The role of BCS evolution across milking period on milk production traits in low-input dairy goats

Siachos N.¹, Valergakis G.E.¹, Giannakou R.¹, Squires C.¹, Gelasakis A.I.² Arsenos G.¹
¹Laboratory of Animal Husbandry, Veterinary Faculty, Aristotle University, Greece
²Veterinary Research Institute, ELGO-Demeter, Thermi, Greece

OBJECTIVE: To assess the role of body condition score (BCS) and its evolution patterns across the milking period on milk traits in low-input dairy goat farms

MATERIALS AND METHODS
- 7 low-input farms & 3 different breeds (Skopelos, Eghoria Greek & Damascus)
- 4,890 records from 644 dairy goats (298 of them for 2 successive lactations)
  - Monthly measurements of BCS, milk yields & gross chemical milk composition during a 5-month milking period
  - Total milk yield (MY), fat yield (FY) & protein yield (PY) calculated according to ICAR recommendations
- Two-step cluster analysis → establish BCS patterns
  - Resulting clusters grouped in major clusters based on BCS at weaning & its changes thereafter
- General linear models → relationship of BCS clustering with the studied milk traits adjusted for breed effect
- Kruskal-Wallis test → comparisons of milk traits among clusters

RESULTS
- 4 major clusters were identified
- BCS clustering was associated (P<0.05) with
  ln-transformed MY ($R^2=0.108$), FY ($R^2=0.094$) & PY ($R^2=0.137$)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>n</th>
<th>BCS evolution pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>117</td>
<td>low BCS (ca. 2.0) across milking period</td>
</tr>
<tr>
<td>C2</td>
<td>351</td>
<td>increasing from a low BCS (ca. 2.0)</td>
</tr>
<tr>
<td>C3</td>
<td>198</td>
<td>medium BCS (ca. 2.5) across milking period</td>
</tr>
<tr>
<td>C4</td>
<td>276</td>
<td>increasing from a medium BCS (ca. 2.5)</td>
</tr>
</tbody>
</table>

**CONCLUSION**
- Goats with BCS of 2.5 at weaning and in positive or even neutral energy balance thereafter, significantly outperformed those with BCS of 2.0 at weaning regarding total MY, FY & PY
- Management should focus on limiting BCS loss pre-weaning

The work was funded by the SOLID project (FP7-266367)

EAAP 69th Annual Meeting, August 27th - 31st, Dubrovnik 2018