

Georg-August-University Goettingen

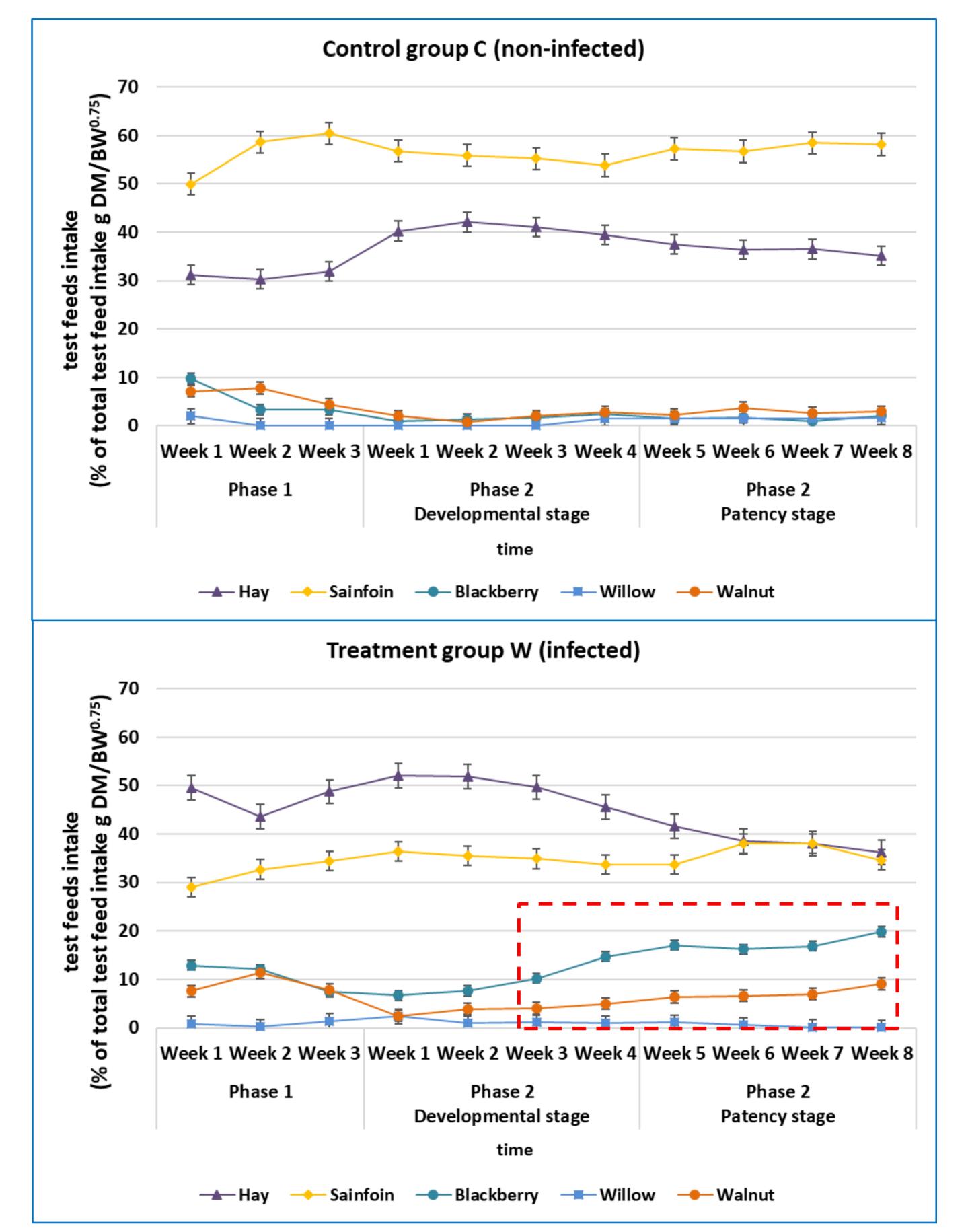
Selfmedicative Behaviour in Gastrointestinal Parasite Infected Goats: Shift in Preferences for Tanniferous Fodder Plants

M. Heuduck¹, C. Strube², K. Raue², E. Schlecht¹, M. Gerken¹

¹ Georg-August-University Goettingen, Department of Animal Science, Germany
² University of Veterinary Medicine Hannover, Institute for Parasitology, Germany



- Gastrointestinal nematodes (GIN) are a worldwide major thread in ruminant livestock
- Resistance against conventional anthelmintics is common
- Condensed tannins (CT), plant secondary metabolites, show evidence of anthelmintic properties but also feature detrimental nutritional effects at higher dosage





University of Veterinary Medicine Hannover

Evidence of ,self-medicative behaviour' in goats when infected with GIN¹
 → Change in feed preferences when infected with GIN?

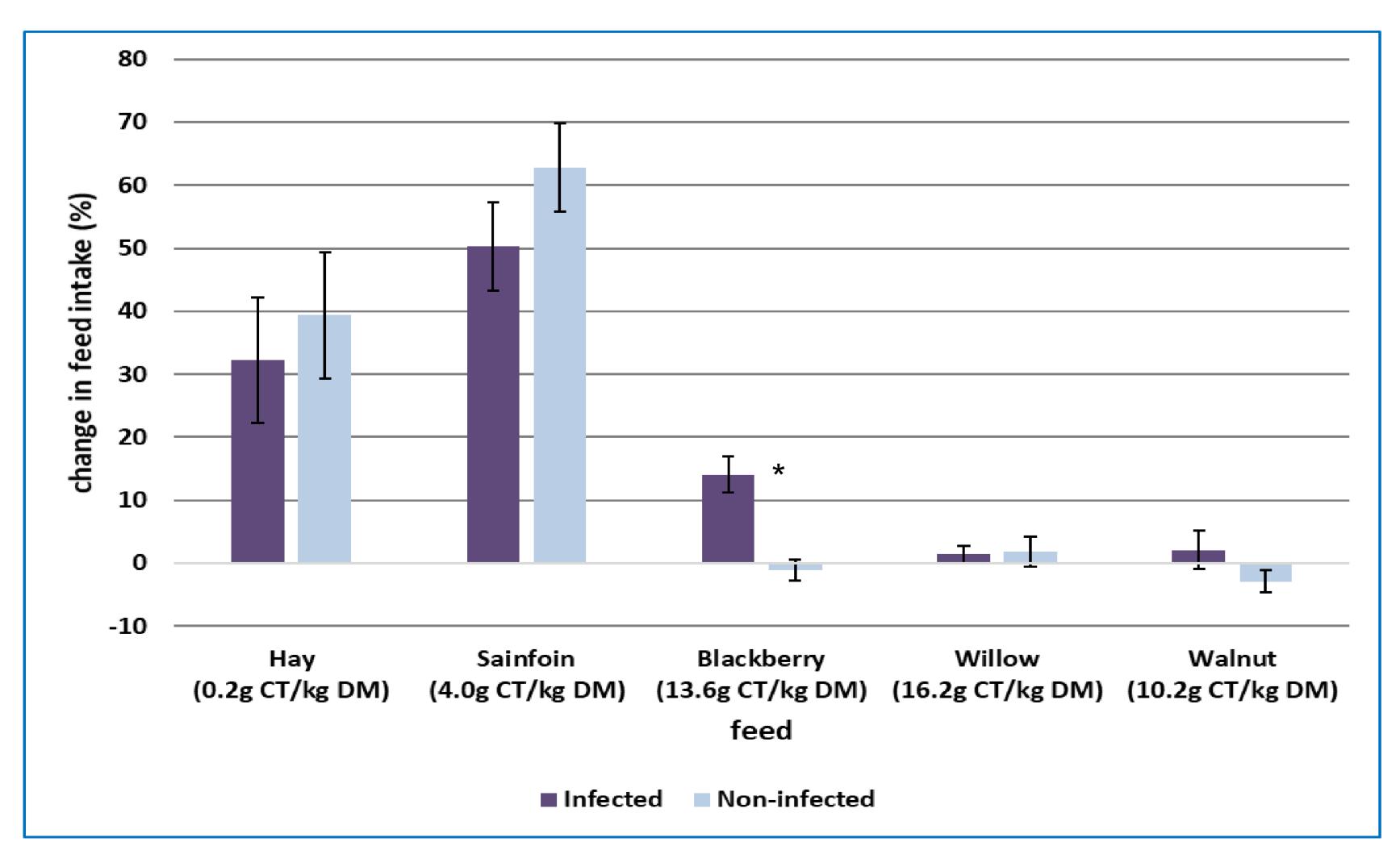
Animals, Materials & Methods

- Free choice cafeteria feeding trial for 12 weeks with 4 test feeds of varying tannin contents (pelleted leaves of sainfoin, walnut, blackberry, willow) and tannin-free hay pellets (Fig.1)
- 12 juvenile boar goats (3-4 months) in individual boxes
- 2 trial groups à 6 goats: 1. Treatment group W (infected/feeding trial)
 - 2. Control group C (non-infected/feeding trial)
- At the beginning, goats were free of GIN. After 4 weeks, group W was experimentally infected with third-stage GIN larvae
- Both groups were offered a free choice cafeteria trial for 30min per day prior to the usual daily feeding time
- Measurements: video surveillance, amount of ingested pellets, weekly analyzes of blood parameters, saliva composition and feces

Figure 3: Average proportional choice of test feeds as percentage [%] from total test feed intake [g DM/ BW^{0.75}] by experimental week and treatment group (means± SD)



Figure 1: Feeding trough with experimental pellets



Results

- Animals of infected group W showed a significantly higher proportional increase of blackberry pellet intake of 14 % after infection (Fig.2)
- Treatment group W shows an constant increase of proportional test feed intake of blackberry and walnut pellets 3-4 weeks post infection (Fig.3)

Conclusion & Outlook

- Infected goats showed clear evidence of a shift in preference for tannin-rich blackberry pellets in a choice trial after infection with nematodes
- Willow pellets with the highest CT-concentration might be rejected due to contained salicin content (→ salicylic acid)
- Further examination of saliva may help to explain the shift in preferences due to possible changes in saliva composition

Figure 2: Proportional change [%] of intake of test feed after infection

(* correlation is significant at the 0.05 level)

References: [1] Amit et al. (2013), Self-medication with tannin-rich browse in goats infected with gastro-intestinal nematodes. VetPar 198 (2013), 305-311. Contact: marvin.heuduck@uni-goettingen.de

The Tropentag 2021 September 15 – 17, 2021 Towards Shifting Paradigms in Agriculture for a Healthy and Sustainable Future

