Socio-economic changes and their effects on agro-pastoral goat husbandry systems in semi-arid, sub-tropical mountain regions

Uta Dickhoefer and Eva Schlecht
Animal Husbandry in the Tropics and Subtropics, University of Kassel and Georg-August-University of Goettingen / Germany

Introduction
In Oman’s mountain regions, lifestyles and infrastructure in rural communities are rapidly modernizing, which profoundly changes the local goat husbandry system. Aim of this study was therefore to analyse the effects of recent socio-economic changes on the traditional goat husbandry, farmers’ pasture management practices.

Materials and methods

- Semi-quantitative interviews were conducted with one adult of all goat-keeping households (HH) in three villages of the central Al-Jabal-al-Akhdar region (57°40’E, 23°02’N, 1000-2000 m a.s.l., n=28) in autumn 2006.
- HH composition, goat herd sizes, and labour input into goat husbandry were quantified.
- Size and stocking rates of village pastures were determined in 10 map-based key informant interviews.
- In September 2007, herbaceous ground cover and dry mass (DM) were estimated in 10x10m² plots along transects at grazed (n=14) and ungrazed (n=11) plateau sites.

Results and discussion

Table 1. Herd sizes of goat-keeping households (HH) and sizes and stocking rates of village pastures of three oasis villages.

<table>
<thead>
<tr>
<th>Village</th>
<th>HH members</th>
<th>Goats</th>
<th>Herd sizes</th>
<th>Village pasture</th>
<th>Stocking rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total (n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ash</td>
<td>12</td>
<td>10</td>
<td>10.6±5.7</td>
<td>74</td>
<td>6.4±3.2</td>
</tr>
<tr>
<td>Sharayjah</td>
<td>10</td>
<td>6</td>
<td>18.3±6.8</td>
<td>126</td>
<td>21.0±22.7</td>
</tr>
<tr>
<td>Masayrat ar</td>
<td>16</td>
<td>12</td>
<td>10.5±5.2</td>
<td>306</td>
<td>25.5±15.6</td>
</tr>
<tr>
<td>Ruwajah</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SD standard deviation

- At least one person obtained a non-farm income in every HH, but only ten of the goat-keeping HH regularly sell animals despite the high prices for live goats on local markets.
- The feeding, milking, and cleaning of the stables, the harvest of fodder and the collection of tree leaves in the mountains daily require 13±8.3 min goat⁻¹.
- Livestock herding required ≥8 h d⁻¹ (n=14). Since family labour force is largely withdrawn from agriculture, farmers increasingly abandon this practice, leading to locally very high grazing pressure.

Conclusions
Recent modernization processes in Oman’s mountain communities have profoundly altered traditional goat husbandry, leading to a year-round grazing of the shrinking pasture areas. The abandonment of livestock herding due to labour shortage and of the traditional coordination of pasture use among villages amplify the degradation of the natural vegetation and therefore threaten the future of the agro-pastoral goat husbandry.

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