Prospects for the use in Poland native breeds of cold-blooded horses – illusions or reality?

Polak, G.M, Krupinski J.
National Research Institute of Animal Production,
Department of Animal Genetic Resources National Focal Point
In the countries of Central-East Europe there are more than half of the population of cold-blooded horses although in intensive agriculture draught horses have long since been eliminated. In the EU, including the countries of Central-East Europe have been taken Animal Genetic Resources Conservation Programs financed under Common Agricultural Policy. In Poland, from 2008 are implemented programs for local and native populations of cold blooded horses: Sokolski and Sztumski. Already in the first half of XX century this two population have been highlighted and references in the animals production manuals.

The data indicate that the number of cold-blooded horses in Poland tends to decline, but within the population included in conservation programs Sokolski and Sztumski increases.

The question is: what are the prospects for use these horses?
Background

- In the beginning of XX century in Poland local type of cold-blooded horses was used for working purposes: in agriculture, army and city transport;
- After II World War, with mechanization of agriculture the significance and number of working horses decreased;
- Since the 1990’s under the influence of movements related to environmental and biodiversity protection, appeared the necessity to preserve typical features of local breeds;
- Currently in Europe they are 870 horse breeds (EFABIS). As a part of human heritage they are working horses.
- **EU:** Examples of commitments covered by national/regional agri-environmental schemes are
  - *environmentally favourable extensification of farming;*
  - management of low-intensity pasture systems;
  - integrated farm management and organic agriculture;
  - preservation of landscape and historical features such as hedgerows, ditches and woods;
  - conservation of high-value habitats and their associated biodiversity.
The draught horse is being seriously re-evaluated as an energy source that has already been in use for thousands of years, and moreover one that is at the same time infinitely renewable and totally eco-friendly.

- FECTU was established in 2004 with the initiative of Luxemburg, France, and Germany.

- Aims:
  - Participate in the preservation of the draught horse heritage.
  - Promotion of working and leisure use of horses, with particular attention to the welfare of the animals and the humans involved, and the environment.
  - Encourage cooperation between European organizations involved.
  - Research projects: source of "pur" energy, environmental impact, modern harnesses.

In 2014 – 5,000 members from 16 organizations from 11 countries: Germany, France, Great-Britain, Switzerland, Ireland, Austria, Sweden, Belgium, Norway, Finland, Portugal, Spain, and Poland - only organization from Eastern Europe – PSI-PKRKPZŻ (Polish Association of Friends of the Working Horses and Healthy Food Producers).
Poland

- The cold blooded horses lokal type has been created from the beginning of XX century.
- Influence of Ardennes, Breton, Belgian and German horses.
- Environmental influences the northeastern Poland.
- Five local type: Sztumski, Sokolski, Lidzbarski (ex Oszmianski), Lowicki, Kopczyk Podlaski.
In 2012 in Poland they were 1,477,852 farms; only in 29,170 cases (2%) they were the farm with superfice > 50 ha. The number of horses in 2012 was 316,000:

- 54% was the cold blooded horses;
- 70% of them was the horses kept in the farms.

Total number of horses in Poland in 2012. (Polish Horse Breeders Association, 2014)

Number of horses in agriculture sector from 2000 to 2012 (Central Statistical Office, 2013)
In 2008 has been created two Genetic Resources Conservation Programs of coldblooded horses.

The general criteria for participation in the conservation programme include:

- typical morphological traits;
- pedigree requirements;
- at least two mares of a given breed recorded in the Stud Book of cold blooded horses.
Number of Sokolski and Sztumski horses participating in Animal Genetic Resources Conservation Programs from 2008 to 2014

Data: Nationale Research Institute of Animal Production, 2014

Distribution of Sztumski horse in 2014

Distribution of Sokolski horse in 2014
What is the reason to maintain Sztumski and Sokolski horses? Who are the people keeping? How they use this horses?

Enquiry:
The aim of the study is better understand motivation of breeders maintaining Sztumski and Sokolski horses. The analysis based on the results of questionnaire conducted among 460 breeders participating in the conservation program.
Questionaire:

1. which horses you keep   a. Sokólski    b. Sztumski    c. how many?
2. how big is your farm?   
       a. 1 - 10 ha ,    b. 11 - 50 ha ,    c. than 50 ha ,    d. grazed area? ............ ha
3. what type of farm you lead?  
       a. agrotourism farm    b. ecological farm    c. traditional farm    d. commercial farm
4. the main direction of production:  
       a. livestock    b. crop    c. mixed crop-livestock
5. what other species of farm animals you keep ?  
       a. cattle    b. pigs    c. sheep
6. how many years you breed the horses?  
       a. < 4 years    b. 5 - 15 years    c. 16 - 25 years    d. > 25 years
7. how old are you ?  
       a. < 35 years    b. 36-50 years    c. 51-65 years    d. 65> years
8. what is the reason of your participation in the Animal Genetic Resources Conservation Program :  
       a. desire to protect the native breed    b. possibility of obtaining subsidies 
       c. other (please specify) ........................
9. for what purpose you breeding horses?  
       a. production of working horses    b. family tradition    c. sell breeding material 
       d. production of slaughter horse    e. others (please specify) ...
Results

We received 126 (27%) completed questionnaires: 76 (30%) from breeders of Sokolski horses and 50 (23%) from breeders of Sztumski horses. To find a relationship between participation in conservation programs, and other aspects of farms and farmers work, was carried out statistical analysis of the results using the chi-square ($\chi^2$) test.

The results has been confronted with the result obtained from enquiry carried out in 2011.
**Question 2**

**Farm size**

- Sokolski
- Sztumski

<table>
<thead>
<tr>
<th>Farm Size</th>
<th>Sokolski</th>
<th>Sztumski</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10 ha</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>11 - 50 ha</td>
<td>57</td>
<td>52</td>
</tr>
<tr>
<td>&gt; 50 ha</td>
<td>12</td>
<td>13</td>
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</table>

**2011 and 2013**

<table>
<thead>
<tr>
<th>Size</th>
<th>2011</th>
<th>2013</th>
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</thead>
<tbody>
<tr>
<td>0 - 10 ha</td>
<td>27</td>
<td>33</td>
</tr>
<tr>
<td>11 - 50 ha</td>
<td>63</td>
<td>54</td>
</tr>
<tr>
<td>&gt; 50 ha</td>
<td>10</td>
<td>13</td>
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</tbody>
</table>

**Question 3**

**Type of farm**

- Sztumski
- Sokolski

<table>
<thead>
<tr>
<th>Type</th>
<th>Sztumski</th>
<th>Sokolski</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrotourism</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Ecological</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Traditional</td>
<td>61</td>
<td>70</td>
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<tr>
<td>Commercial</td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>
Question 4

Main direction of production

- Crop production: 4%
- Livestock production: 21%
- Mixed crop-livestock: 76%

Question 5

Additional farm animal species

- Cows: 43% (Sokolski), 50% (Sztumski)
- Pigs: 25% (Sokolski), 34% (Sztumski)
- Sheeps: 5% (Sokolski), 4% (Sztumski)
Question 8

Reason of participation in Conservation Program

<table>
<thead>
<tr>
<th>Reason</th>
<th>% of farms</th>
<th>Sokolski</th>
<th>Sztumski</th>
</tr>
</thead>
<tbody>
<tr>
<td>conservation</td>
<td>84</td>
<td>84</td>
<td>68</td>
</tr>
<tr>
<td>subsidies</td>
<td>75</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>other*</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

* - folkloristic events, traditional show, sleigh ride, the carriage, love for horses

Question 9

Motives of breeding horses

<table>
<thead>
<tr>
<th>Type of Motive</th>
<th>% of breeders</th>
<th>Sokolski</th>
<th>Sztumski</th>
</tr>
</thead>
<tbody>
<tr>
<td>working horse</td>
<td>25</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td>family tradition</td>
<td>76</td>
<td>70</td>
<td>72</td>
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<tr>
<td>commercial</td>
<td>82</td>
<td>16</td>
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<tr>
<td>slother horses</td>
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</tr>
<tr>
<td>others**</td>
<td>3</td>
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</tbody>
</table>

** - tradition, dissemination of knowledge, breeding culture
• more than 90% have a small and medium size farm (<50 ha).
• most of the breeders keep horses for commercial causes (73%) and
• desire to save the breed (65%);
• for 63% of breeders a key reason to participate in the conservation programme is the possibility to receive subsidies;
• near 1/3 of breeders declared to use the horses in agriculture for draft purposes;
• high number of breeders keep another species of domestic animals: cows (66%); pigs (32%) and very rarely the sheep (6%)

2011

2013

• 87 % have a small and medium size farm (<50 ha).
• most of the breeders keep horses for commercial causes (76%);
• for 84% of breeders a reason to participate in the conservation program is the protection of native breed and
• possibility to receive subsidies (72%);
• 25% of breeders declared to use the horses in agriculture for draft purpose;
• decreased the number of breeders keep another species of domestic animals: cows (46%); pigs (29%) and very rarely the sheep (3%)
The statistical tests showed a significant relationship between:

1. traditional farm and farm size (for the test value of $\chi^2 = 11,461$ and level of significance of $p = 0.003$);

2. production of the slaughter horses and possession of largest farms ($\chi^2 = 9,270$ and $p = 0.010$), long breeding experience ($\chi^2 = 10,590$ and $p = 0.014$); possibility of obtaining subsidies ($\chi^2 = 8,339$, $p = 0.002$);

3. working horses use the long breeding experience (over 25 years) ($\chi^2 = 12,175$ and $p = 0.007$);

4. desire to protect the native breed and possibility of obtaining subsidies ($\chi^2 = 9,144$, $p = 0.001$);

5. desire to protect the native breed and family tradition ($\chi^2 = 4,351$, $p = 0.037$);

6. the other motives for breeding horses and other reason of participation in Conservation Program ($\chi^2 = 20,928$, $P = 0.000$).
Thank you for your attention