Breeding dairy goats for organic farming – sustainable and animal-friendly

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Agenda

- Background
- Breeding value estimation for lifetime performance
- Breeding for health and robustness
- Advice and further training
- Outlook
Background

• Bavaria and Baden-Wuerttemberg: >80% of dairy goat farms are organic
  (Manek et al., 2017)
  – e.g. in Baden-Wuerttemberg approx. 50 farms with approx. 5,000 goats
    (Kern, 2019)
• Herds of 80 – 500 dairy goats
• Goat breeding structures in Germany are significantly little developed
  – mainly natural mating
  – different types of performance testing and breeding programs
  – no exchange between database systems
Define breeding goal, establish performance testing

High milk yield with high fat and protein content and good robustness, especially in pasture based systems

→ Derive appropriate traits for milk lifetime performance as well as health and robustness
→ First studies in GoOrganic project (2016 – 2022)
→ Continuation in HealthyGoat project (since 2021)
Breeding for lifetime performance
Possible traits to define lifetime performance

- 1st lactation
- 2nd lactation
- xth lactation

- 1st kidding
- 2nd kidding
- xth kidding

- Birth
- Exit

- Length of productive life
- Number of lactations

- Milk yield efficiency
  - Milk yield / milking day

- Lifetime milk production
  - Milk yield in life

- Lifetime efficiency
  - Milk yield / days of life

Source: Herold et al., 2019
Increasing continuous milking

Dairy goats are milked up to two years without kidding in-between (Moog et al. 2012).

Lactations curves German Fawn and German Whites (1988-2016)

Source: Herold et al., 2019
Goal: Breeding value for lifetime performance

Heritabilities on the diagonal, genetic correlations across the diagonal, (standard error)

<table>
<thead>
<tr>
<th></th>
<th>Length of productive life (days)</th>
<th>Lifetime efficiency (milk-kg/day in life)</th>
<th>Milk yield efficiency (milk-kg/milking day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of productive life</td>
<td>0,24 (0,02)</td>
<td>0,71 (0,05)</td>
<td>0,32 (0,06)</td>
</tr>
<tr>
<td>Lifetime efficiency</td>
<td></td>
<td>0,31 (0,02)</td>
<td>0,76 (0,04)</td>
</tr>
<tr>
<td>Milk yield efficiency</td>
<td></td>
<td></td>
<td>0,18 (0,03)</td>
</tr>
</tbody>
</table>

Source: Herold et al., 2019

→ taking into account continuous milking and auxiliary traits
Breeding for health and robustness
Breeding for health and robustness

→ implement a health and robustness monitoring system – GMON goat

• Developed for kids, goats and bucks
• Central animal health key for dairy goats
  → simplified diagnoses key implemented in data bases ZDV and serv.it OVICAP
• GMON goat is based solely on the observations of goat farmers and not on diagnoses by veterinarians
• By the end of 2023, 716 observations from 11 farms had been entered in Baden-Württemberg and 6,471 observations from 49 farms in Bavaria
• GMON goat is important information for farmers for herd management and animal selection
Advice and further training
Advice and further training

**Goal**: actively involve breeders and goat keepers in the breeding program → *Animal breeding in farmers' hands*

→ Feedback and evaluations in the herd manager
→ Stable schools / working groups
  – regional
  – online
→ Breeding location decision
→ On-Farm-learning modules
→ Farminars
→ …
Stable schools

Regional working groups

• on-site meetings at participating farms
• approx. 4 hours

Online working groups

• Online meetings
• approx. 2 hours

• fixed group of participants
• permanent moderator
• „rules of the game“
• hosting farm determines the topic

Sharing experiences with colleagues is the best further training

The group knows more!
Ausblick

• Goat farming in Bavaria and Baden-Württemberg is a small but growing niche
• Work of the breeding value estimation team and the various goat breeding projects support goat farmers in Bavaria as well as in Baden-Württemberg and Thuringia
• goat farmers also benefit from performance testing organization services in the areas of milk performance testing and LKV goat herd manager

→ Goat breeding well positioned for the future

→ Genetic gain in the sense of sustainable and animal-friendly breeding is possible
Note of thanks

Questions?

www.goorganic-ziege.de
www.gesundeziegen.de
Literatur