



ESTIMATION OF GENETIC PARAMETERS FOR FATTENING TRAITS OF BOARS

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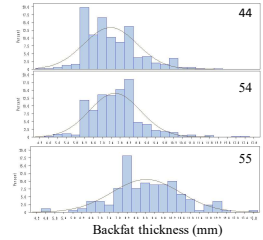
Background

• Selection program for terminal breeds were mainly focused on **production traits**:

- Live born piglets per litter
- Number of functional teats
- Weaning to service interval
- Longevity
- Age at final weight
- Backfat thickness

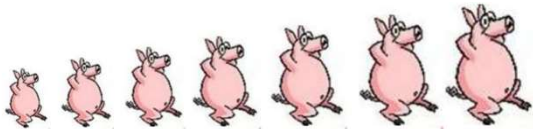
• Alternative trait:

- Loin muscle depth (ALOCA)

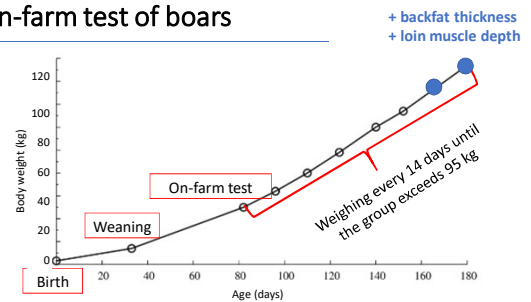


Aim

to assess the genetic parameters for days on test (AGE), backfat thickness (BF) and loin muscle depth (LMD) of terminal boars during on-farm testing



On-farm test of boars



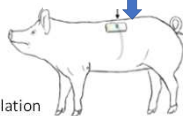
Material

Genotype	AGE & BF	LD
Pietrain (44)	2591	607
Slovenian meaty landrace (55)	465	372
Hybrid (54)	171	131



• PiggyBank database

- 3228 records for days on test
- 1098 records for loin muscle depth
- Pedigree data 2513 animals
232 animals from base population



Method

• Multiple trait repeatability model

- Fixed effects
 - Breed
 - Season on test day
 - Dam parity
 - Body weight (BF, LD nested within breed)
 - Age at weaning (AGE)
- Random effect
 - Common litter environment
 - Permanent environment effect
 - Direct additive genetic effect

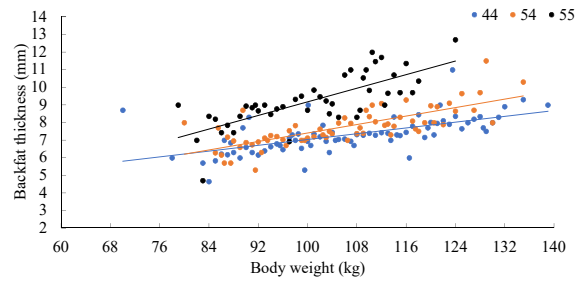
• SAS 9.4/PEST/VCE6



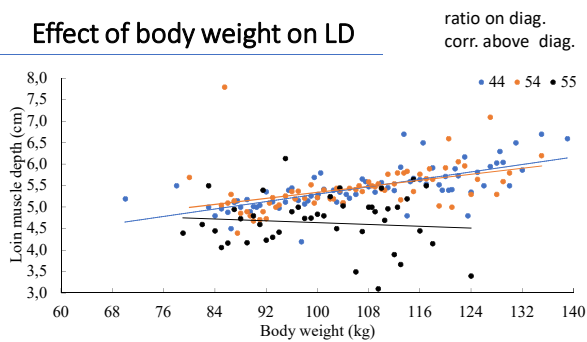
Least square means \pm see

Genotype	AGE (days)	BF (mm)	LD (cm)
44	171,37 \pm 0,20	7,36 \pm 0,02	5,34 \pm 0,03
54	171,14 \pm 0,52	7,73 \pm 0,05	5,29 \pm 0,04
55	172,36 \pm 0,83	9,65 \pm 0,09*	4,59 \pm 0,07*

Effect of body weight on BF



Effect of body weight on LD



Common litter effect

	AGE	BF	LD
AGE	0,34 \pm 0,04	-0,01 \pm 0,10	0,55 \pm 0,47
BF		0,12 \pm 0,03	-0,84 \pm 0,31
LD			0,01 \pm 0,01

Permanent environment effect

	AGE	BF	LD
AGE	0,16 \pm 0,05	0,17 \pm 0,16	-0,80 \pm 0,07
BF		0,12 \pm 0,04	0,45 \pm 0,14
LD			0,16 \pm 0,05

Additive genetic effect

	AGE	BF	LD
AGE	0,41 \pm 0,07	-0,09 \pm 0,10	0,38 \pm 0,15
BF		0,45 \pm 0,05	-0,34 \pm 0,19
LD			0,21 \pm 0,05

Error	ratio on diag. corr. above diag.		
	AGE	BF	LD
AGE	0,08±0,34	0,11±0,04	0,11±0,06
BF		0,30±0,01	-0,78±0,01
LD			0,60±0,01

Pheno	var on diag. corr. above diag.		
	AGE	BF	LD
AGE	107,32	0,02	0,04
BF		0,81	-0,10
LD			0,32

Conclusion

- To date, selection decisions for fattening traits in Slovenia have been based on AGE and BF.
- Heritability was 0,41 for AGE, 0,45 for BF and 0,21 for LD
- Correlations still have large SEE
- The results suggest that it would be useful to also consider LD in the selection process.

