Research Regarding Milk Quality Parameters Obtained in Eight Farms from Alba County

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Abstract
The aim of this investigation was to determine the milk quality in terms of somatic cell count (SCC) and total germ number (TGN) obtained in eight farms from Alba County. The milk for evaluating quality was monthly harvested in sterile tubes and was examined at the Foundation for milk quality control. Average value per farm of somatic cell count (SCC), the lowest values were on the farm SC Vitis Augusta SRL with 114670 SCC/ml, and the highest average values were recorded on the farm SC Zooagro SRL with 277330 SCC/ml. Average values per farm of the total germs number (TGN), the lowest values occurred in SC Biotera SRL with 15.83 x1000 germs/ml and SC Vitis Augusta SRL with 17.25 x1000 of germs/ml farms, and the highest average values were recorded in the farms of PFA Munteanu Cornel with 77.75 x1000 germs/ml and SC Zooagro SRL with 93.33 x1000 germs/ml.

Keywords: milk quality, somatic cells, total germs number.

1. Introduction
Milk's quality is influenced by a number of factors which are related to the animal's potential, to the maintenance conditions and also the ensured hygiene during and after milking [1]. Determination of somatic cell count and total germ number gives the possibility for the farmers to monitor and evaluate the udder health. The number of somatic cells from milk, indicates to the farmer the cow's udder health [2] and the total number of germs gives indications about how cows are milked [3] and especially how are cared the milking instruments from the hygienic point of view and also at what temperature the milk is stored after milking.

2. Materials and methods
The milk for evaluating quality was monthly harvested in sterile tubes (around 25ml), from September 2007 until August 2008 and the samples were examined also at the Foundation for milk quality control but also at the processing units. So there were harvested 96 samples from the milk tank from the following 8 farms: SC Stazoo SRL, PFA Scheau Cristina, SC Zooagro SRL, PFA Munteanu Cornel, SC Goldenprod Impex SRL, SC Biotera SRL, SC Vitisaugusta SRL, PFA Moldovan Ioan.

In these farms milking is done both on the drum stand provided with transport facility of milk and cooling and collecting tank, as well as in milking rooms equipped with transport installation of milk as follows:
- SC Stazoo SRL - milking parlor, small fir type 2x8 places, milking 2 times a day;
- PFA Scheau Cristina - milking parlor, 1x4 places, milking 2 times a day;
- SC Zooagro SRL - 2x2 milking stand, milking 2 times a day;

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- PFA Munteanu Cornel - drum, milking 2 times a day;
- SC Goldenprod Impex SRL - milking parlour, small fir type 2x8, milking 2 times a day;
- SC Biotera SRL - parallel milking parlour 2x12 places, milking 3 times a day;
- SC Vitis Augusta SRL - milking parlour, small fir type 2x6 places, milking 2 times a day;
- PFA Moldovan Ioan - drum, milking 2 times a day.

3. Results and discussion

Assessing milk quality based on the determination of the total number of germ and number of somatic cells was found pretty good values for these indicators, as follows:

Average values per farm of the total germs number (TGN), the lowest values occurred in SC Biotera SRL with 15.83 x1000 germs/ml and SC Vitis Augusta SRL with 17.25 x1000 of germs/ml farms, and the highest average values were recorded in the farms of PFA Munteanu Cornel with 77.75 x1000 germs/ml and SC Zooagro SRL with 93.33 x1000 germs/ml.

Average value per farm of somatic cell count (SCC), the lowest values were on the farm SC Vitis Augusta SRL with 114670 SCC/ml, and the highest average values were recorded on the farm SC Zooagro SRL with 277330 SCC/ml.

<table>
<thead>
<tr>
<th>Farms</th>
<th>Milk sample</th>
<th>Protein (g/100g)</th>
<th>Fat (g/100g)</th>
<th>Lactose (g/100g)</th>
<th>TGN/ml x1000</th>
<th>SCC/ml x1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC.Stazoo SRL</td>
<td>12</td>
<td>3.21±0.05</td>
<td>4.08±0.05</td>
<td>4.67±0.03</td>
<td>36.58±3.11</td>
<td>237.08±35.92</td>
</tr>
<tr>
<td>P.F.A Scheau Cristina</td>
<td>12</td>
<td>3.23±0.03</td>
<td>3.98±0.04</td>
<td>4.67±0.03</td>
<td>36.58±3.11</td>
<td>245.42±33.61</td>
</tr>
<tr>
<td>S.C Zooagro SRL</td>
<td>12</td>
<td>3.22±0.03</td>
<td>3.93±0.04</td>
<td>4.46±0.04</td>
<td>93.33±12.01</td>
<td>277.33±30.72</td>
</tr>
<tr>
<td>P.F.A Munteanu Cornel</td>
<td>12</td>
<td>3.16±0.03</td>
<td>3.59±0.02</td>
<td>4.61±0.03</td>
<td>77.75±2.04</td>
<td>256.42±31.24</td>
</tr>
<tr>
<td>S.C Goldenprod Impex SRL</td>
<td>12</td>
<td>3.44±0.08</td>
<td>3.89±0.14</td>
<td>4.54±0.07</td>
<td>21.67±6.56</td>
<td>160.92±41.67</td>
</tr>
<tr>
<td>S.C. Biotera SRL</td>
<td>12</td>
<td>3.45±0.08</td>
<td>3.90±0.15</td>
<td>4.54±0.07</td>
<td>15.83±2.69</td>
<td>134.92±28.08</td>
</tr>
<tr>
<td>S.C Vitis Augusta SRL</td>
<td>12</td>
<td>3.41±0.03</td>
<td>4.38±0.06</td>
<td>4.54±0.07</td>
<td>17.25±3.09</td>
<td>114.67±12.64</td>
</tr>
<tr>
<td>P.F.A Moldovan Ioan</td>
<td>12</td>
<td>3.34±0.05</td>
<td>3.60±017</td>
<td>4.65±0.04</td>
<td>43.50±8.39</td>
<td>197.33±28.37</td>
</tr>
</tbody>
</table>

**Figure 1.** Dynamics of somatic cells count (SCC), per month, within 4 of the studied farms.
Figure 2. Dynamics of somatic cells count (SCC), per month, within 4 of the studied farms

Figure 3. Dynamics of total germ number (TGN), per month, within 4 of the studied farms

Figure 4. Dynamics of total germ number (TGN), per month, within 4 of the studied farms
4. Conclusions

The cattle population studied contains nucleus with an elevated genetic value, result of the applied exploitation technologies, of a balanced management given the socio-economical conditions from the country, population which can be exploited for the milk production in the maintenance conditions from Alba County and our country, in the case of Romanian Black spotted breeding and for the mixed production in the case of Romanian spotted breeding.

Synthesizing the results of the research conducted on the cattle population from the studied farms we can conclude that these are well adapted at the environment conditions specific to the region and if conditions of exploitation and management closed to the ones adequate are provided, the milk cows can respond through productive performances closed to the actual genetic potential. After the analysis of the results obtained and debated during the research, we came to the conclusion that, overall, the milk which comes from the studied farms, corresponds to the standards of the EU regarding the TGN ($\leq 100,000$/ml), the average per farms being from 15,83x1000 germs/ml in the farm S.C. Biotera SRL to 93,33x1000 germs/ml S.C. Zooagro SRL. The lowest average values per farm from the somatic cells count (SCC) were registered in the farm S.C. Vitis Augusta SRL 114 670 SCC /ml, and the highest average values were registered in the farm S.C. Zooagro SRL 277 330 SCC /ml;

References

1. Onaciu, G., Researches concerning the dynamics qualitative index of milk production to a population of cattle breeded in three farms. Journal Lucrari Stiintifice - seria Zootehnie, Iasi, 2010