



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

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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

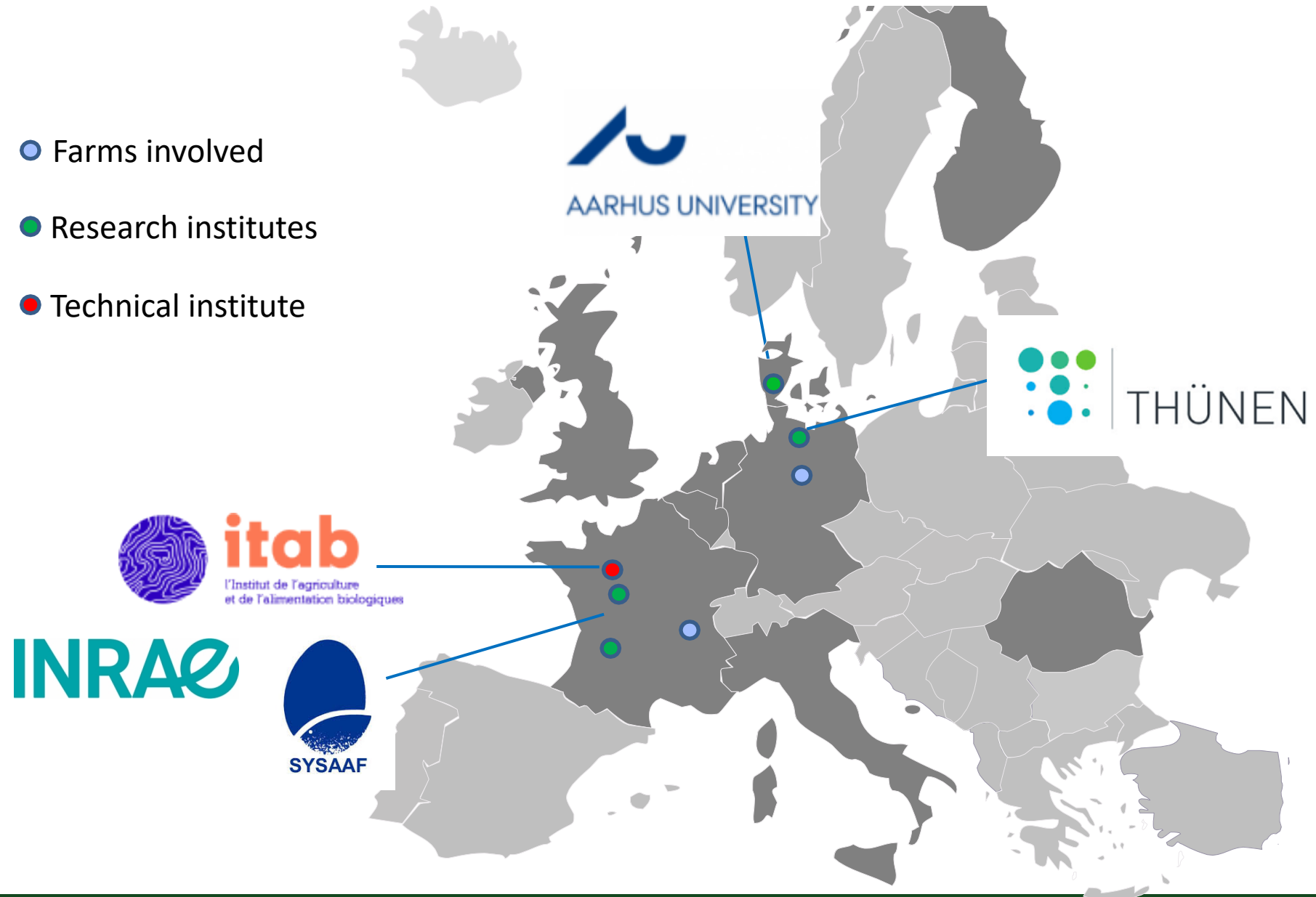
- From 1/1/2022 : makes it a punishable offence to kill a vertebrate animal "without reasonable cause" (unprofitability) or to cause it suffering and pain

Strategies :

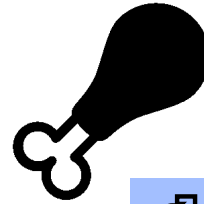
- fattening of males of layer lines
- In ovo sexing
- dual-purpose genotypes

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

- Farms involved
- Research institutes
- Technical institute



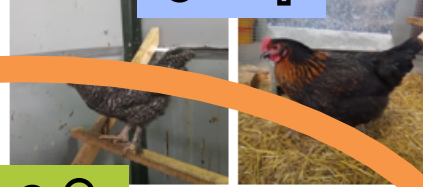
On-station results on the fattening of males



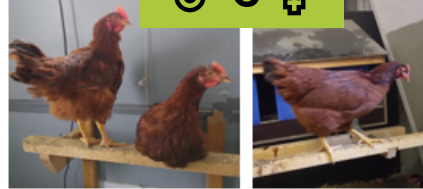
♂ A ♀



♂ B ♀



♂ C ♀



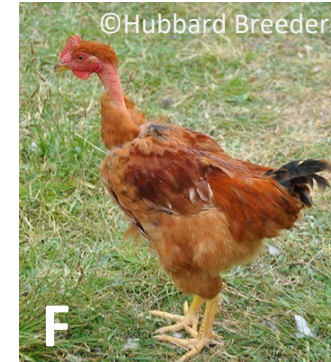
On-station results on the egg production of laying hens



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

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	✓	✗

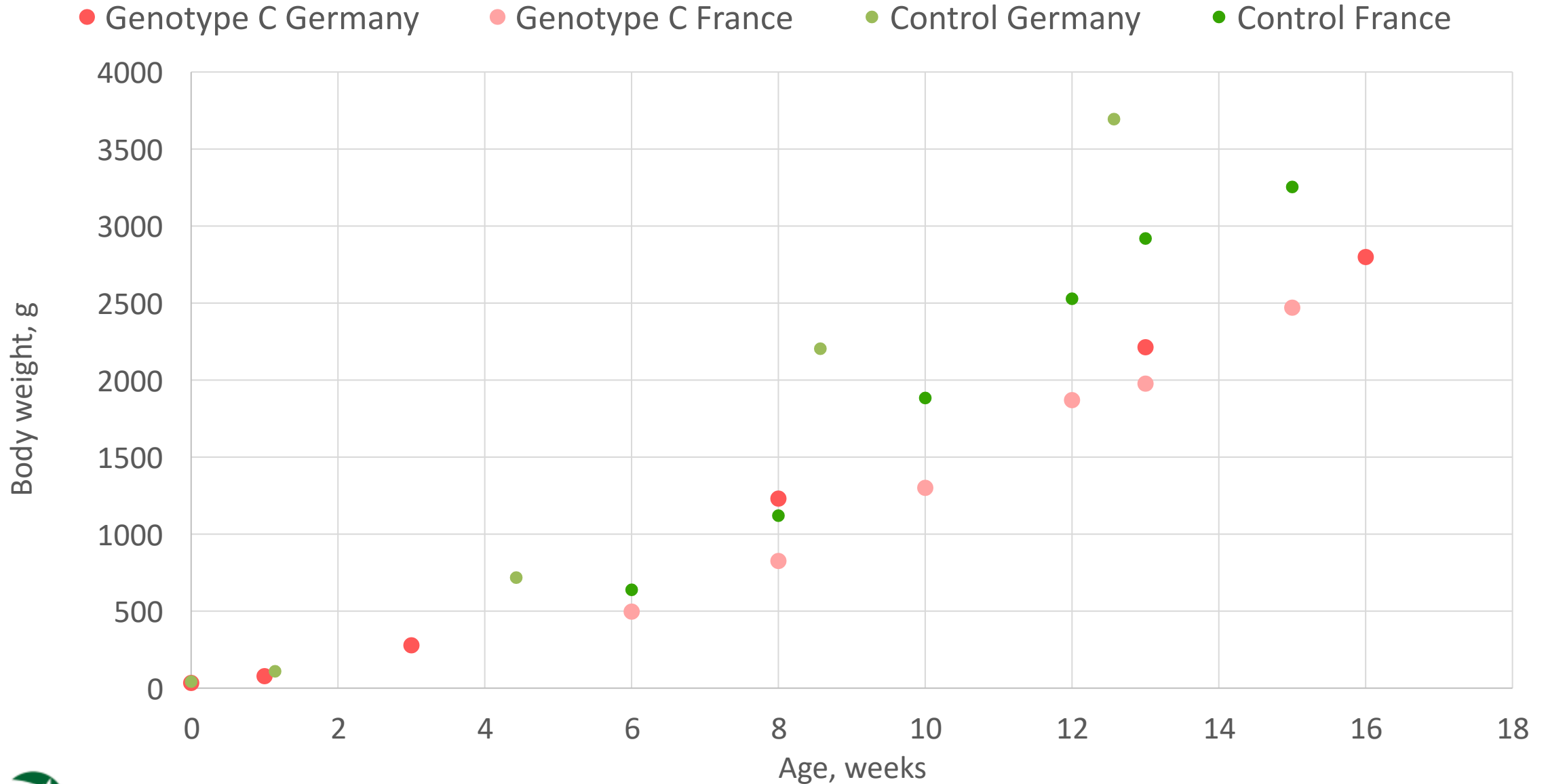


FR: Control genotype (S757N)



DE: Control genotype (JA757)

PPILOW Results – Growth curves of genotypes



	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

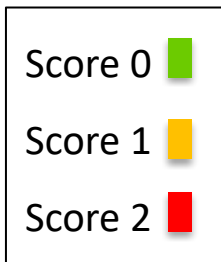
PPILOW Results – Behaviour Observations in Germany

Proportions of behaviours during continuous observation in week before slaughter

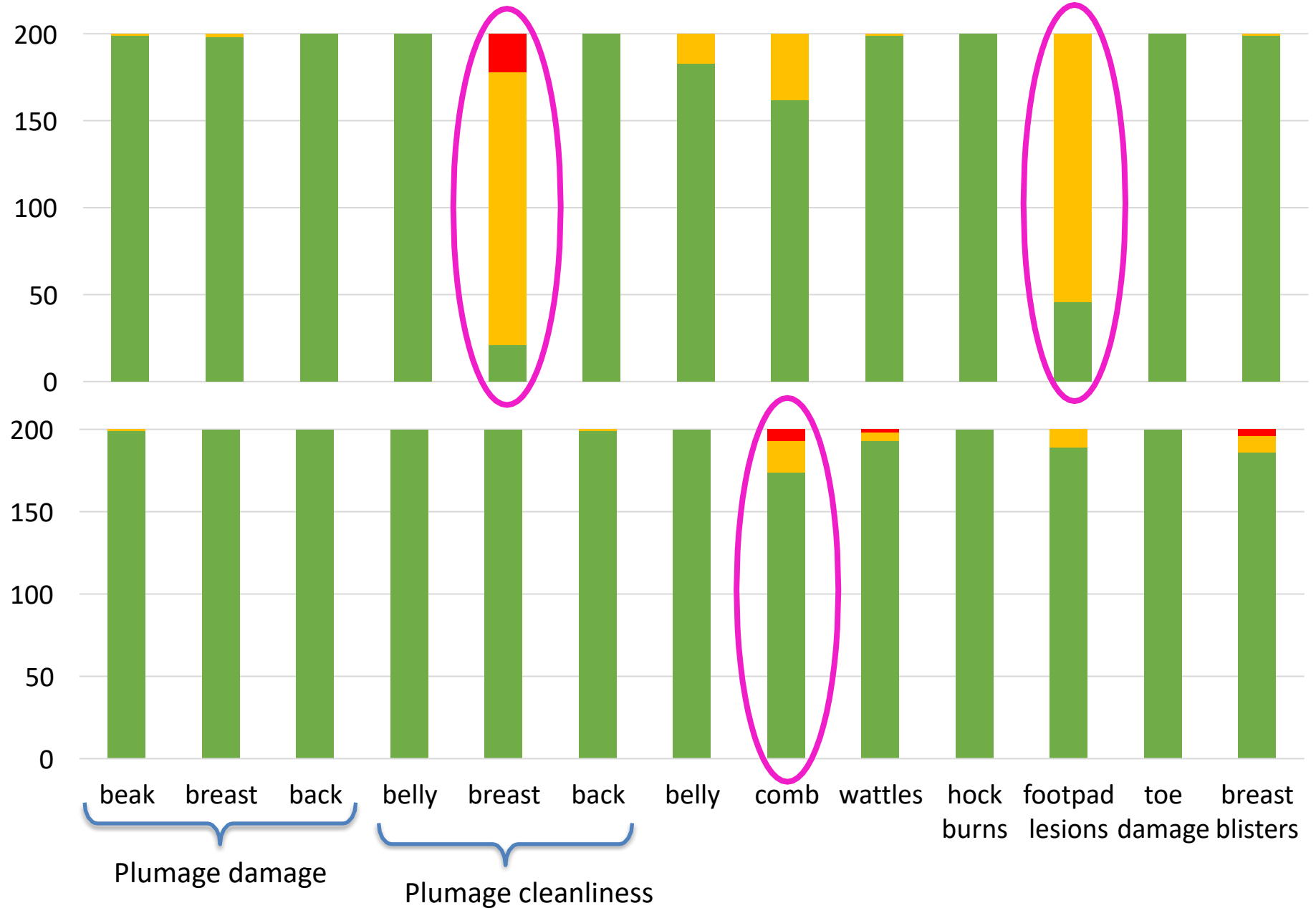


PPILOW Results – Welfare Indicators in Germany

Control D
n=200



Genotype C
n=200



At week 13: Avg \pm SE

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

At week 15 : Avg \pm SE

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

Carcass conformation scores



0



1



2

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	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%

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

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?

PPILOW PARTNERS



Thank you for your attention

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