

ORGANIC FORAGE-BASED SYSTEM

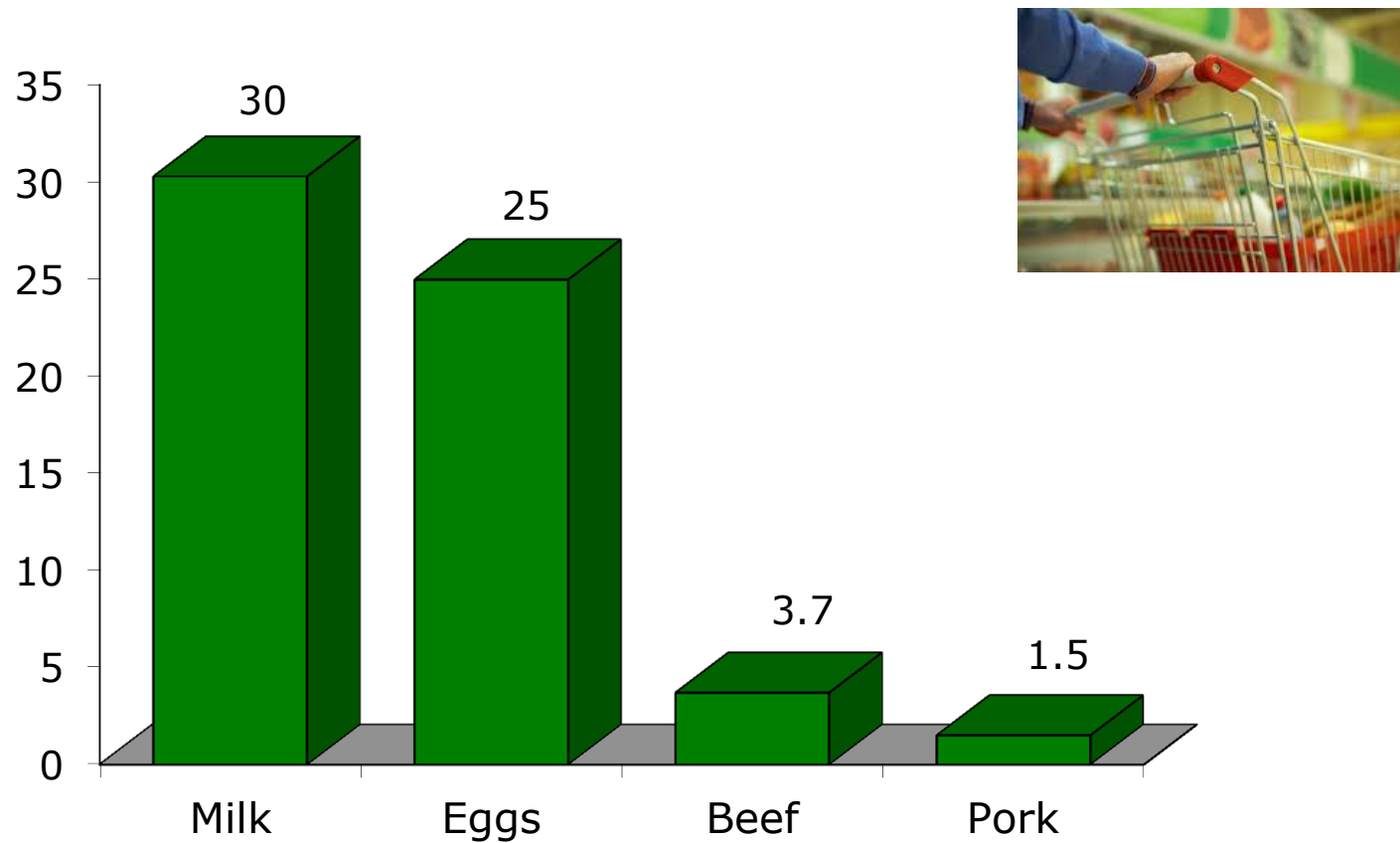
EFFECT OF GENOTYPE AND FEED ALLOWANCE ON BEHAVIOR,
PERFORMANCE AND MEAT QUALITY OF GROWING PIGS

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LOW MARKET SHARE OF ORGANIC PORK IN DENMARK, %



NEED TO IMPROVE THE QUALITY IN A BROAD SENSE

- Eating quality
- Animal health and welfare
- Integrity of the animal
- Environmental and climatic footprints



WAYS TO IMPROVE THE IMMATERIAL QUALITY

- Growing-finishing pigs free-range
- Use of alternative breeds
- Low use of concentrate



HYPOTHESES

- Restricted feeding with concentrate
 - > Increase direct foraging in the range area
 - > Improve concentrate:gain ratio
- Alternative/traditional genotypes
 - > more motivated to forage in the range
 - > improved/different eating qualities



OBJECTIVE

Genotype x feeding strategy



Behaviour



Performance



Meat quality



MODERN VS. TRADITIONAL CROSS-BREED

DYL Duroc x [Yorkshire x Landrace]

TYL Tamworth x [Yorkshire x Landrace]



FEEDING STRATEGY 34–110 KG

HIGH 2.7 kg/day

LOW+ 1.8 kg/day

LOW÷ 1.8 kg/day



FEEDING STRATEGY 34–110 KG

HIGH	2.7 kg/day	<u>With</u> supplementing vit/min
LOW+	1.8 kg/day	<u>With</u> supplementing vit/min
LOW÷	1.8 kg/day	<u>Without</u> supplementing vit/min



EXPERIMENTAL PADDOCKS

72 pigs: 34 ~ 110 kg

18 paddocks (2 x 3 x 3) of 1.600 m²

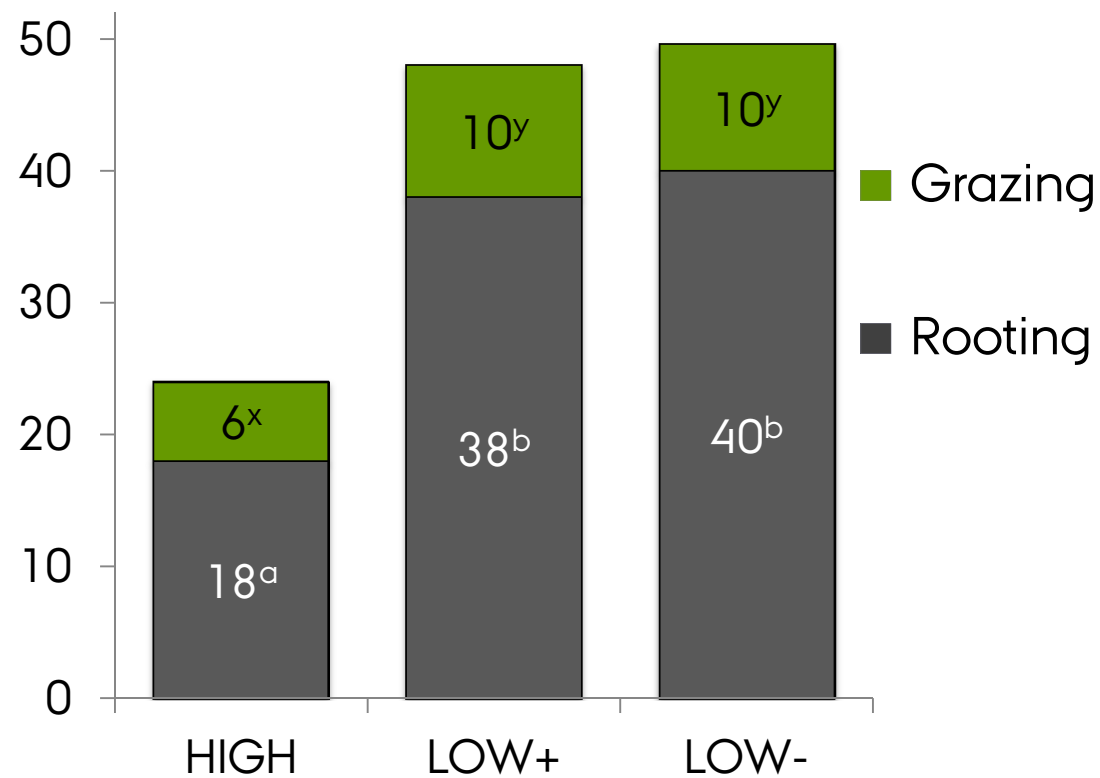


CROPS: GRASS CLOVER W HERBS AND LATER CHICORY



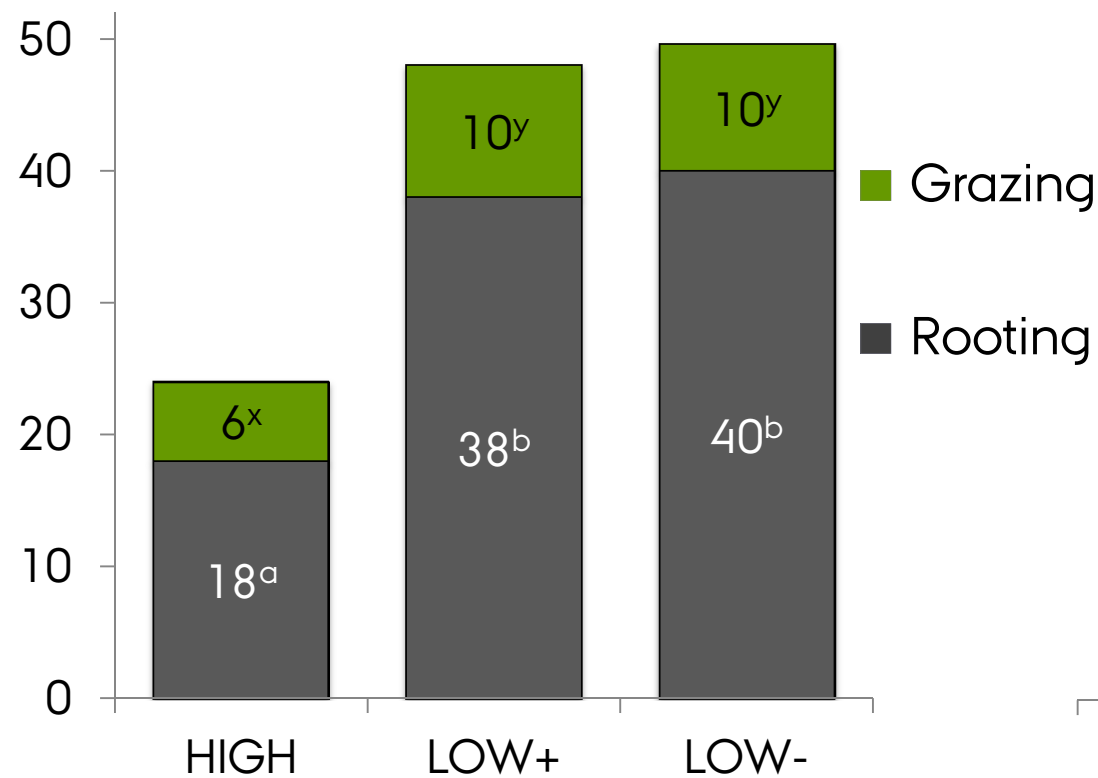
FORAGING BEHAVIOUR, %

Effect of feed allowance

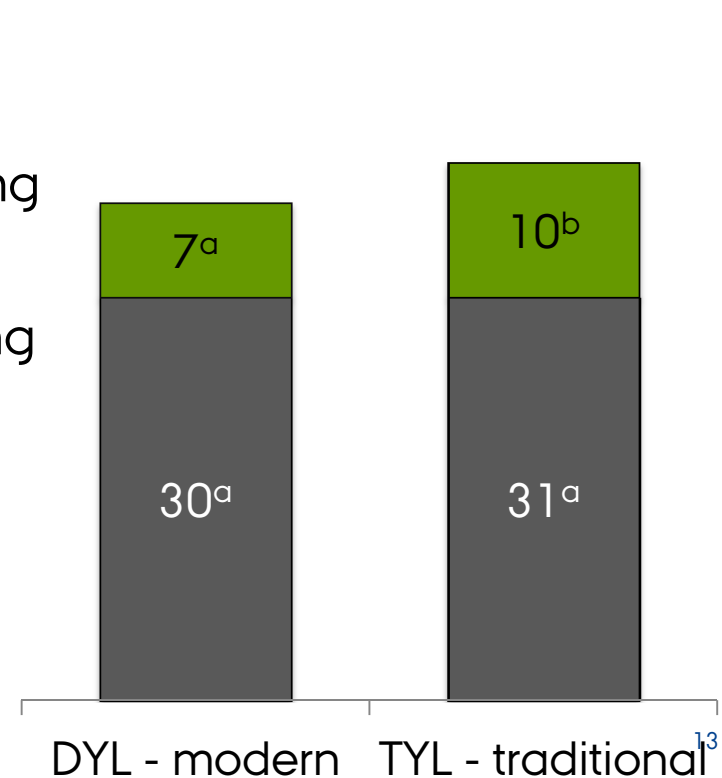


FORAGING BEHAVIOUR, %

Effect of feed allowance

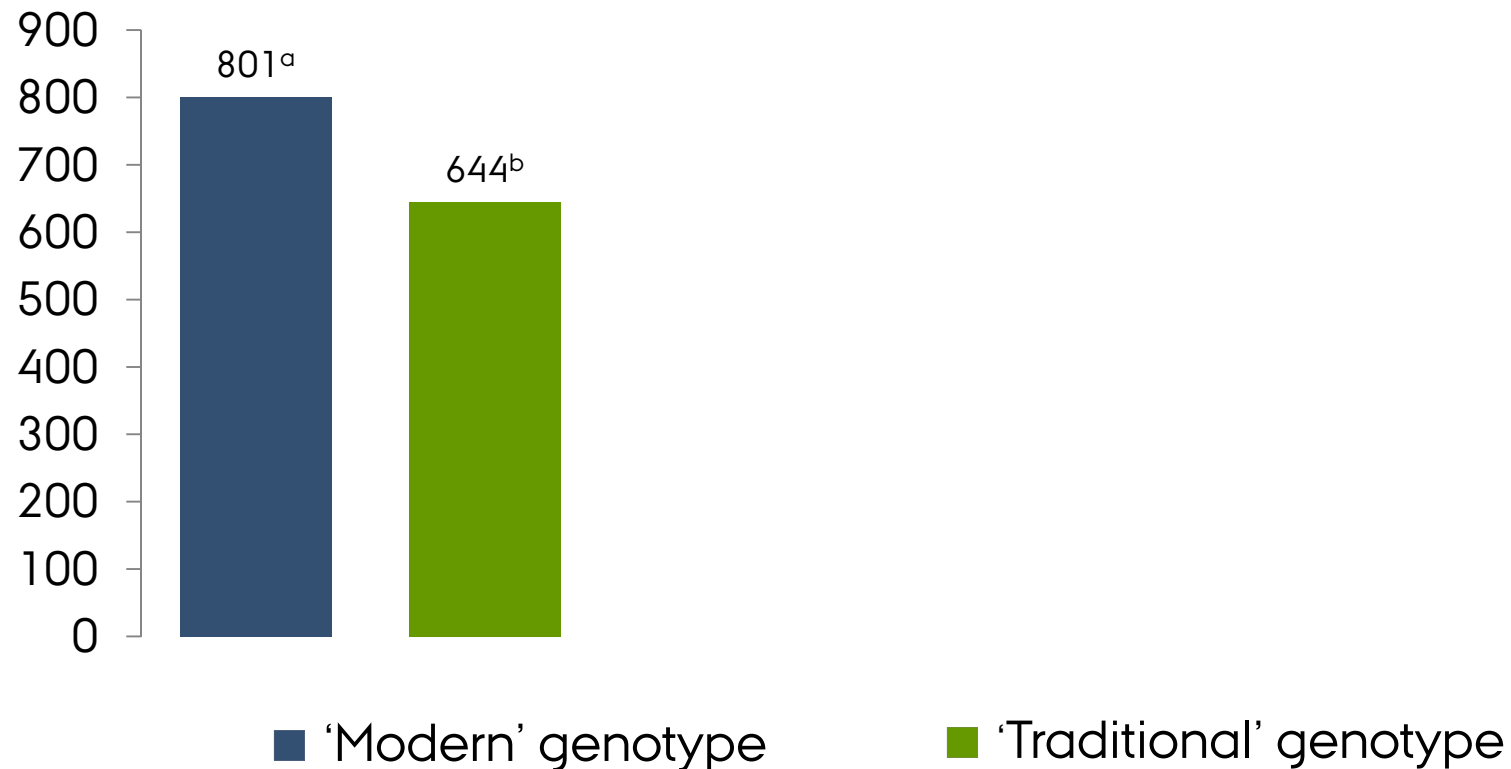


Effect of genotype



PERFORMANCE EFFECT OF GENOTYPE

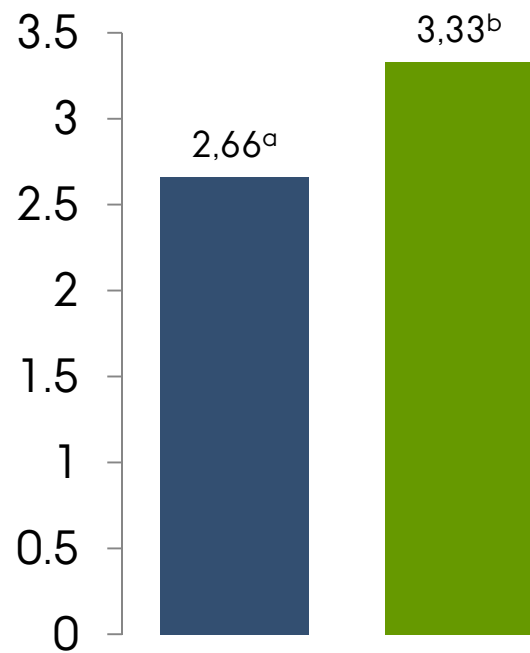
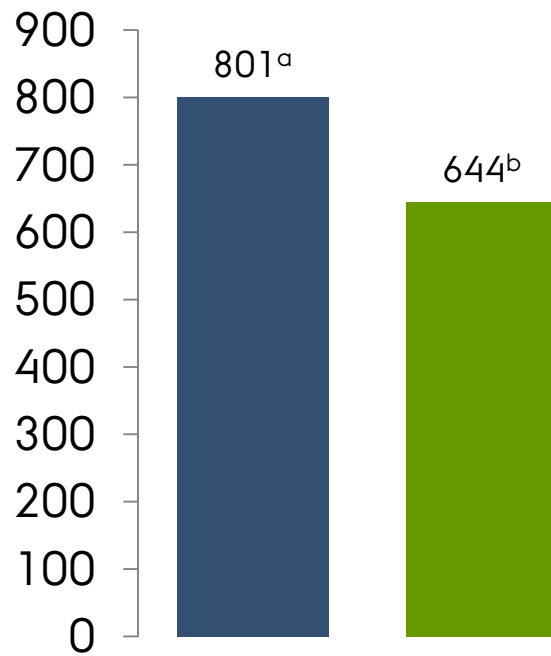
Daily gain, g



PERFORMANCE EFFECT OF GENOTYPE

Daily gain, g

Concentrate:Gain



■ 'Modern' genotype

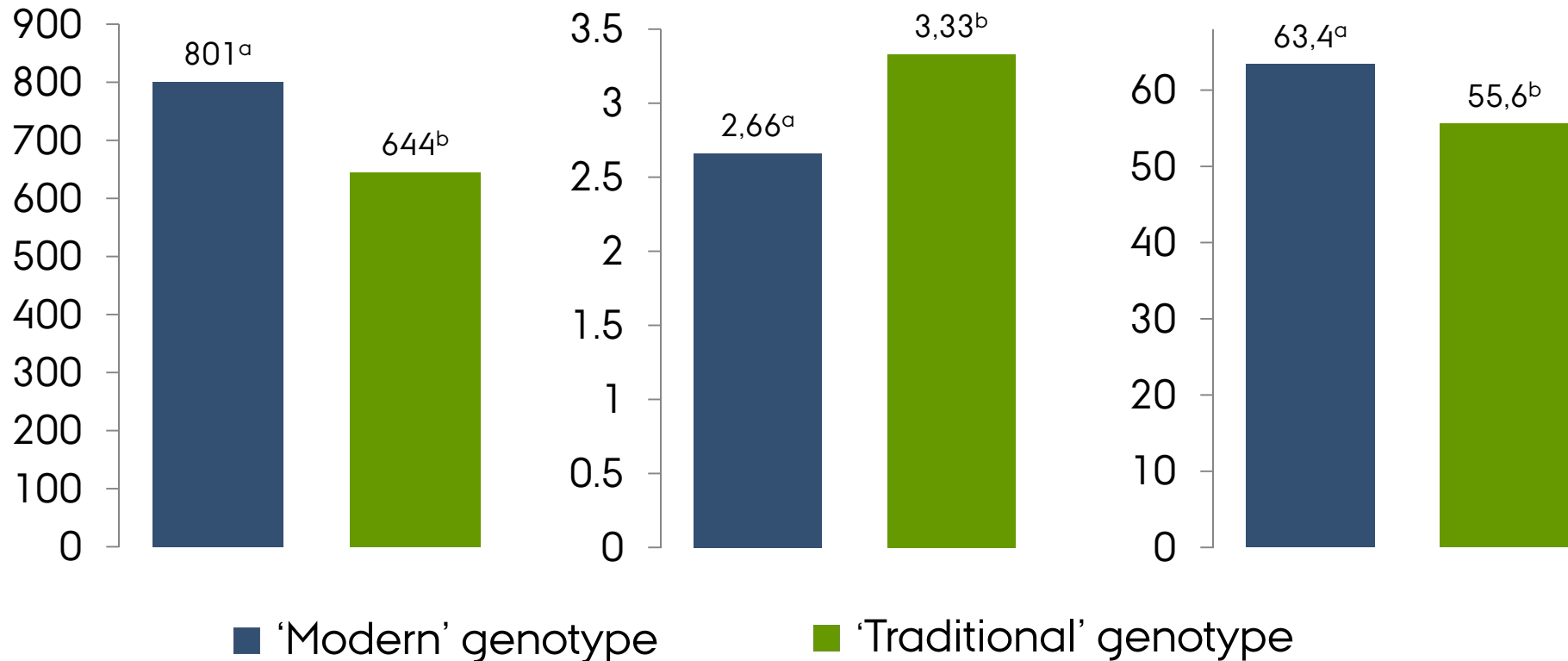
■ 'Traditional' genotype

PERFORMANCE EFFECT OF GENOTYPE

Daily gain, g

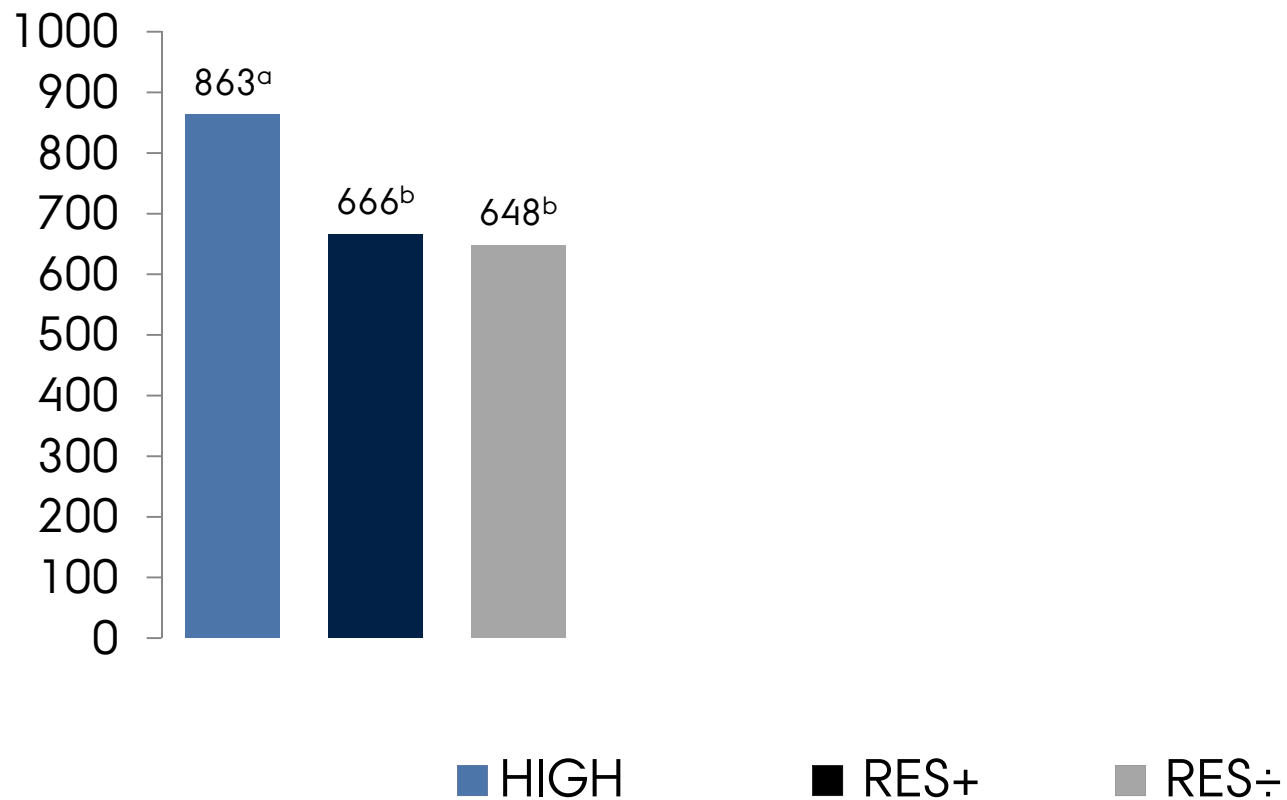
Concentrate:Gain

Meat, %



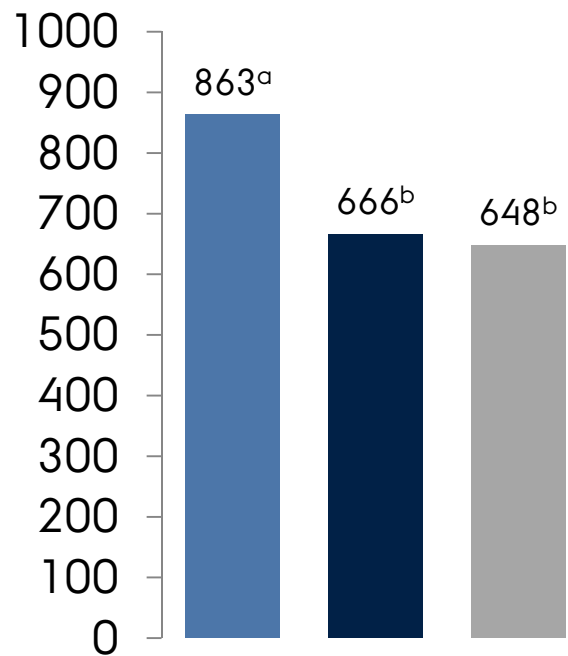
PERFORMANCE EFFECT OF CONCENTRATE ALLOWANCE

Daily gain, g

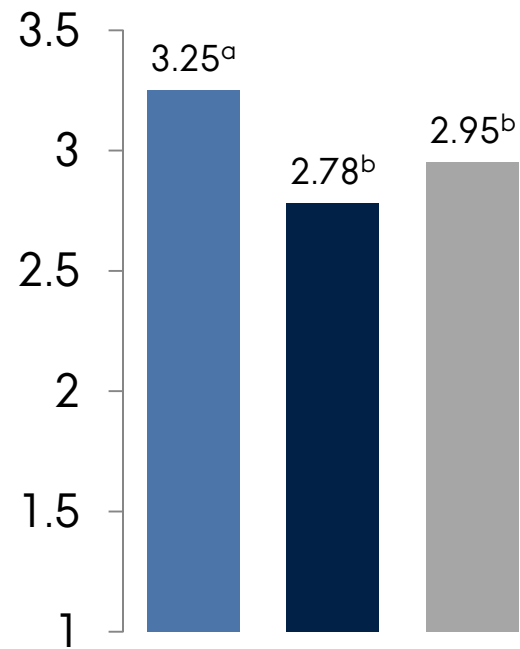


PERFORMANCE EFFECT OF CONCENTRATE ALLOWANCE

Daily gain, g



Concentrate:Gain



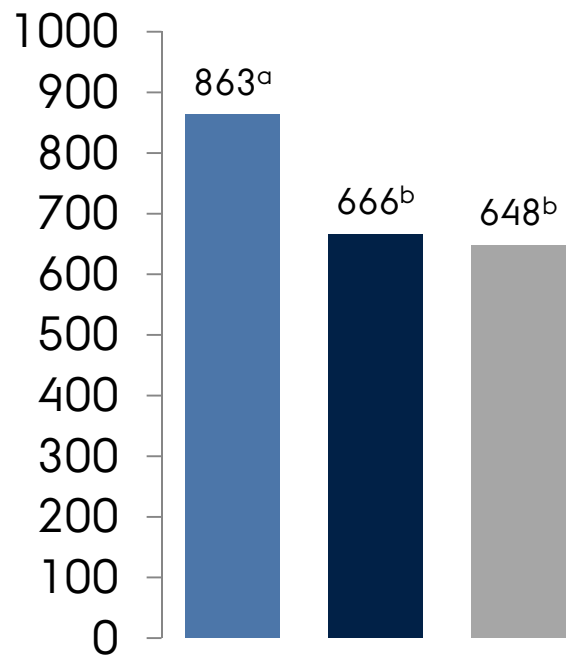
■ HIGH

■ RES+

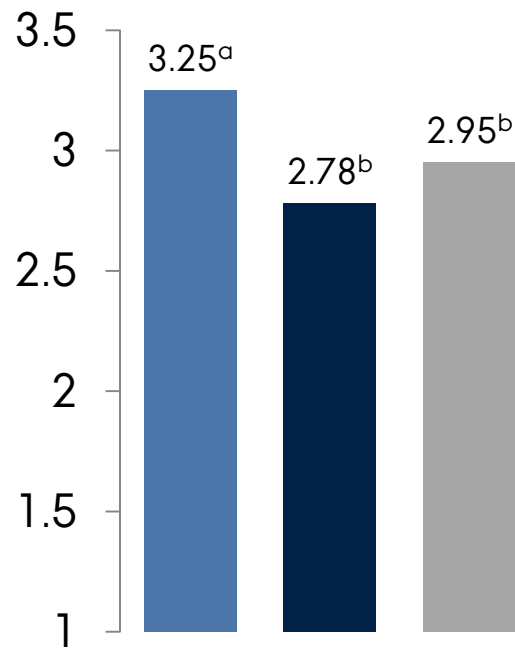
■ RES÷

PERFORMANCE EFFECT OF CONCENTRATE ALLOWANCE

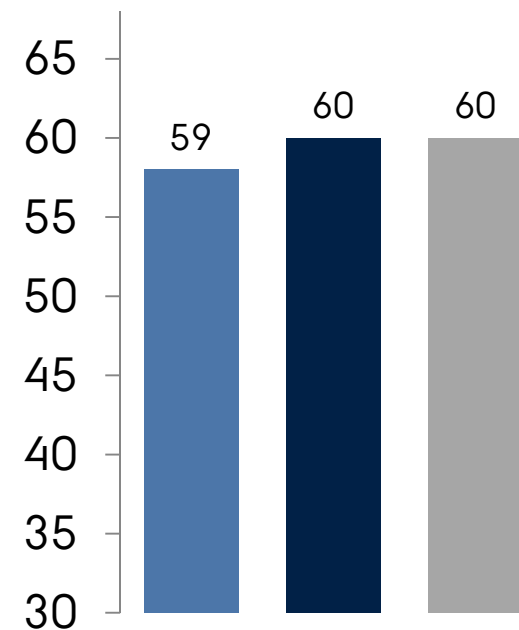
Daily gain, g



Concentrate:Gain



Meat, %



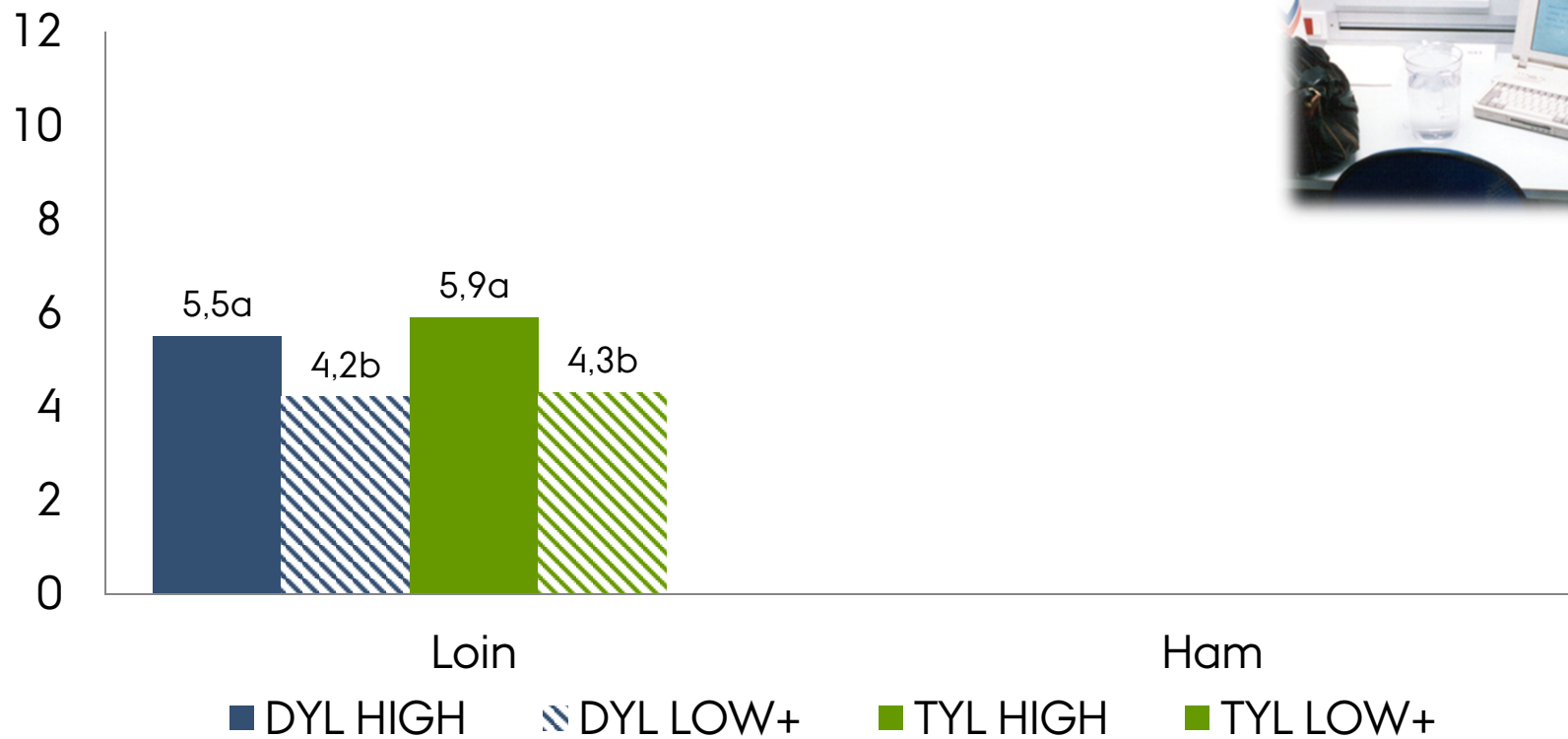
■ HIGH

■ RES+

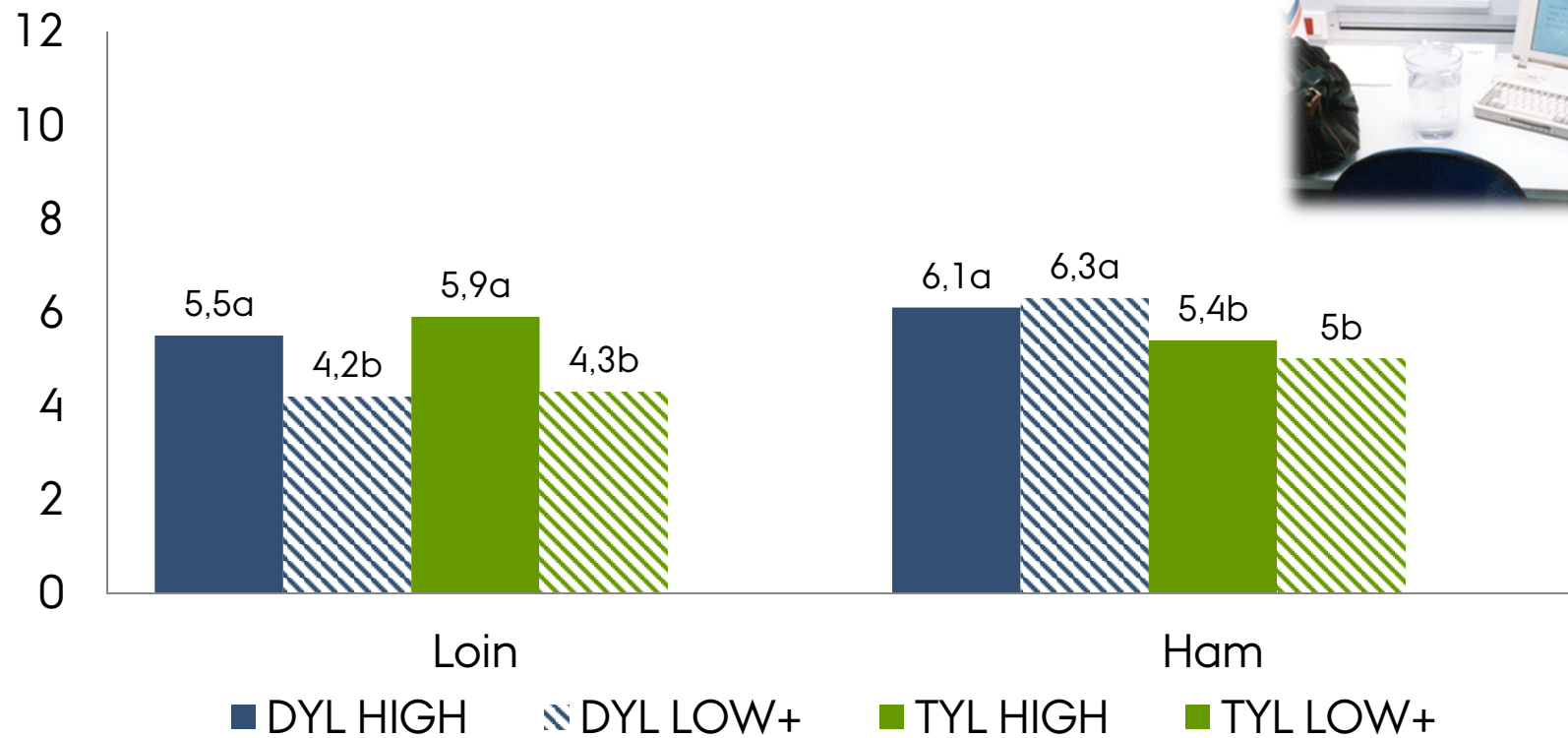
■ RES-

SENSORY EVALUATION

- TENDERNESS

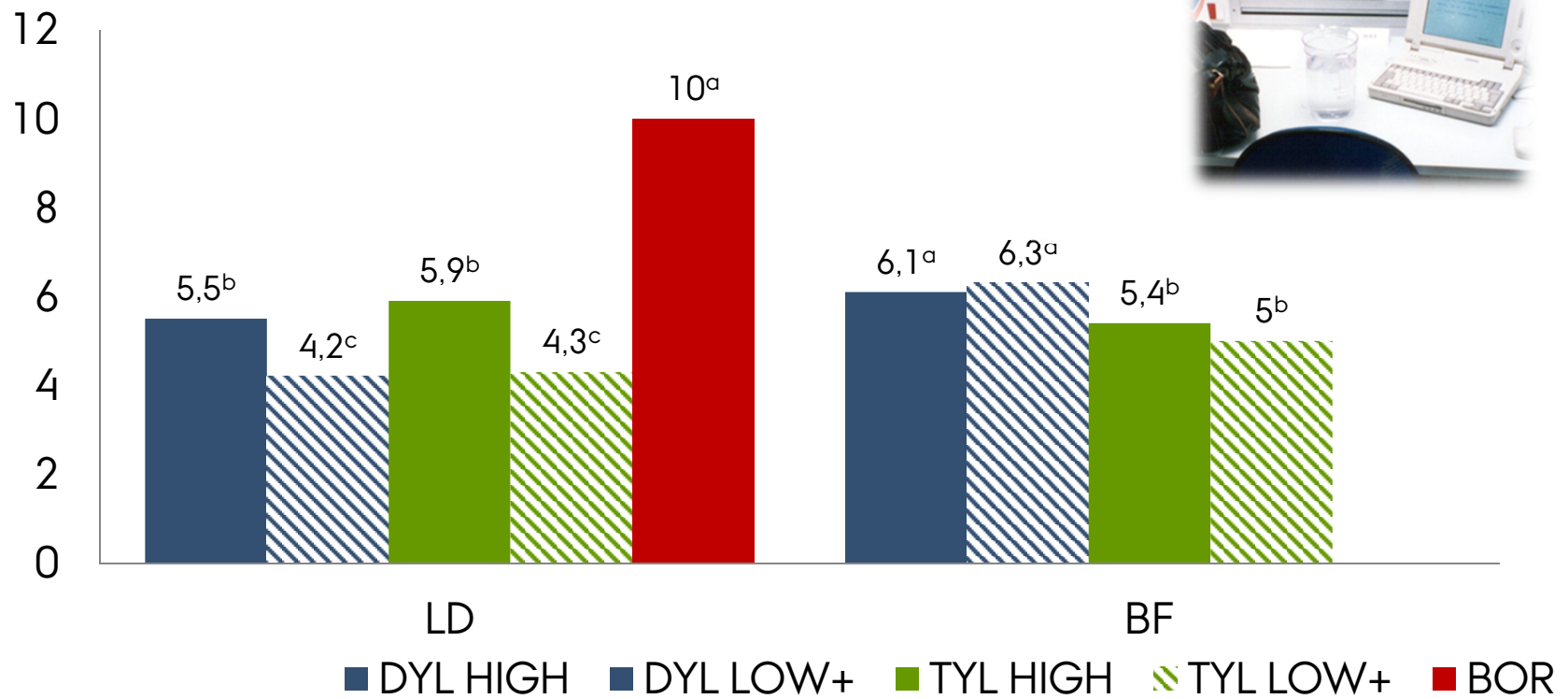


SENSORY EVALUATION - TENDERNESS



SENSORY EVALUATION

- TENDERNESS



CONCLUSIONS THE TRADITIONAL CROSS-BREED

- Grazed more
- 20 % lower daily gain
- 25 % poorer feed conversion ratio
- Lower tenderness in ham
- Less acid and metal taste, more sweetness in loin



CONCLUSIONS

A 33 % REDUCTION IN FEED ALLOWANCE

- More than doubled foraging activity
- Reduced daily gain with 23-25 %
- Improved concentrate:gain with 9-15 %
- 25 % of energy requirement met by foraging
- Reduced tenderness, a general challenge in free-range!



WE ALSO LOOK AT

- Plasma concentrations of minerals and vitamins [JV Nørgaard, SK Jensen](#)
- Robustness, immune responses and fecal microbiota [HR Juul-Madsen, R Engbjerg, C Lauridsen, LR Norup](#)
- Fatty acid composition [SK Jensen](#)
- Overall economy, resource use, environment/climate [M Jakobsen, J Hermansen](#)



PART OF 'SUMMER' PROJECT

- SUPERB AND MARKETABLE MEAT FROM EFFICIENT AND ROBUST ANIMALS (SUMMER)
- OVERALL AIM IS TO INCREASE THE MARKET SHARE OF ORGANIC MEAT (PORK, POULTRY AND YOUNG BEEF)
- JOHN E. HERMANSEN PROJECT LEADER
- UNDER THE RDD PROGRAMME COORDINATED BY ICROFS
- FUNDED BY THE DANISH AGRIFISH AGENCY, MINISTRY OF FOOD, AGRICULTURE AND FISHERIES
- READ AND SEE MORE: [HTTP://AGRO.AU.DK/SUMMER/](http://agro.au.dk/summer/)



THANK YOU FOR YOUR ATTENTION

