Targeted and targeted selective treatment (TST) against gastrointestinal nematodes in goats: Evaluation of treatment criteria and assessment of epidemiologic and economic parameters

Gabriela Knubben-Schweizer1, Hubertus Hertzberg2, Marion Fasel3, Paul R. Torgerson4, Miriam Scheuerle5, Sarah Murri6 1Clinic for Ruminants with Ambulatory and Herd Health Services, LMU Munich, D-85764 Oberschleissheim, 2Institute of Parasitology, University of Zurich, CH-8057 Zurich, 3Extension and Health Service for Small Ruminants, CH-3360 Herzogenbuchsee, 4Section of Epidemiology, University of Zurich, CH-8057 Zurich, 5Comparative Tropical Medicine and Parasitology, LMU Munich, D-80802 Munich, 6Ambulatory Clinic and Herd Management Unit, University of Zurich, CH-8057 Zurich

Key words
Goats, Gastrointestinal Nematodes, Parasite control, Anthelmintic resistance, Targeted selective treatment

Aim of the study
The aim of the study was to define and assess a specific combination of TST criteria, which could be applied by the farmer and should enable the identification of individual animals that would benefit the most from an anthelmintic treatment in order to reduce the use of anthelmintics and preserve anthelmintic efficacy.

Material and methods
The assessment was done by implementing a decision support model (based on nutrition status, faecal consistency and FAMACHA®-score) on six goat farms and comparing it to a previously established, since several years ongoing parasite management strategy. All the farms were visited from April to October in either 2011 or 2012 by a veterinarian at monthly intervals. Every animal was individually examined by the farmer and the veterinarian. Animals requiring treatment were treated with levamisole or monepantel respectively. On one farm infection with GIN was permanently low and no anthelmintic treatments were necessary, so no further evaluation was done.
Furthermore, in 43 flocks in the canton of Bern, eprinomectin efficacy was evaluated.

Results and significance
On all five remaining farms the numbers of treated animals was reduced by implementing TST. No differences in general health status were noticed between the two groups. Additionally a good accordance was found comparing the key scores determined by the farmers with the veterinarian key scores, showing that the decision support model can be used by instructed farmers. Considering that control groups were managed with targeted treatments and not with widely-used routine treatments, the obtained results are very promising.
The evaluation of the eprinomectin efficacy resulted in an unexpected high prevalence of resistance against this agent.

Publications, posters and presentations
Murri, S. et al (2013) Targeted selective treatment against gastrointestinal nematodes in goats: Evaluation of a combination of three treatment criteria in the field. Buiatrissima, 30. 08. 2013

Murri, S.; Hertzberg, H.; Torgerson, P. R.; Scheuerle, M.; Fasel, M.; Pfister, K.; Knubben-Schweizer, G. (2013) Targeted and targeted selective treatment against gastrointestinal nematodes in goats: Evaluation of treatment criteria and assessment of epidemiologic and economic parameters. Manuskript in Arbeit (Vet Parasitol).

Murri, S.; Hertzberg, H.; Torgerson, P. R.; Scheuerle, M.; Fasel, M.; Pfister, K.; Knubben-Schweizer, G. (2013) Targeted selective treatment gegen gastrointestinale Nematoden bei Ziegen: Evaluation einer Kombination von drei Behandlungskriterien im Feld. DVG Tagung „Aktuelle Erkenntnisse aus der Veterinärparasitologie“, Giessen, 9. 7. 2013

Project *1.11.18*

Project duration *March 2011 – June 2013*