Session 7
The influence of the genotype on the quantitative traits of bovine semen
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Statistics of cattle breeding in Lithuania (January 1, 2008)

- **Registered breeds**
  - Black-and-white – 9
  - Red – 7
  - Other dairy – 7
  - Beef – 16
  - Aborigen – 4
- **Overall cattle** – 407.5 thousand
- **Controlled** – 193.9 thousand
- **Pure breed beef cattle** – 6932 in 213 farms
Material and Methods

Farm – joint-stock company "Marijampolės regiono veislininkystė"

Equipment for sperm freezing – a metal perforated shield fitted in the biostorage

Form of semen package – polypropilene straw 0.25 cm³ (Ø2.0x0.25x100 mm)
## Extender composition used for bull’s semen freezing

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redistilled water, cm³</td>
<td>100</td>
</tr>
<tr>
<td>Lactose, g</td>
<td>11.5</td>
</tr>
<tr>
<td>Egg yolk, cm³</td>
<td>20</td>
</tr>
<tr>
<td>Glycerol, cm³</td>
<td>5</td>
</tr>
<tr>
<td>Penicillin a.u./100 cm³</td>
<td>50000</td>
</tr>
</tbody>
</table>
Average ejaculate volumes of different breeds

Month

cm³

1 2 3 4 5 6 7 8 9 10 11 12

Holstein  Limousin  Salers x Aberdeen Angus  Simmental  Charollais
Average sperm motility in fresh semen (both ejaculates)

![Bar chart showing motility percentages for different breeds.]

- Holstein: 68.0%
- Limousin: 66.0%
- Salers x Aberdeen Angus: 58.0%
- Simmenthal: 70.0%
- Charollais: 72.0%
Average concentration of spermatozoa in fresh semen from different bovine breeds

- Limousin
- Salers x Aberdeen Angus
- Simmental
- Charollais
- Holstein

Ejaculate 1
Ejaculate 2
The main fresh bull’s semen minimal requirements (LST 1647)

- Ejaculation volume – no less than 1.5 cm³
- Density – not lower than 0.8 milliard/cm³
- Sperm motility – not lower than 70%
Average semen dilution rates for different breeds

- Holstein
- Limousin
- Salers x Aberdeen Angus
- Simmental
- Charollais
Average volumes of diluted semen

![Graph showing average volumes of diluted semen for different breeds. The breeds included are Holstein, Limousin, Salers x Aberdeen Angus, Simmental, and Charolais. The volumes are measured in cm³. Holstein has the lowest volume, while Simmental has the highest.]
Conclusions

Both the genotype non season have any influence on the main quality indicators of fresh and frozen semen from beef and dairy bulls provided the conditions of feeding and housing are adequate.

Charolais bulls had the highest average ejaculate volume (7.97 cm³) and the lowest sperm concentration in fresh semen (1.24 ×10⁹ cm³). Simmental bulls had the ejaculate volume (5.57 cm³) similar with average of all beef bulls (5.59 cm³), but the sperm concentration (1.39 ×10⁹ cm³) in fresh semen was highest.

Limousin bulls had the highest post-thaw sperm motility (40.9%). The lowest sperm survival rate was determined for Charolais bulls, but all the differences were insignificant.

The highest amount of rejected non-diluted semen was that of Salers x Aberdeen Angus bulls. Feeding, housing and semen collection conditions are very important for the semen quality of these bulls.