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Resistance of six commercial laying hen strains to an *Ascaridia galli* infection

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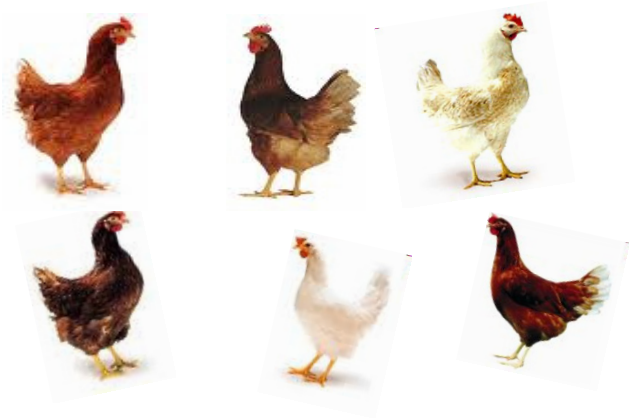


EAAP—2012, Bratislava

Content

- **Changes in egg production systems**
  - parasite infections
  - resistant genotypes?
- **Material and methods**
  - genotypes
  - experimental infection
- **Results**
  - faecal egg counts
  - worm burdens
- **Conclusion**

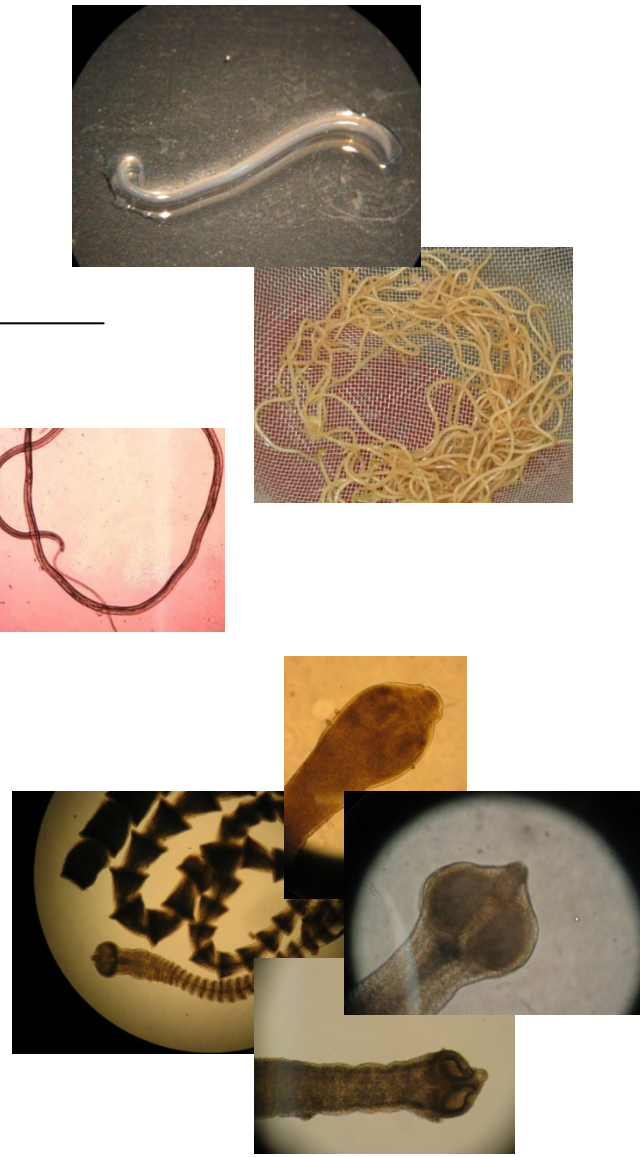
Changes in egg production systems

- **Ban of conventional cages in the EU!**
- **Alternatives**
  - enriched cages
  - deep litter
  - free range
  - small groups
- **Animal welfare and health (?)**
  - feather pecking – cannibalism
  - high mortality
  - increased parasitic infections

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

Helminths of chickens in organic free range systems

Nematodes	**99%**
- *Heterakis gallinarum*	98%
- *Ascaridia galli*	88%
- *Capillaria spp.*	75%
Cestodes	**25%**
- *Raillietina cesticillus*	18%
- *Hymenolepis cantaniana*	8%
- *Hymenolepis carioca*	4%
- *Choanotaenia infundibulum*	1%



- **Overall prevalence 99.6%**
- **Average worm burden 218 / hen**

Kaufmann et al., 2011a

Ascaridia galli

Life cycle	**direct**
Prepatent period	**4-8 wk**
Predilection site	**small intestine**
Histotrophic phase	**+**

Which genotypes?

- productive **and also**
- **healthy** hens are needed!

Heritability of *A. galli* worm burden*

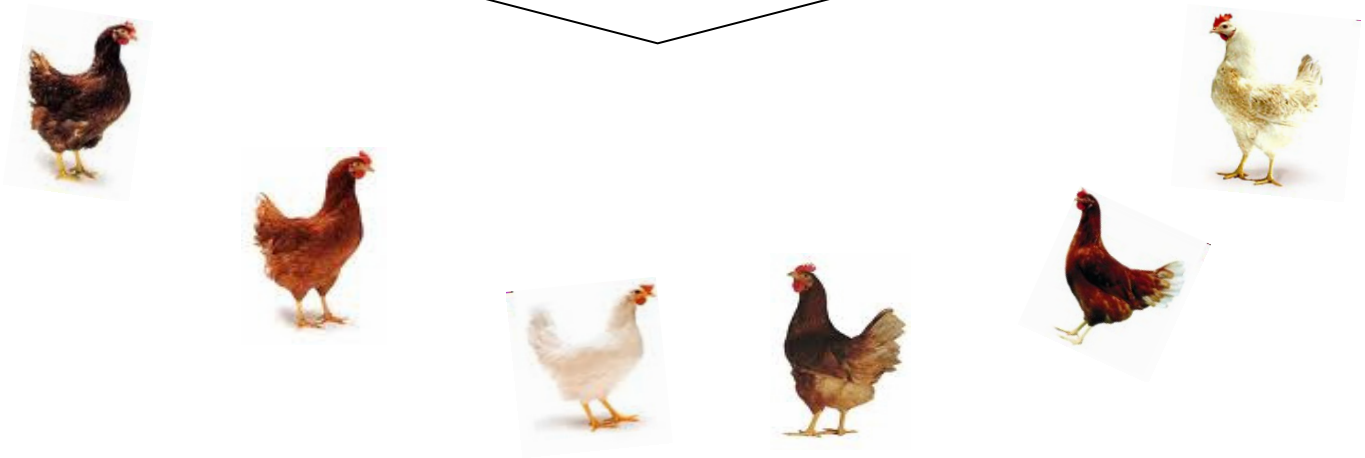
LB	0.11 (± 0.11)
LSL	0.13 (± 0.06)

Kaufmann et al., 2011b

Objective

Do commercially most common laying hen genotyps differ in their ability to resist an *A. galli* infection

?



Material and methods

Experimental flow

LT

LSi

LB

ISA

LSL

TETRA

N=314 (50-57 / genotype)

500

…19 wk

20 wk

FECs

(n = 20/genotype)

7 wk

10 wk

13 wk

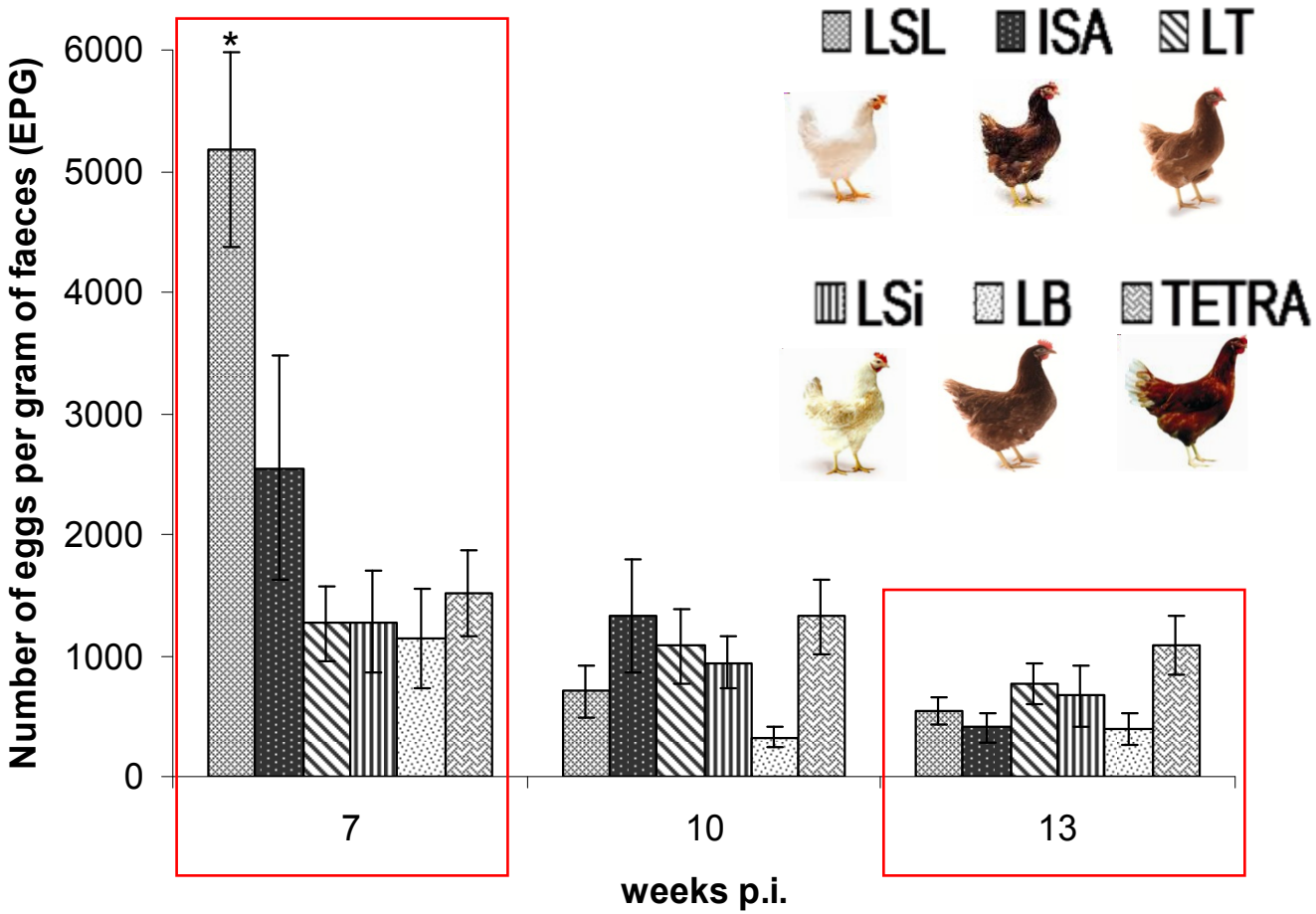
Slaughter / worm harvest

35 wk

(15 wk.p.i)

Results

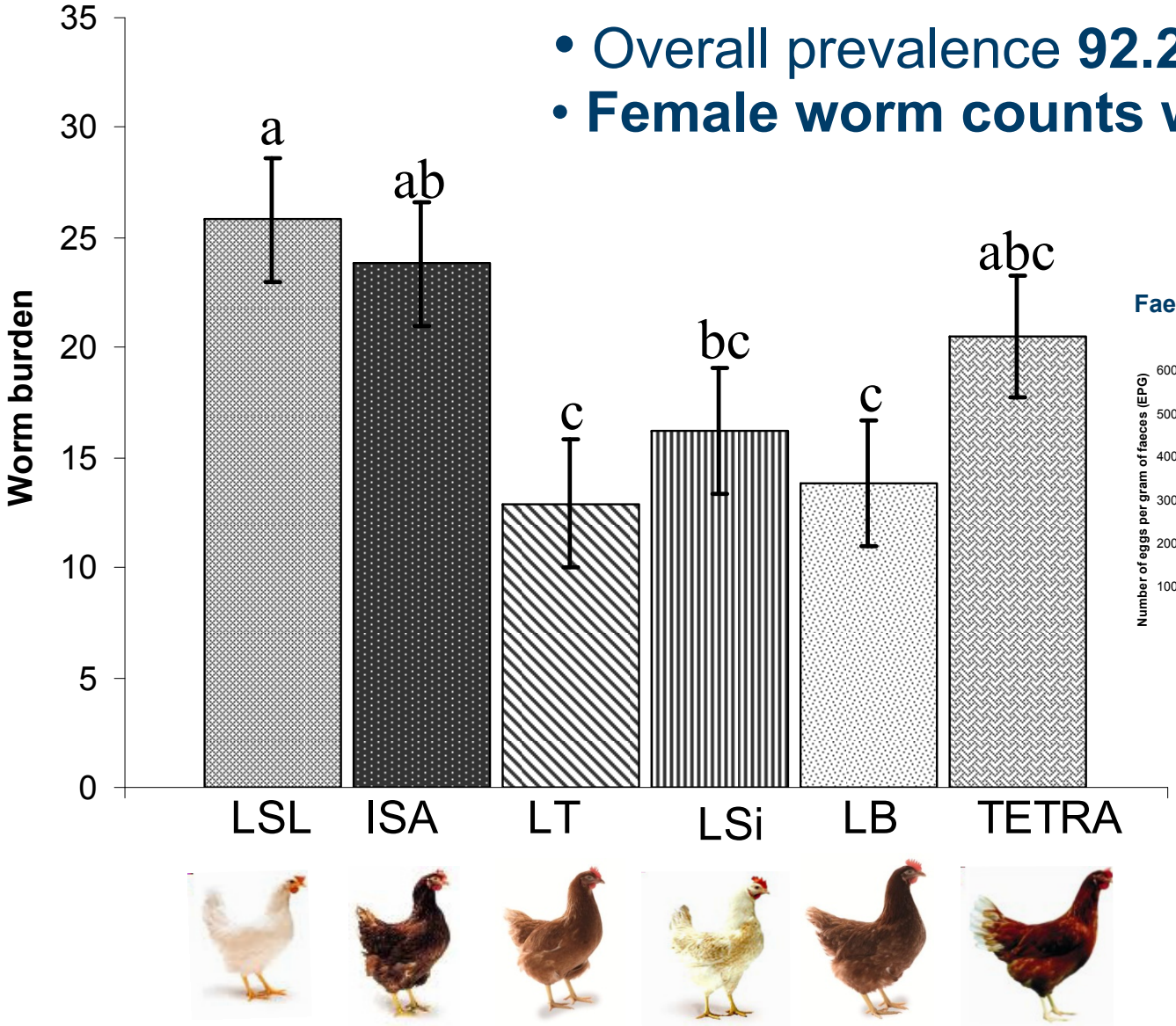
Faecal egg counts



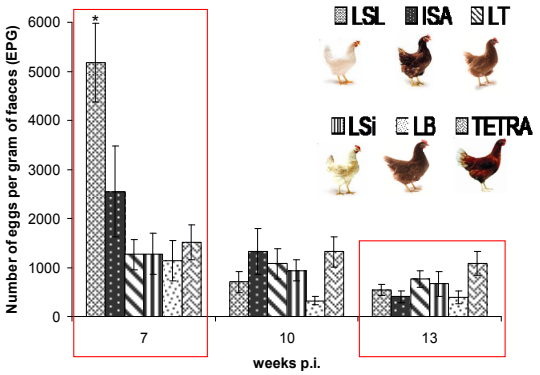
(*):
- LSL > others at 7 wk. p.i. (Tukey, p< 0.05 after a significant genotype x sampling time interaction, P<0.0001).
- Statistical analyses are based on the transformed data, the presented values are raw data.

Average worm burdens of the genotypes

- Overall prevalence **92.2 %**
- **Female worm counts were similar!!!**

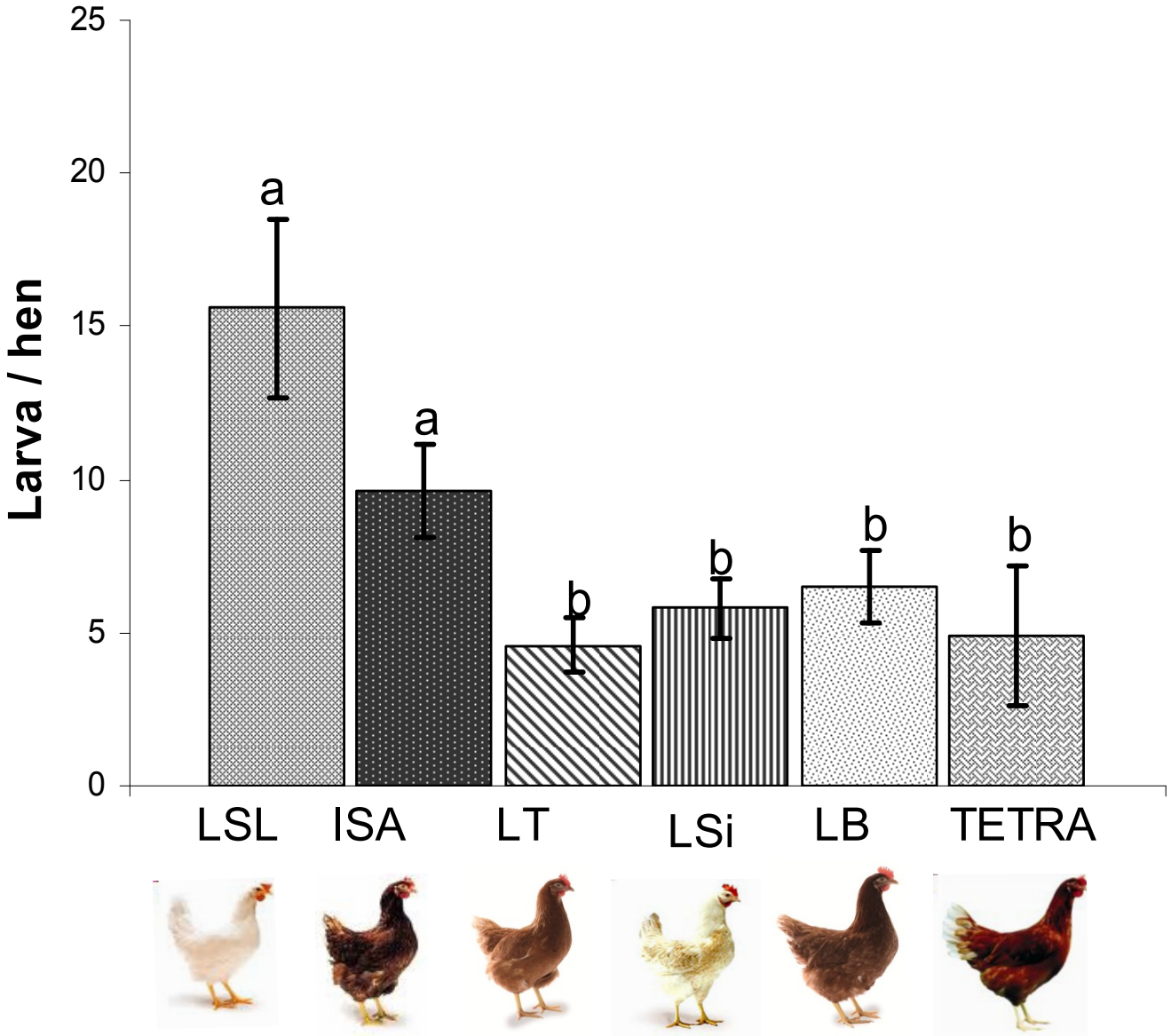


Faecal egg counts



(*): Statistical analyses are based on the transformed data, but the presented values are based on raw data.
[a;b;c]: Tukey *P*<0.05 (after genotype effect P<0.001).

Average larva counts (re-infections!)



(*): Statistical analyses are based on the transformed data, but the presented values are based on raw data.
[a;b;c]: Tukey *P*<0.05 (after genotype effect P<0.001).

Conclusion

→Considerable variation

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Thank you for your attention!