Effects of the novel concept ‘outdoor veal calf’ on antimicrobial use, daily weight gain and mortality in Switzerland

J. Becker¹, V. Perreten², G. Schüpbach-Regula³, A. Steiner¹, M. Meylan¹

¹Clinic for Ruminants, ²Institute of Veterinary Bacteriology, ³Veterinary Public Health Institut; Vetsuisse Faculty, University of Bern, Bern, Switzerland
Where does veal come from?
Where does veal come from?

• Bovine calves slaughtered at ~5 months
• CH: ~30% of orally administered antibiotics to veal calves (ARCH-Vet, 2014; Proviande, 2015)
• Main reason for treatment is pneumonia
• Treatment incidence $21 \pm 15$ resp. $12.5$ days/calf-year (Lava et al., 2016a,b; Schnyder et al., 2019)
Background: Risk factor analysis  
Lava et al., 2016 a,b

- Purchase
- No clinical examination at arrival
- No quarantine
- No vaccination
- Groups >10 calves
- Weight differences >50kg within pen
- Shared air space
19 intervention farms
‘Outdoor veal calf’ system

Observation period 1 year
Comparison of performance data

19 control farms
IP-Suisse label guidelines

AACTING, 02.07.2019
Intervention farm example

1. Direct purchase
2. Quarantine
3. Outdoor fattening
Intervention farm example

1. Direct purchase
2. Quarantine
3. Outdoor fattening
Intervention farm example
## Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Intervention group</th>
<th>Control group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean treatment incidence [days/calf-year]</td>
<td>5.90 ± 6.53</td>
<td>31.50 ± 27.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Treated animals [%]</td>
<td>15.10 ± 11.54</td>
<td>56.00 ± 24.33</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Mean number of treatments per treated animal</td>
<td>1.66 ± 0.59</td>
<td>2.43 ± 0.86</td>
<td>0.004</td>
</tr>
<tr>
<td>Mean mortality [%]</td>
<td>3.07 ± 2.34</td>
<td>6.29 ± 4.93</td>
<td>0.02</td>
</tr>
<tr>
<td>Mean daily weight gain [kg/day]</td>
<td>1.29 ± 0.17</td>
<td>1.35 ± 0.16</td>
<td>0.24</td>
</tr>
</tbody>
</table>
Susceptibility testing (of *E. coli* and *Pasteurellaceae*)

- Isolation of bacteria of the respiratory tract and indicator bacteria of the guts

  • 7012 samples were taken (isolation of 3551 *E. coli* and 2282 *Pasteurellaceae*)
  • Minimal inhibitory concentration susceptibility testing is ongoing

**Start:** nasopharyngeal and rectal swabbing

**Fattening period**

**End:** nasopharyngeal and rectal swabbing

AACTING, 02.07.2019
Limitations

- No random assignment of participating farmers to groups
- Farmers in ‘outdoor veal calf’ group may be innovative
- For outdoor hutches, sufficient surface is needed
Conclusions

- Drastic reduction of treatment incidence and mortality
- No difference in daily weight gain
- Implementation according to principles of risk reduction
- In toto- or adapted use of concept (in case of local restraints)
Funding Institutions and Organizations

- Swiss National Foundation
  - National Research Program 72
- Swiss Confederation
  - Federal Institute of Agriculture
- Swiss Confederation
  - Research Station Agroscope-Tänikon, Canton of Thurgau
- Migros
  - Swiss Retailer
- IP Suisse
  - Production and Sales Organization of Agricultural Goods
- University of Bern
  - Vetsuisse Faculty, Clinic for Ruminants Bern