

Progress in Pigs

TOPIGS



Improving low input pig production systems

Jascha Leenhouders
August 28, 2013



Defining Low Input Systems



- ✓ Low capital investment
- ✓ On-farm resources
- ✓ Outdoor
- ✓ Space
- ✓ Animal welfare
- ✓ Small herd size

Issues

Lack of dedicated breeding systems

Breed choice

High piglet mortality

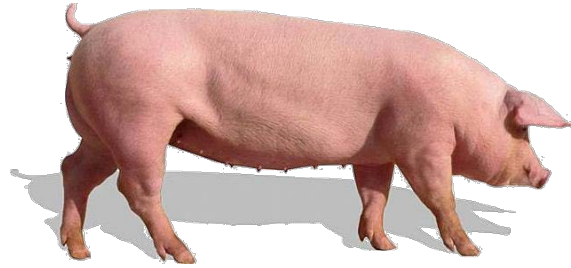
Heat stress

Improve product quality



Lack of dedicated breeding systems

Conventional breeds



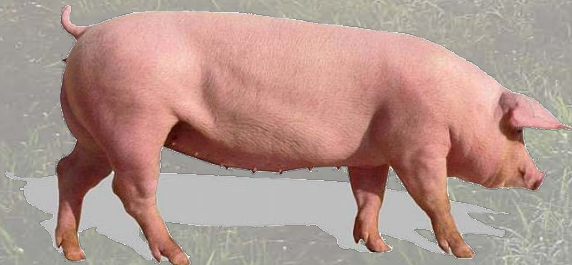
Small herd sizes limit own replacement breeding

Max 20% replacement gilts of conventional origin

Breed choice

Conventional

- Often used in commercial organic/low input pig production
- May be less suited for these systems



Traditional

- Favoured by organic production standards
- Prolificacy and carcass quality may be less suitable for commodity pork market



Piglet mortality



2x higher than in intensive systems

Large litters

Loose housing of sows

Lower feed quality

Heat stress

Increasing global temperatures

Pork production in warmer climates

Exposure in outdoor systems

Heat stress negatively affects sow production



Improve product quality

Heavy pigs (+160kg) for pork specialities

Limited fat quantity & quality of conventional breeds

Suitability of traditional breeds?



Project goals



Suitable breeds for low input systems

Design breeding systems low input systems

Breed for heat tolerant sows

Reduce piglet mortality by breeding & management

Improve product quality by breed choice & feeding regime

3 work packages

LowInputBreeds



First work package

BREEDS & BREEDING SYSTEMS

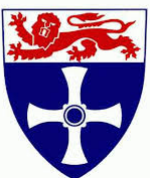
Replacement breeding

Pig mortality

Heat stress resistance



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Second work package

MANAGEMENT INNOVATIONS

Gilt rearing and lactation systems

Mothering ability

Piglet mortality

Piglet health



Third work package

BREED CHOICE & FEEDING REGIME

Product quality (sausage)

Finishing performance

Meat quality

Fat quality

Fatty acid composition

Consumer evaluation

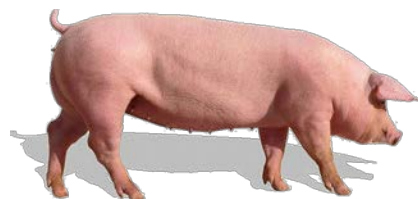


Results so far...



Breed choice

Traditional vs. Conventional breeds



Goal:

Evaluate performance of traditional vs. conventional breeds in low input & organic pig production systems

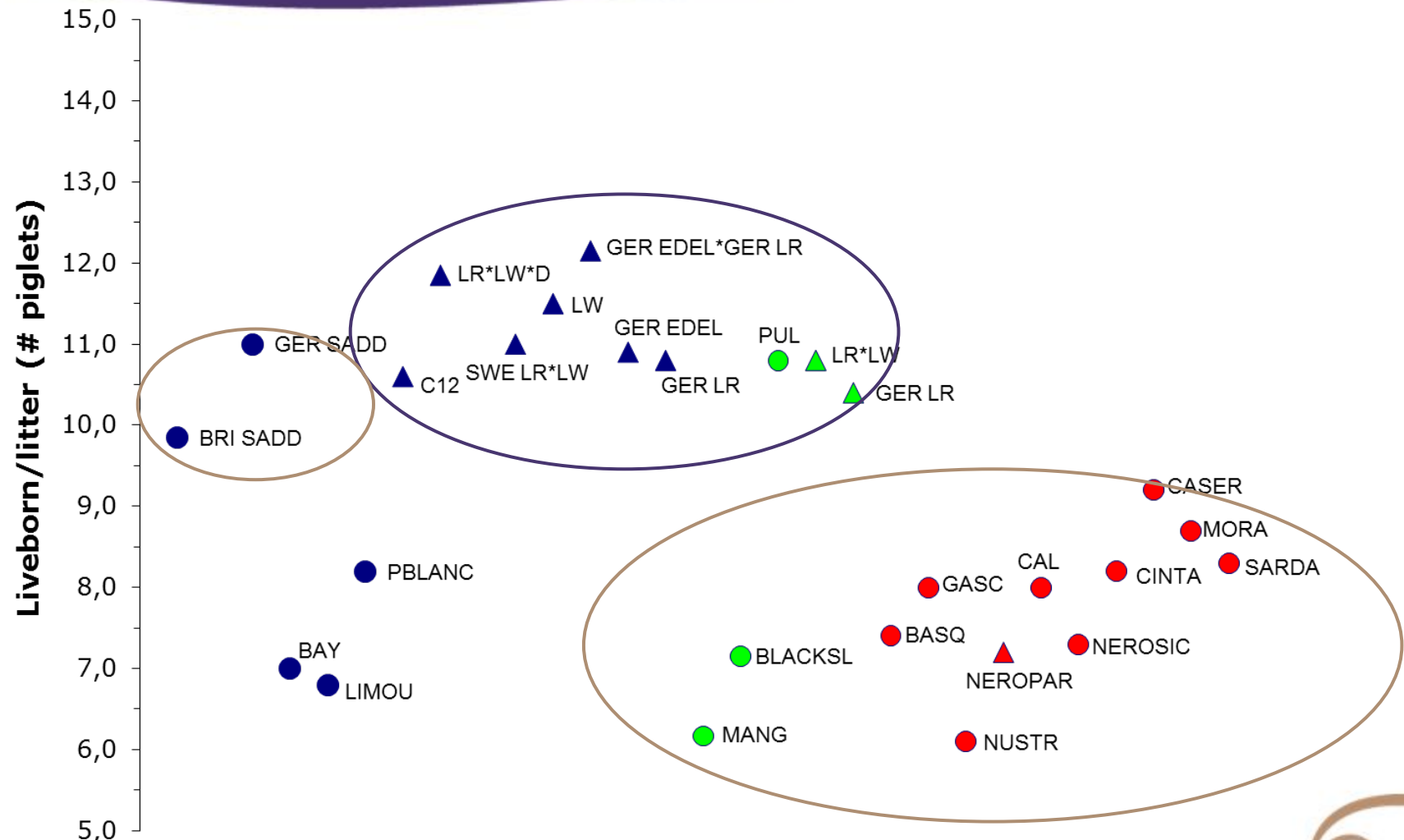
3 climatic regions within Europe

Literature + Surveys



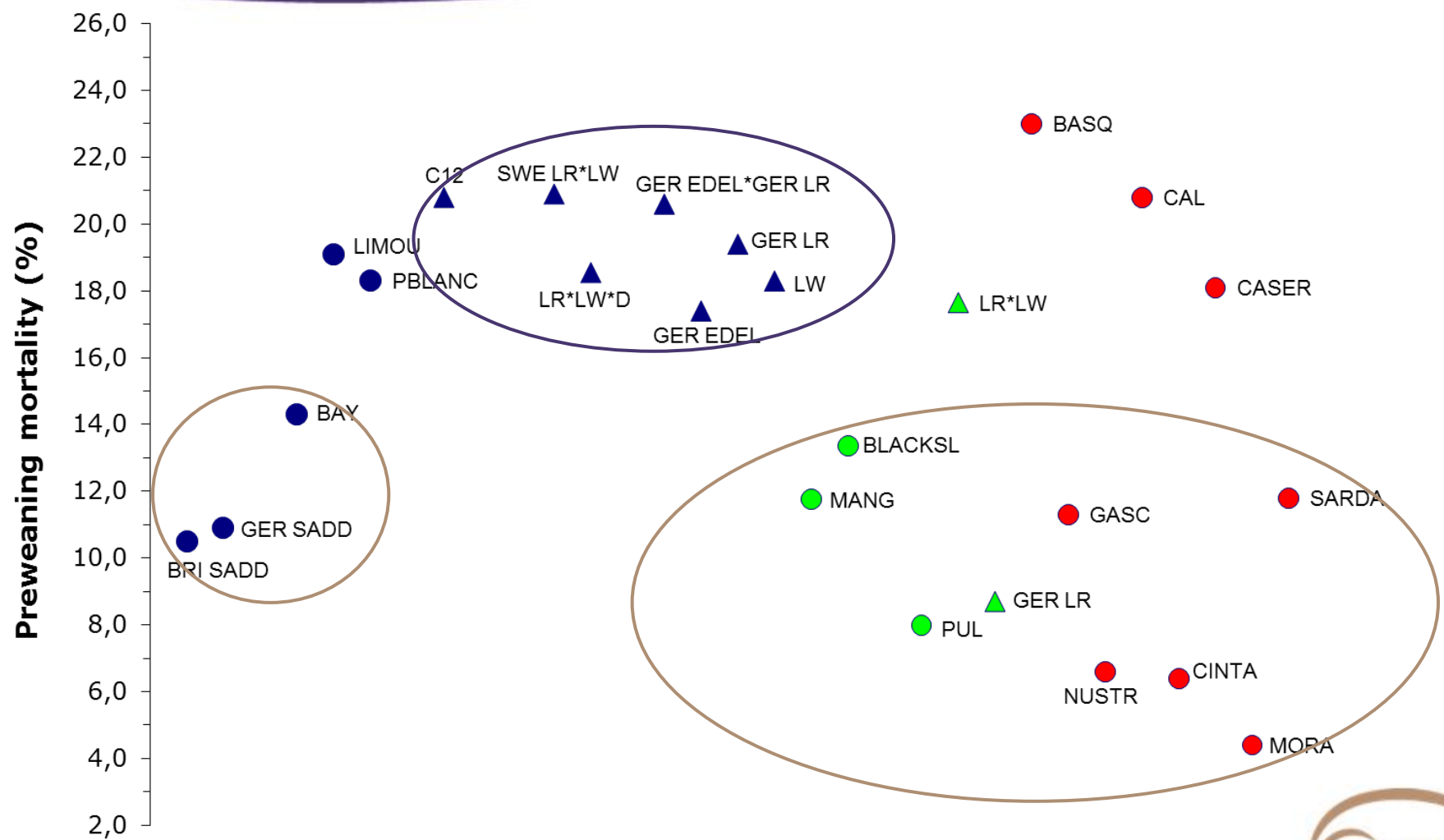
Traditional vs. Conventional breeds

Litter size



Traditional vs. Conventional breeds

Piglet mortality

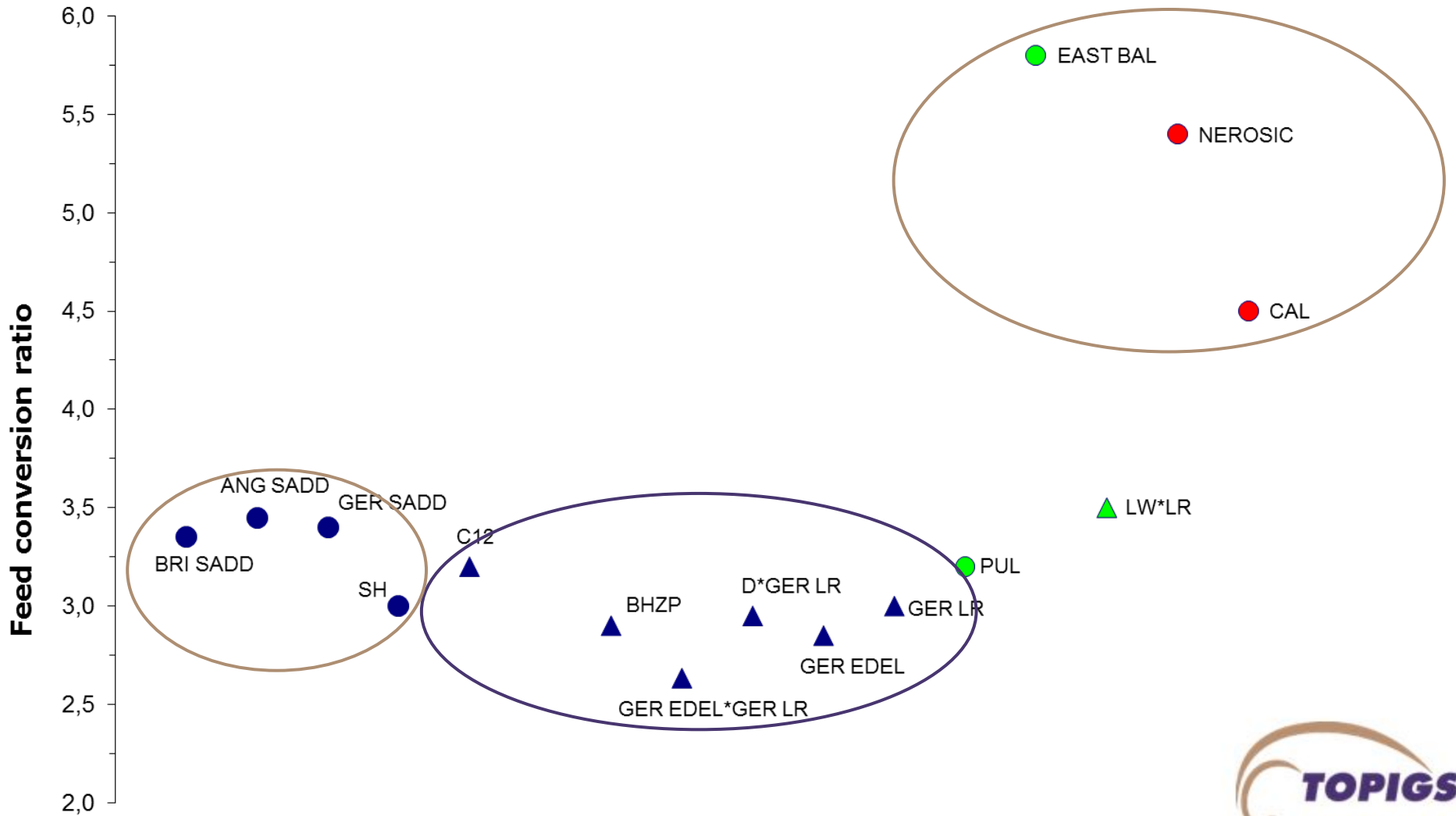


Leenhouwers *et al.* 2013



Traditional vs. Conventional breeds

Feed conversion



Leenhouwers *et al.* 2013

Breed choice

Conclusions



Conventional

- Large litters
- High mortality
- Fast growth, efficient
- Lean

- Temperate climates
- Controlled environment
- Commodity pork



Traditional

- Smaller litters
- Low mortality
- Slow growth, less efficient
- Fatter

1. Prolific breeds

Good finishing performance

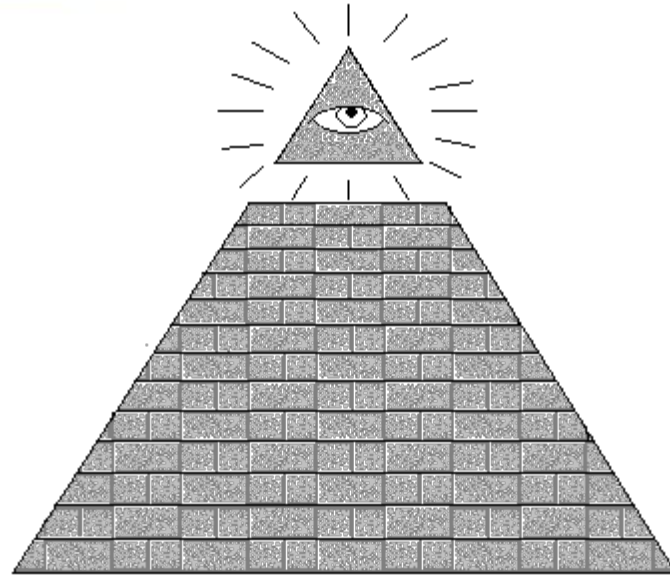
- Commodity pork

2. Special meat breeds

Less prolific and fat

- Added value products

Breeding systems



Goal:

Design a system that provides NL organic sector with own replacement gilts

Improve important traits

Dutch organic pig industry

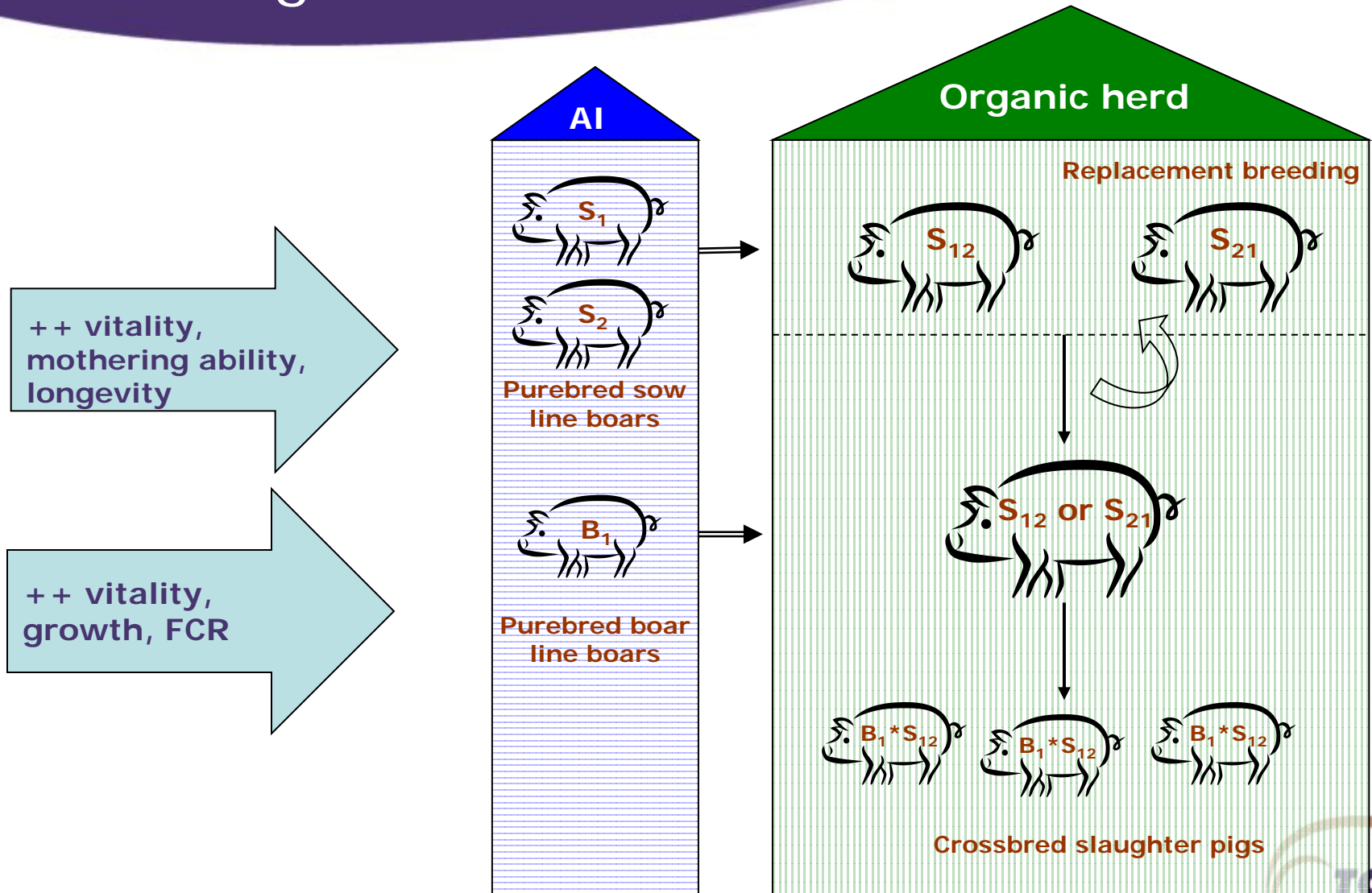
60 commercial organic pig farms (total \pm 5,000 sows)

Conventional breeds (Landrace/Large White crosses)

Purchase of conventional replacement gilts

TOPIGS EkoFok

17 NL organic farms



Breed for heat tolerant sows

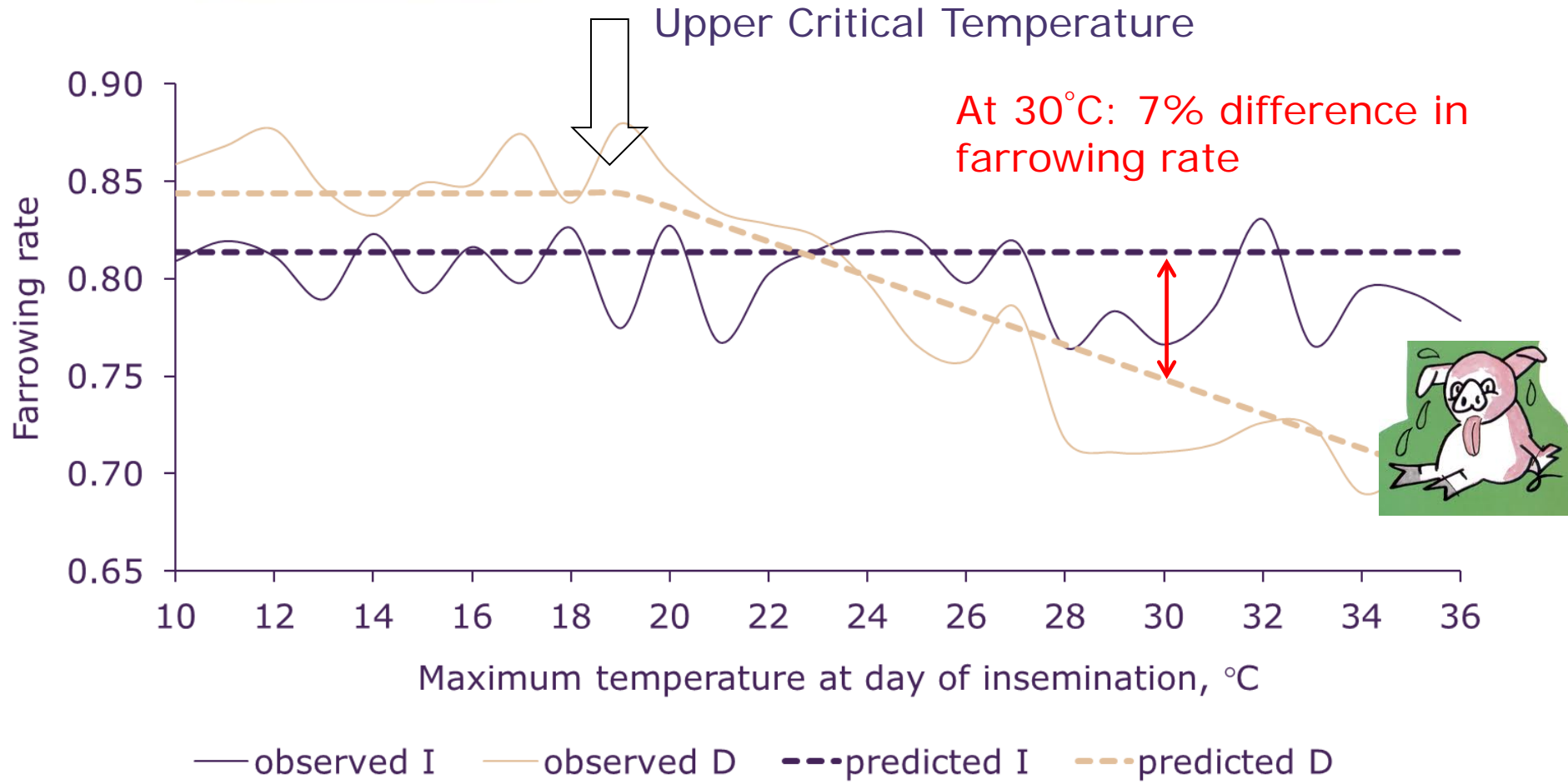


Goal:

Increase knowledge on genetic aspects of heat stress tolerance

Heat tolerance

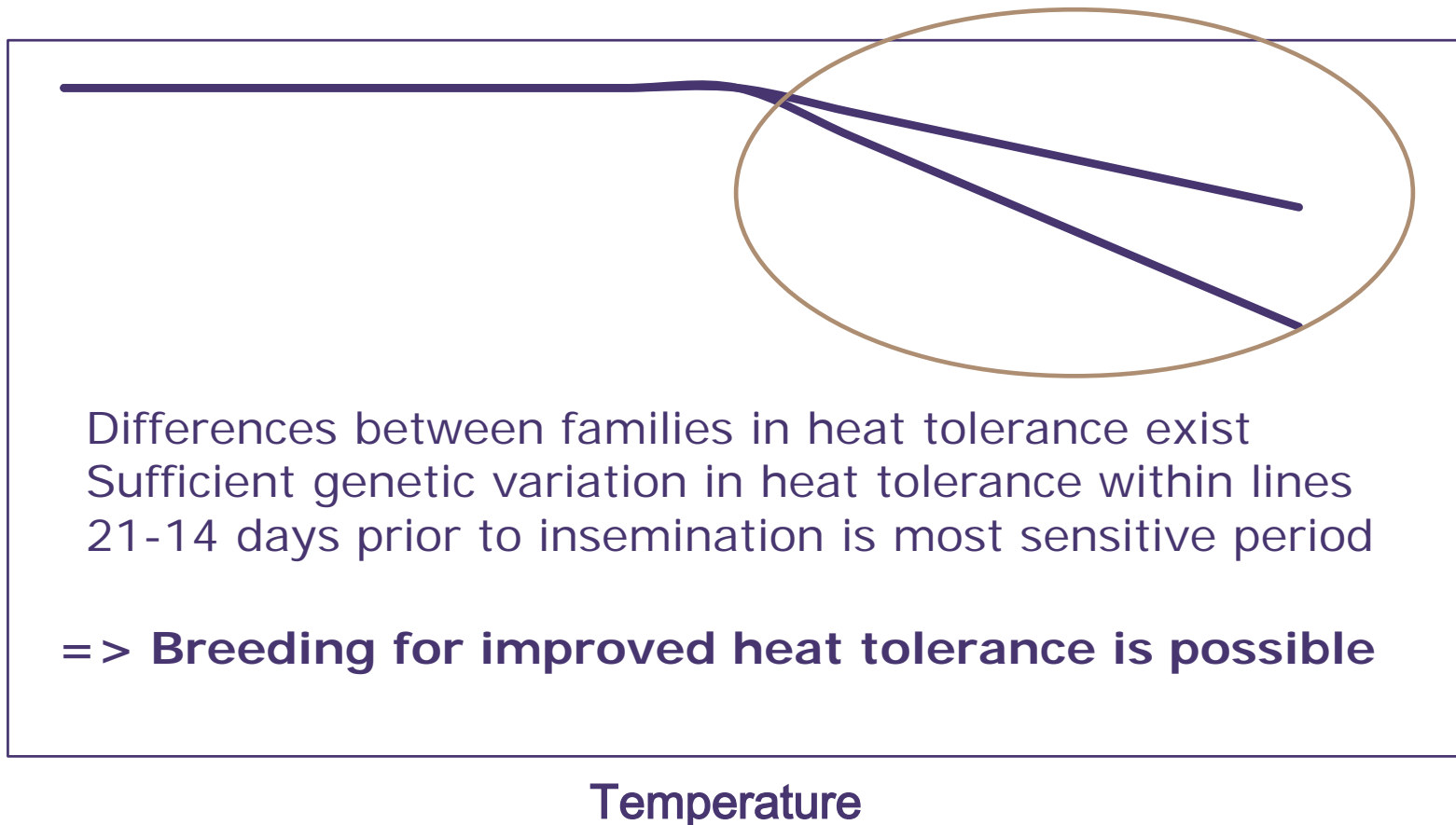
Differences between 2 lines



Genetics of heat tolerance

93,969 records from 24,456 sows located in Spain/Portugal

Farrowing rate



Improve product quality



Goal:

Improve carcass, meat and fat quality in heavy pigs used for premium sausage production

Traditional vs. Conventional breeds

Feeding regime

Production efficiency

	Saddleback	Pi*Sad	Modern hybrid
No. Finishers	46	42	44
Avg daily gain, g/d	624 ^a	716 ^b	804 ^c
Feed conversion ratio	4.7 ^a	4.0 ^b	3.6 ^b
Carcass weight, kg	128.4	129.5	129.5
Lean meat, %	32.2 ^a	45.4 ^b	54.2 ^c

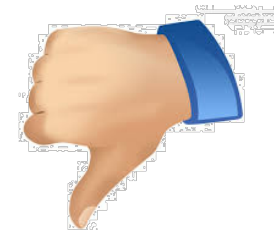
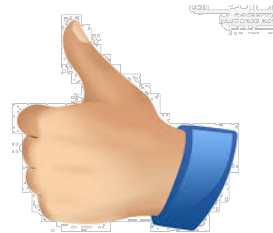
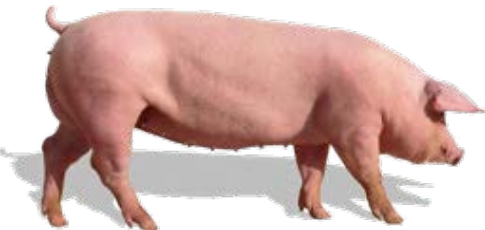
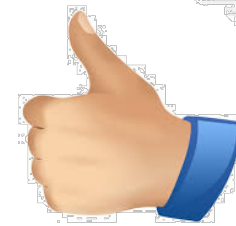
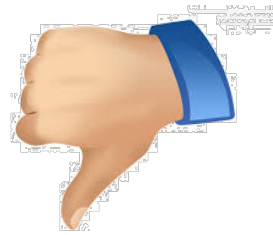
Fat quality Consumer desirability

	Saddleback	Pi* Sad	Modern hybrid
No. Finishers	46	42	44
Saturated Fatty Acids, %	37.8 ^a	36.7 ^b	35.8 ^c
Mono-Unsaturated Fatty Acids, %	50.2 ^a	49.9 ^a	48.6 ^b
Poly-Unsaturated Fatty Acids, %	11.9 ^a	13.3 ^b	15.4 ^c
Sensory evaluation (1-5)	4.5	3.9	3.6

Improving sausage quality

Production efficiency

Fat quality
Consumer desirability



=> Piétrain* Saddleback: suitable alternative?



Thank you for
your attention!