Optimising breeding schemes for market-oriented smallholder pig producers in NW Vietnam

R. Rößler, P. Herold, A. Valle Zárate

Institute of Animal Production in the Tropics and Subtropics, Universität Hohenheim, 70593 Stuttgart, Germany
**roessler@uni-hohenheim.de**

Problem statement

- ☐ Strong promotion of pig production by national policies, national and international projects

- ☐ Main implementation in lowland areas

- ☐ Upland areas: Many barriers for effective participation of smallholder producers in the market for pork

- ☐ Solution: Village breeding programs integrating suitable breeds making most efficient use of limited resources

Objectives

☐ **Genetic and economic evaluation of existing crossbreeding scheme of market-oriented smallholder pig producers**

☐ Development and evaluation of alternative breeding programs for pigs in different smallholder pig production systems

☐ Identification and evaluation of alternatives for breeding organisation at smallholder pig farms
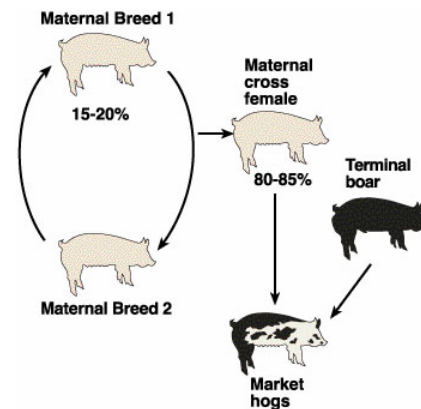
Research site

- Son La province, NW Vietnam

- 5 project villages

- Data collection periods:

  April – December 2006

  September – December 2007
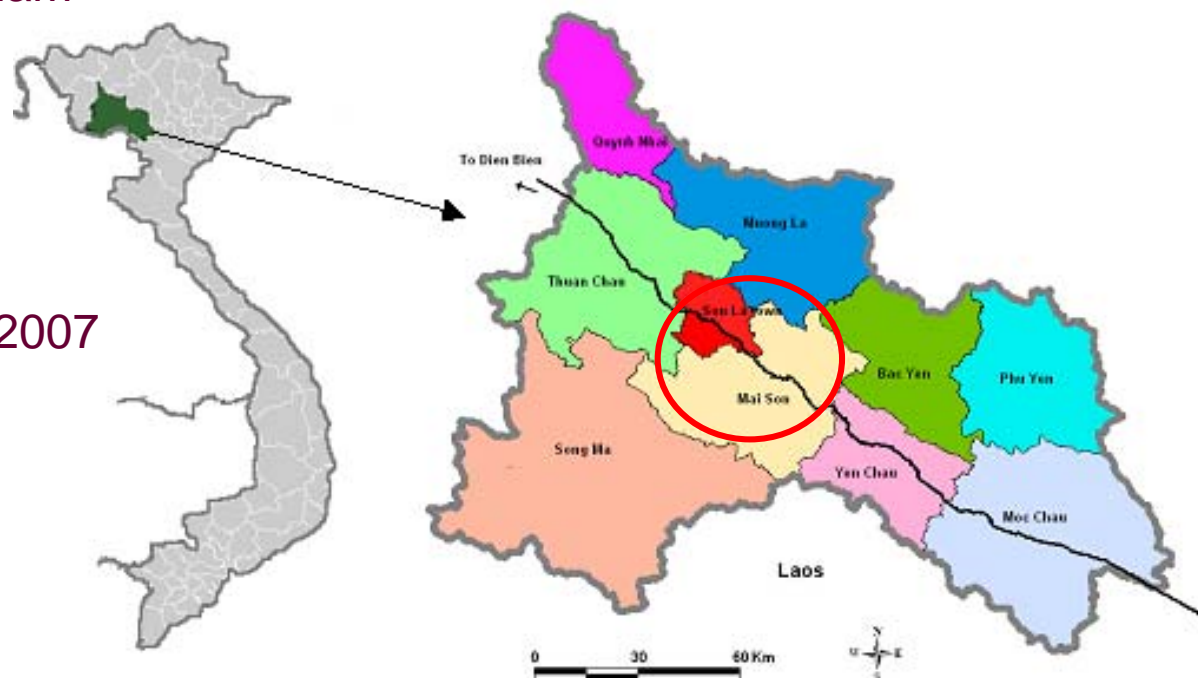
Methods

On-farm survey (personal interviews)	Desk study
On-farm survey (personal interviews) 120 smallholders with 169 sows SAS 9.1: Descriptive analysis	**Desk study** Description and reports of a project's on-farm performance testing scheme (OPTS) Scientific literature

|	
a) Breeding management and costs b) Selection criteria c) Breed and trait preferences	a) "Breeding costs" b) Technical parameters c) Genetic parameters d) Population parameters

Model of the current breeding scheme

Methods, cont'd

- ☐ Model calculations with computer program ZPLAN

- ☐ Genetic and economic evaluation of breeding schemes
  - ⮝ Deterministic approach
  - ⮝ Gene-flow methodology
  - ⮝ Selection index theory

- ☐ Evaluation criteria
  - ⮝ Annual genetic gain of breeding objective traits
  - ⮝ Profit

Mating scheme in place

Village herds
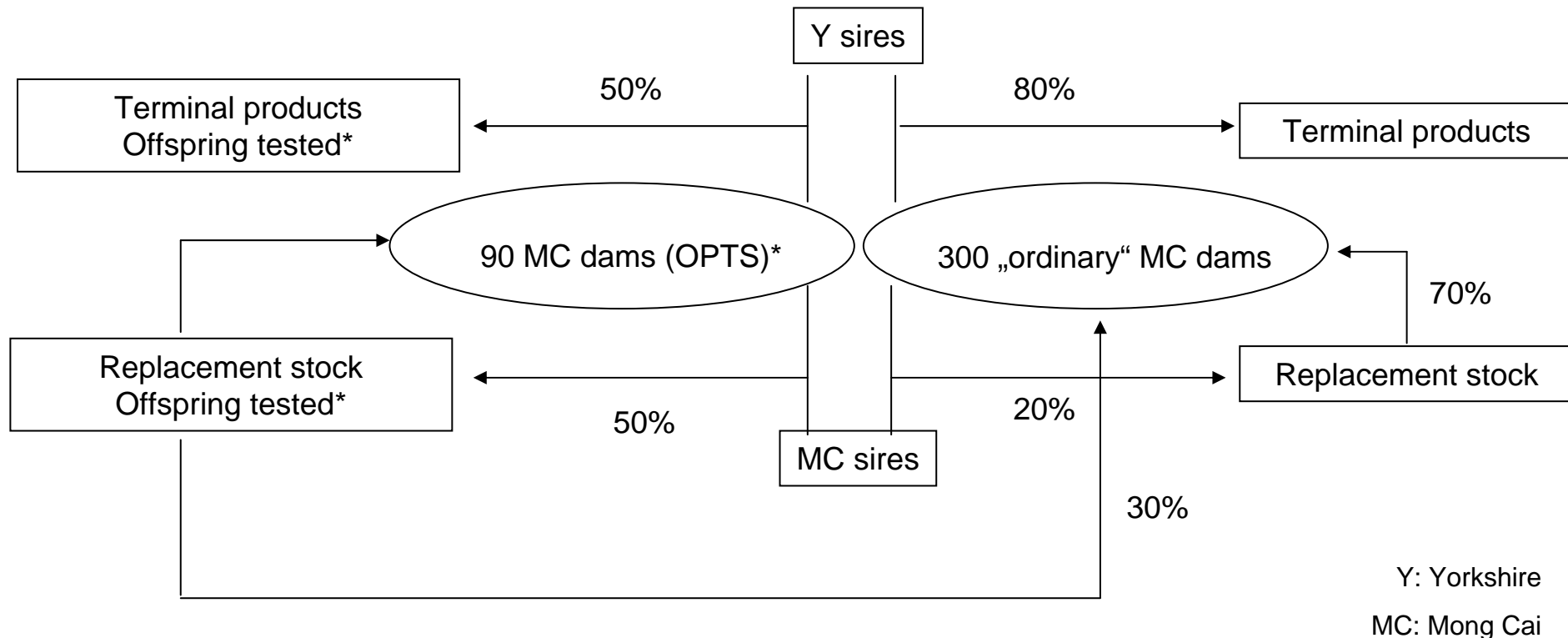2 sire breeds, 1 sow breed

Y | MC | X (MC)

Offspring
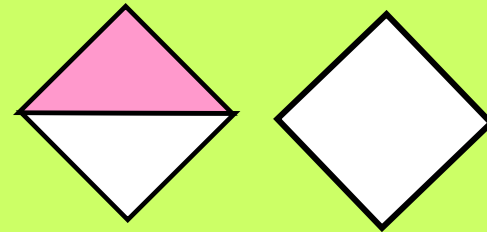
Y: Yorkshire

MC: Mong Cai

Flow chart of the model

* Recorded traits: litter size, farrow interval, daily gain, backfat thickness, body measurements
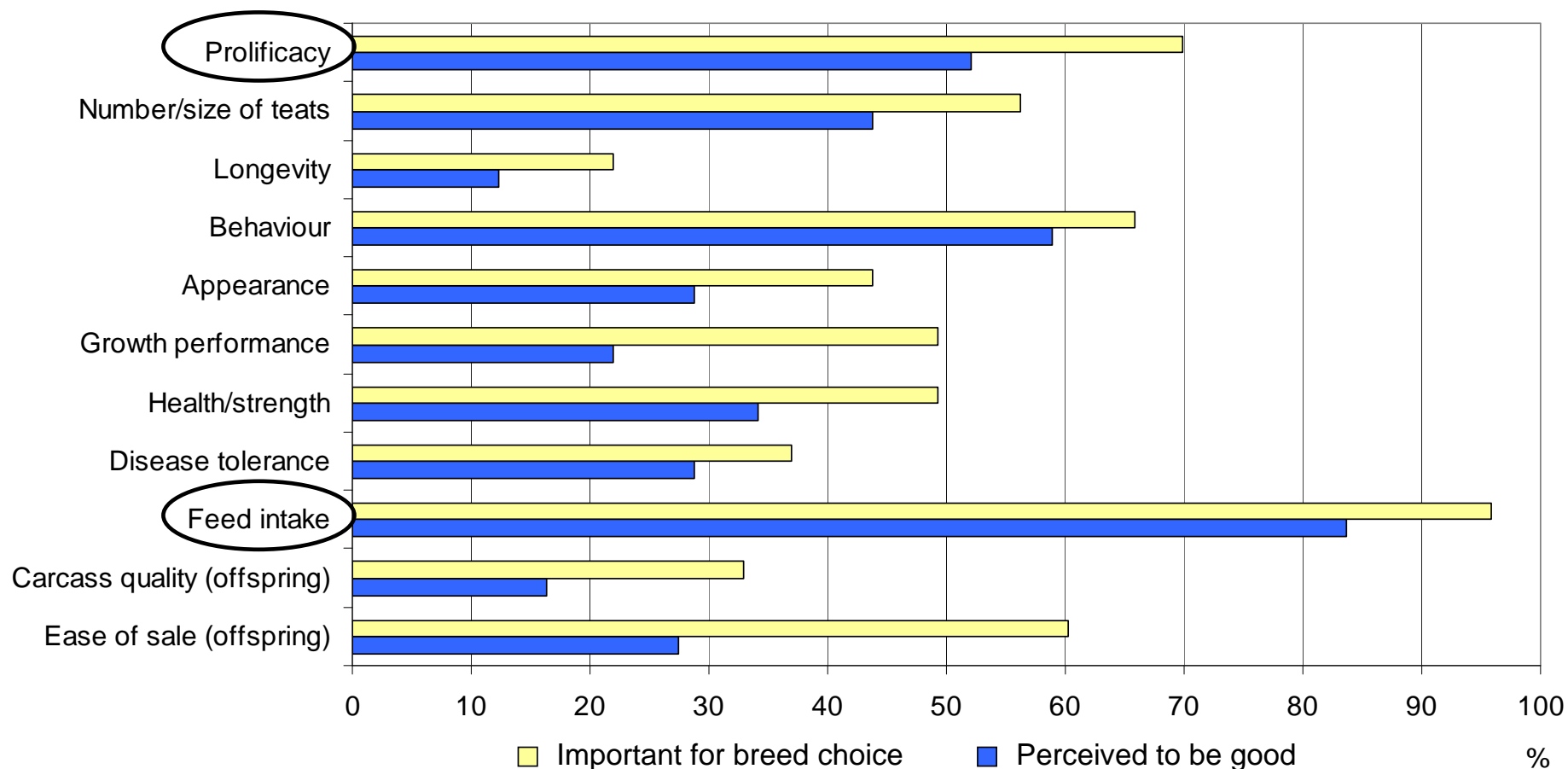
Survey results

Smallholder breed preferences

☐ Predominant sow breed: Improved local Mong Cai (60%); differences between villages ⇨ transition process

☐ Preferred sire breeds: Exotic, i.e. imported breeds (79% of Mong Cai sows mated by exotic sires)
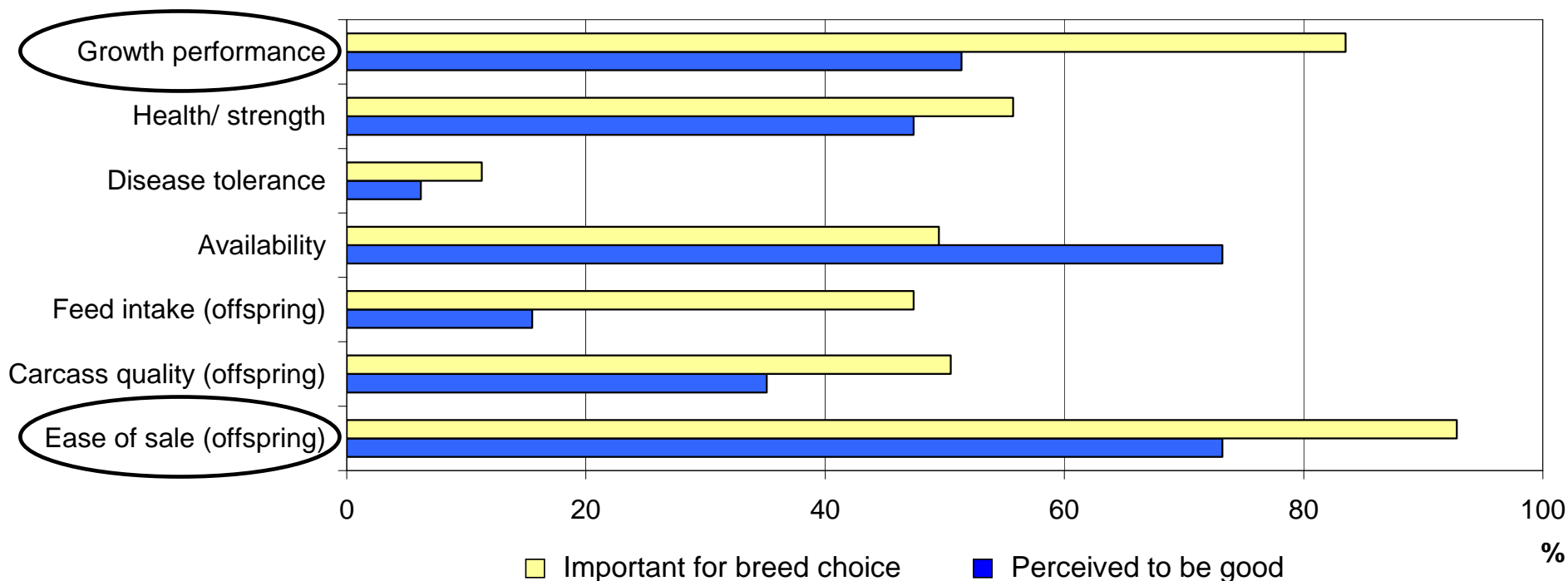
Survey results

Smallholder trait preferences (Mong Cai sows)
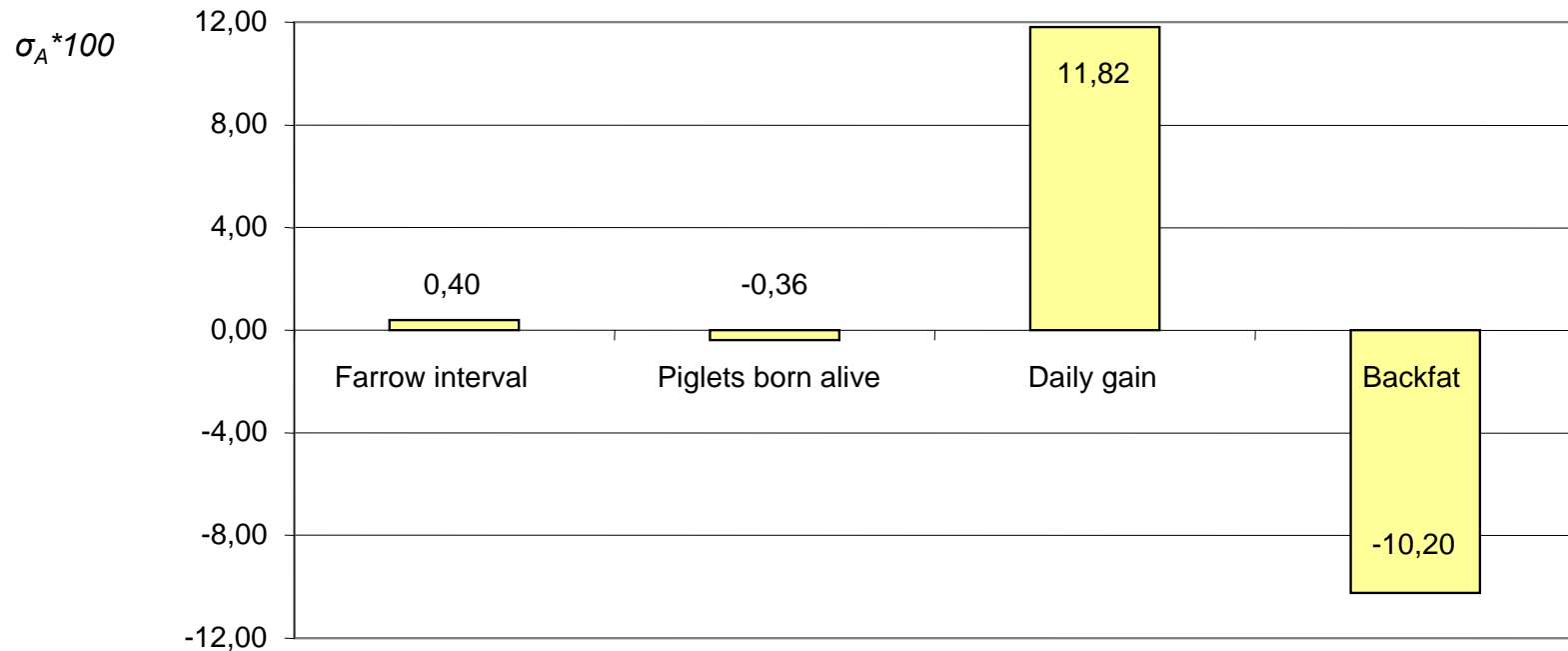

73 respondents; multiple answers were possible

Survey results

Smallholder trait preferences (exotic sires)

97 respondents; multiple answers were possible

Modelling results

- ☐ Annual genetic gain in production and carcass quality traits, negative trend in reproduction traits

- ☐ High negative breeding profit (-33.90 € sow^{-1}year^{-1})

On-going work

☐ Further model calculations with ZPLAN:

- ▲ to account for adaptation traits

- ▲ to derive possible linkages with resource-driven pig production in the uplands

- ▲ considering the local Ban breed

☐ Data analysis and writing up results (pig breeding organisation):

- ▲ to describe different institutions from regional to village level and their interrelations

- ▲ to give recommendations how to improve the organisation of pig breeding at village level

Acknowledgements