

Variation in fattening pig exterior, gait and weight gain in commercial organic herds

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Outline

- Background
- Aim
- Materials and methods
- Statistical analyses
- Results – exterior and gait assessment
- Results – weight and growth performance
- Discussion and conclusion

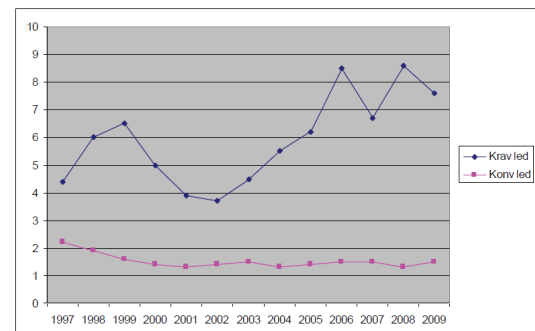
Background

Organic pig production increases



Background

Increased proportion of remarks at slaughter



Eva Heldmer, conference paper 2012

Background

Farmers request evaluation of sire breeds



Aim



Primary aim:

Investigate variation in leg health and weight gain between sire breeds.

Secondary aim:

Investigate variation between herds, season, gender, age and assessment investigation

Materials and methods

Part of the project “Animal welfare in organic pig production – does leg health in growing-finishing pigs improve by change of sire breed?”

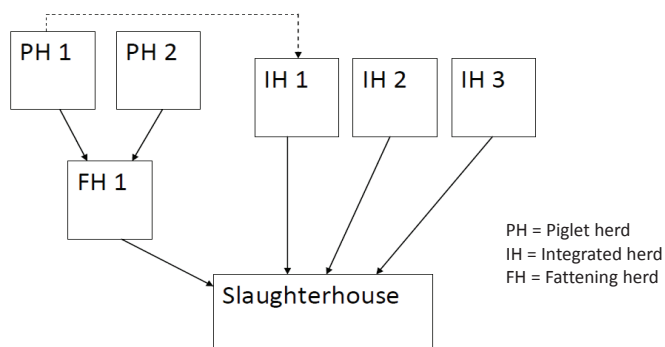
Landrace x Yorkshire
x Hampshire or Duroc

KRAV certified herds



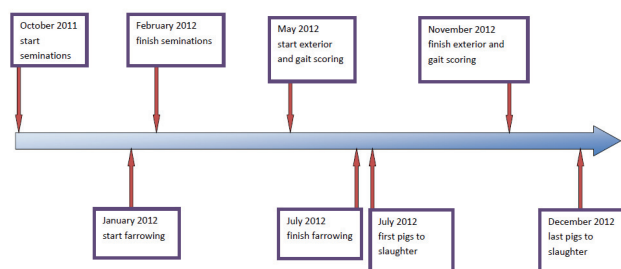
Materials and methods

Herds in the study



Materials and methods

Timeline



Materials and methods

Identification of pigs:

- Electronic ear tags
- Tattoos



Recordings:

- By herdsmen:
 - Sire and Dame ID
 - Litter size
 - Mortality
- By me:
 - Exterior
 - Gait
 - Weight (in one herd)

Recordings by herdsmen

- Preprinted binder
- Tagged the piglets
- Recorded info from birth to first assessment



Exterior and gait scoring

Performed twice for each pig
- 12 and 22 weeks of age

Similar assessment environment

Exterior/Gait scoring and movements

Back

1 Arched 2 Straight 3 Kyphosis

Leg conformation (overall for all legs)

1 Normal leg conformation 2 Somewhat abnormality in leg conformation 3 Extreme abnormality in leg conformation

If leg conformation is assessed to be abnormality from normal, comment

Saddle joints

0 No 1 Yes

If Yes, which leg/joint

Locomotion

1 Very wormy movements, long steps 2 Normal, regular locomotion, flexible movements, no lameness 3 Very stiff and tripping movements, short steps

Hints

0 No lameness 1 Visible lameness, relatively normal pace (using all 4 legs) 2 Visible lameness, rock with head, unbalances the affected leg (legs) 3 Very lame, not supporting the affected leg (legs) unable to walk

If the animal is lame, continue assessment, otherwise next animal.

Lameness from/lead

F Forward B Hind leg X don't know/unable to assess

Hoofs

0 Normal 1 Un-normal (damaged, uneven, soft etc.) 2 don't know/unable to assess

X might be that the hoofs are too muddy/dirty or ground material too hard to be able to assess.

Leg conformation



Journal Gait scoring/Movements

[illegible]

Technician recorded ear tag number,
tattooed number and slaughter plant number

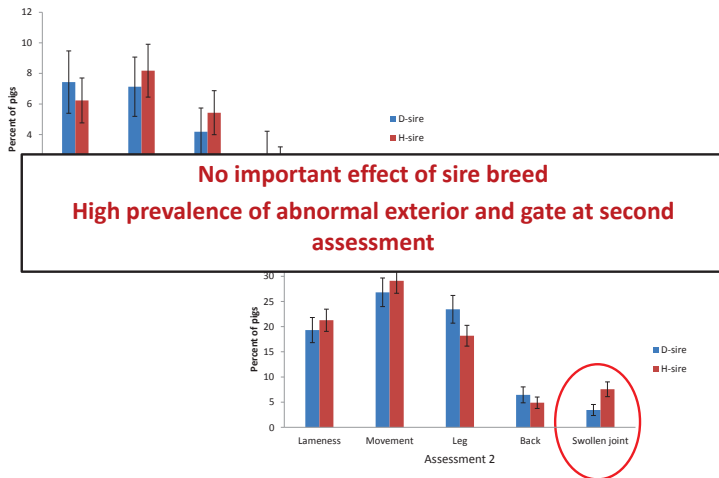


Results – some numbers

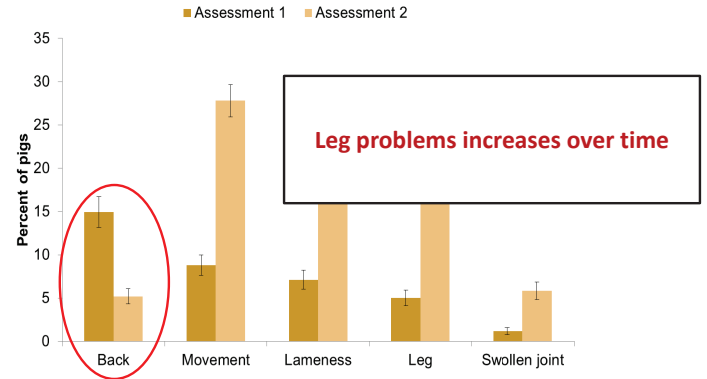
- 984 pigs
- H-sire 599 (61%), D-sire 385 (39%)
- 502 (52%) barrows, 470 (48%) gilts



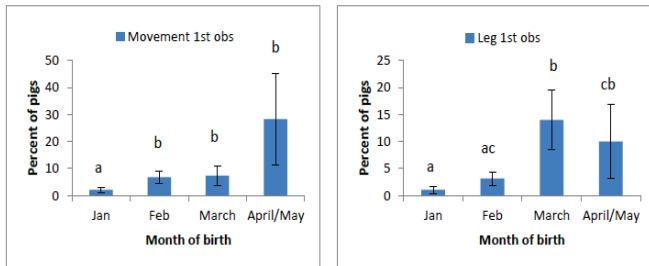
Results – exterior and gait assessment



Results – exterior and gait assessment

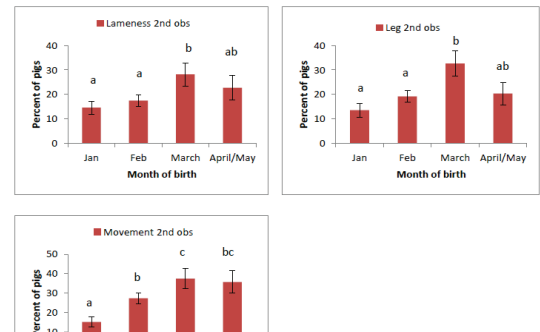


Results – exterior and gait Assessment 1



More leg problems among pigs born later in spring

Results – exterior and gait Assessment 2



More leg problems among pigs born later in spring

General discussion - exterior and gait

Scoring transformed to 0 or 1

No connection to severity

Exterior/Gait scoring and movements

Back

1 Arched 2 Straight 3 Humped

Leg conformation (overall for all legs)

1	2	3
Normal leg	Somewhat aberrance in leg conformation	Extreme aberrance in leg conformation
If leg conformation is assessed to be aberrance from normal, comment		

Swollen joints

0	1
No	Yes

If Yes, which leg(s)?

Locomotion

1	2	3	4	5
Very wormy movements, long steps	Normal, regular locomotion, flexible movements, no lameness	Very stiff and tripping movements, short steps		

Holds

0	1	2	3
No lameness	Visible lameness, relatively normal pace (using all 4 legs)	Visible lameness, rock with head, unbalances the affected leg (leg)	Very lame, not supporting the affected leg (leg)/unable to walk

If the animal is lame, continue assessment, otherwise next animal.

Lameness type/phase

F	B	X
Foreleg	hind leg	don't know/unable to assess

Hoofs

0	1	X
Normal	Un normal (damaged, uneven, soft etc.)	don't know/unable to assess

X might be that the hoofs are too muddy/dirty or ground material too bad to be able to assess.

Results – some numbers

Weight and growth

- Only PH1
- 352 pigs
- H-sire 149 (49%), D-sire 153 (51%)
- 190 (54%) barrows, 162 (46%) gilts



Results – weight and growth performance

LSM±SE	D-sire	H-sire	p
Weight 1, kg	32.1±0.80	33.6±0.93	0.069
Weight 2, kg	89.4±1.62	94.9±1.84	0.001
Growth 01, g/day	327±8.7	346±10.1	0.031
Growth 12, g/day	796±23.6	859±28.7	0.006
Growth 02, g/day	519±9.6	554±10.9	0.001

H-sired pigs slightly heavier at arrival
H-sired pigs had a higher growth rate

Results – weight and growth performance

LSM±SE	Barrow	Gilt	p
Weight 1, kg	33.6±0.86	32.1±0.86	0.055
Weight 2, kg	94.9±1.75	89.5±1.72	0.001
Growth 01, g/day	343±9.4	329±9.4	0.096
Growth 12, g/day	854±25.8	801±26.4	0.016
Growth 02, g/day	552±10.3	520±10.1	0.001

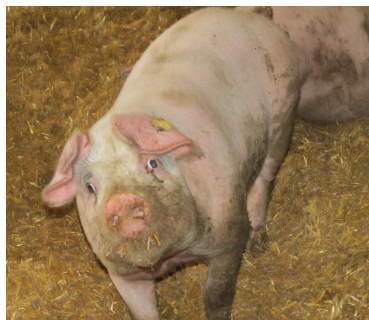
Barrows tend to weigh more at arrival
Barrows grew faster

Results – weight and growth performance

LSM±SE	January	February	March	p
Weight 1, kg	33.2±0.70	31.9±0.95	33.5±1.34	ns
Weight 2, kg	88.2±1.34 ^a	94.0±1.97 ^b	94.3±2.76 ^b	0.004
Growth 01, g/day	340.±7.6	327±10.4	342±14.6	ns
Growth 12, g/day	796±32.2	848±26.3	840±37.2	0.091
Growth 02, g/day	516±7.9 ^a	546±11.6 ^b	549±16.3 ^b	0.012

Pigs born in January was lighter
Pigs born in January grew slower

General discussion



Difficult to follow pigs from birth to slaughter

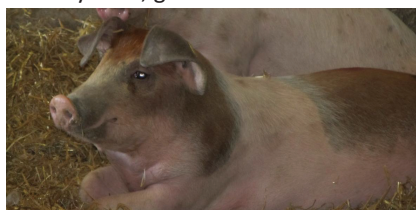
Tags malfunctioned or got lost

68% of the tagged pigs were identified at the second assessment

Conclusion

- Sire breed had very little effect on exterior and gait
- Herd, season, gender and age cause variation
- Abnormal exterior and gait increases over time
- H-sired pigs grew faster than D-sired pigs in this herd
- Growth rate was affected by herd, gender and season

Thank you
for listening!



Thank you Anna for all the help!