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Institut für Tierzucht und Tierhaltung

Session G10.5

Genetic variation for MMA treatment in sows

Joachim Krieter[1)] und Ulrich Presuhn[2)]

[1)] ***Institut of Animal Breeding and Husbandry, Christian-Albrechts-University, 24098 Kiel***
email jkrieter@tierzucht.uni-kiel.de

[2)] ***farm concepts, 23812 Wahlstedt***

Introduction

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***M*astitis, *M*etritis, *A*galactiae (MMA) most common disease of sows after farrowing (20% to 30%)**

Multifactorial infection disease

- **Bacteria (e.g. Streptococcus, Staphylococcus, Coli)**
- **Additional factors**

  Feeding level, modified feeding ration at birth

  Chronical cystitis and nephritis

  All in / all out vs. continous

  Missing cleaning and desinfection of the farrowing batches

Objective

- **Influence of MMA treatment on reproductive traits**
- **Genetic variation for MMA treatment**

Data

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Nucleus farm of the breeding company ‚Hülsenberger Zuchtschweine‘

Purebred line German Landrace

2,597 purebred litters, 544 sows, 170 sires

Reproductive traits

- **Total piglets born, piglets born alive**
- **Weaning-conception interval**

MMA treatment

- **MMA monitoring over 3 days after birth**
- **Rectal temperature ≥ 39.4 → treatment**

1. and 2. day	**Mercaptomin**
3. day	**Baytril**

Data

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Means (x), standard deviations (s) and coefficients of variation (CV)

(n = 2.597)

Trait	Unit	x	s	CV
Total piglets born	pig/litter	10.6	2.6	23.8
Piglets born alive	pig/litter	10.1	2.5	24.5
Interval weaning-conception	days	11.3/5[1)]	12.1	107.8
Incidence MMA treatment	%	38.4	-	-

[1)] Median

Method

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Parameter estimation (VCE4) – repeatability model

Fixed effects

Parity - litter 1, 2 ,…, 6, ≥ 7

Season - quarter (16 classes)

Random effects

animal

permanent litter

pedigree information (6 generations)

Results

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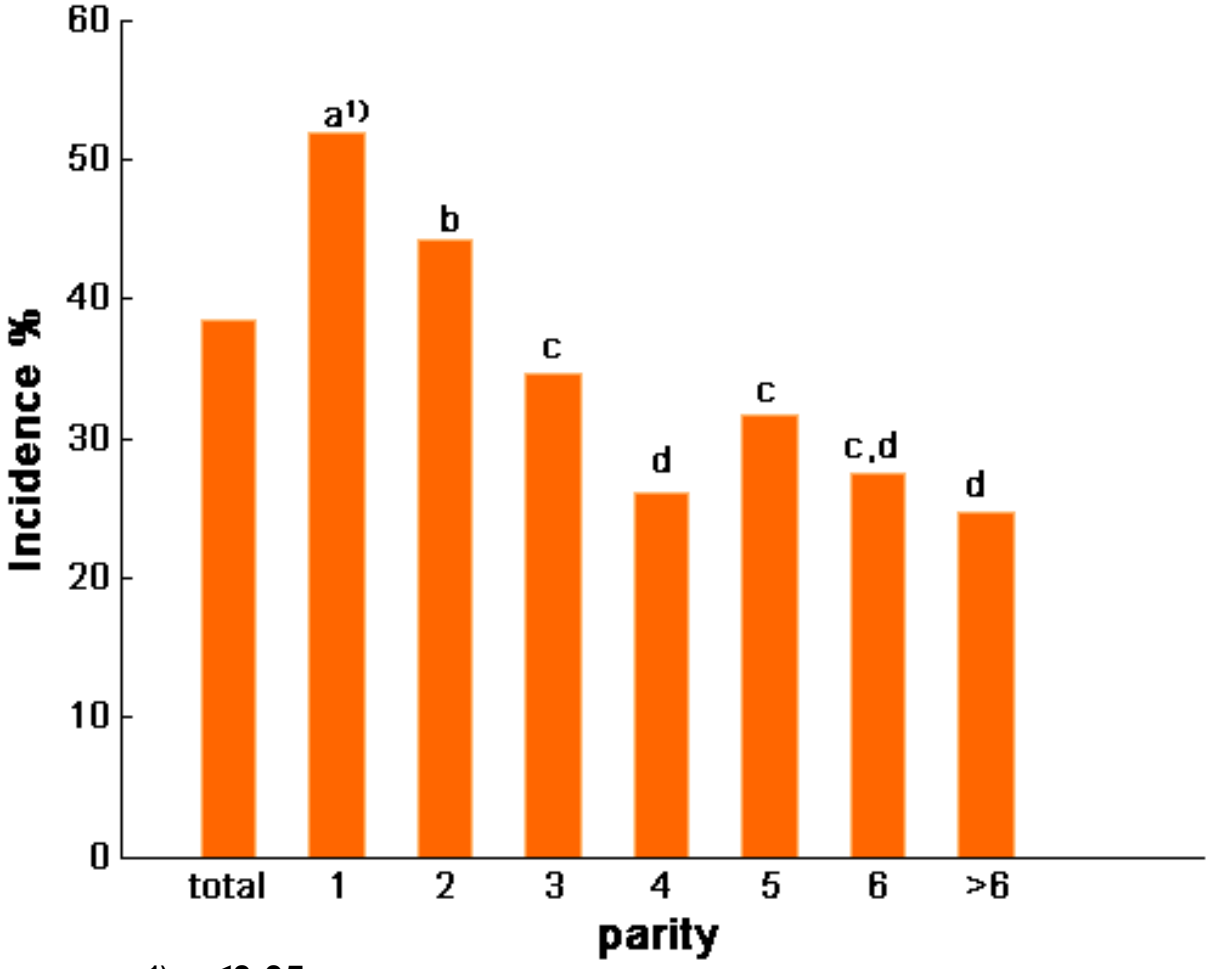
Incidence of MMA treatment depending on parity (n=2,597)



1) p ≤0.05

Results

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Heritabilities (diagonal), genetic (above diagonal) and phenotypic correlations for the reproductive traits and MMA treatment

Traits		TPB[1)]	PBA	MMA
Total piglets born	TPB	0.09	0.97	-0.14
Piglets born alive	PBA	0.95	0.08	-0.10
MMA treatment	MMA	0.01	0.01	0.13

[1)] Standard errors of the genetic correlations: 0.03 – 0.07

Results

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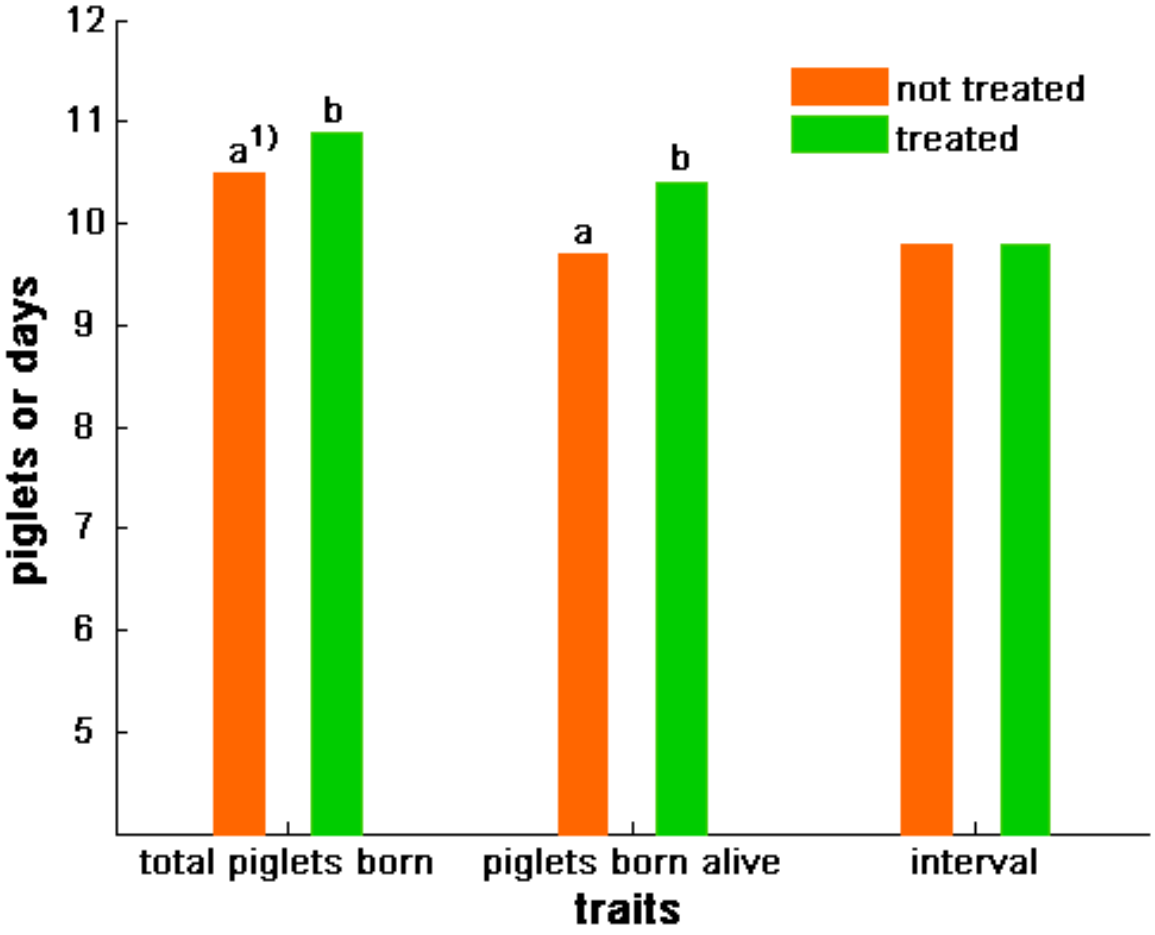
Effect of MMA treatment on reproductive traits in the following litter (n = 1,518)



1) p ≤0.05

Conclusions

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MMA incidence decreases with increasing parities

Early and consistent MMA treatment prevents negative effects on the following parities

Low heritability of MMA treatment (h^2= 13%; Lingaas & Rönnigen (1991) h^2= 10 to 20%; Berg et al. (2002) h^2 = 2 to 6 %).

Moderate genetic correlations between total piglets born, piglets born alive and MMA treatment (r_g~ -0.10)

Optimising feeding and management is most important