

Effects of lysine on *Ascaridia galli* infection in grower layers

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Objectives

- *A. galli* is a widespread nematode of poultry
- Lysine is required for health-related functions
- Parasitized animals might require additional lysine
- Can additional dietary lysine influence infection and performance parameters of growing chick?

Conclusions

- Infected chicks on normal Lys diet increase feed intake to consume more Lys
- At similar Lys intakes, worm burden is not affected
- Lys is required for defense reactions against *A. galli* infection

Material and methods

- Four-week-old female LSL chicks (n=236)
- 2x2 factorial design with
 - *A. galli* infection: Un-infected vs. infected with 250 eggs/chick
 - Two Lys levels: Normal (8.5 g/kg DM) vs. Higher (10.5 g/kg DM)
- *Ad libitum* feeding
- Infection at 4 w of age, slaughtered 7 w p.i.

Animals and worm harvest



• The LSL chicks



• The worm harvest



• Adult *A. galli*

Results

Ascaridia galli infection (Tab. 1)

- Lower infection rate with higher Lys
- No difference in worm burden
- No difference in worm egg excretion

Body weight development (Fig.1.)

- Direct main effects, no interaction;
 - higher Lys increased growth
 - Infection impaired growth

Feed and Lys utilization (Tab. 2)

- Interaction effects
 - Infection at normal Lys:
 - increased feed and Lys intake
 - increased feed:gain ratio
 - lowered Lys and protein utilization

Tab. 1. Selected *A. galli* infection parameters

	Normal Lys Infected	Higher Lys Infected	P-value
Infection rate, %	95.2	84.5	0.05
Total worm burden	3.3±3	4.2±4	0.29
Eggs/g faeces	99±30	45±27	0.18

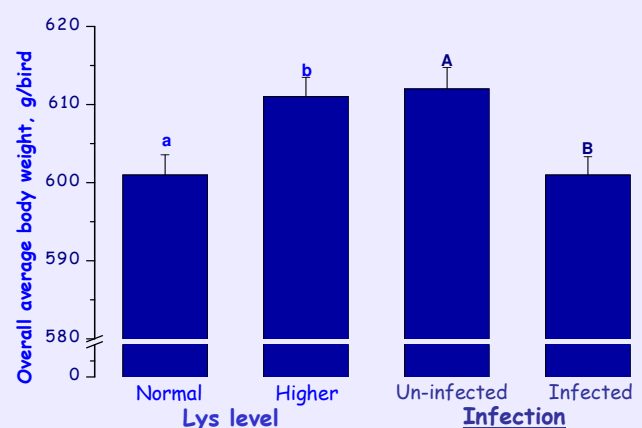


Fig. 2. Main effects of diet and infection on body weight (Different letters within each factor indicate significant differences (P<0.05)).

Tab. 2. Feed and Lys utilization in the experimental groups

	Normal Lys Un-infected	Higher Lys Un-infected	Normal Lys Infected	Higher Lys Infected
Feed intake, g/chick	2636	2783	3345	2732
Lys intake, g dm/chick	19.9	25.9	25.2	25.4
Feed:gain ratio	3.97 ^a	4.02 ^a	5.07 ^b	3.96 ^a
g Lys/100 g weight gain	2.99 ^a	3.74 ^{bc}	3.82 ^c	3.68 ^b
g CP*/100 g weight gain	63.66 ^a	65.12 ^a	81.43 ^b	64.21 ^a

*CP: Crude protein. Different letters in the same line indicate significant differences (P<0.05).