

Performance testing for boar taint

a pivotal step towards ending surgical castration of pigs

Body odour
Old rubber boots
Sweat
Silage pig
Faeces
Urine
Animal



Baes, C., Spring, P.
Mattei, S., Sidler, X.
Ampuero, S., Bee, G.
Luther, H., Hofer, A.



Bern University of Applied Sciences
University of Zurich
Agroscope Liebefeld-Posieux ALP
SUISAG

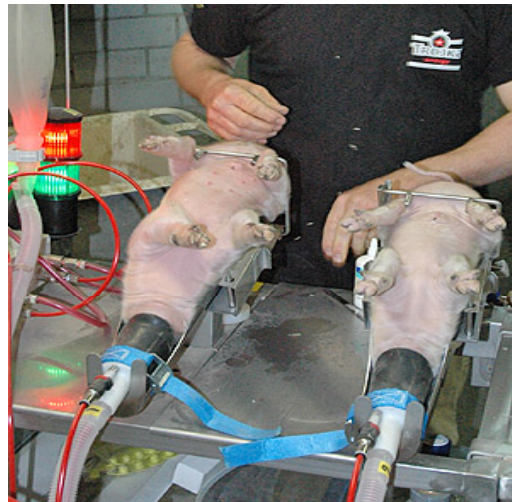
A little history

... 2009

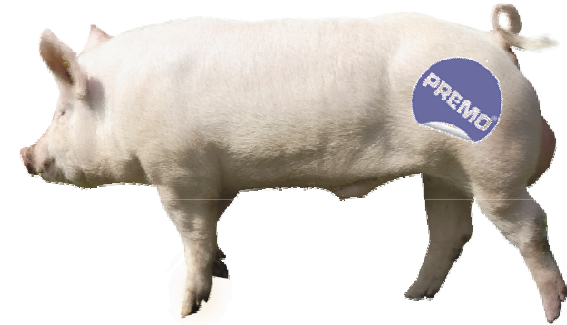


Photos: SUISAG

... 2010 ...



... 2018



**Finishing intact boars is the most natural and
economical approach ...**

...but there are challenges

Reduce the frequency of taint

- breeding
- housing, husbandry

Reliably detect boar taint

- sensory methods
- chemical methods
- rapid methods (in development)

Discard tainted carcasses?

- research and development needed!

**Reducing
the frequency
of tainted carcasses
is worth the effort!**



Objective

Reduce the frequency of boar taint through breeding

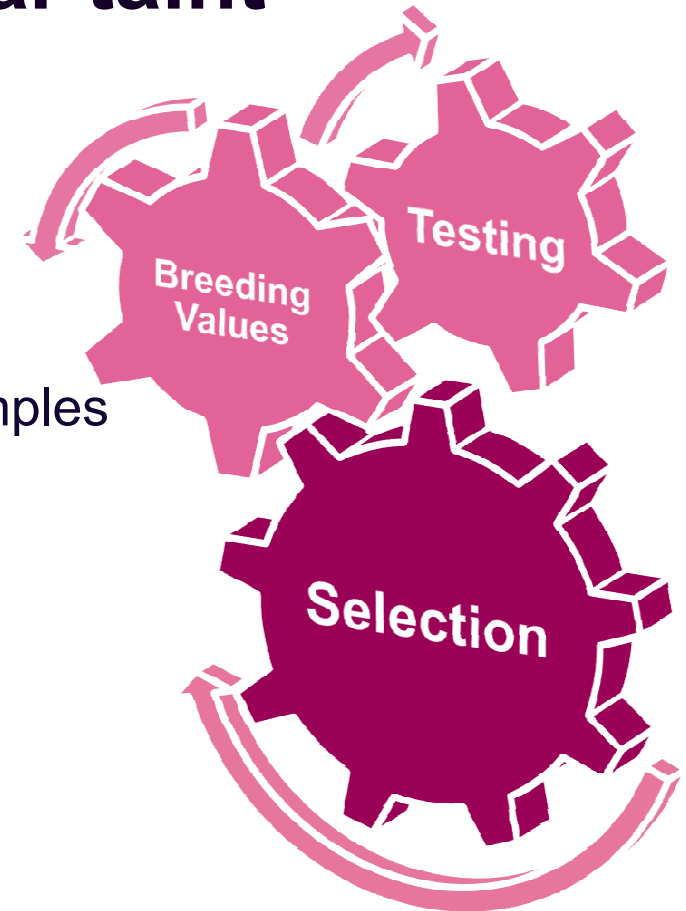
Performance test

- Biopsy device for testing live animals
- Chemical extraction methods for small samples
- Implementation

Breeding value estimation

- Test statistical models
- Estimate genetic parameters

Selection of low-risk animals



The biopsy device

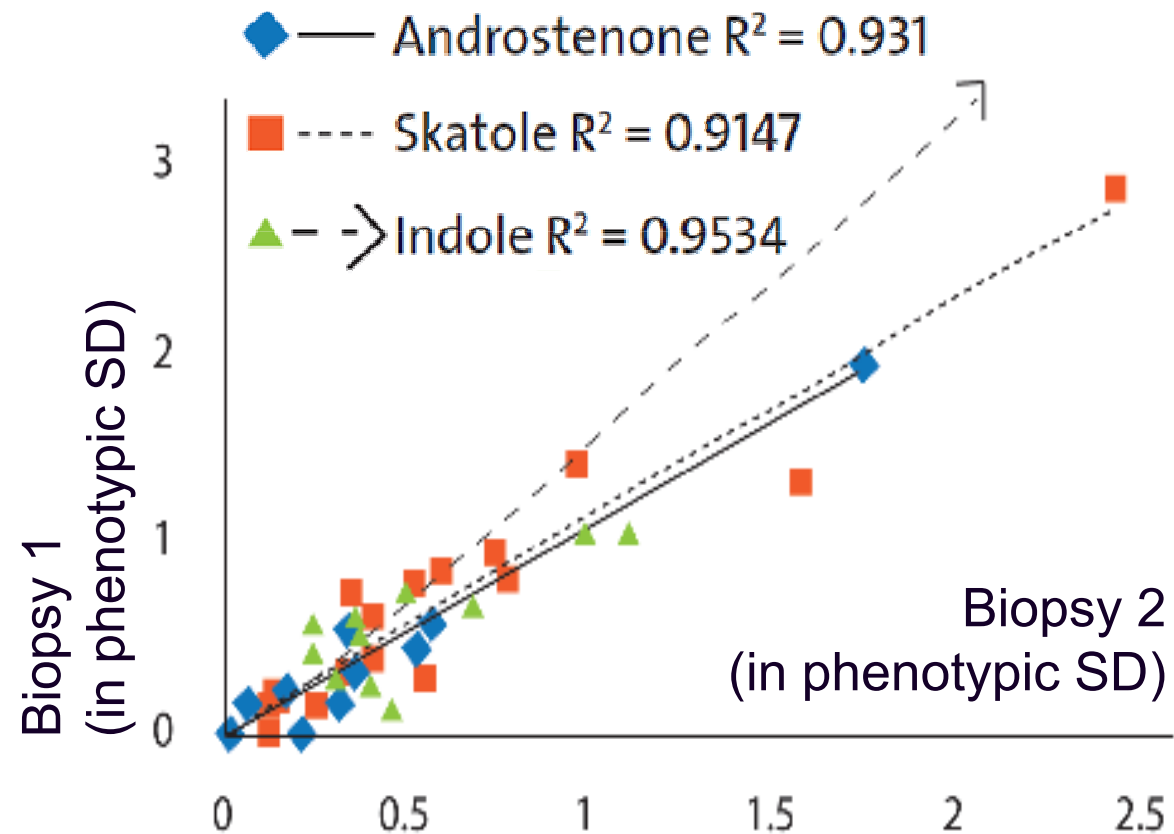


Photos: SUISAG

Small tissue samples



Relationship between two separate adipose samples from same individuals (n = 18)



Animal behaviour

	Reaction (% of animals, n = 62)			
	0	1	2	3
Vocalisation	90.91	9.09	0.00	0.00
Movement	93.18	6.82	0.00	0.00
Bleeding	79.55	18.18	2.27	0.00

0: no vocalisation / no movement / no blood loss

1: slight vocalisation / slight twitch / <3 ml blood loss

2: moderate vocalisation / <3 side steps / 3-5ml blood loss

3: severe vocalisation / flight attempt / >5ml blood loss

Genetic Parameters

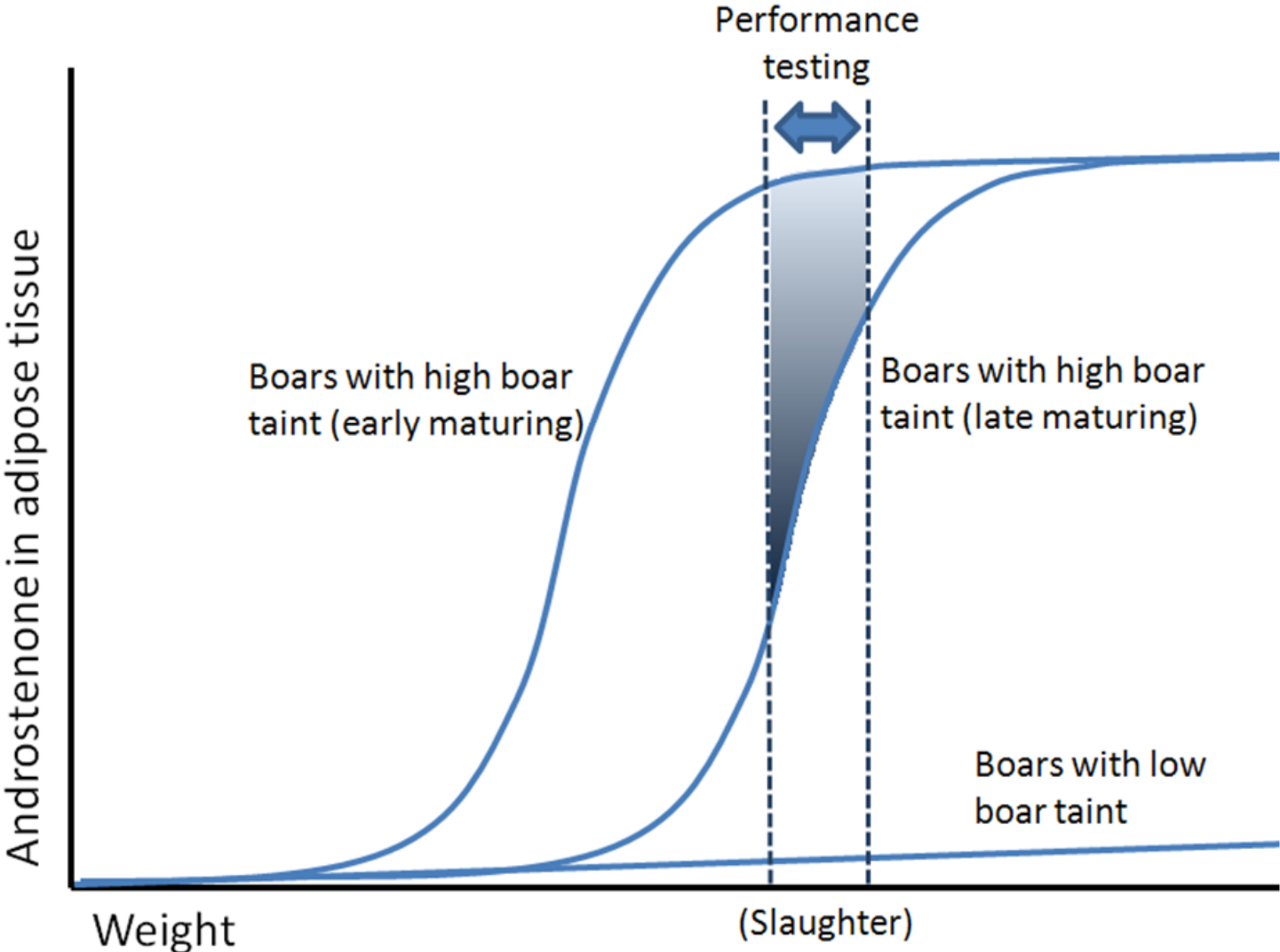
- 516 PREMOR® boars (9 herd book farms)
- 100 - 130 kg live weight
- 36 models per compound
- age, weight, farm/season, animal, litter effects

Heritabilities, phenotypic and genotypic correlations
(diagonals, lower & upper matrices, respectively)

	Androstenone	Skatole	Indole
Androstenone	0.452	0.110	0.354
Skatole	0.278	0.495	0.902
Indole	0.256	0.739	0.550

SE ranged from 0.067 - 0.079

Selection of low risk animals



(Figure adapted from Zamaratskaia and Squires, 2009)

Summary & Outlook

Performance test

- Early identification of low-risk boars (vs. sib/offspring info)
- Biopsy results are repeatable and reliable
- Routine testing started (SUISAG)

Genetic parameters

- Validation of statistical models & parameters (more data)
- Inclusion of “boar taint” in breeding goal planned 2013

Further research

- Long term effects? Fertility?
- How does boar taint develop over time?
- Identifying tainted carcasses (Risk index? AutoFOM?)
- How to process tainted carcasses?

*The authors gratefully
acknowledge funding
by the SUISAG and
the Swiss
Commission for
Technology and
Innovation (KTI)*

