

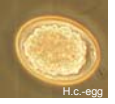
Protein balance of lambs infected with *Haemonchus contortus* and fed tanniniferous sainfoin (*Onobrychis viciifolia*)

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Introduction

Condensed tannins (CT) can reduce ruminal proteolysis without lowering nitrogen retention. They can also increase the amount of essential amino acids in the blood.

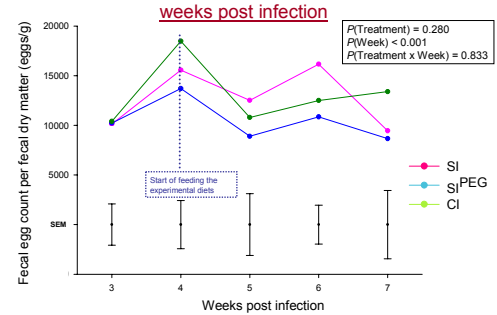
Lambs infected with gastrointestinal nematodes have a higher protein requirement.

CT as secondary plant compounds are known for their anthelmintic properties.

It is unclear, if these properties are a direct effect on the nematodes or related to the impact of CT on protein metabolism (resilience).

Haemonchus contortus is a blood sucking abomasal nematode which causes severe health and economic problems in sheep flocks.

Development of the excretion of nematode eggs starting 3 weeks post infection



Aim of study

Evaluation of the effect of a CT-plant (sainfoin) with known anthelmintic properties on the nitrogen balance of lambs artificially infected with *H. contortus*.

Animals, Material and Methods

Animals

24 (out of 36) ♀
Swiss White Alpine
lambs (n=6)
BW: 30.5 ± 2.2 kg

Content of dry matter (DM), crude
protein (CP) and CT in forages

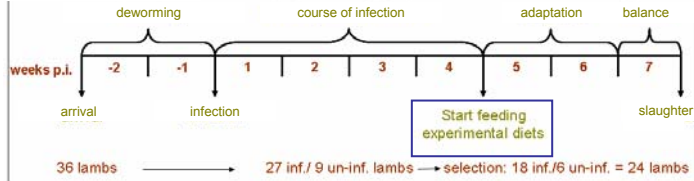
	DM g/kg fresh	CP g/kg DM	CT g/kg DM
Sainfoin	903	132	6
Grass-clover mixture	900	197	36

Diet

- 66 g organic matter/ kg metabolic body weight
- 20 g / d mineral mix
- SIPEG: 100 g / d PEG



Experimental cycle



PEG:
Polyethylene glycol
precipitates/neutralises
condensed tannins

Statistic: Contrasts

- CT-effect: SI vs. SIPEG
- Protein/Plant-effect: SIPEG vs. CI
- Infection-effect: CI vs. CU

Experimental treatments

	SI	SIPEG	CI	CU
Infection with <i>H. contortus</i>	yes	yes	yes	no
Forage	sainfoin	sainfoin	grass-clover	grass-clover

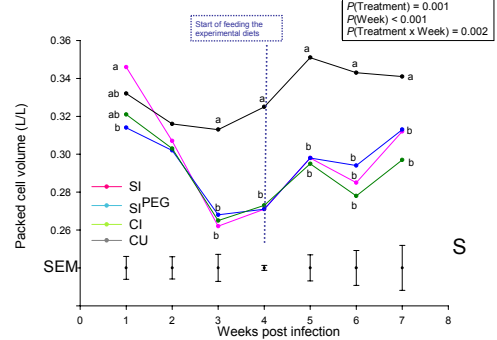
Parameters

Weekly determination of faecal egg count and packed cell volume.

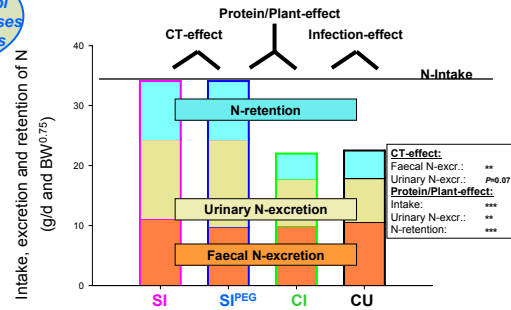
Determination of nitrogen balance in wk 7

Amino acid plasma-concentration were determined in blood samples drawn before and after the balance week (7. wk p.i.).

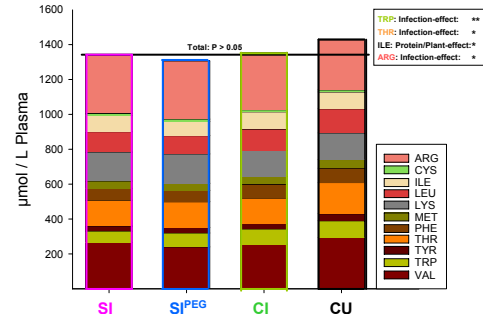
Development of the packed cell volume



Nitrogen (N) balance



Essential and semi-essential amino acids in plasma



Conclusion

Feeding sainfoin to reduce worm burden or to enforce resilience of sheep infected with *H. contortus* by improving supply with protein, either directly or via feeding CT, is not always sufficient.

However, it might be that the exertion of the effect needs a longer period of time of feeding a CT-rich plant or the CT-content of the fed sainfoin was too low.