GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Prevalence and burden of helminths in laying hens kept in free range systems

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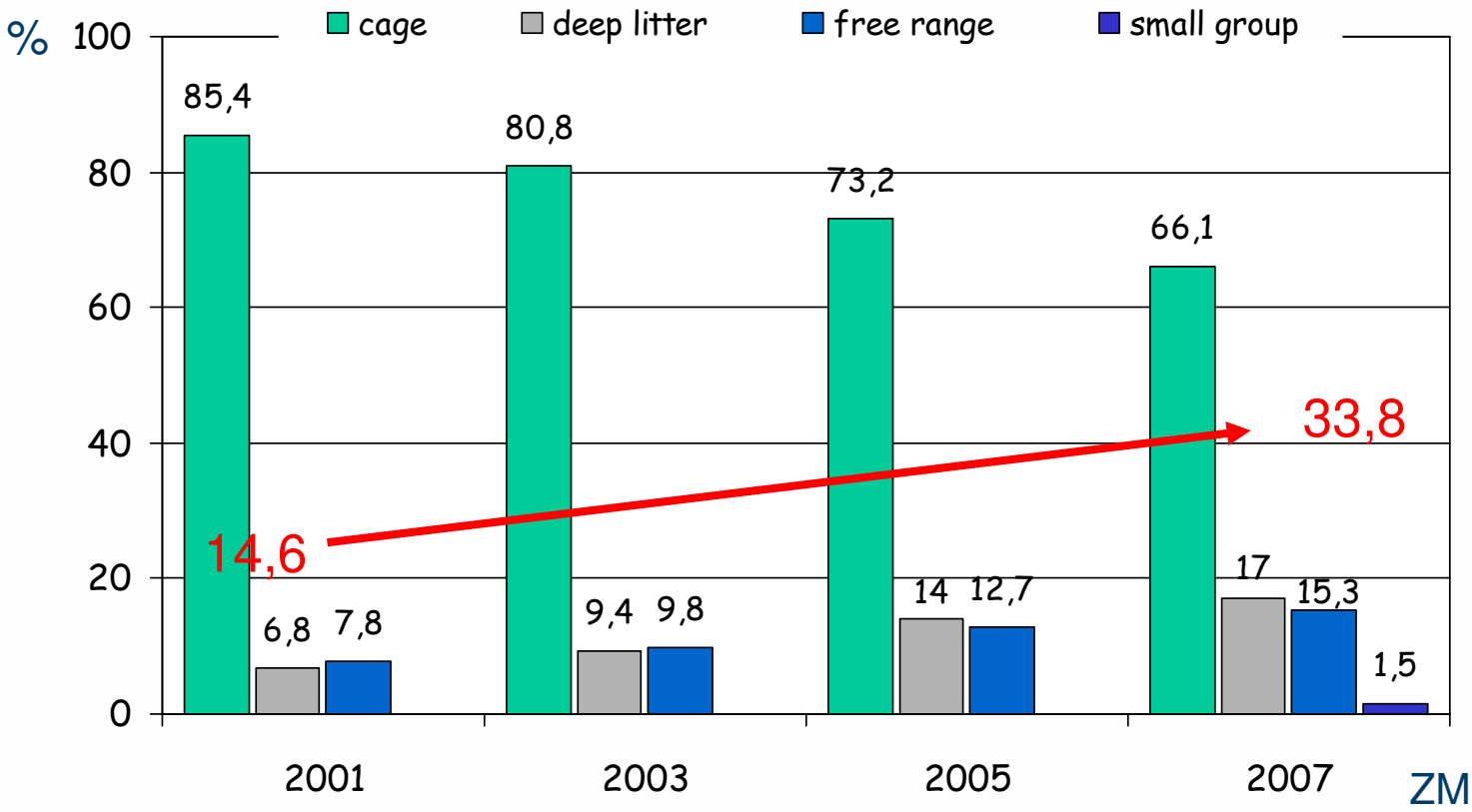
Introduction

Development of laying hen husbandry systems in Germany (%)



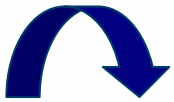
ZMP, 2008

Problems

- Flock size
- Cannibalism
- Contact with litter and faeces
- Increased risk of infections for various pathogens
- Exposure to unfavorable climatic conditions
- Difficult flock and animal control

Consequences on health, vitality and behaviour

- Increased:
  - bacterial, viral and parasitic infections
  - maladaptive behaviour: featherpecking → cannibalism



Mortality ↑

(Permin et al., 1999; Inrungu et al., 2004; Gauly et al., 2007; Fossum et al., 2009)

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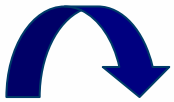

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Economy

Hygiene

Consumer

Animal welfare

Objective

- Estimate the importance of parasitic diseases in free range systems → development of preventive strategies

→ Estimate prevalence and burden of helminths in free range layers in Germany

Animals, Materials and Methods

Animals

- 144 laying hens:
  - Lohmann Brown (n = 39)
  - ISA Brown (n = 49)
  - Tetra Brown (n = 45)
  - Bovans Black (n = 6)
  - Lohmann Tradition (n = 5)
- 11 free range farms (Ø 13 hens per farm, randomly collected)
- Collected at different times of laying period

Parasitological examinations

- According to W.A.A.V.P (Yazwinski et al., 2003)

- Trachea
- Esophagus
- Proventriculus
- Ventriculus
- Small intestine
- Caecal tubes

Statistical analyses

- Prevalence...(p %) = n / N
- Mean worm burden (WB ± SD)
- Genotype differences were calculated using generel linear model with effect of breed within farm

Results

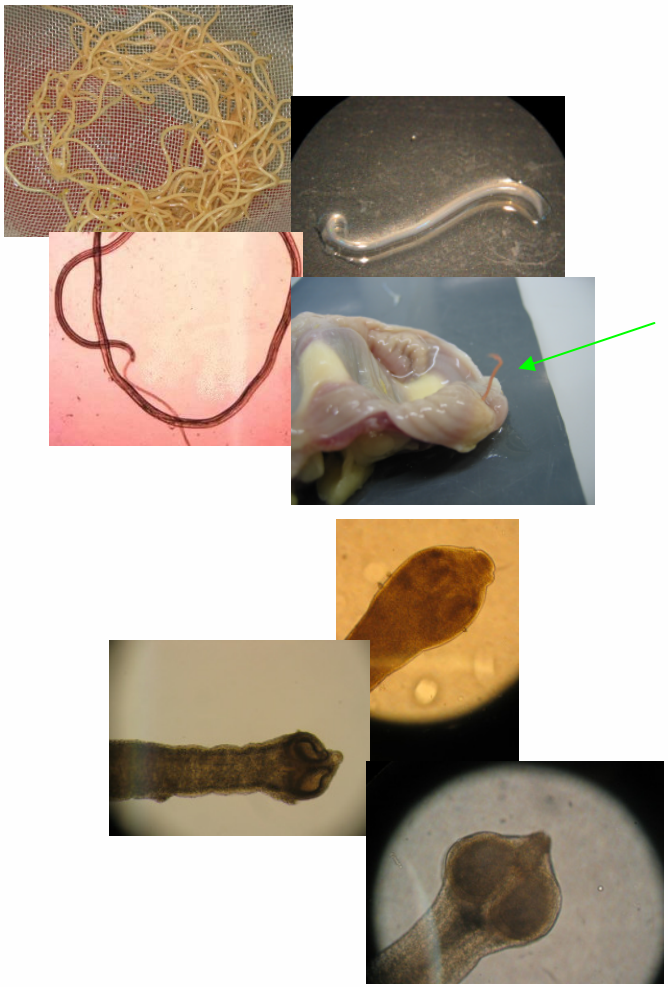
Species found

Nematodes:

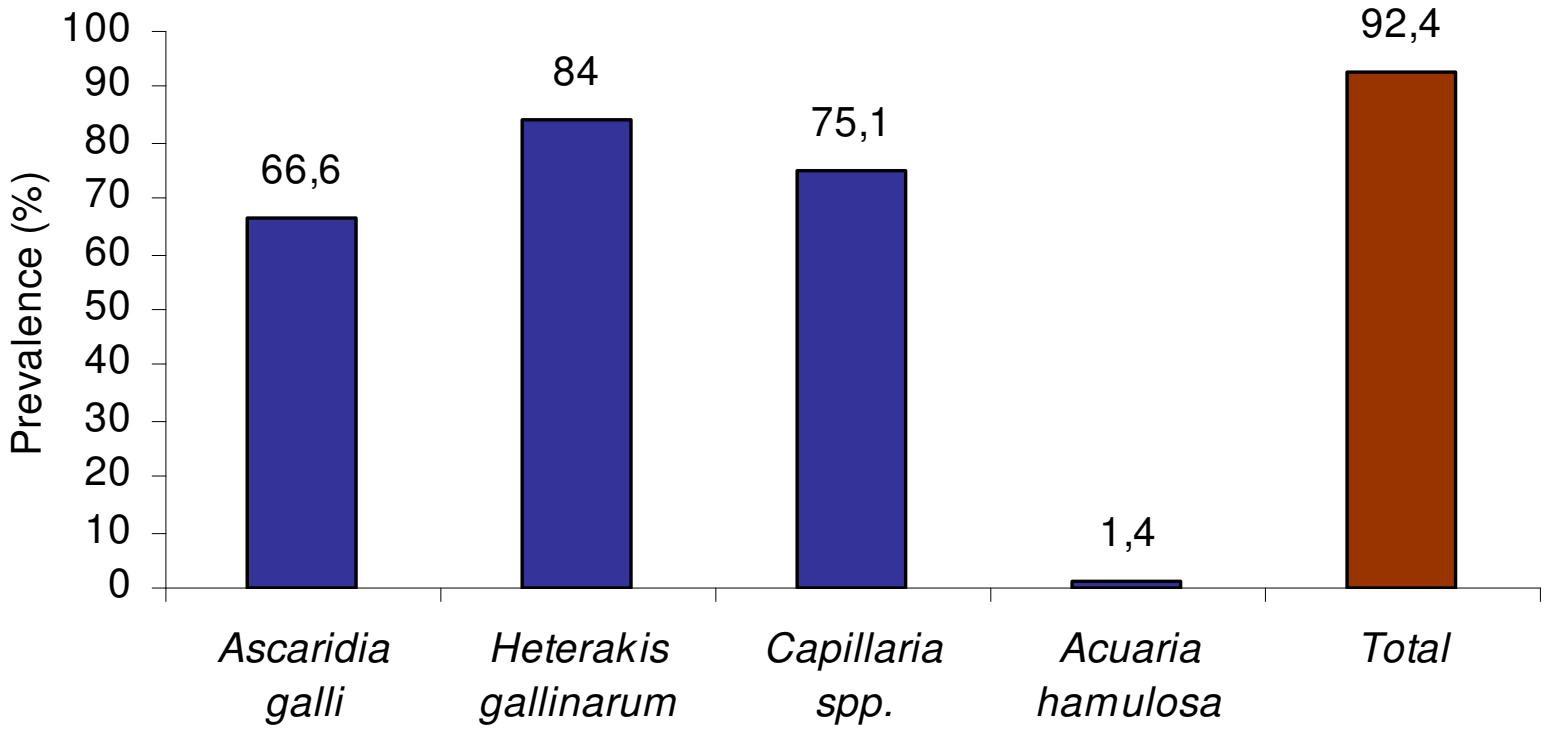
- *Ascaridia galli*
- *Heterakis gallinarum*
- *Capillaria spp.*
- *Acuaria hamulosa*

Cestodes

- *Raillietina cesticillus*
- *Hymenolepis cantaniana*
- *Choanotaenia infundibulum*



Prevalence (%) of infections with adult nematodes in 144 laying hens



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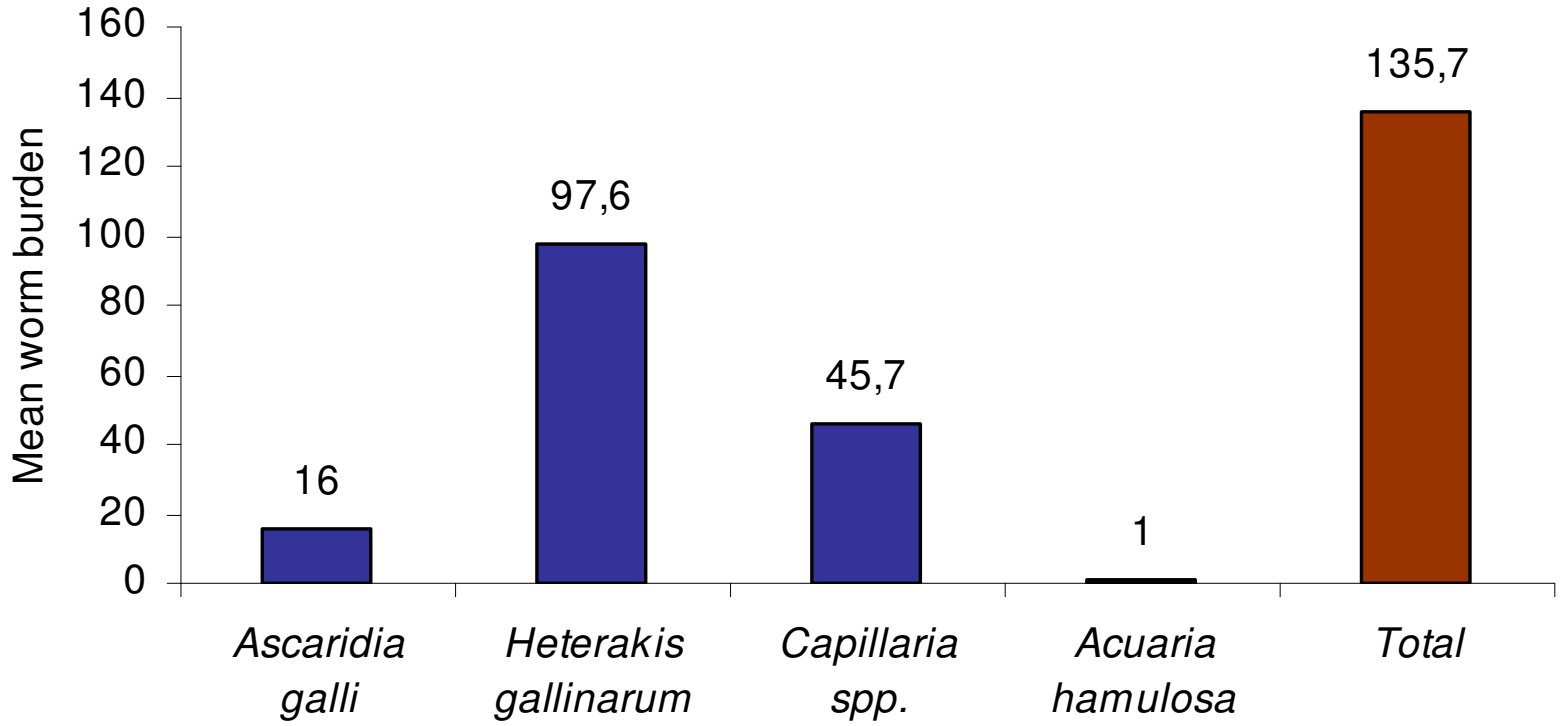
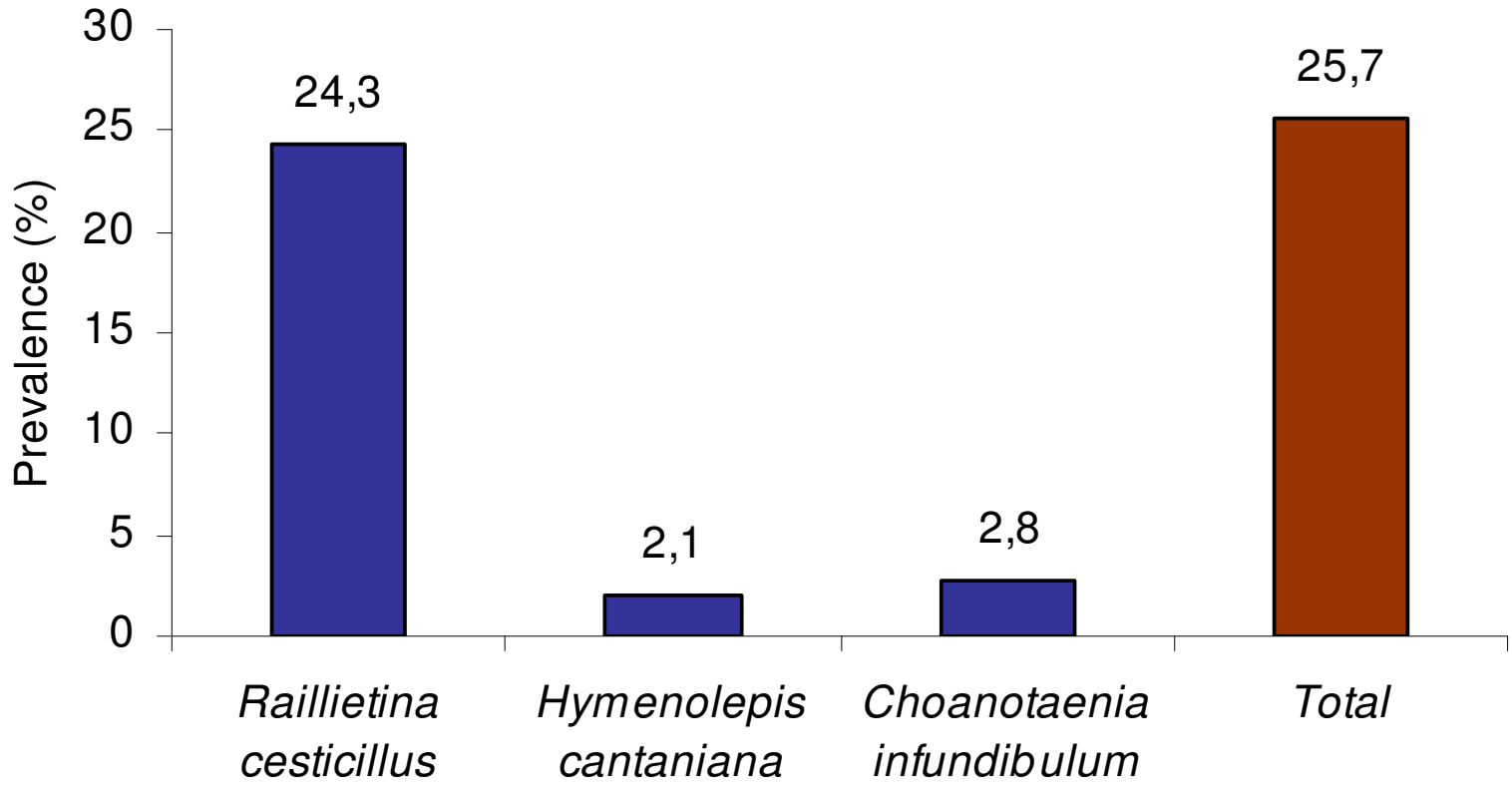
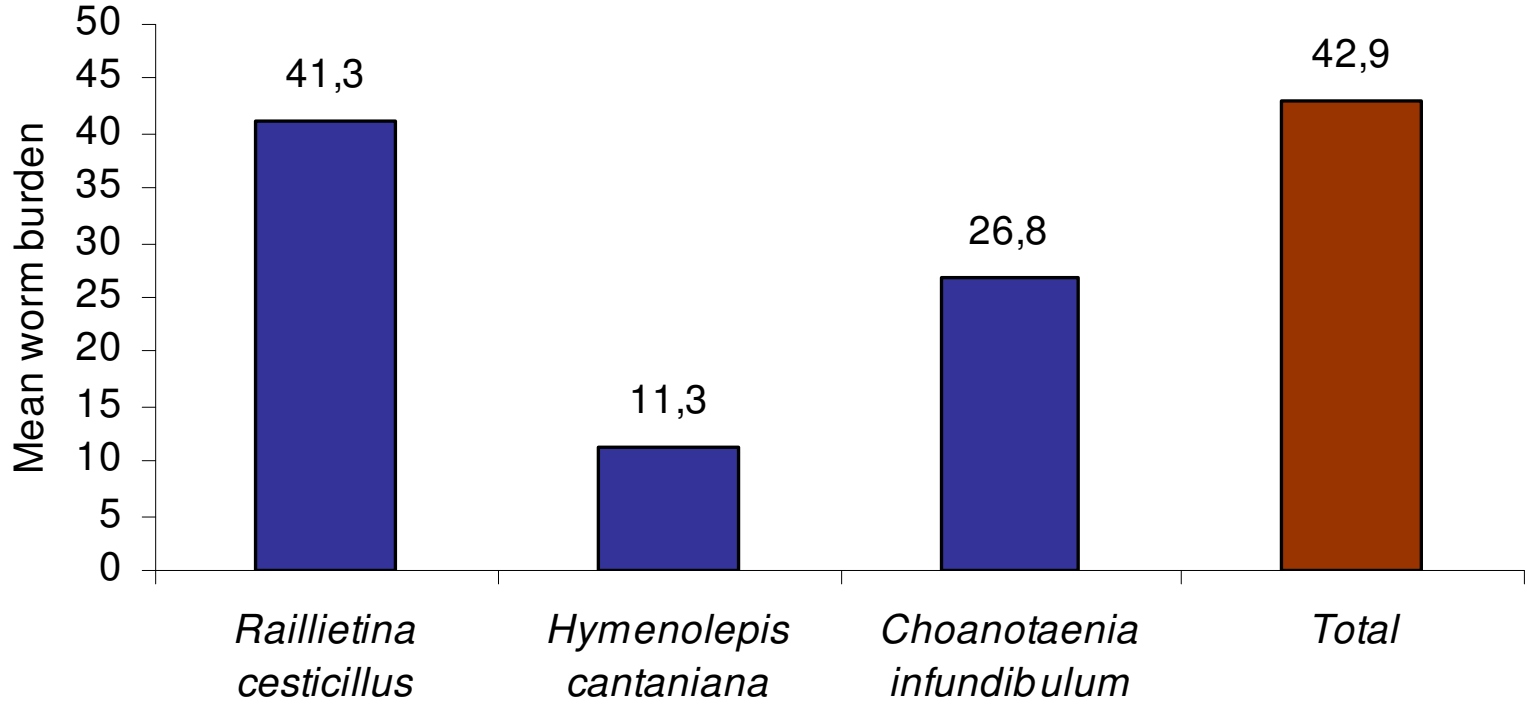


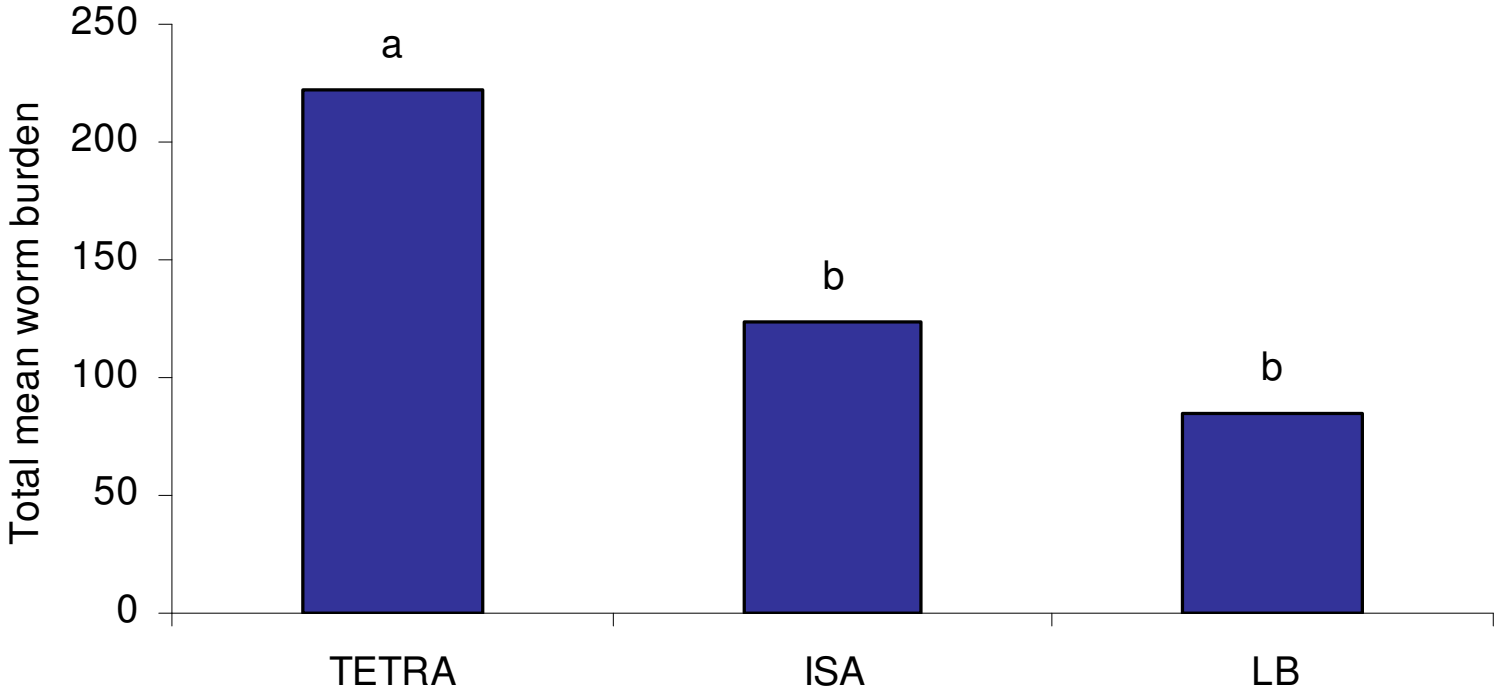
Prevalence (%) of infections with cestodes in 144 laying hens



Mean worm burden of infections with cestodes in 144 laying hens



Genotype differences



a; b $p < 0.0001$

Conclusion

- Broad spectrum of helminths were found
- High prevalences → majority of hens are subclinically infected

  ➡ Economic losses!

- Genetic differences (no. of animals low) → parasite resistance as breeding aim for the future!?

Thank you for your attention!