing – season, weather, No. of tourists.
Bela Krajina Pramenka

- Karst region of Bela Krajina;
- well adapted;
- ewes: 50 kg, rams: 65 kg;
- Seasonally polyestric, average 1.22 lambs;
- Lambs 25 kg, third or fourth month;
- Thin bones - high dressing percentage;
- Pure breed animals – 29 rams; 880 ewes (vulnerable).
The Bela Krajina lamb

- Market - not organized, “black market”;
- Majority – restaurants, agro tourism, festivals
- restaurants preferred BP breed, better quality
- meat (tastier, juicy and sweet);
- thinner bones - easier to strip the skin off;
- products BP – higher price than other breed in the region.
Istrian Pramenka

- Region of Karst and Istria;
- Dry old grass, skilful - finding fresh grass between rocks;
- Adaptability to relatively rough surroundings;
- Litter size - 1.19; 119 kg of milk;
- 7.2 - 8 % fat; 5.9 - 6 % protein;
- 50 rams; 900 ewes; vulnerable population.
Karst sheep cheese

Region of Karst - hundred’s of years;
Cheese uniqueness - specific karst environment, local breed, climate, soil, pasture composition, chemical, microbiological composition, storage conditions;

Taste and smell are full, aromatic, slightly spicy charac.- sheep cheese.
Tourists from Italy, local restaurants, home tourists.
Karst lamb meat

- Recognition - quality of meat, suckling lambs;
- Pasture; Herbs 20-40%, aromatic essence;
- Product: very tasty meat;
- Buyers – Italy, local restaurants, tourists.
Jezersko-Solčava sheep breed

- meet breed;
- Rams (100 kg), ewes (65 - 75 kg);
- adapted to environment;
- Twin lambs, litter size 1.5 lambs;
- Fertile year-round, mate soon after lambing;
- Population number – 17400, not endangered.
Products Jezersko-Solčavške ovce

Lamb meat

- Some research on quality of lamb meat;
- No research on marketing; different personal contact—sold at home,

wool

agro tourism;

- slippers,
- clothes,
- bags,
- Toys.
Conclusions

- Local products ??
- Marketing—at home, Agro tourism, restaurant;
- Offer=Demand
- Small production (seasonal)—can not fulfil expectation of wider market;
- Breeders use their specific (traditional technology);
- Consumers????
- No marketing of products on national level;
- Geographical distribution -
- Subsidies from environmental programme are not enough, however – does money help?
In the future...

- To give the farmers the opportunity easier to sell the products of local breeds
- Breeders need to work together to assure a higher offer and good quality of products

SO

Combining conservation and sustainable use!
Thank you for your attention!