ORGANIC ANIMAL BREEDING, CONDITIONS, DATA, FACTS, PLANS
(EXAMPLES FROM CENTRAL EUROPE)

ZOOTECHNIE ECOLOGICĂ, CONDIȚII, DATE, REALITĂȚI, PLANURI
(EXEMPLE DIN EUROPA CENTRALĂ)


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The authors consider that the organic animal breeding – as one of the methods with a significant influence on the human nutrition – is the necessary consequence of the 21st century. They present the way of establishing the organic breeding by some Hungarian and Central-European animal farms. They show some examples for the period of transformation into eco farms. The results cover the objective, personal, animal breed and feeding relations. Results of changing and operation: raw materials and products with some of their advantages are shown, just as some examples for protection of origin and food safety. Suggestions for marketing and cooperation, as well as for development are finally given, with special regard to rural development (employment, direct marketing) and to the importance of environmental protection with regard to eco / alternative animal breeding.

Key words: organic animal breeding, eco raw materials and products, rural development

Introduction

The authors already discussed this topic last year on the same symposium: the n-3 fatty acids, their provenience from traditional breeds, which are of a crucial importance for the human healthy nutrition; furthermore they can be a pulling force for animal breeding (1).

The actual situation and the possibilities for further development are analysed. The organic animal breeding has got a significant importance in the world. The consumption of animal-products, the need for safety foods are the most important reasons for the development of animal breeding. The 96% of the
consumption of food of animal origin finds its way in EU and USA (2.)

From our point of view, the meat raw materials and meat products play the highly valuable role in of the organic animal breeding. There are more and more new arguments in the favour of the meat consumption: The meat is the part of a full valued nutrition, is the most frequently consumed food, the fat content of the meat is lower than people believe. The meat covers less than 20% of the calories from food, the fat content of meat makes the food palatable, meat has high biological and nutritional value, contains easy digestible proteins, contains the half of the daily recommended B₁-vitamin as well as high amounts of B₁₂-vitamin and iron (13.).

Moderate meat consumption has no negative healthy effects. The brain-intelligence does not develop in the absence of meat. Human’s nutritional habits are behind the time with about 10.000 years concerning our genetically determined physiology. Nowadays the consumption of protein decreased (from 19-35% to 15,5%) and the consumption of carbohydrates increased (from 22-40% to 49%) even though our predecessors eat 99,5% meat, eggs and milk during their 4 million years long development. The fat originated from meat contains 55-65% unsaturated fatty acids. The conjugated linoleic acid (CLA – C₁₈:₂) from fat has anti-cancerogenic properties, helps in blocking the fat incorporation into the organism, enhance the immune system. The CLA level is much higher in the meat originated from extensively reared, grazing ruminant animals (3.).

Consequently, from 1991, the organic production is continuously increasing especially in large vegetal production units and meadows, pasture (feed,) farming.

EU is the world’s biggest organic market with 3,9 billion Euros turnover (in 2005). The descending order in the organic consumption per person is as follows: Switzerland 101, Denmark 74, and Germany 47 Euros/capita (2.).

Our own experiences show that CLA level is twice as much in the extensively (grazed) than in the intensively housed animals. In the traditional (Hungarian Gray) cattle the CLA level is even higher: +15-20% (4.).

**Materials and Methods**

Examining the Central European situation, for countries are presented from the organic agriculture and bio-production point of view. The organic production from the Central European EU members – from two earlier and to newly accessed countries: Austria and Germany, as well as Hungary and Romania – are presented. Their actual position in the organic production is emphasized with statistical data as well.
Results and Discussions

First of all, regarding Hungary, we will talk about the meadows. In 2000 more than one million hectares were designated to animal breeding. This will increase by about 20% in 2010, to almost 1.3 million hectares. Regarding the animal housing capacity of these territories, they could be the base for 1.5-1.8 million large animal farming. If the actual organic production (0.1%) can be increased by 10% in 2010, the production of bio meat and other products (e.g. milk, eggs) would be about 8.750 tons. (5).

The animal stock – number of standard animals per 100 hectare pasture – in the analyzed Central European countries is very talkative: Hungary: 207.4; Germany: 371.2; Austria: 136.2, Romania: 106.2 (Eurostat, 2006).

The main control office of the Hungarian organic production is the Biokontroll Company. They require the strict preparing of a minimum of five different documents for the organic animal breeders.

The dimensions of the organic animal breeding are not satisfactory: almost 14.300 standard number of animal have been registered in year 2006 (12.). Some examples from the organic animal breeding in Hungary:

The Hortobágy Nature Conservation and Gene Preservation Company is located on the territory of Hortobágy National Park. Territory of the Park amounts 81.000 hectares and was formed in 1973, being part of the World Heritage from 1999 (12.). The activity of the Company is carried on the fifth part of the National Park, which means 17.000 hectares and with this territory it is Hungary’s biggest organic-region with almost 100 employees (6., 10.).

The goal of the Company is the keeping of the old, indigenous animal species – Hungarian grey cattle, Hortobágy racka sheep, mangalitza pig, domestic buffalo – preparing traditional raw materials and foods. The system of the Company influences the life of the whole region, which is expressed also in its name: the Hortobágy Eco-Region. With their support the number of organic farms in the region is sharply increasing, raw materials and traditional bio products with special quality appear on the markets and catering trade. An outstanding example is the Hortobágy Bridge Inn, where the whole menu (inclusive drinks), is prepared only from organic products. Also numerous tourist entertainments are organized, yearly 12-14 national and international programs and exhibitions. For 2008 the 44th Horse and Rider Days, and the 12th Gulyás Competition and Pastoral Meeting are planned. These are the most famous plain live traditions, which could be nice examples to follow for the whole Europe (6.).

Various traditional products are also manufactured; the Hortobágy bio-meat has already got its trade-mark. Their own bio shop offers about ten different types of bio-quality organic meat products made of raw materials originated from grey cattle, domestic buffalo, racka sheep and mangalitza pig. About 14 smoked products are also manufactured and marketed on convenient prices. They plan the introduction of their products to the capital’s restaurants, too.
Our institutes have made quality analyses of bio products from Hortobágy. The results are presented in Table 1.

**Table 1**: Comparison of chemical composition and some physical properties of *Longissimus dorsi* muscles of Holstein and grey cattle, and extensively and intensively reared mangalitza pigs

<table>
<thead>
<tr>
<th></th>
<th>Grey cattle (extensively)</th>
<th>Holstein (intensively)</th>
<th>Mangalitza (extensively)</th>
<th>Mangalitza (intensively)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein content (%)</td>
<td>22.5</td>
<td>22.25</td>
<td>23.9</td>
<td>23.6</td>
</tr>
<tr>
<td>Fat content (%)</td>
<td>1.2</td>
<td>1.9</td>
<td>5.67</td>
<td>5.45</td>
</tr>
<tr>
<td>Connective tissue (%)</td>
<td>0.7</td>
<td>1.3</td>
<td>0.52</td>
<td>0.49</td>
</tr>
<tr>
<td>Pigment content (mg/g)</td>
<td>6.2</td>
<td>4.5</td>
<td>1.46</td>
<td>1.43</td>
</tr>
<tr>
<td>Fatty acid composition (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFA</td>
<td>43.8</td>
<td>45.8</td>
<td>38.9</td>
<td>43.4</td>
</tr>
<tr>
<td>MUFA</td>
<td>56.2</td>
<td>54.2</td>
<td>52.1</td>
<td>53.9</td>
</tr>
<tr>
<td>PUFA</td>
<td>20.8</td>
<td>13.4</td>
<td>8.11</td>
<td>5.39</td>
</tr>
<tr>
<td>n-3</td>
<td>5.1</td>
<td>1.3</td>
<td>0.5</td>
<td>0.14</td>
</tr>
<tr>
<td>n-6</td>
<td>14.4</td>
<td>11.3</td>
<td>7.35</td>
<td>4.98</td>
</tr>
<tr>
<td>n-6/n-3</td>
<td>2.9</td>
<td>9.3</td>
<td>17.2</td>
<td>35.57</td>
</tr>
<tr>
<td>pH</td>
<td>5.53</td>
<td>5.78</td>
<td>5.72</td>
<td>5.76</td>
</tr>
<tr>
<td>Colour characteristics</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Intensity</td>
<td>17.8</td>
<td>13.7</td>
<td>10.03</td>
<td>9.13</td>
</tr>
<tr>
<td>Hue</td>
<td>10.1</td>
<td>8.1</td>
<td>20.20</td>
<td>17.47</td>
</tr>
<tr>
<td>Dripping loss (%)</td>
<td>0.8</td>
<td>1.8</td>
<td>1.92</td>
<td>1.79</td>
</tr>
<tr>
<td>Cooking loss (%)</td>
<td>25.6</td>
<td>18.1</td>
<td>26.32</td>
<td>20.24</td>
</tr>
<tr>
<td>Hardness (N)</td>
<td>27.3</td>
<td>38.5</td>
<td>15.4</td>
<td>14.3</td>
</tr>
</tbody>
</table>

The presence of four specific DNA markers were analysed in Hungarian grey cattle (7.).

The analyses are going on in the future. We will carry on genetic analyses on racka sheep, mangalitza pigs and domestic buffalos (8.).

Beside this most famous (Hortobágy) organic company, other companies are also dealing with bio animal production. Their animal stock is represented by Hungarian indigenous species and races (grey cattle, spotted cattle, mangalitza and
white landrace pigs), which are very preferred in catering, too. There are some other national units which are able to change into organic production like the Zselic Deer Farm of Bőszénfa. This farm has a territory of 1.200 hectares, where about 1.000 red deer, 300 roe deer and wild boars are extensively reared. The farm has its own slaughterhouse, too, which will soon get its EU qualification. Having the qualification will be the only qualified organic farm in Hungary, and it could be qualified in EU, too (5).

The changing small family farms are also of main interest. Their number is happily increasing, their presence, their life is the manifestation of the organic production development. Another example is the Family Farm of Csöde (Zala County). The farm has a territory of 225 hectares, from which 120 hectares are qualified and used for organic production. Grass seeds are produced from several grass types. The feed produced (hay and others) is used for animal feeding (horses, pigs, sheep and poultry). The conditions for organic animal production are under preparation. The farm has its own slaughterhouse as well (9).

The importance of the national eco systems can also be mentioned in the protected, tended environment setup. This kind of environment maintenance is 30-70% less expensive than the mechanical cultivation. The expenses are of the same ratio for animal feeding and housing, too.

Some other Central European examples of organic animal breeding are given from Romania, too. Regarding the quantity of the eco territories Romania is situated on the 19th position (1.) being more backward to its possibilities, in our opinion. The same situation is for animal breeding, too even though the country possesses several valorous indigenous animal species and races. In the different country zones, in deciduous or coniferous woods, and even in regions with erosion 5-8 tones of grass and hay can be produced. Feeding with green forages is widely used in the country. These forages are free of prohibited chemical substances, and have an organic character (14.). Eco production can be carried on by several regions of the country. The union of the organic production units, called Bioterra was formed in 1997, their supervising authority, the Ecoinspect, in 2002. The organic production is performed on 200 000 hectares (data from 2006) and is planned to increase to one million hectares up to 2013. The quantity of bio food products exported in 2006 was over 62 000 tons (16.).

Our institutions and other Hungarian organic units are in close co-operation with Harghita county companies, and their partners. As an example, the Gordon Prod Dairy Company (located in Bisericani) can be mentioned here. The company has a new site since 2007, and can be considered as a potential organic (and transferring or changing) unit in this region. The raw materials are supplied by 9 unions and 8 other units. The majority of the raw materials come from regions and animal breeding farms, where no harmful chemical substances are used, so the taste and aroma of the products is of a special quality. In this way the manufacturing of high dry matter content bio dairy products – using a separated production line – might be a useful future intention of the factory (15.). The La Dorna Dairy Company from Vatra Dorna has the same production system, which is worth to be
mentioned here.

An unfavourable data in Romania is the low number of slaughterhouses in the regions with organic or changing capacities. The benefits of eco production are taken away by the export of live animals (e.g. cattle and sheep as young calves and lambs, having low weight).

The Austrian organic production is a standard in Central Europe for several reasons, such as history, economical history, and geographical location. We can mention the co-operation with Romanian organic production units: cattle breeding (import of calves, building of animal farms, breeding systems, other equipments), as well as the insemination and import of bulls performed by Austrabull, an Austrian and Romanian common company, founded in 2004 in Miercurea Ciuc. The Austrian organic production is co-ordinated and supported by Nögenetik (Cattle Breeders Federation from South Austria, Wieselburg). Austria’s organic territories are as high as 13% (361.81 hectares, in 2006) of the entire farming. The organic territories are housing 20 162 companies, which means the 11,6% of the total Austrian companies. The 14% of eco products are marketed in bio-shops, 5% by direct marketing and 10% are exported. The organic breeding data are also very talkative; sharp increasing is observed from 2002. Example of some data from 2006: 840 000 laying hen, 111 million eggs, 45 000 cattle, 44 000 pigs and 398 million kg of butter. There are curiosity-products too, such as the chocolate with organic-goat milk (first in the world market). The prices are very convenient for the bio farmers. The union of organic farmers is very strong; they are in connection with the most important units on international level; professional trainings are regularly performed (13).

Germany shows an advanced development in the field of organic production. Supported by the fact that there are 8 organizations with eco activities, 5 bio producers, 7 nature reservations and environment protection organizations, 3 consumer organizations and 9 eco-environmental federations active (3 of them organic animal farms). The dimension of organic territories is higher than 800 000 hectares, with more than 16 500 production units (2006), and their number is continuously increasing (2). 33% of their products are of animal origin (milk, butter, cheese, egg, meat, meat products). The tendency of direct marketing of the products is also increasing; the consumers are very satisfied (70-96% of consumers’ acceptance). The direct marketing reaches 21% in Germany; the most affected products are: poultry, lamb, veal, cull cows.
Conclusions

As a conclusion, we can state that the organic animal breeding is very intense in our region, even though there is also a need for further development. The direction is set up, there have been partners, and there are future aims to realise. Let’s start and step along.

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