Das Zweinutzungshuhn in der Praxis: Wirtschaftliche Effizienz von Hähnen eines neuen Genotyps in Deutschland

The dual-purpose chicken in practice: Economic efficiency of cockerels of a new genotype in Germany

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PPILOW Project

The PPILOW project aims to **co-construct,** through a **multi-actor approach,** solutions to **improve the welfare of poultry and pigs** reared in organic and low-input outdoor production systems.

PPILOW Project Partners

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Research background

- Every year, around 330 million male day-old chicks are killed in the European Union *(Animal Society, 2022).*
- As of 1 January 2022, Germany became one of the first countries in the world to ban the killing of male chicks by law *(EPRS, 2022).*
- While banning the killing of male chicks is considered to address **animal welfare** and **ethical concerns**, there are still some open questions regarding the alternatives and their **economic viability**.
- The use of **dual-purpose breeds** is one of the alternatives to the culling of chicks.

DE: Article TierSchtG Art. 1 § 4c

- From 1/1/2022 : makes it a punishable offence to kill a vertebrate animal "without reasonable cause" (unprofitability) or to cause it suffering and pain

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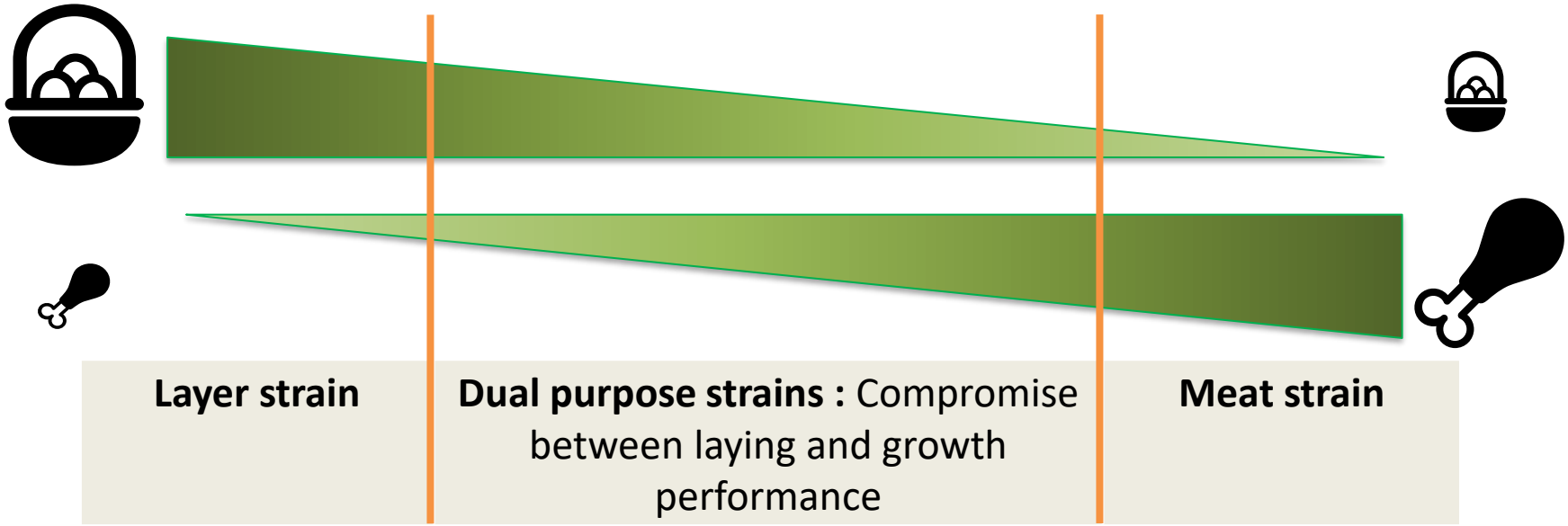
Dual purpose genotypes



- Dual-purpose breeds : the females are reared for egg production, and the males for meat production.

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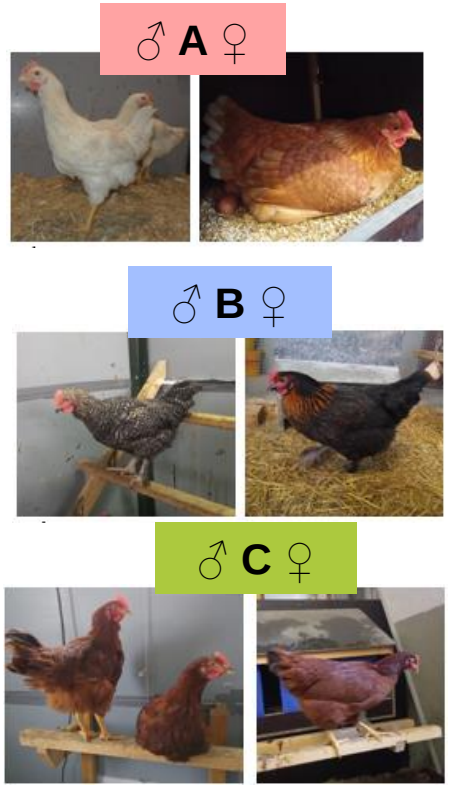
Aim of the study

To compare **technical** and **economic performance** of three different dual-purpose genotypes reared in Germany under organic conditions.

Genotype A : dual-purpose cross breed (meat production)

Genotype B: dual-purpose rustic breed

Genotype C : dual-purpose cross breed (eggs production)



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Methodology

On-station farm trial

- The On-station farm trials were conducted at the Thünen-Institute of Organic Farming in Westerau.
- The following birds were reared under organic conditions: **Genotype A** = 160 birds, **Genotype B** = 160 birds, **Genotype C** = 139 birds and **JA757** = 160 birds.
- JA757 is a control group that corresponds to a slow-growing breed commonly used in organic poultry production.

TIPI-CAL [Technology Impact and Policy Impact Calculations]

- A production and accounting model.
- Whole farm level and enterprise level analysis.

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PPILOW Latest updated structure of economic model
Data Analysis and Practice change analysis

Practice change analysis

- Analysis of innovative technologies
- Integration of new farm businesses
- Significant changes in management practices

Trial settings

- Farm data sets
- TIPI-CAL: production and accounting model

Hard to assess the real farm impacts

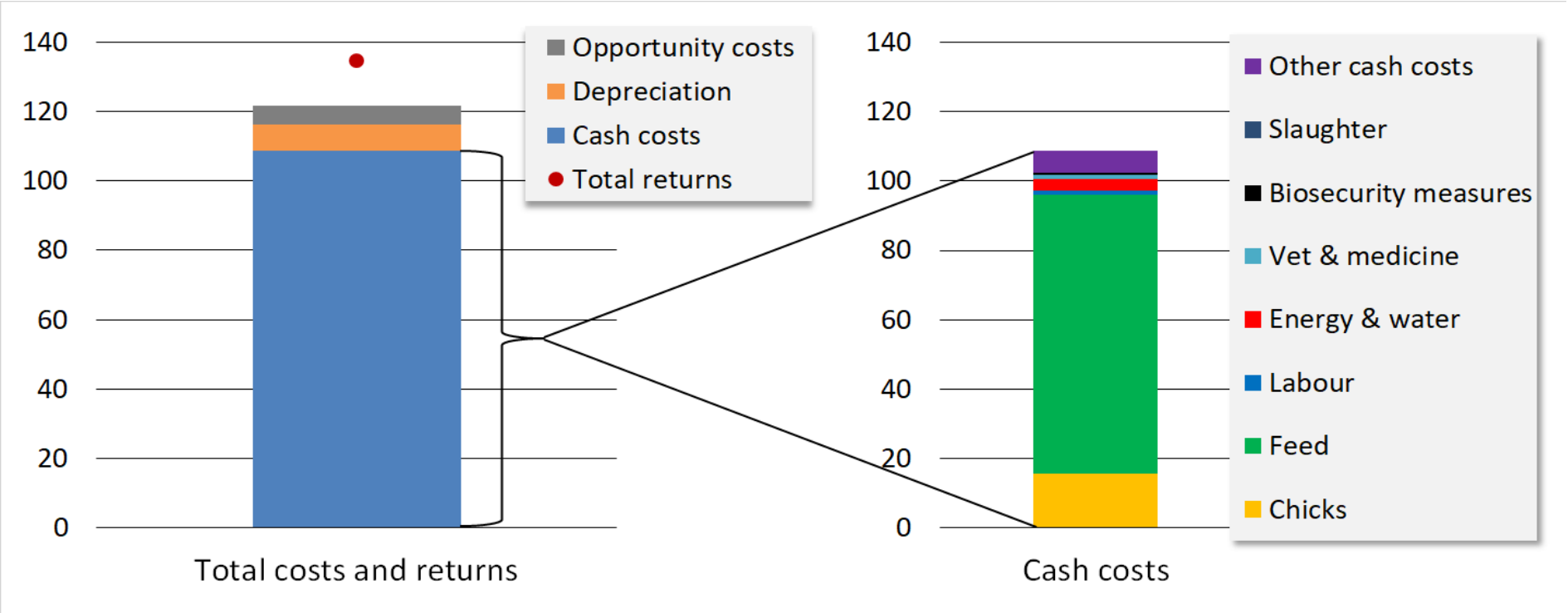
Real-world effects (cost structure & returns)
Complex and multifactorial challenges

Data Analysis – Revenues, fixed and variable costs

Physical parameters:

- Nr. cycles/year, Daily weight gain, Mortality rate, FCR

Production costs and returns (EUR/100 kg LW of produced chicken meat)



Results

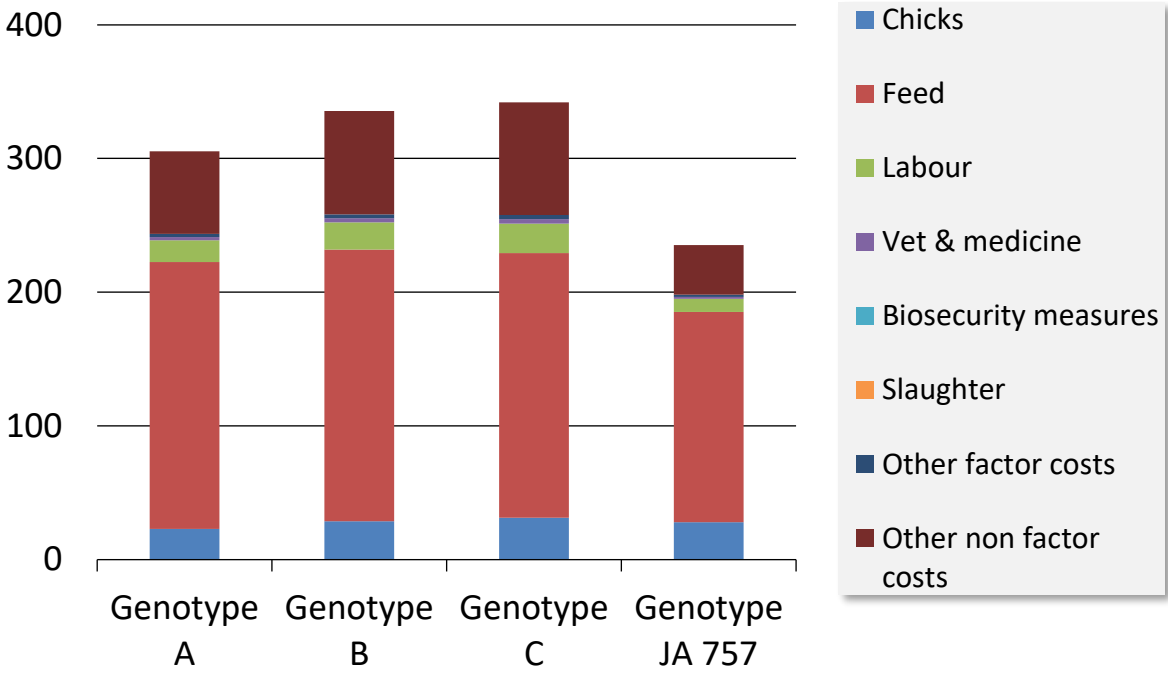
Comparison of farm performance indicators

	Genotype A	Genotype B	Genotype C	Genotype JA757
Feed Conversion Ratio (FCR)	3,4	3,5	3,4	2,7
Daily weight gain (g/day)	26,1	20,8	19,3	44,6
Average feeding period (days)	83	83	83	85
Total feed consumed per bird (g)	7.444	6.069	5.478	10.217
Final live weight (g)	2.203	1.763	1.634	3.831
Mortality at farm level (%)	1,1	1,1	2,1	3,3




Results

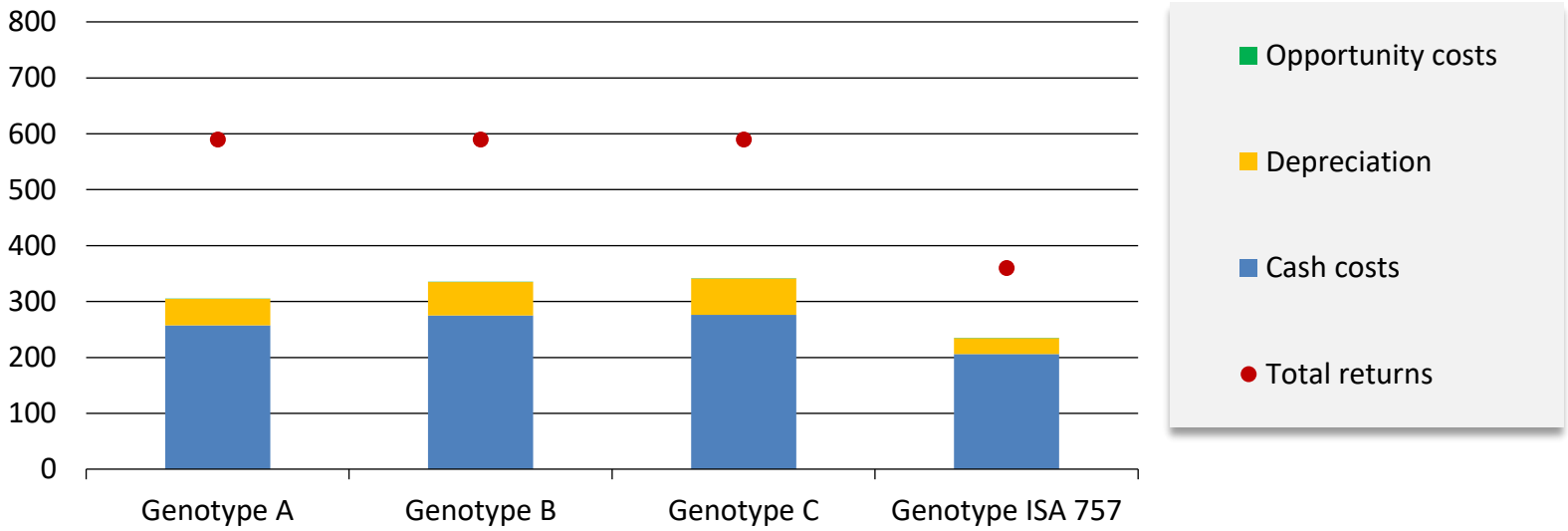
Costs of production of male dual purpose breeds in Germany (€/100 kg LW)



- Genotype (GT) A: lowest production costs among dual purpose genetics.

Results

Total costs, returns and profitability (Euro/100 kg live weight)



- **Short term profitability** = total returns – cash costs.
- **Medium term profitability** = total returns – cash costs – depreciation costs.
- **Long term profitability** = total returns – cash costs – depreciation costs – opportunity costs.

Conclusions

- The more emphasis on laying performance the dual purpose genotypes have, the poorer the feed conversion and the higher the production costs.
- The higher the production costs are for fattening male dual purpose breeds, the higher the selling prices should be for the cock (to cover costs). Alternatively, the costs can be "cross-subsidized" via a price premium for eggs.

Perspectives :

- Productivity of the females should be considered for a complete economic analysis of dual-purpose genotype: selling eggs a higher price?
- Could males from dual-purpose genotypes valorize side products of the food industry to decrease feeding cost?

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Thank you for your attention.

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