Impact of dietary energy content and feed level on the digestive efficiency in growing rabbit

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Context and objectives in rabbit breeding

Drug supplementation

Post weaning digestive troubles

Alternative: Modification of the feeding strategies

↗ Mortality
↘ Growth

Economic losses

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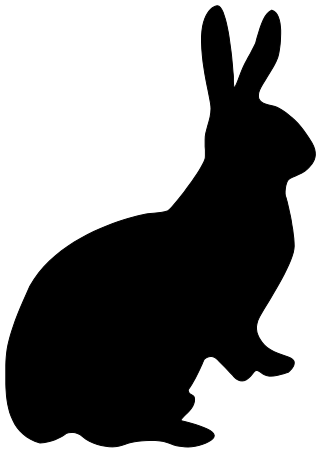


FEED RESTRICTION

An interest in health:
↘Mortality
↘ Morbidity

A better feed efficiency

But **↘ growth**
↘ slaughter yield

Objective : Optimize the feeding strategies in order to compensate for the reduced growth induced by feed restriction

Our experimental context

Our aim: Optimize the feeding strategies through the use of a high energy diet

Increase the level of ingested dietary energy while maintaining a quantitative restriction.

Evaluate the effects of this diet on fecal digestibility.

48 Animals in individual metabolism cages

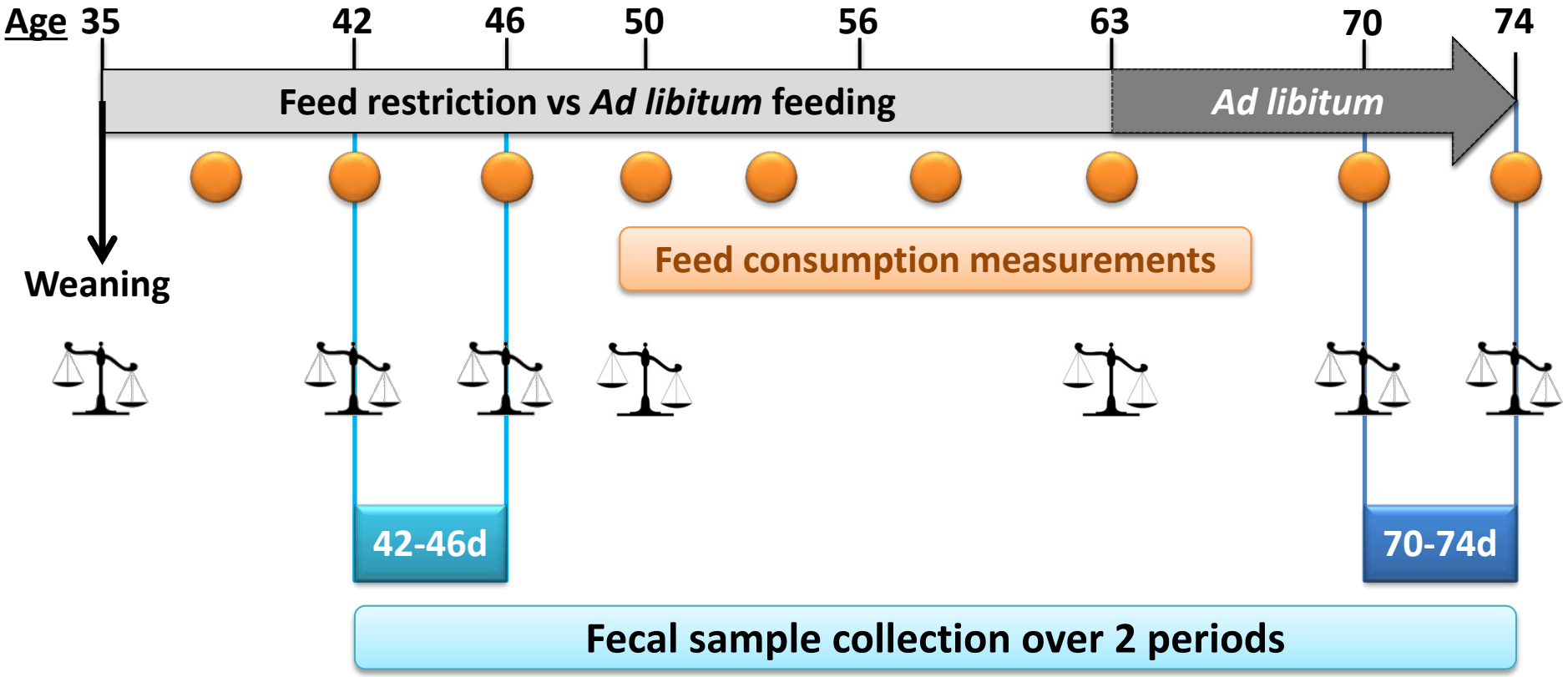
2x2 factorial design: **2 feeding levels (*Ad libitum* vs Restricted at 75% of the AL intake)**
2 levels of dietary digestible energy (9.08MJ/kg vs 10.13MJ/kg).

Feeding level

Energy	*Ad libitum* (100)	Restricted (75)
Control (CE) (9.08MJ/kg)	CE100	CE75
High Energy (HE) (10.13MJ/kg)	HE100	HE75

Chemical composition (%)		
	Control	High Energy
Crude protein (N X 6.25)	14.7	16.0
Starch	10.2	11.8
Crude fat	2.8	3.7
Crude fiber	17.6	17.1
Acid detergent fibre (ADF)	22.7	21.8
Gross energy (MJ/Kg)	16.15	16.57

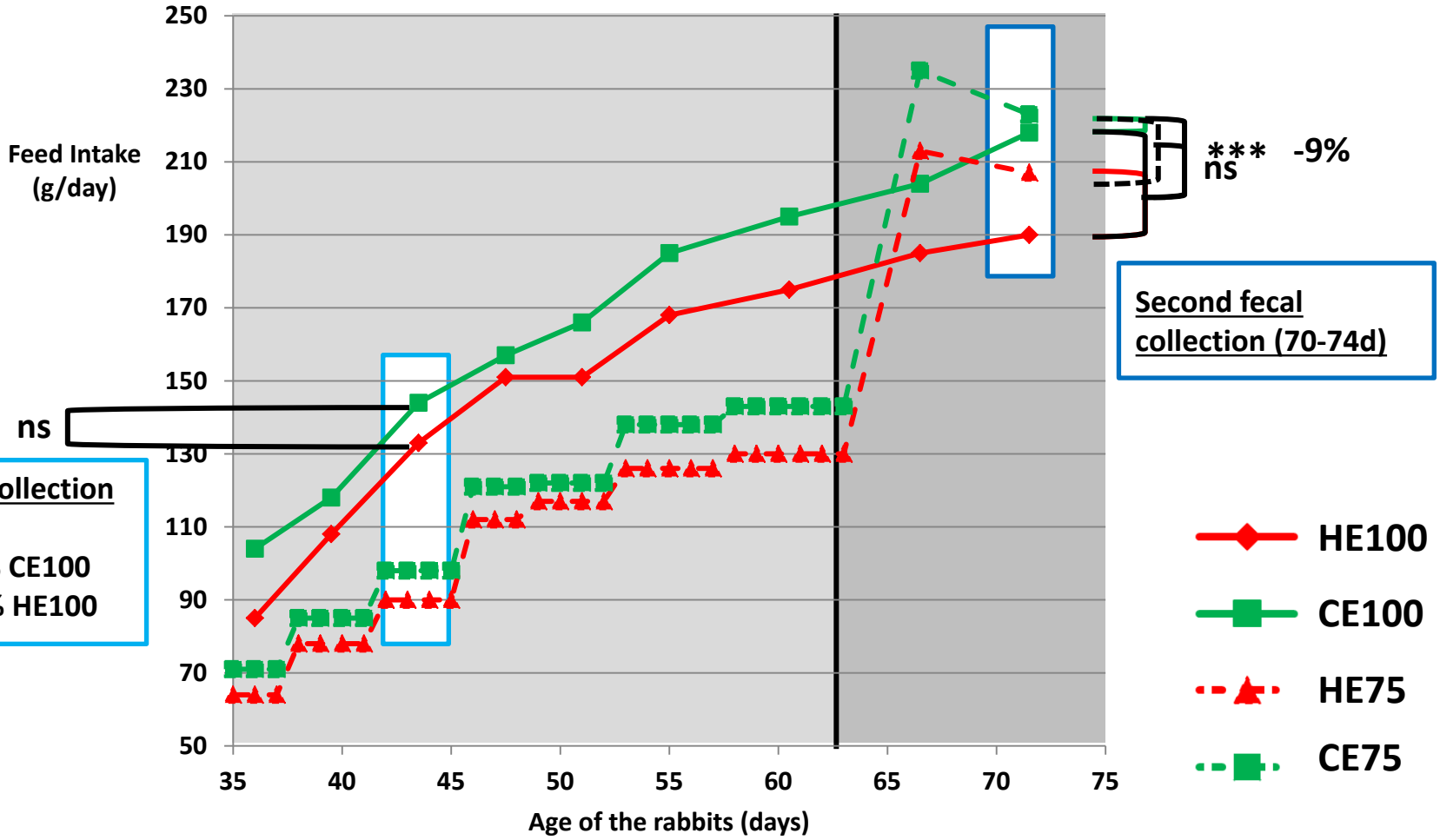
Experimental protocol



Feed restriction:

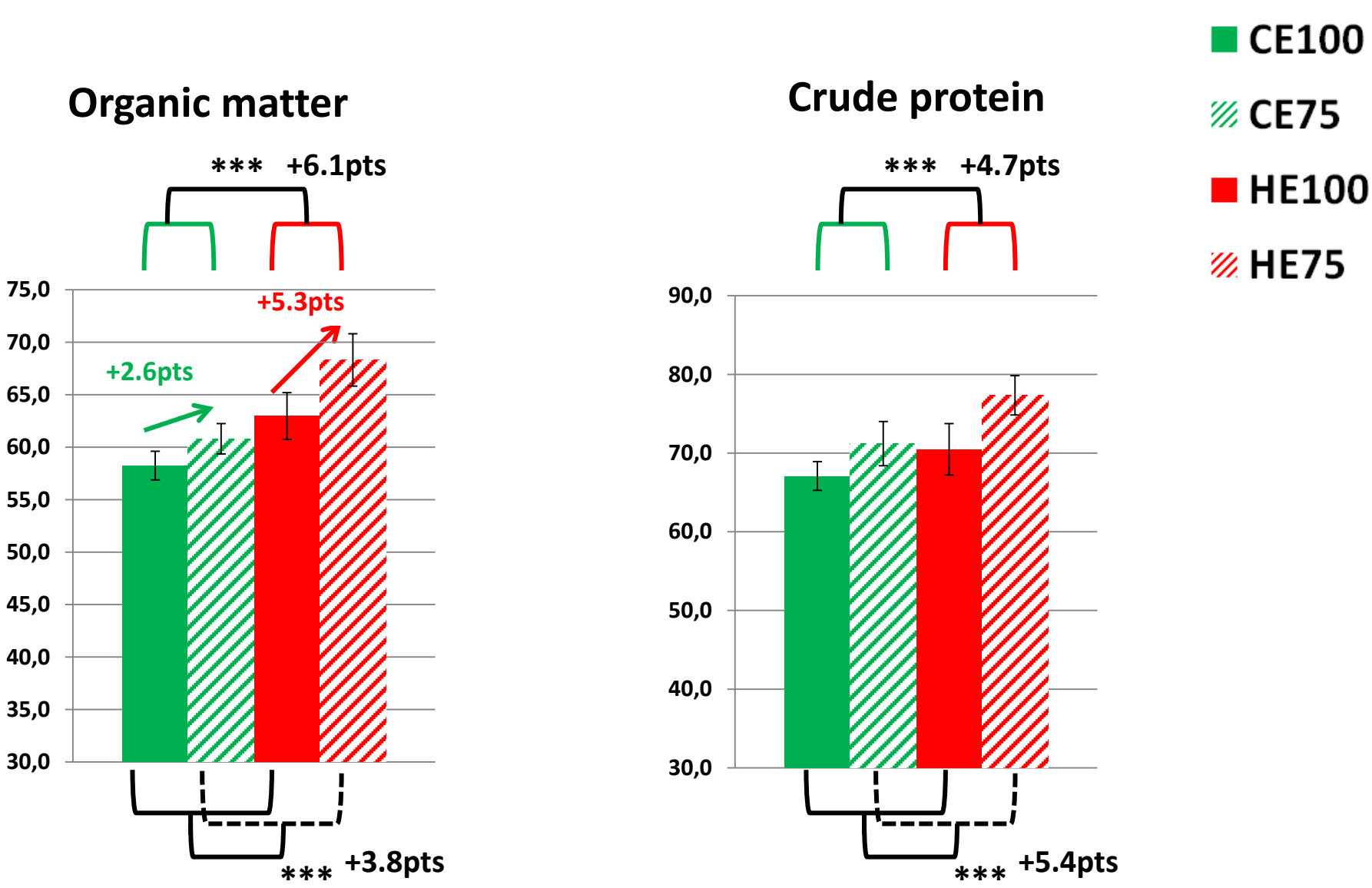
- Feed consumption of AL groups monitored from the weaning
- Amount of feed distributed to the restricted animals readjusted according to the feed consumption of the AL groups

Results: Feed intake



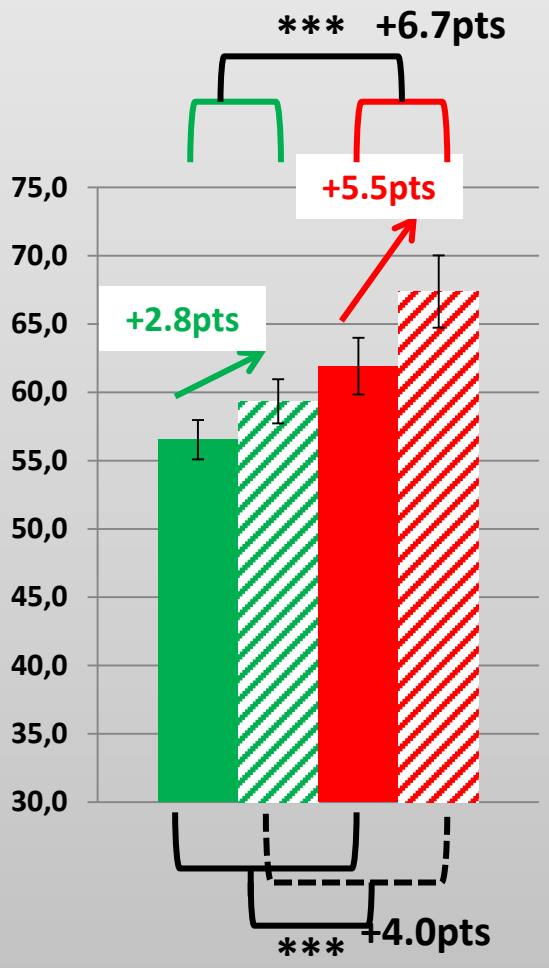
Total period of feed restriction:	AL feeding period:
HE < CE * -9%	HE < CE *** -10%
	75 > 100 *** +12%
CE75 = 73% CE100 HE75 = 74% HE100	CE75 = 110% CE100 HE75 = 114% HE100

Results: Digestibility during **feed restriction (42-46d of age)**



Results: Digestibility during **feed restriction (42-46d of age)**

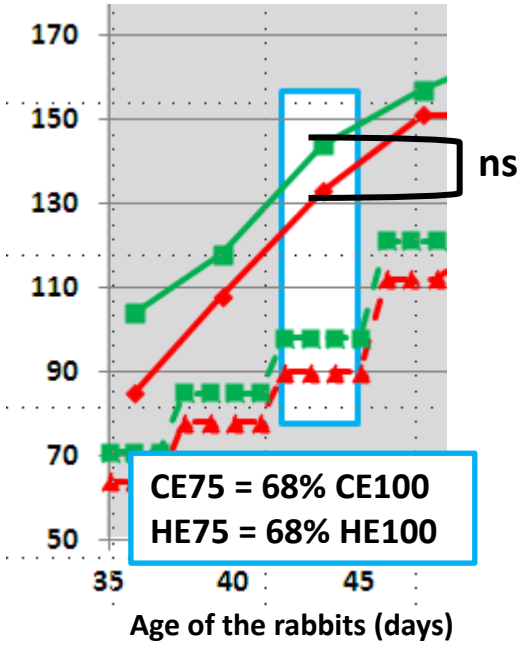
Energy digestibility



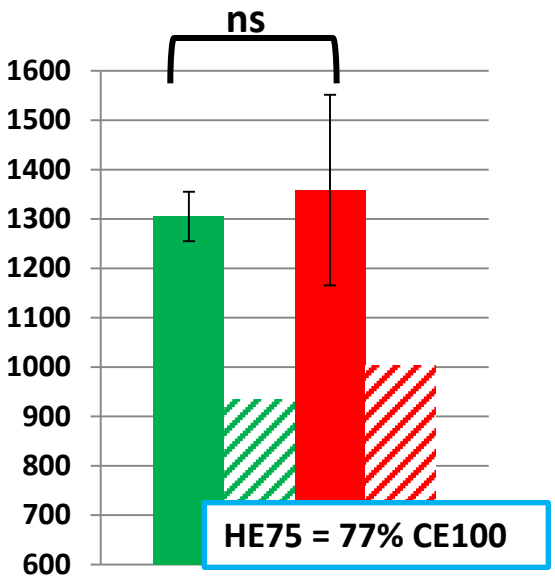
Dietary digestible energy levels:

- CE100: 9.09MJ/kg
- CE75: 9.54MJ/kg
- HE100: 10.24MJ/kg
- HE75: 11.14MJ/kg

Daily feed intake (g/day)

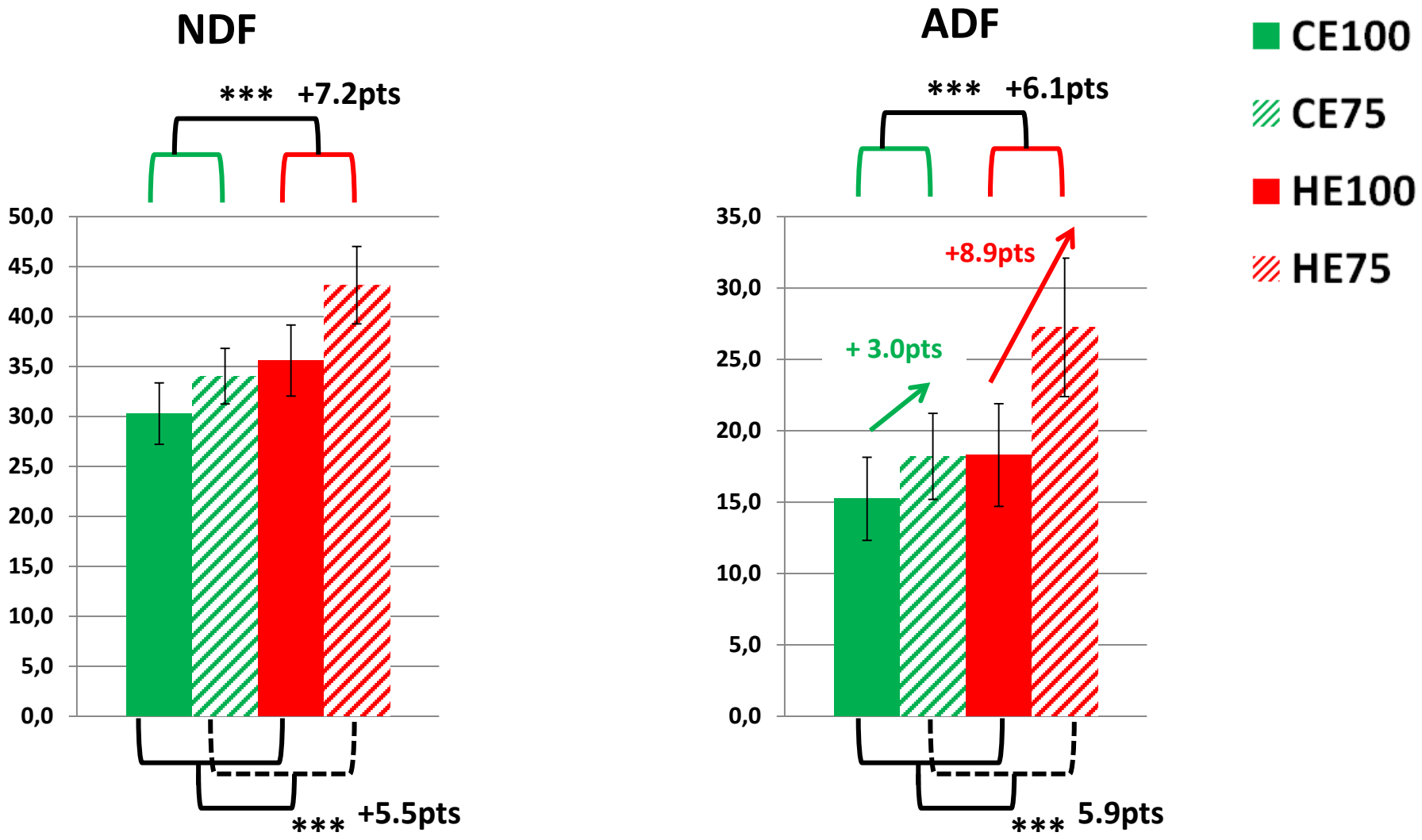


Daily dietary DE intake (kJ/day)



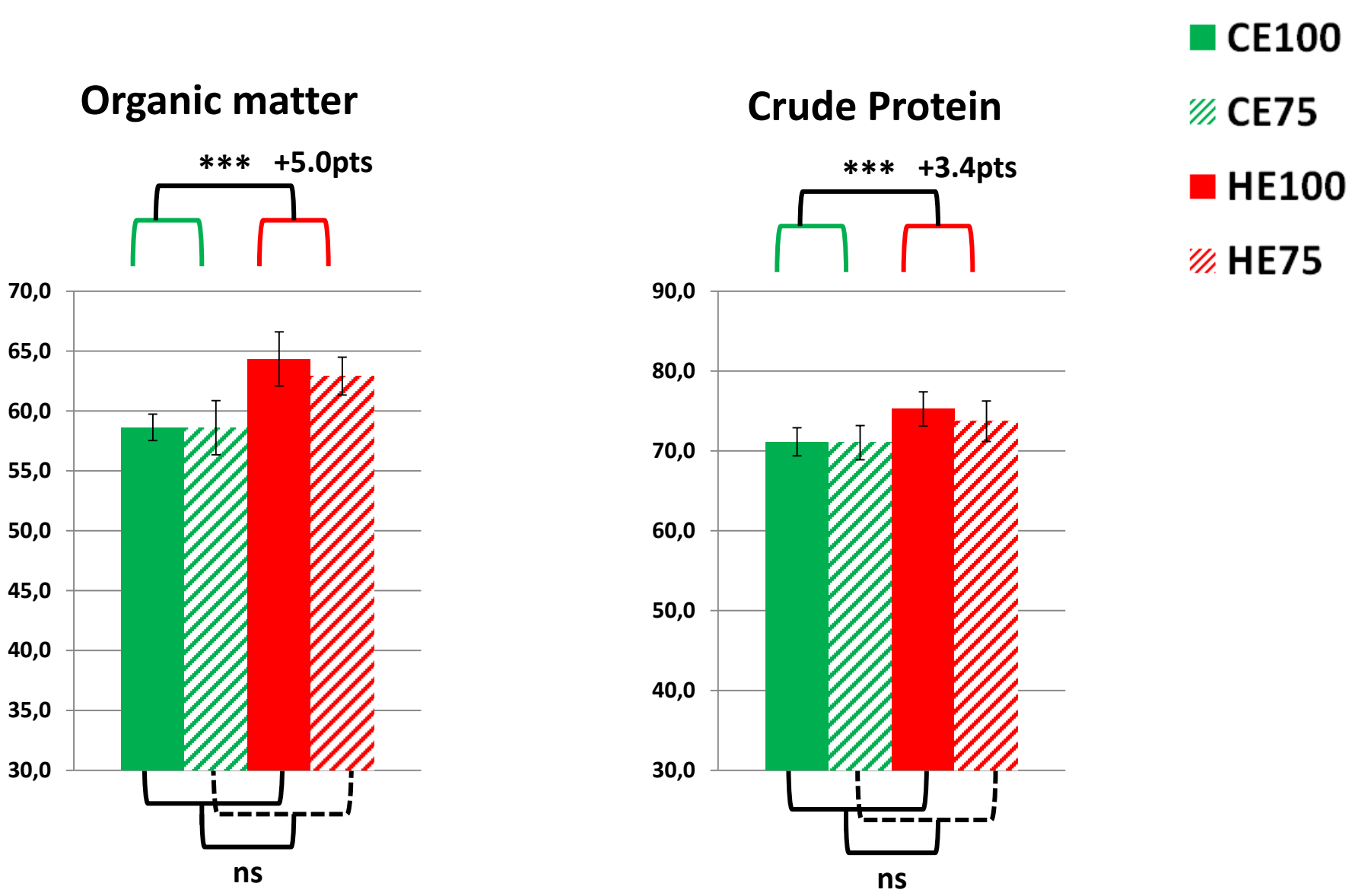
No energy pair-feeding of CE100 and HE75 animals

Results: Digestibility during **feed restriction (42-46d of age)**

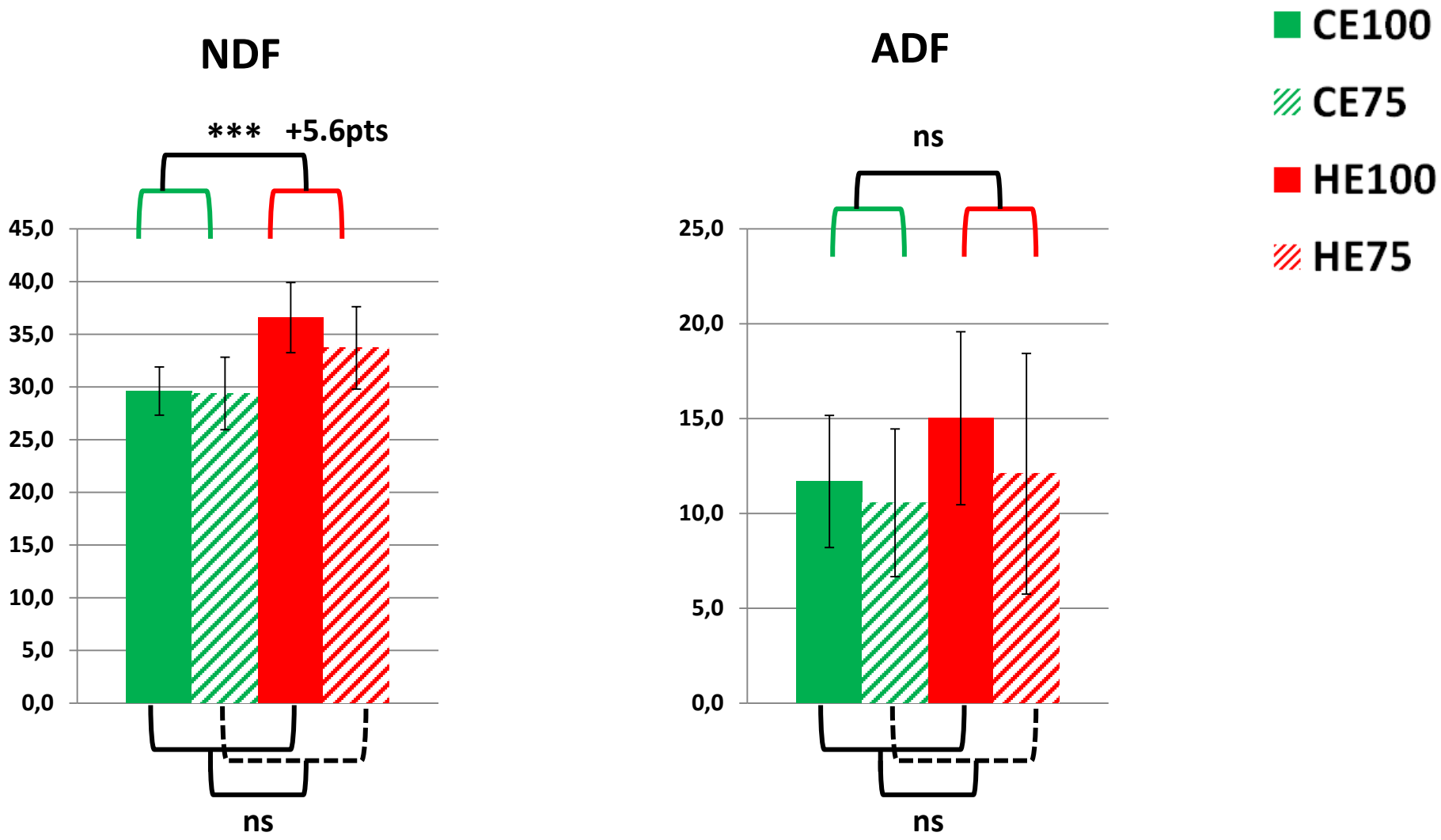


During feed restriction: High energy > Control and 75 > 100 for all measured nutrients (***)
Effect of feed restriction increased in HE group (interaction between feeding level and diet) for all measured nutrients except crude protein and NDF.

Results: Digestibility when **returning AL (70-74d of age)**[8]



Results: Digestibility when **returning AL (70-74d of age)**[9]



When returning to AL feeding: HE > CE BUT no effect of previous feeding level
→ Quick adaptation of the animals to a new feeding level

Conclusions and perspectives of our study

Digestibility ↗ with the use of a high energy diet regardless of the feeding level:
+6.1 for OM, +4.7 for proteins, +6.1 for ADF

Digestibility ↗ by feed restriction +3.8 for OM, +5.4 for proteins, +5.9 for ADF
BUT fast adaptation to an *Ad libitum* feeding

Effect of feed restriction increased with a high energy feed for OM, Energy and ADF.

What's next?

- **Measurements of dietary DE for the *Ad libitum* period**

- **Correlation with growth, health and slaughter yield parameters.**

- **Correlation with caecal characteristics (pH, VFA, NH3, microbiota,…)**

Thank you for your attention

And thank you to my team and scientific partners

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