PPILOW

Case study of a newly-developed genotype for dual-purpose rearing of male chicks

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AARHUS UNIVERSITY INRAE SYSAAF

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 816172

PPILOW Status of chick culling in Germany and France

Layer strain

Selection based on egg production, egg quality traits

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Progeny

Fertilized eggs

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Chicks

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~~***Culling of day-old male chicks***~~

FR: Article R214-17

- From 1/1/2023 : all hatcheries have to be equipped with operational material to avoid culling chick
  -> Special case when it is not possible to respect the decree

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

Stategies :

- **fattening of males of layer lines**
- **In ovo sexing**
- **dual-purpose genotypes**

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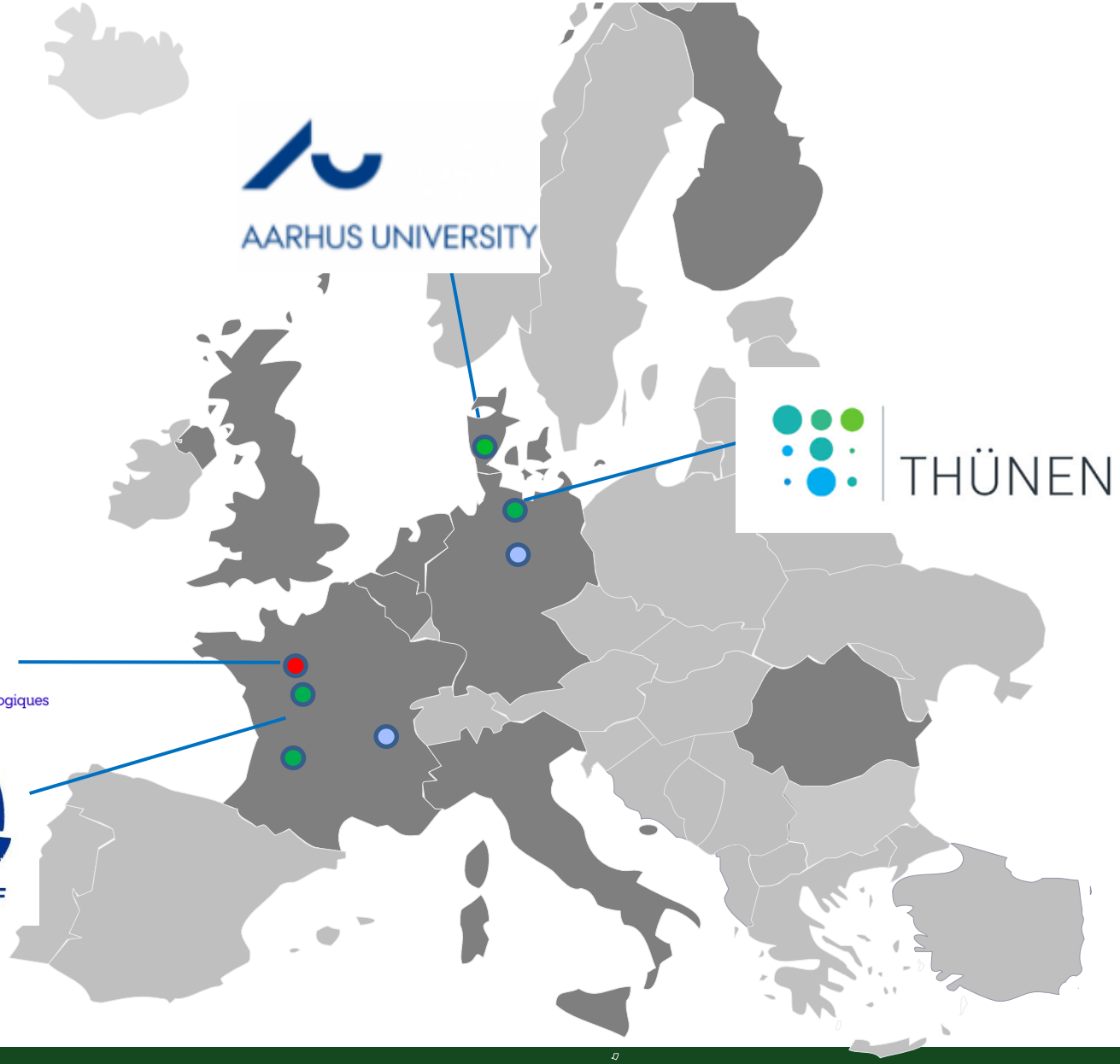
PPILOW Partners : on-farm trials of dual-purpose genotypes

- Farms involved
- Research institutes
- Technical institute



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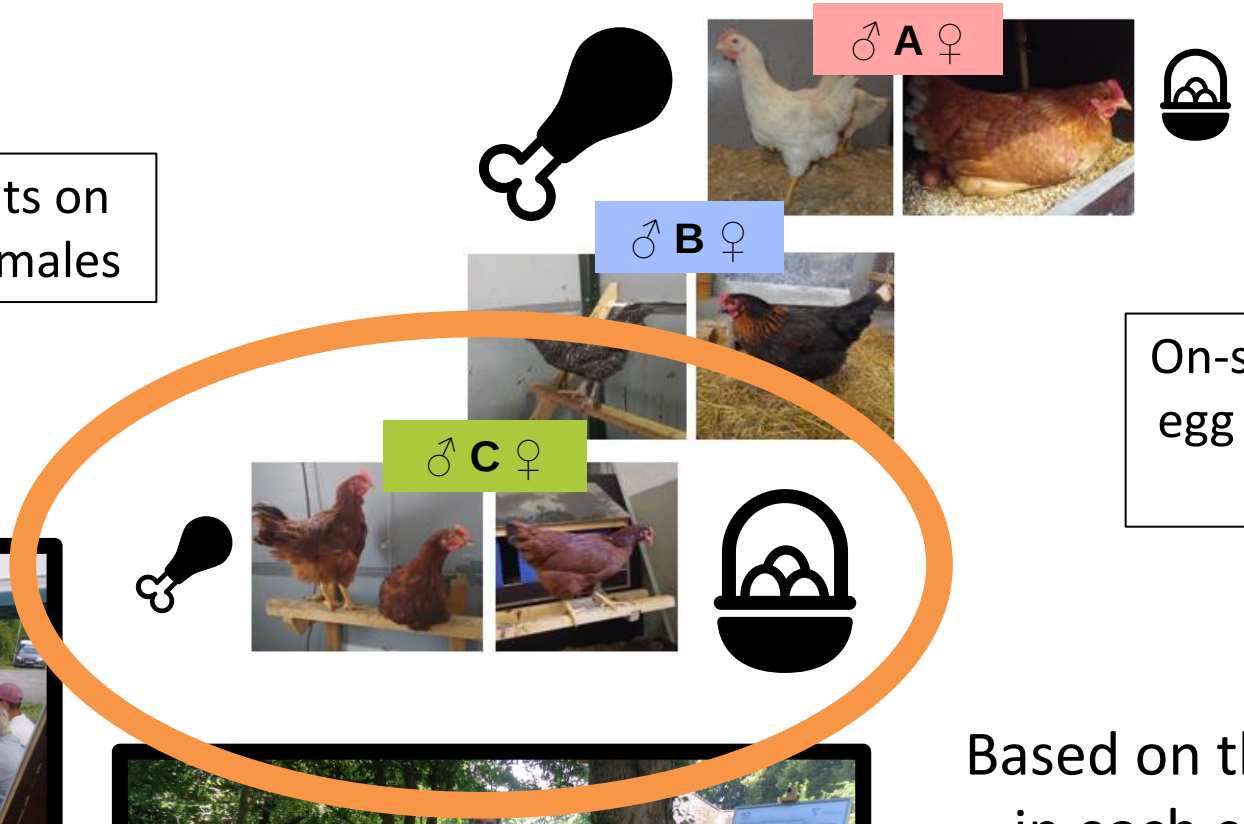
PPILOW Genotypes & National Practitioner Group decision

On-station results on the fattening of males



On-station results on the egg production of laying hens

Based on these results, the NPG in each country selected the most promising genotype to be tested on the farm

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Different rearing conditions in France and Germany

	France	Germany
Number of birds	C' 220/F 220	C 220/D 520
Same hatch for C	✓	✓
Diet	Different	Different
Feed consumption	✓	✓
FCR	✓	✓
Behaviour observations	✗	✓
Welfare indicators	✗	✓
Mortality	✓	✓
Age at slaughter, wks	13 and 15	C 16 / D 13
Carcass weight	✓	✓
Valuable cuts	✓	✗

FR: Control genotype (S757N)

DE: Control genotype (JA757)

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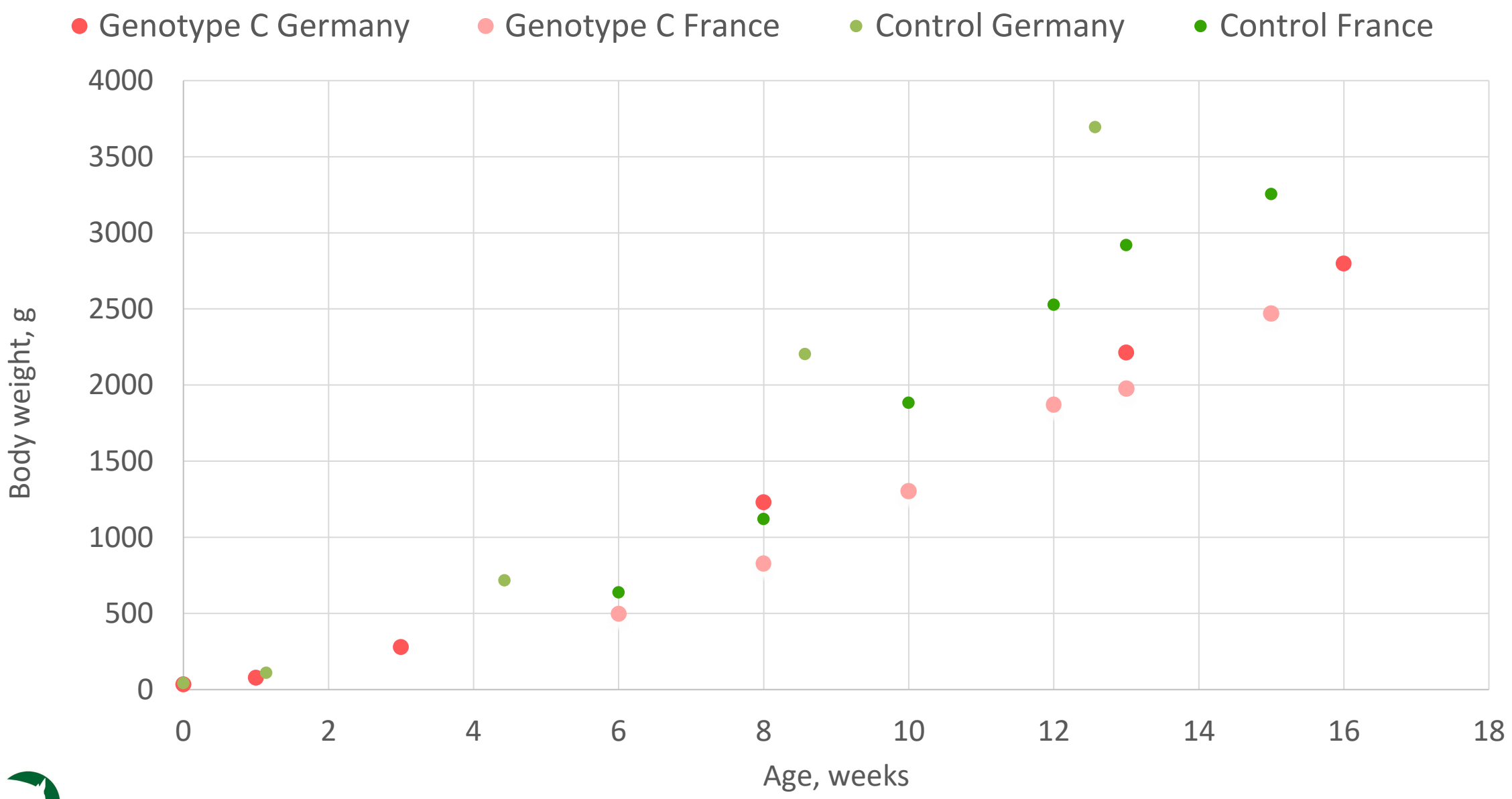
PPILOW Results – Growth curves of genotypes



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PPILOW Results – Technical data

	France		Germany	
	C‘	F	C	D
Mortality, %	4.5	1.4	11	1.2
FCR (13 wk)	3.7	2.6	3.7	2.7
Carcass weights at 13 wk, kg	1.4*	2.0*		2.4
Carcass weights at 15 wk, kg	1.7*	2.4*		
Carcass weights at 16 wk, kg			1.8	

* Including neck

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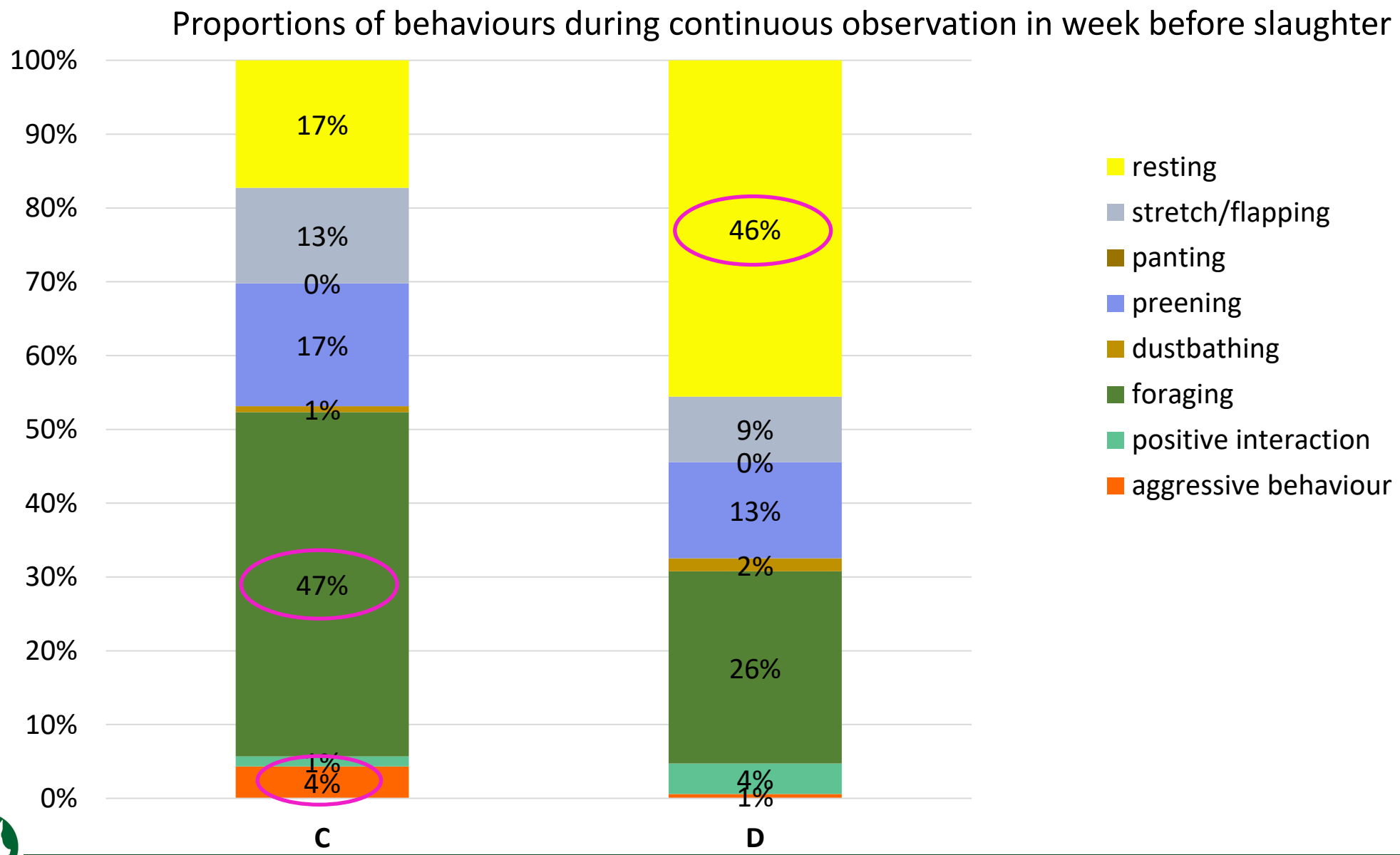
PPILOW Results – Behaviour Observations in Germany



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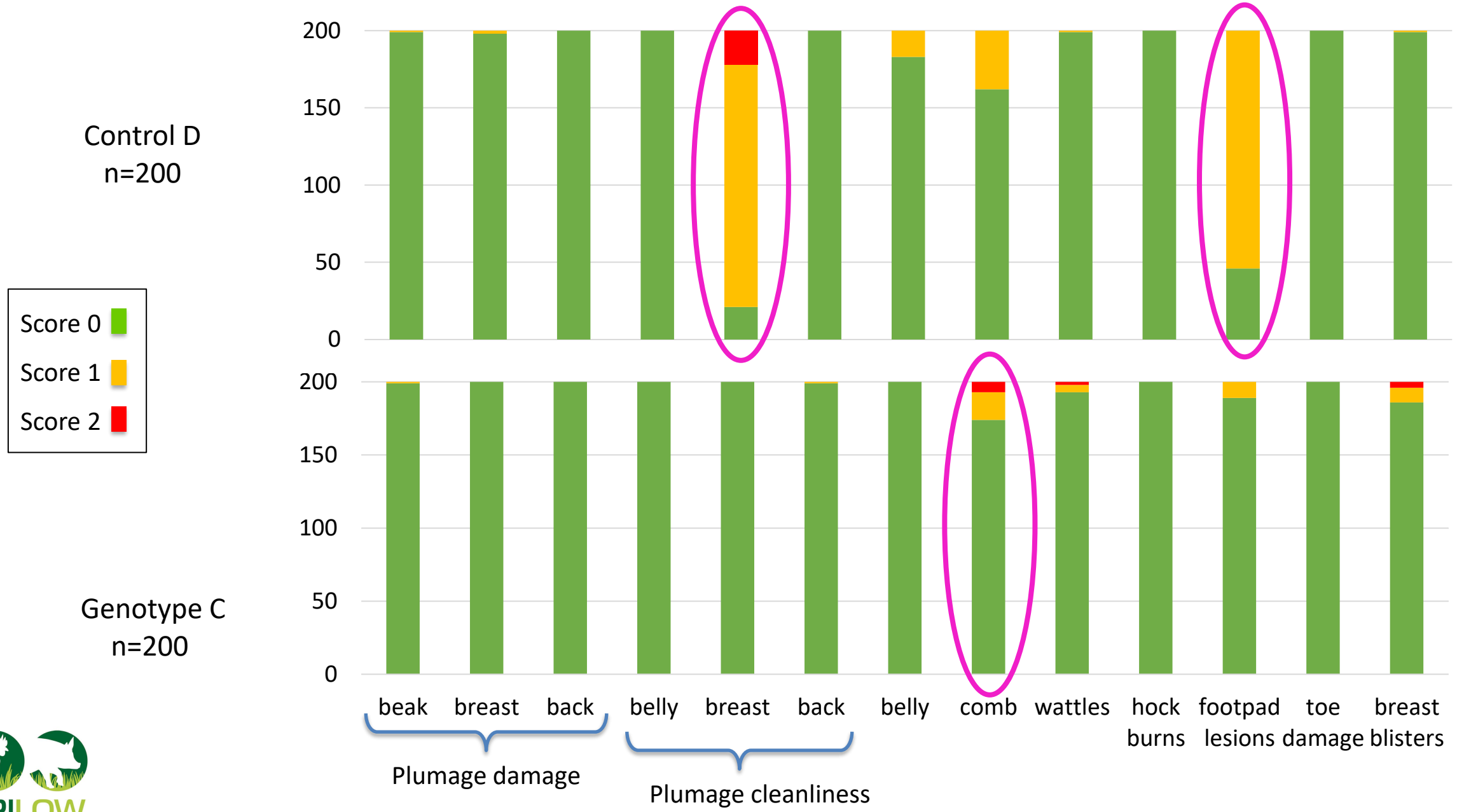
PPILOW Results – Welfare Indicators in Germany



PPILOW Results – Carcass Characteristics in France

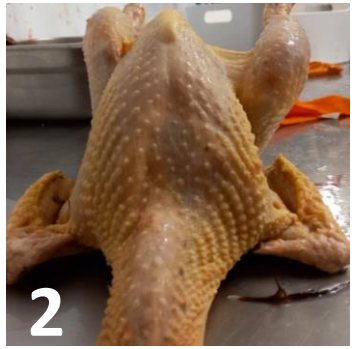
At week 13: Avg ± SE

	C’	F
Legs weight (g)	448 ± 9	668 ± 12
Wings weight (g)	180 ± 3	246 ± 4
Breast weight (g)	201 ± 5	354 ± 11

At week 15 : Avg ± SE

	C’	F
Legs weight (g)	574 ± 12	838 ± 9
Wings weight (g)	219 ± 6	286 ± 3
Breast weight (g)	269 ± 4	462 ± 6

Carcass conformation scores



	Genotype	Score 0	Score 1	Score 2
Wk 13	F	**100%**	0	0
	C	0	0	**100%**
Wk 15	F	**97%**	3%	0
	C	4%	**39%**	**58%**

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PPILOW Conclusions

Genotype C

- reared in two different environments (same batch)
- Up to 15 and 16 weeks of age

→ Similar FCR & carcass weights in both countries
→ Very good welfare
→ Very active birds

Around Europe :

- **More farmers interested to test dual-purpose breeds on their farms**
- **Some farmers from NPG are implementing the innovation**

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An economic analysis of rearing dual-purpose will be presented in this session -> Niemi, J., et al., 2023

1. Longer fattening period with higher FCR → higher feed costs than control

2. May be economically feasible if meat is sold at higher price

3. 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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PPILOW PARTNERS

Thank you for your attention

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