AN ASSESSMENT OF EFFICIENCY AND PROSPECTS FOR DAIRY AND BEEF SECTORS IN SERBIA

V. Bogdanović*¹, R. Djedović¹, P. Perišić¹, D. Stanojević¹, M.D. Petrović²

¹Institute of Animal Science, Faculty of Agriculture, University of Belgrade, Serbia; *vlbogd@agrif.bg.ac.rs
²Faculty of Agronomy in Cacak, University of Kragujevac, Serbia
CONTENT OF PRESENTATION:

- Short introduction
- Material and methods – surveys
- Main findings from surveys – farm level
- Prospects for future sector development:
  - From farmers’ perspective
  - From resource availability
  - SWOT analysis
  - Measures to be taken
BASIC DATA

- Serbia has 5.1 mil ha of agricultural land;
- 3.3 mil ha of arable land;
- 0.84 mil ha of pastures;
- 0.61 mil ha of meadows;
  - 85% of agricultural land is private, while 15% belongs to the state or co-operatives;
  - Rural areas cover 85% of the territory of Serbia with 55% of the population creating over 40% of the GDP.
Number of cattle

- Cattle
- Cows + Heifers
- Slaughtered

Year

Number of head, in 000


1979 1776 1246 1079 1135 1082 721 810 685 368 938 937 542 560 818 436 755 524 0 250 500 750 1000 1250 1500 1750 2000 2250

Cattle
Cows + Heifers
Slaughtered
<table>
<thead>
<tr>
<th>Basic National Indicator (<a href="http://www.stat.gov.rs">www.stat.gov.rs</a>)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007</td>
</tr>
<tr>
<td><strong>GDP (Gross Domestic Product) – Agricultural sector (mil €)</strong></td>
<td></td>
</tr>
<tr>
<td>2007: 2,380.3 (8.36% of GDP)</td>
<td>2,845.5 (8.71% of GDP)</td>
</tr>
<tr>
<td><strong>GDP – Total national economy (mil €)</strong></td>
<td></td>
</tr>
<tr>
<td>2007: 28,467.9</td>
<td>32,668.2</td>
</tr>
<tr>
<td><strong>Gross output milk production in % of Gross Agricultural Output (GAO)</strong></td>
<td></td>
</tr>
<tr>
<td>2007: 15.00</td>
<td>15.69</td>
</tr>
<tr>
<td><strong>Gross output beef production in % of GAO</strong></td>
<td></td>
</tr>
<tr>
<td>2007: 12.15</td>
<td>11.44</td>
</tr>
</tbody>
</table>
• In Serbian agricultural production 70% comes from plant and 30% from livestock production;

• Within livestock production, the share of cattle sectors is about 43%;

• The share of cow’s milk in the total value of livestock production is 25%, while share of beef production is 17.6%.
SURVEY RESEARCH (1)

- In order to have a more precise description of cattle/dairy farm systems in Serbia, a survey was directed at a select group of farmers;

- 1180 questionnaires have been mailed to farmers whose farms are registered for cattle, sheep, goat or mixed production.

- All the addresses to which the questionnaires were sent were obtained from the Ministry of Agriculture and from the Agricultural Extension Service;

- By sample, based on random choice of farms within statistical regions, the whole territory of Serbia was covered, except for the region of Kosovo and Metohia.
SURVEY RESEARCH (2)

• Questionnaire was divided into 6 sections:
  1. General information about farm & farmer
     • Year of birth, education, additional sources of incomes etc.
  2. Technical and structural information,
     • Farm tenure, farm size, number of animals etc.
  3. Education and advisory services,
  4. Perspectives for future activities,
     • Benefits of EU membership, way to expand production etc.
  5. Sanitary, veterinary and zoo-technical aspects
     • Production parameters, husbandry management, feeding management, reproduction etc.
SURVEY RESEARCH (3)

- Of a total of **1180 questionnaires**, **209 responses** were received;
- After basic data filtering and manipulating, a **total of 153 questionnaires** were analysed.
**Main Findings from Survey (1)**

**Farm Tenure and Farm Size – Owned Agricultural Area**

- 95% of farms are *privately owned*, while 5% are cooperatives or (still) state owned;
- According to [Census from 2001](#), the average farm size in Serbia is about 3.2 ha;

<table>
<thead>
<tr>
<th>Share in %</th>
<th>Number of owned ha from survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>&lt;=20 (Small size farms)</td>
</tr>
<tr>
<td>9</td>
<td>20-50 (Medium size farms)</td>
</tr>
<tr>
<td>5</td>
<td>50-100 (Large size farms)</td>
</tr>
<tr>
<td>3</td>
<td>&gt;100 (extra Large size farms)</td>
</tr>
<tr>
<td>7</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
FARM SIZE – TOTAL UTILIZED AGRICULTURAL AREA

- From this survey, cattle farms are larger than average farm;
- The average total farm size is about 18ha (total size is consisting of owned and rented land);
MAIN FINDINGS FROM SURVEY (3)

Cattle Farm Size

- **50-100 ha, Large farms;** average 66.4 ha
- **20-50 ha, Medium farms;** average 29.8 ha
- **<20 ha, Small farms;** average 10.15 ha
- **8.5 >100 ha, eXtra Large farms;** average 131 ha

Legend: 59.0, 20.0, 6.5, 8.5
Distribution of farm size within NUTS1

Farm size

Total share

Serbia North
Serbia South

Small
59.48%
5.23%

Medium
15.03%

Large
3.92%

XLarge
7.19%
4.31%
### NUMBER OF CATTLE AT FARM

<table>
<thead>
<tr>
<th>Share in %</th>
<th>Number of cows and heifers at farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>&lt;15; average 6.3 heads</td>
</tr>
<tr>
<td>15</td>
<td>15-30; average 22 heads</td>
</tr>
<tr>
<td>5</td>
<td>30-100; average 55 heads</td>
</tr>
<tr>
<td>8</td>
<td>&gt;100; average 220 heads</td>
</tr>
<tr>
<td>17</td>
<td>Unknown number of cows and heifers</td>
</tr>
</tbody>
</table>
Cattle breeds distribution in Serbia

- 73% Simmental
- 13% Holstein
- 7% Both breeds
- 4% Local and beef breeds
- 3% Unknown
MAIN FINDINGS FROM SURVEY (7)

Distribution of cattle breeds within NUTS1

- **Sim**: 60.00%
- **HF**: 50.00%
- **Sim X HF**: 30.00%
- **Local & Beef**: 25.00%
- **Sim, HF**: 20.00%
- **Serbia North**: 15.00%
- **Serbia South**: 10.00%
- **Sim, HF**: 5.00%

Breed categories: Sim, HF, Sim X HF, Local & Beef, Sim, HF.
MAIN FINDINGS FROM SURVEY (8)

SOURCE OF FARM INCOME

• For 75% of farmers the agriculture is the only source of income;

• 25% of farmers have some other sources of income (mainly trade or agricultural services);
LEVEL OF FARM SPECIALIZATION

• Level of cattle farm specialization:

1. **Mixed farm**: up to 50% of total income from dairy/beef production,

2. **Medium specialized cattle farms**: 50-70% of total income from dairy/beef production,

3. **Specialized cattle farms**: 70-85% of total income from dairy/beef production,

4. **Highly specialized cattle farms**: more than 85% of total income from dairy/beef production
MAIN FINDINGS FROM SURVEY (10)

Share of farms in relation to level of specialization

- Highly specialized cattle farms, 37%
- Specialized cattle farms, 16.9%
- Medium specialized cattle farms, 17.6%
- Mixed farms, 37%
Farm level specialization within NUTS1

<table>
<thead>
<tr>
<th>Level of specialization</th>
<th>Serbia North</th>
<th>Serbia South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>35.00%</td>
<td></td>
</tr>
<tr>
<td>Medium spec.</td>
<td>25.00%</td>
<td>20.00%</td>
</tr>
<tr>
<td>Specialized</td>
<td>15.00%</td>
<td>10.00%</td>
</tr>
<tr>
<td>Highly spec.</td>
<td>5.00%</td>
<td>5.00%</td>
</tr>
</tbody>
</table>

Total share
LEVEL OF FARM SPECIALIZATION

• For 2/3 of all specialized farm, cattle production is main source of farm income:
  • average share of milk production in total farm income is about 58%,
  • average share of beef production in total farm income is about 39%.

• For mixed farm:
  • average share of milk production in total farm income is about 22%,
  • average share of beef production in total farm income is about 23%.
BASIC ZOOTECNICAL DATA

• Age at first conception: 15-16 months;
• Age at first calving: 24-25 months;
• Age at last calving: HF 8 years, Sim 9 years;
• Weaning age: 2.5 months;
• 92% of farmers prepare their own animal feed (at least partially), while 55% purchased ready-made animal feed from feed manufacturers;
BASIC ZOO TECHNICAL DATA

• Average milk production/cow/year in kg in controlled herds:
  - HF: ≈ 7800 kg, 3.55% fat content;
  - Sim: ≈ 4600 kg, 3.94% fat content;

• Average SCC: ≈ 310,000

• Average milk purchase price in Eur/100kg at farm gate (without subsides): 24.19 €
PROSPECTS FOR FUTURE SECTOR DEVELOPMENT (1)

FARMERS’ PERSPECTIVE / RESOURCE AVAILABILITY

• About **149,000 farms** are more or less involved in dairy production;

• For future sector development very important are:
  - the age of owner,
  - contact with Agricultural Extension Services,
  - willingness for applying new technological solutions,
  - Ministry support,
  - availability of bank credits or other financial sources.
FARMERS’ PERSPECTIVE / RESOURCE AVAILABILITY

• About 71% of farmers have regular contact with Agricultural Extension Service, while 23% of farmers have “time-to-time” contact;

• 75% of farmers have expressed a positive expectation from the future membership of Serbia in EU, although these expectations are not clearly defined;

• Over 86% farmers intend to expand or improve cattle production in the short term, while about 6.5% had no such intention;
FARMERS’ PERSPECTIVE / RESOURCE AVAILABILITY

• The **farmers ways** for the improvement of production:
  - increase in the number of animals / increase of the farm capacities,
  - adaptation of farm facilities and improvement in the conditions of nutrition, housing and care,
  - animals genetic improvement,
  - more favourable bank credit terms and regulation of the situation on the market;
### SWOT ANALYSIS

<table>
<thead>
<tr>
<th>Farm Strengths</th>
<th>Farm Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Family business,</td>
<td>- No cooperative action between farmers,</td>
</tr>
<tr>
<td>- Good natural conditions,</td>
<td>- Not enough high level of specialisation,</td>
</tr>
<tr>
<td>- Tradition in dairy farming,</td>
<td>- Low yield and low milk quality level,</td>
</tr>
<tr>
<td>- Fast growing middle-sized family cattle/dairy farms,</td>
<td>- Obsolete buildings, mechanisation and milking technology.</td>
</tr>
<tr>
<td>- Dairy farm companies with specialised production.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Farm Opportunities</th>
<th>Farm Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>- National (from Ministry) &amp; EU grants,</td>
<td>- EU requirements,</td>
</tr>
<tr>
<td>- Future EU subsidies,</td>
<td>- Further input price increases,</td>
</tr>
<tr>
<td>- Dairy development projects and investments in dairy sector,</td>
<td>- Labour migration,</td>
</tr>
<tr>
<td>- Infrastructure development in rural areas.</td>
<td>- Climate change.</td>
</tr>
</tbody>
</table>
HOW DO FARMS NEED TO CHANGE (1)

• **Become bigger:**
  - implies more effective cattle farms.

• **Increase yields:**
  - implies changes in genetic value, breed structure, feeding, calving index & overall management.

• **Increase milk and gain production per kg concentrate:**
  - implies improvement in forage management & better ration formulation as well as better feed conversion.
HOW DO FARMS NEED TO CHANGE (2)

- **Improve hygiene:**
  - implies not just housing & hygiene, but also health care, welfare, milking conditions, cooling.

- **Improve environment:**
  - implies more effective management and utilisation of manure and silage effluent.
• **What investments are needed:**
  - More cattle of appropriate genetic value / potential;
  - Bigger and better buildings & equipment for cattle, milking and milk storage;
  - Better farm, forage & feeding machinery;
  - Better storage for manure & silage.
• What training & advice is needed:
  - Feeding & nutrition,
  - Forage production & conservation,
  - Genetic improvement,
  - Fertility management,
  - Milk hygiene,
  - Management & marketing.