Faculty of Agricultural and Nutritional Science

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Environmental impact of the pork supply chain depending on farm performances

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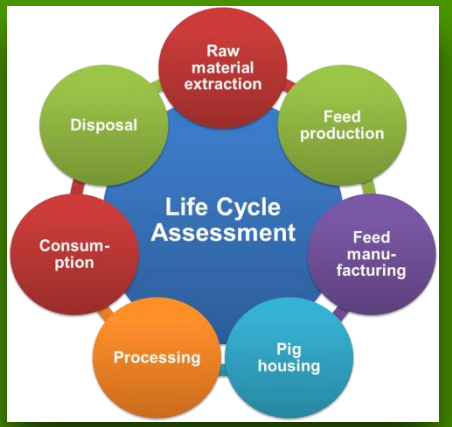

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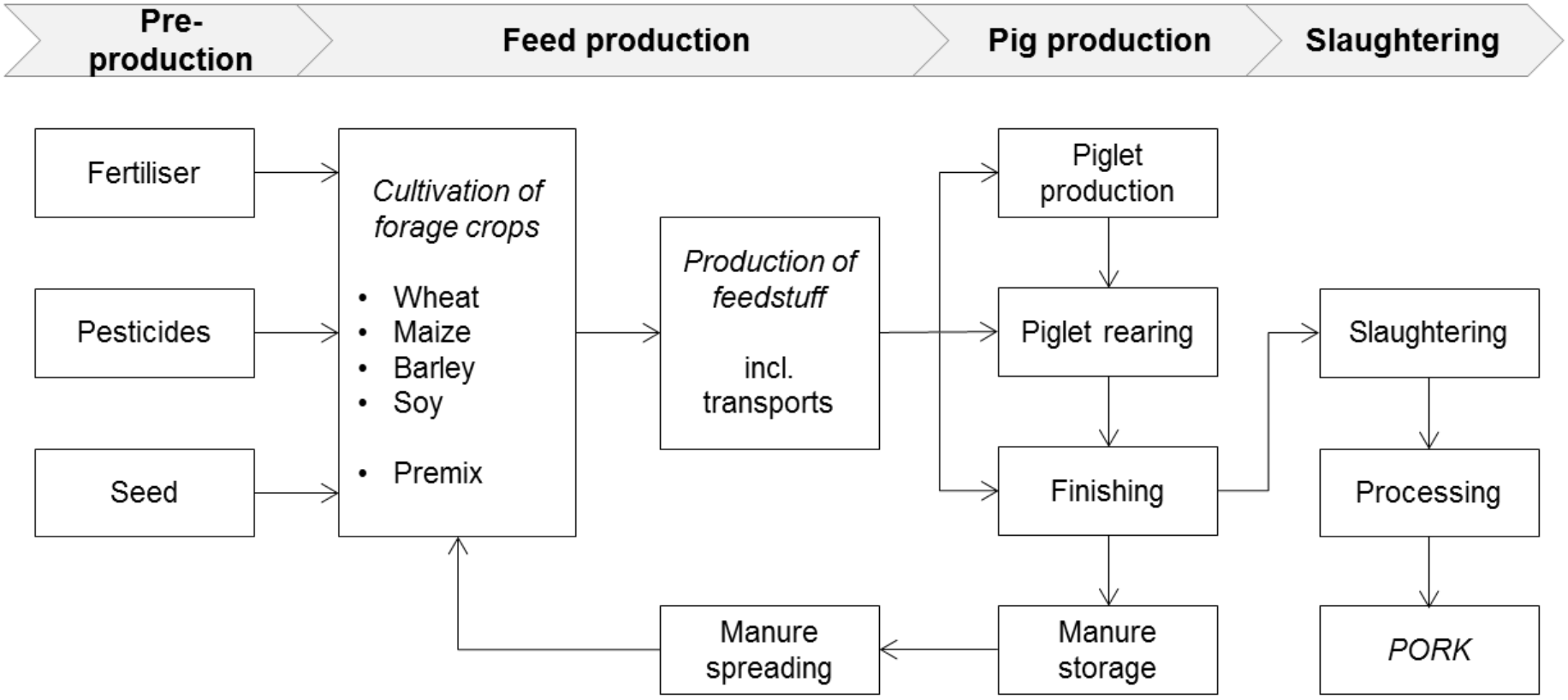
Introduction

- Germany: 8 % of the greenhouse gases are from livestock production (KTBL, 2011)
- Greenhouse gases: CO_2, CH_4, N_2O
- Life Cycle Assessment (LCA) estimates potential environmental impacts and resources used throughout pork production
- Average GWP of pork: 3.6 kg CO_2-eq per kg pork

Aim

Assessment of the influence of different farm performances on the environmental impact of the pork supply chain

Data and methods



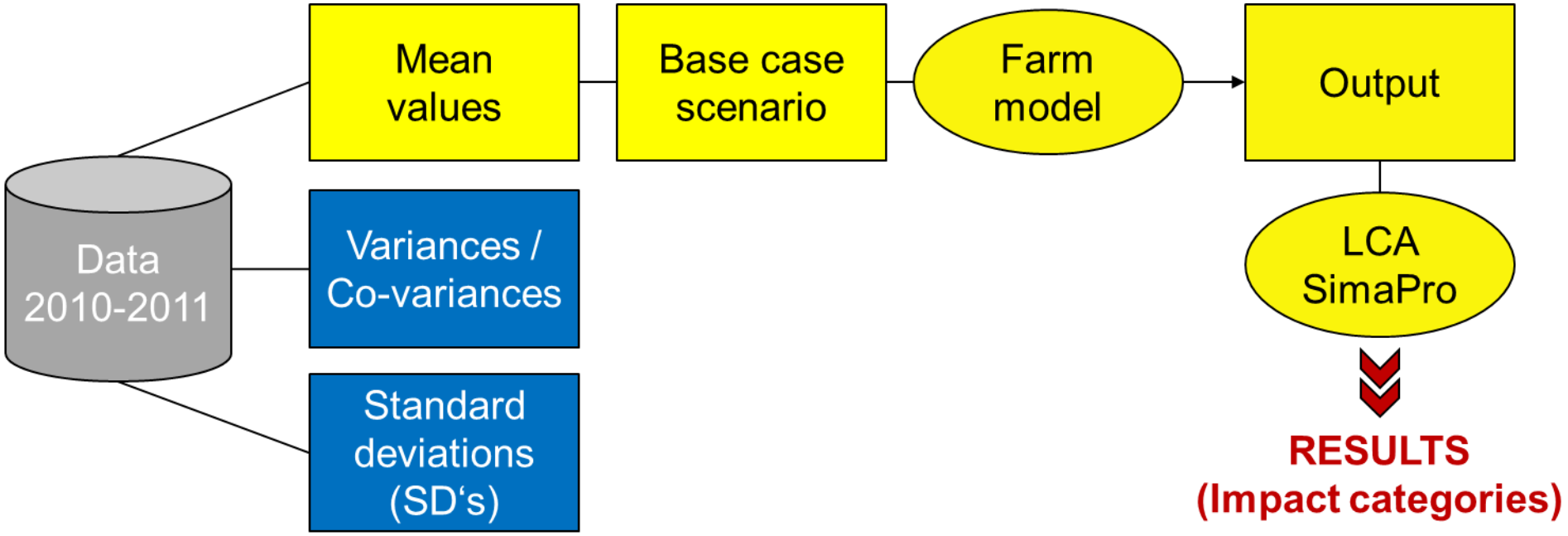
Functional unit: 1 kg pork (slaughter weight)

Data and methods

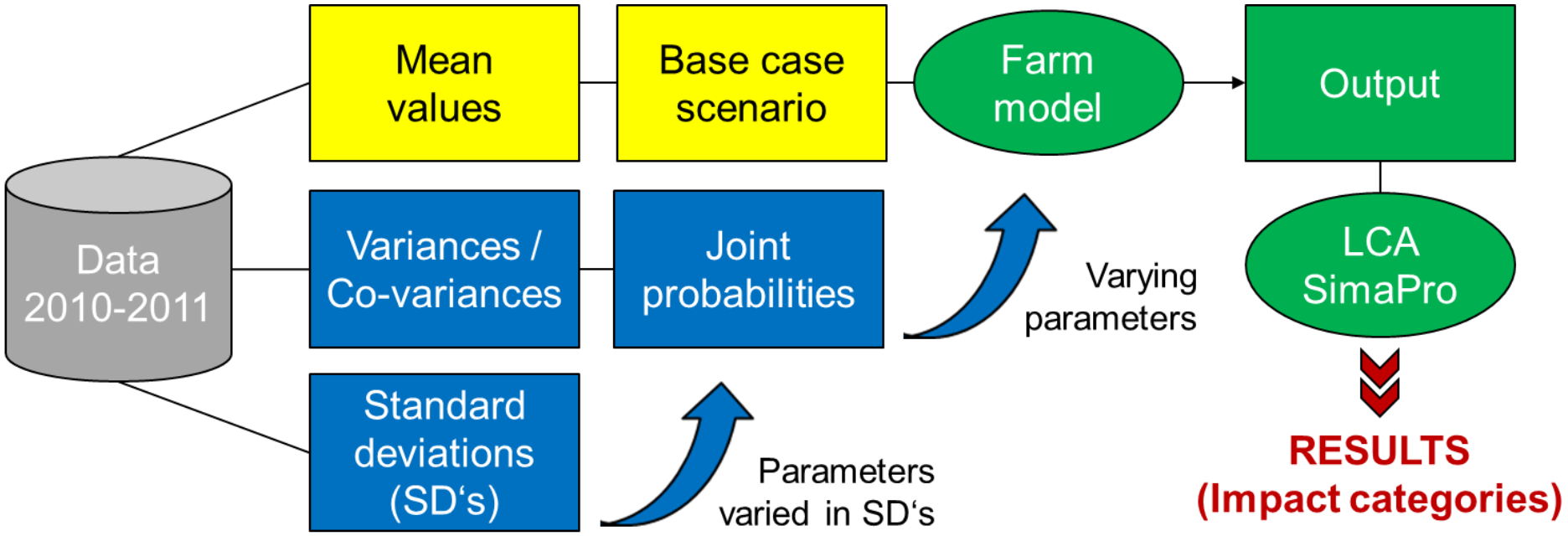
Database

- Collected data and literature data
- Feeding
  - Feed company in Northern Germany
  - 4 different feed mixtures (2 sow feeds, 1 piglet feed, 1 finisher feed)
- Pig housing
  - Average data donated by an extension service
  - Production stages: piglet production, piglet raising, finishing
- Slaughtering
  - Slaughterhouse in Northern Germany
  - Gathered data from 2008

Data and methods



Data and methods



Data and methods - Variations

- Variation of different performance parameters

- Piglet production
  - Number of live born piglets per litter
  - Piglet losses

- Finishing
  - Daily weight gain
  - Feed conversion ratio
  - Lean-meat content
  - Animal losses

	Parameter	Mean	SD
Piglet production	Live born piglets (No.)	13.7	3.0
	Piglet losses (%)	14.6	5.0
Finisher	Daily weight gain (g)	788	48
	Feed conversion ratio 1: (kg)	2.87	0.08
	Lean-meat content (%)	56.6	1.4
	Animal losses (%)	2.9	2.5

Results – Average production

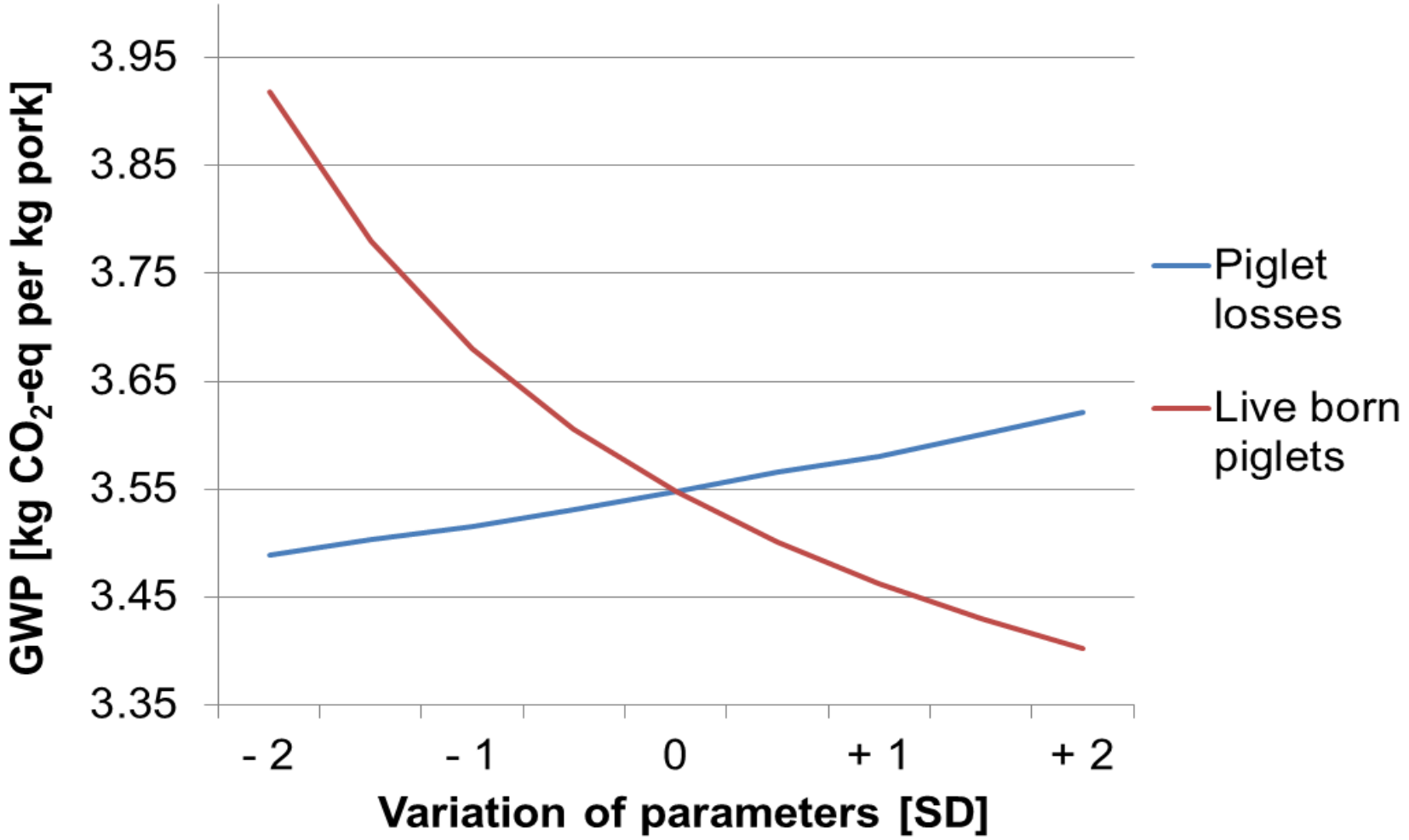
Results of average production in 2010/2011 for the impact categories (per kg pork)

- Global warming potential (GWP)
- Eutrophication potential (EP)
- Acidification potential (AP)

Impact categories	GWP (kg CO_2-eq)	EP (g PO_4-eq)	AP (g SO_2-eq)
Average production	3.55	22.9	58.0

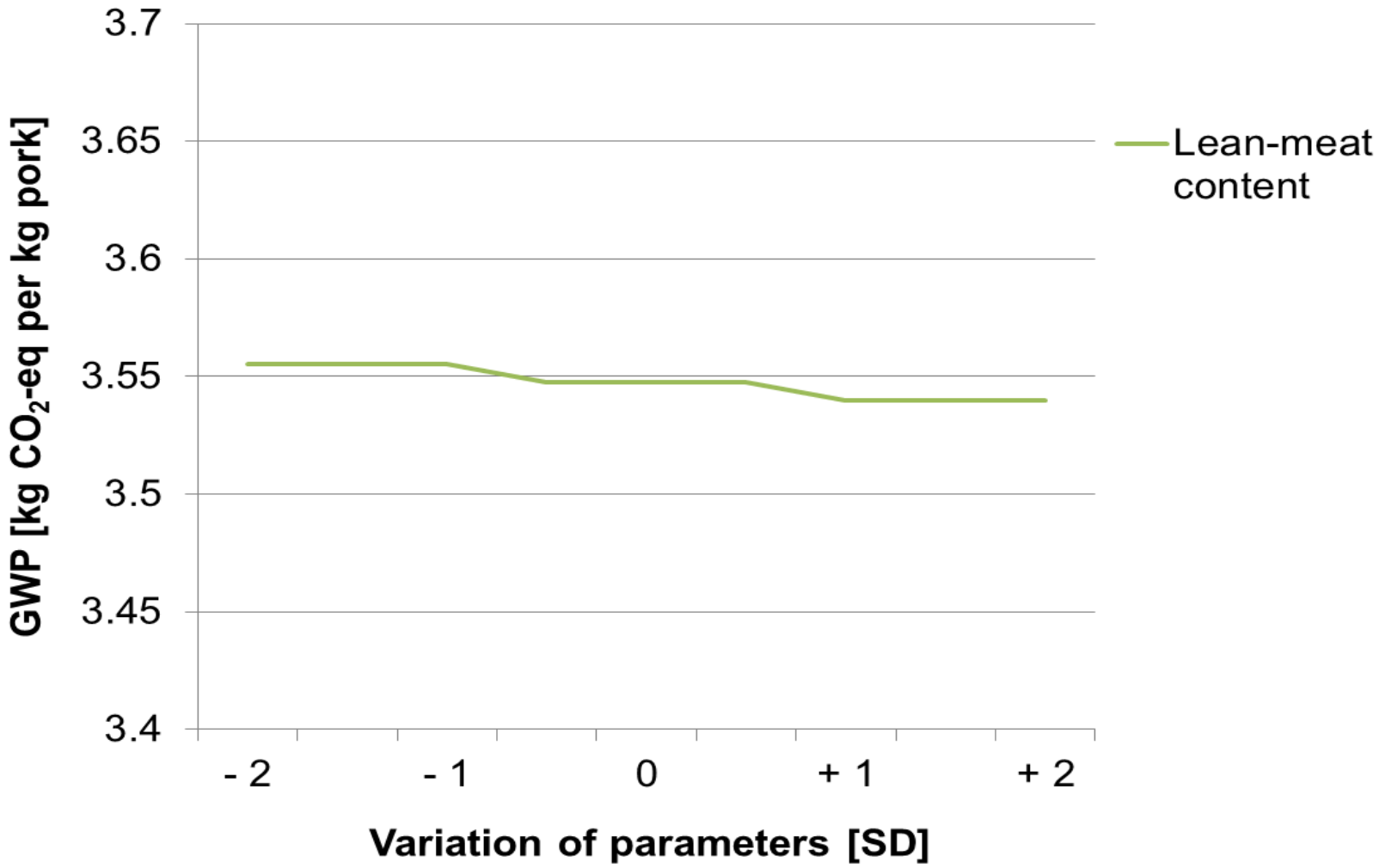
Results – Piglet production

Global warming potential



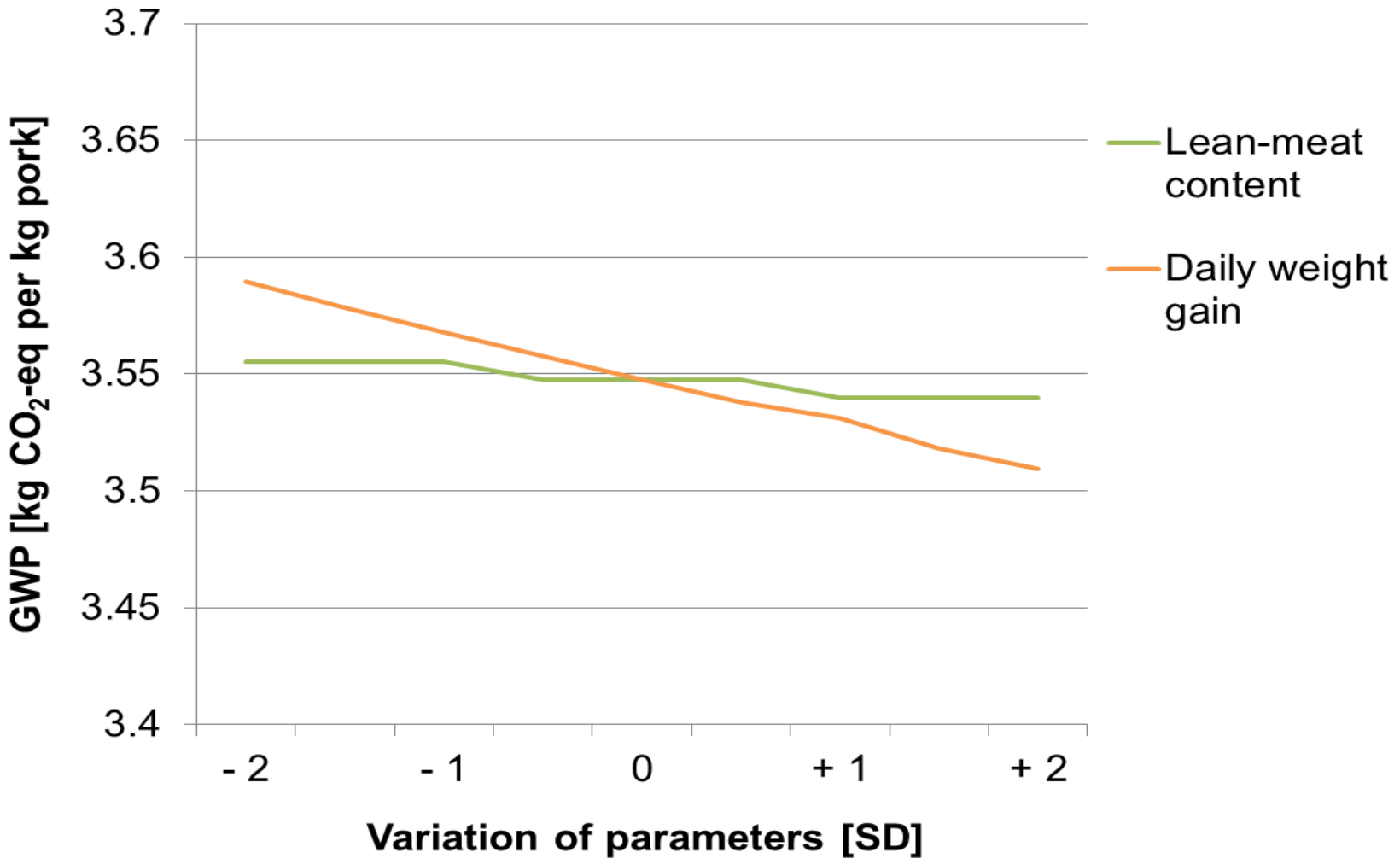
Results – Finishing

Global warming potential



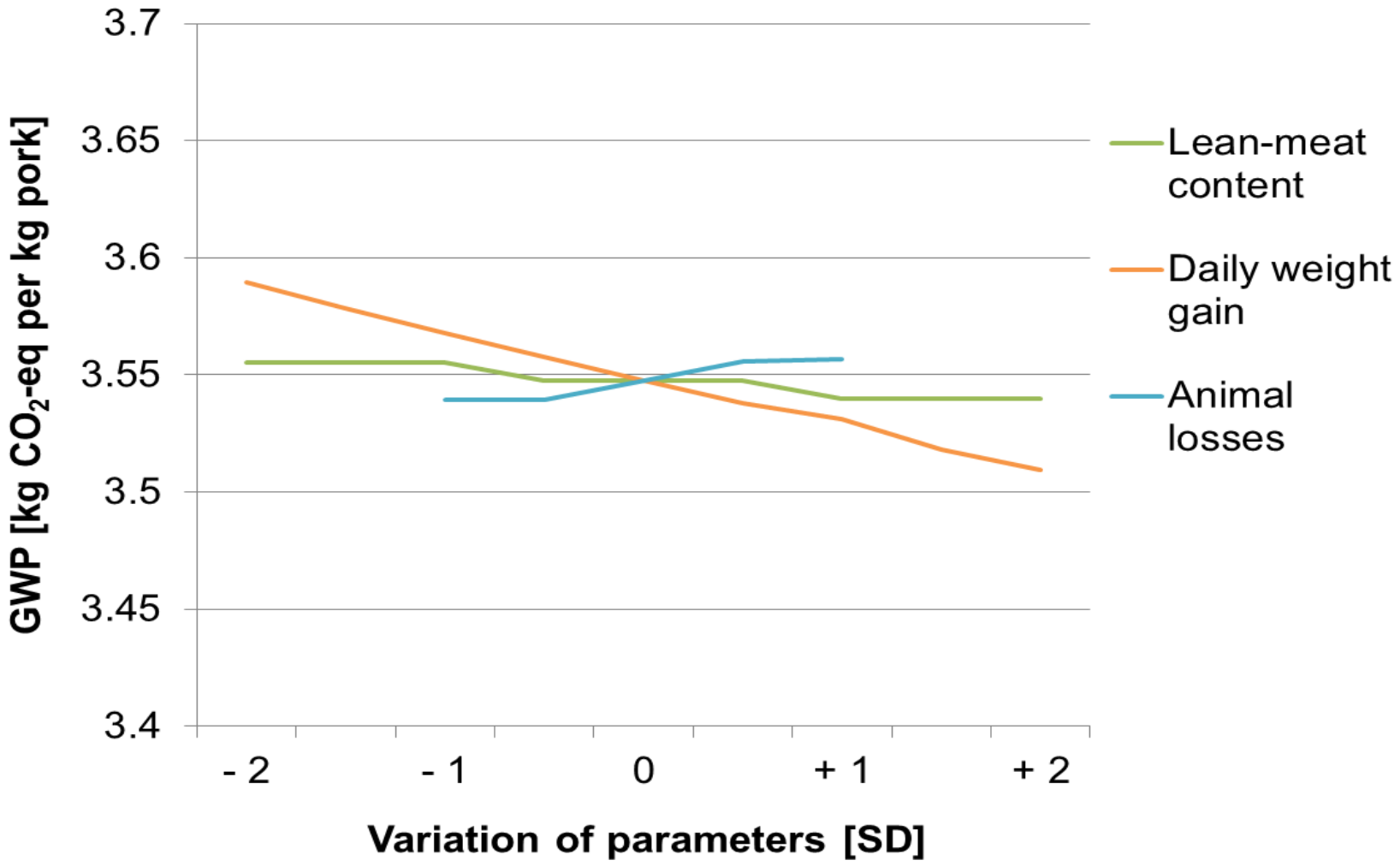
Results – Finishing

Global warming potential



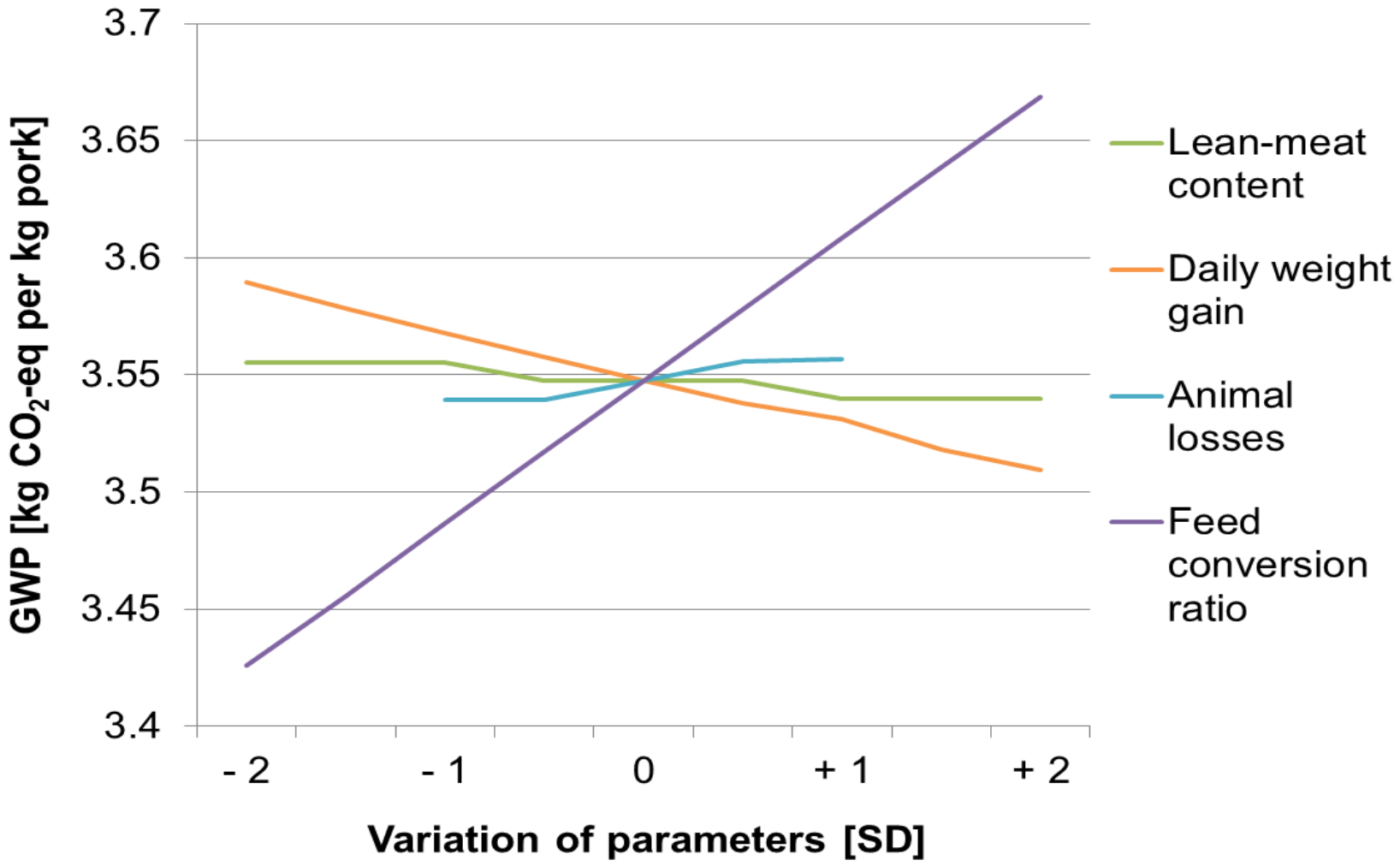
Results – Finishing

Global warming potential



Results – Finishing

Global warming potential



Summary

Average pork production 2010/2011

3.55 kg CO_2-eq per kg pork

Greatest **variations** for live born piglets and feed conversion ratio

- LBP: 3.92 - 3.40 kg CO_2-eq per kg pork (-2 to +2 SD‘s)
- FCR: 3.43 - 3.67 kg CO_2-eq per kg pork (-2 to +2 SD‘s)

Pig housing stage

Fertility of sows and feed conversion of finisher pigs as main hot spots for mitigation potential

Thanks for your attention!

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