



Digestive efficiency of the growing rabbit according to the restriction strategy and the dietary energy concentration

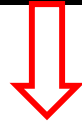
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CONTEXT AND AIM

Intake limitation strategies after weaning of the rabbit

- Improve the digestive health (-20% intake respect to ad libitum)
- Improve the digestive efficiency and feed conversion



large variability among studies

Hypothesis

- Effect of the intake amount only ?
- Combined effect with digestible energy intake ? Or diet composition.
- Interaction ?

Aim:

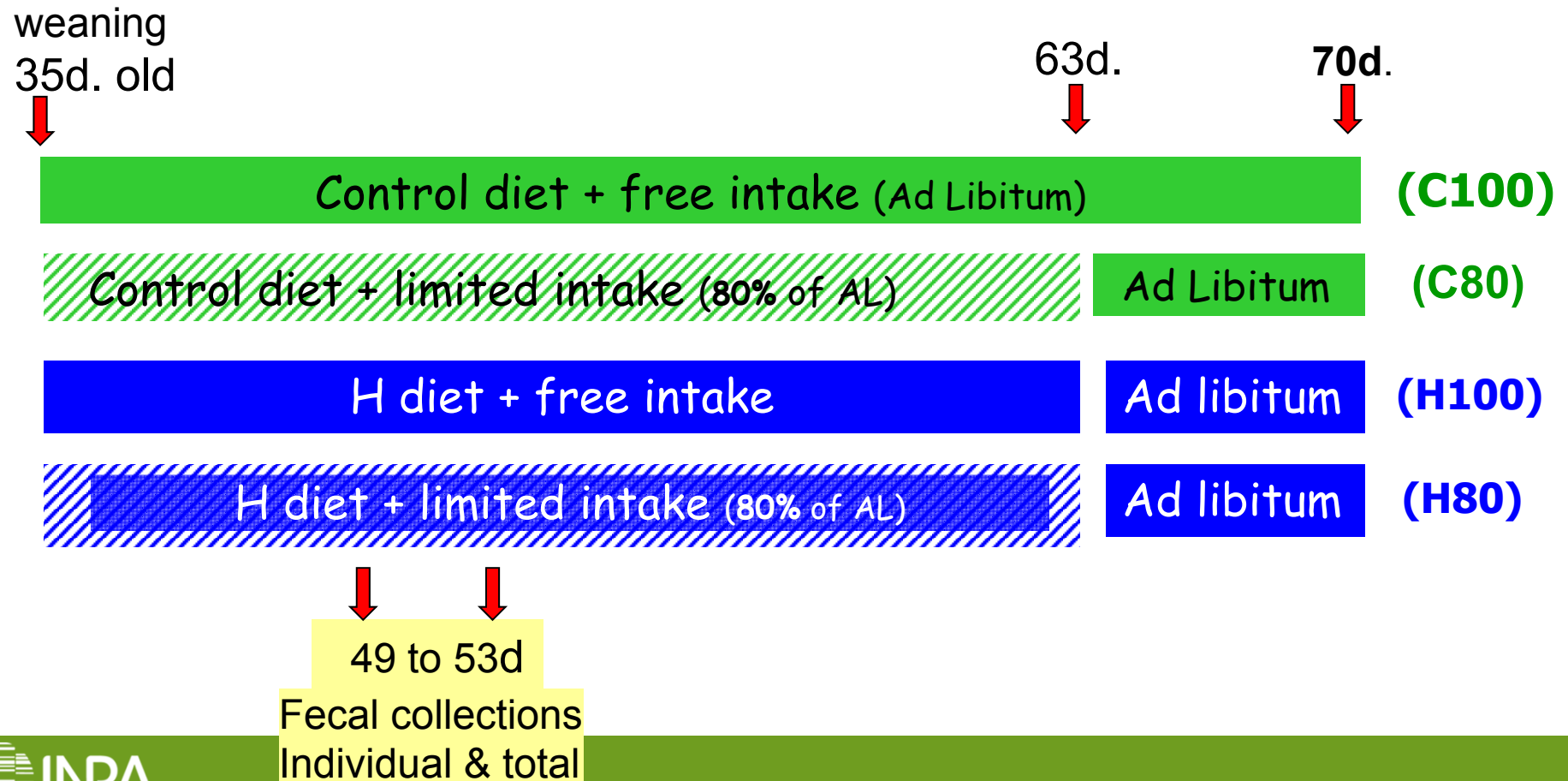
separate the effects of the ingested amount of those from energy intake

Experimental design

Model 2 X 2 : 100 vs 80% et **Control** vs **High Energy "H"**

Trial1 : 4 groups of 12 rabbits in metabolism cages

+ trial 2: 4 groups of 17 cages of 5 rabbits
(intake and growth measurements)



Ingredients and chemical composition of the experimental diets

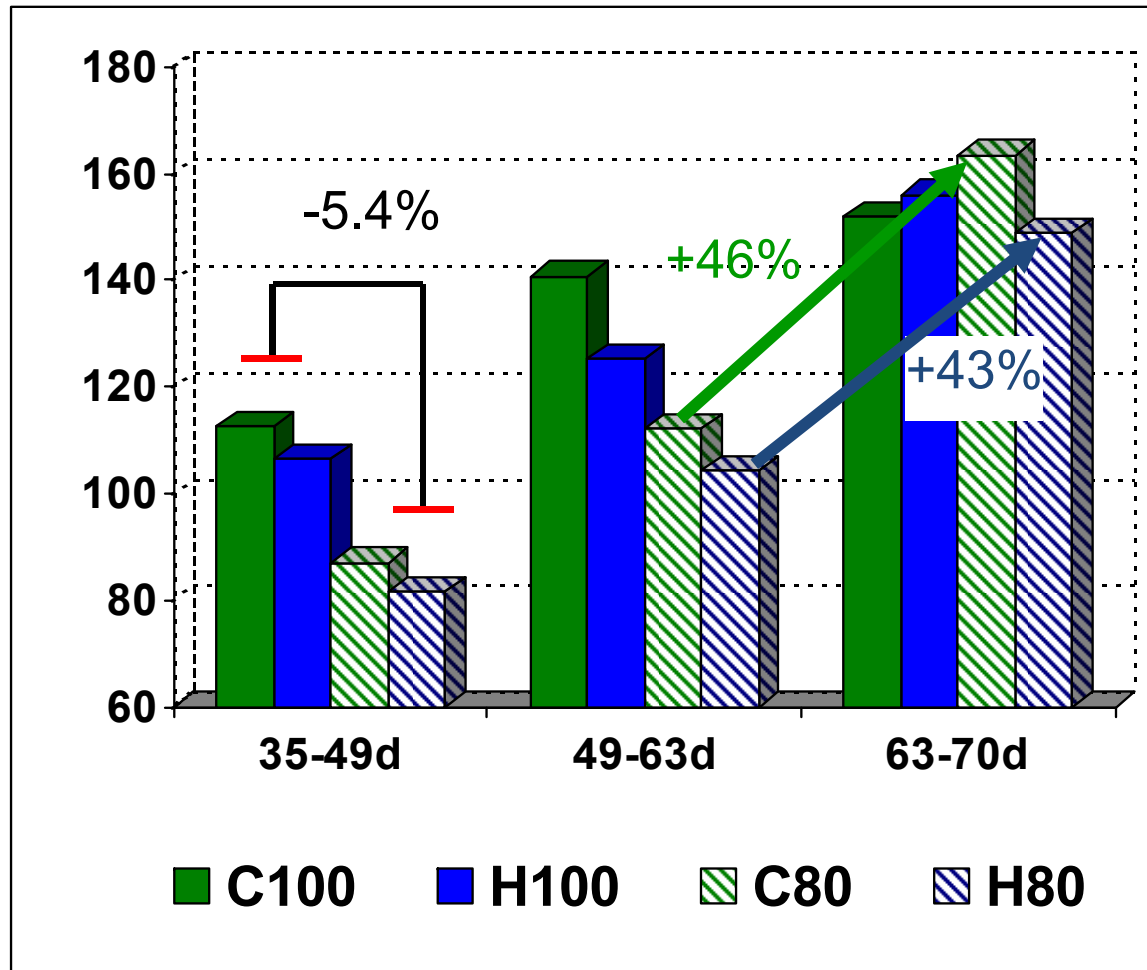
	Control	High energy	
Ingredients (g/kg)			Starch vs lipids + iso-ADF
Wheat	115	60	
Barley	115	60	
Wheat bran	190	190	
Soya bean meal	40	115	
Sunflower meal	160	140	
Alfalfa	190	190	
Wheat straw	68	63	
Sugarbeet pulp	100	100	
Vegetable oil	0	60	
Minerals + vitam.	22	22	
Chemical composition (g/kg)			
Crude protein (N X 6.25)	148	164	
Starch	141	91	
Crude fat	19	72	
Neutral detergent fibre	337	345	
Acid detergent fibre	169	157	

Results & discussion

Control vs High energy

Starch vs lipids / iso-ADF

Feed intake (trial 2)

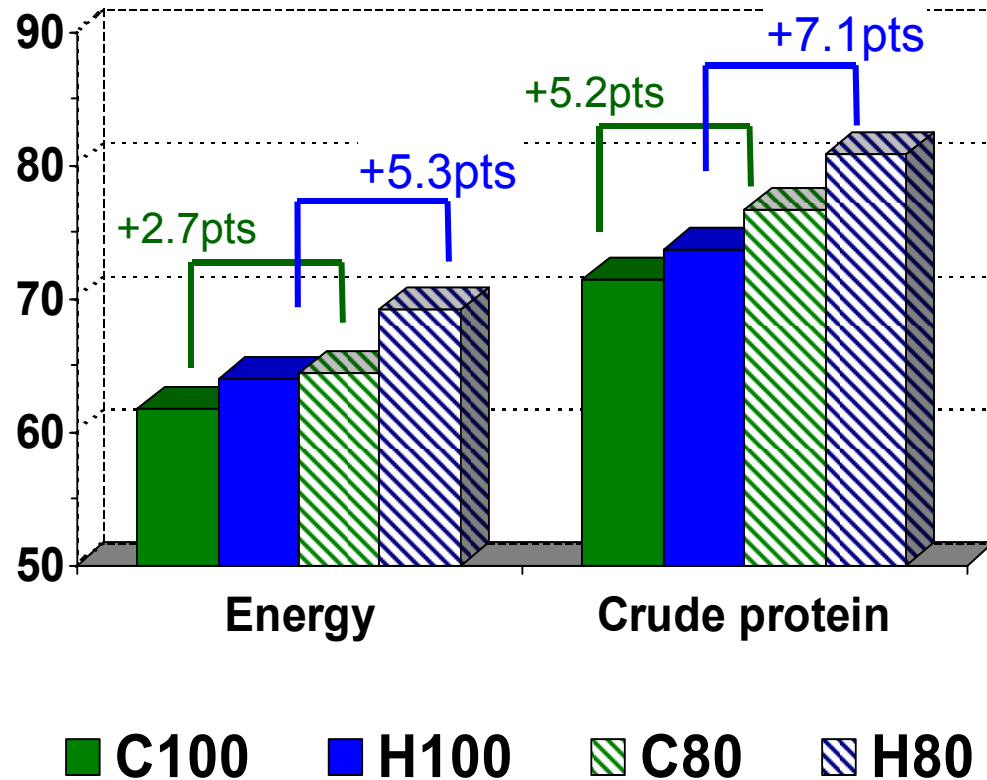


From 35 to 49d
feed intake regulated
according to dietary DE
concentration

Back to free intake:
sharp increase of intake for
previously restricted rabbits

Nutrient digestion

Whole tract digestibility, %



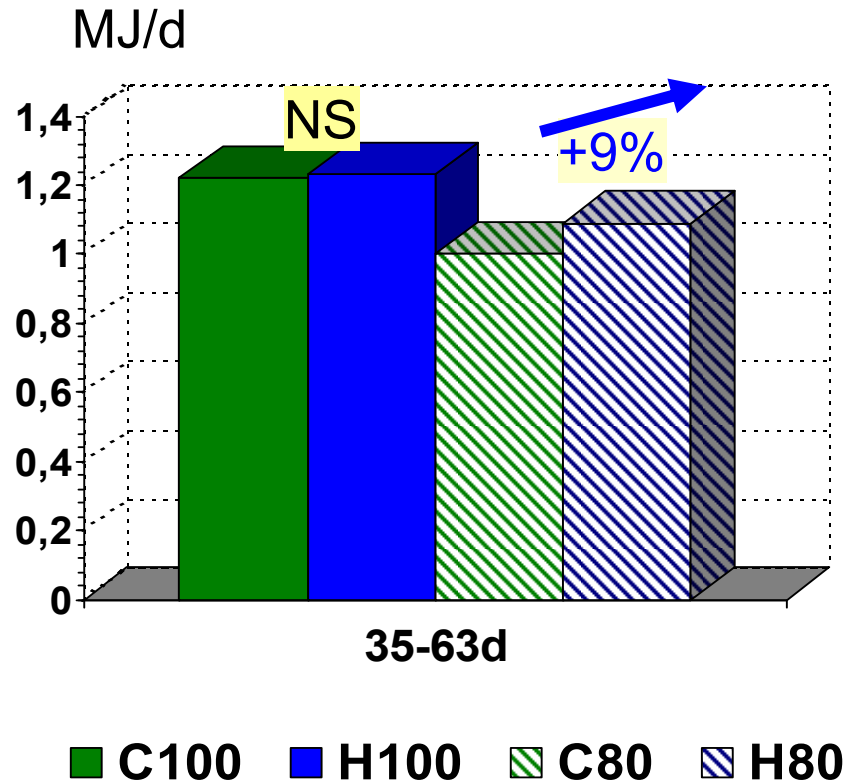
	<i>Diet</i>	<i>Intake</i>	<i>D x I</i>
Energy :	<0.001	<0.001	0.012
C.P. :	<0.001	<0.001	0.22

Energy digestion improved by restriction, but more with HE diet

Protein digestion **highly** improved by restriction, without interaction with diet composition

Energy intake

Intake of digestible energy*



Diets

Control vs High energy

	MJ ED/kg		MJ ED/kg
Ad-lib.	9.71	+12.2%	10.90
Restricted	10.14	+16.4%	11.80
	+4.5%		+8.3%

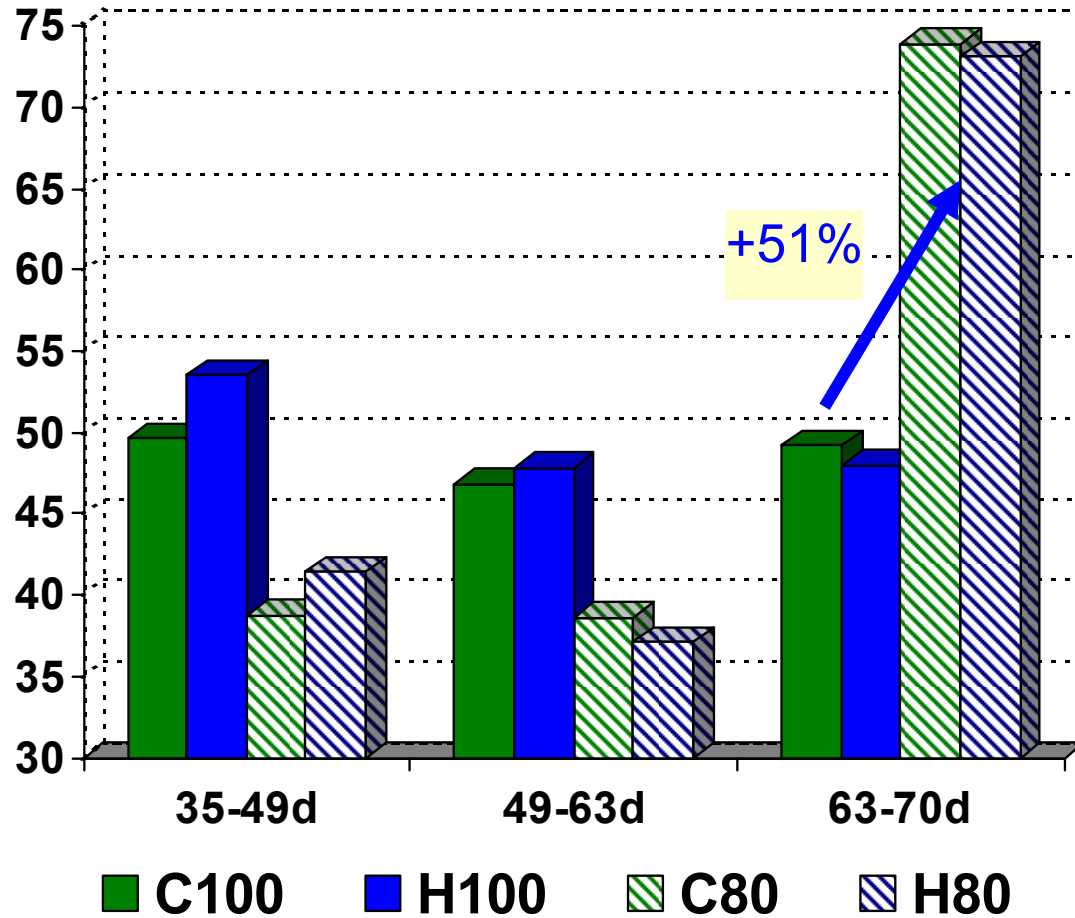
Higher digestive efficiency for the restricted rabbit with a high energy diet

Interaction
energy concentration
and energy digestion?

* : trial 2, measured on 17 cages of 5 rabbits per group

Growth (trial2)

Weight gain, g/d



Weight at slaughter (73d), g

2724 2787 2650 2693

Control vs High energy

35-49d

Intake level = **

[Energy] = **

49-63d

Intake level = **

[Energy] = NS

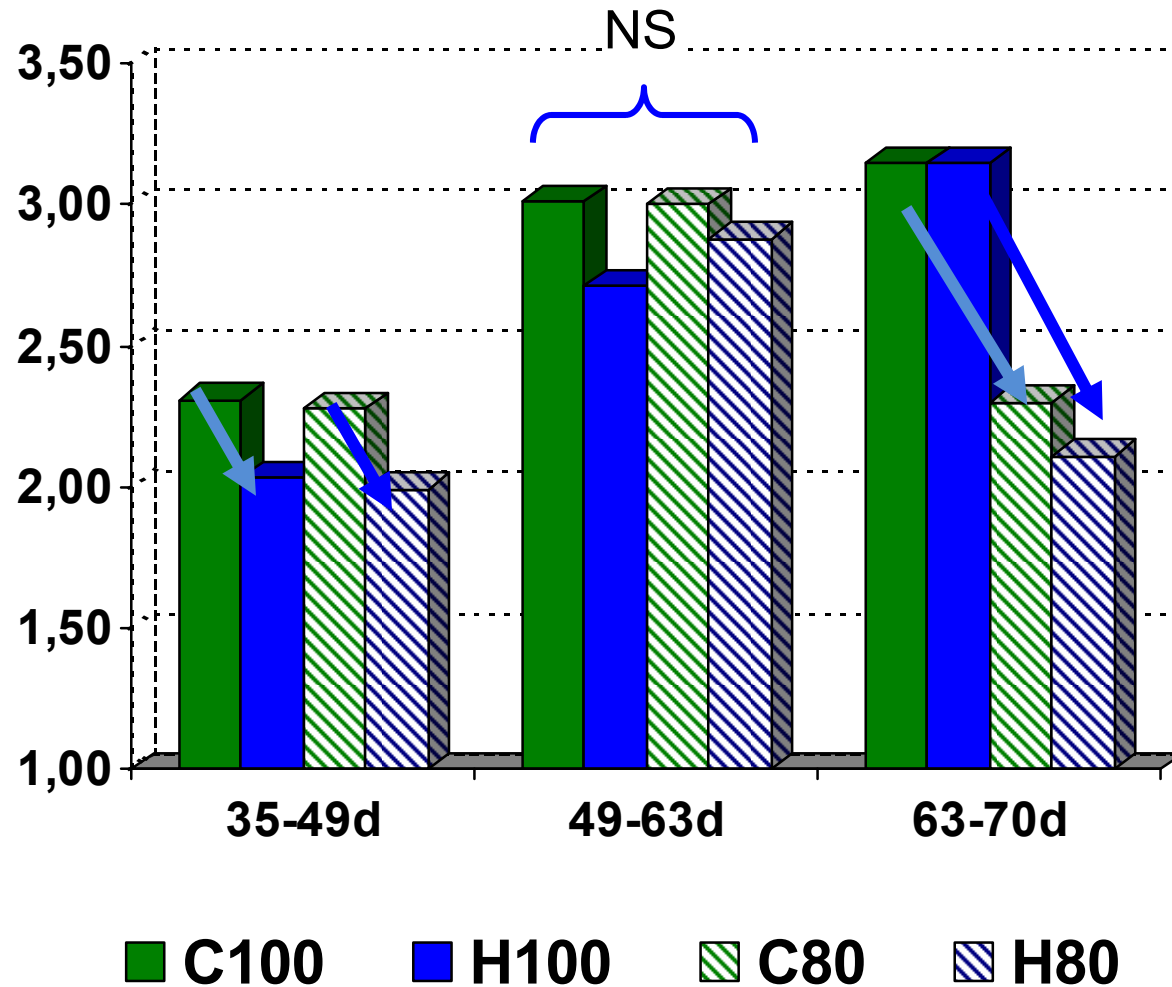
63-70d

[Energy] = NS

Intake level : *** High
compensatory growth

Feed conversion (trial2)

Control vs High energy



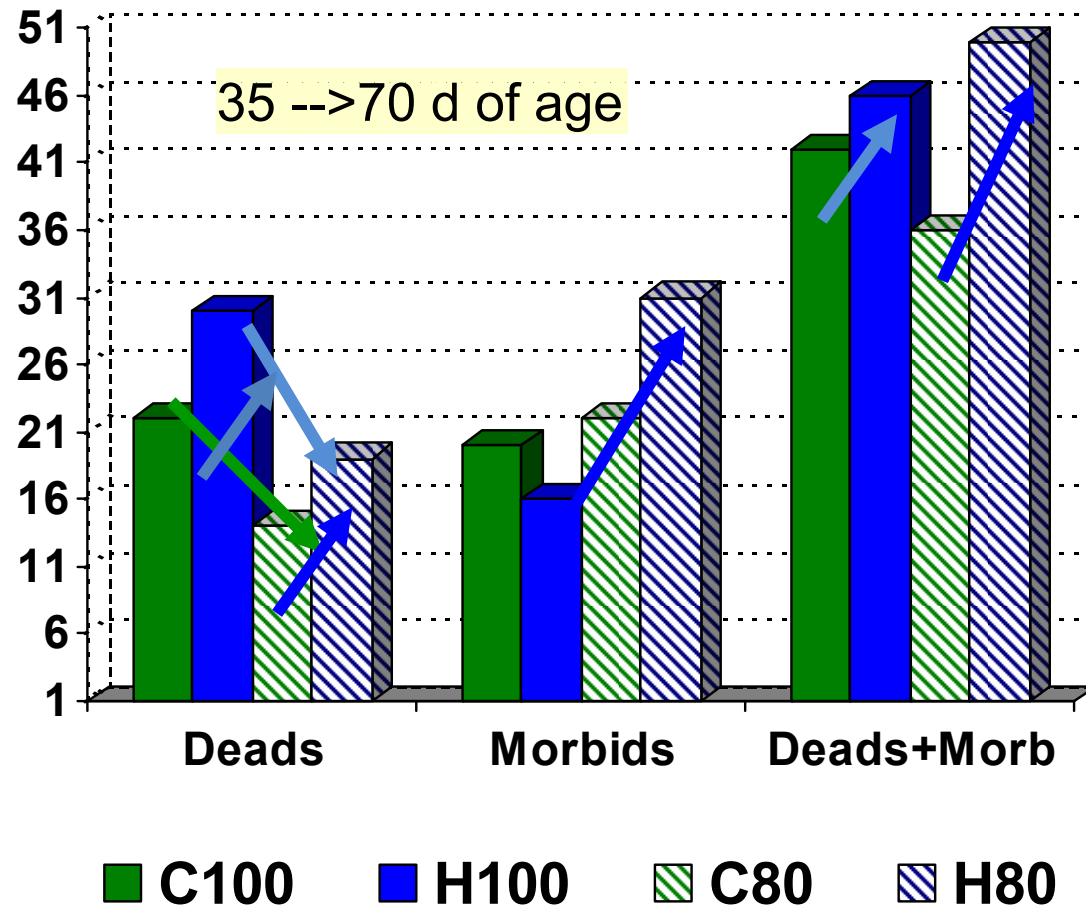
35-49d
intake level; no effect
[Energy] = **

63-70d
[Energy] = NS
Intake level : ***
compensatory growth

Health status (trial2)

Control vs High energy

Number of cases, for 85 rabbits per group (17 cages)



49-63d : high incidence of cases

Mortality:
Lower for "80" restricted groups (P=0.02)

Mortality:
[Energy] : unfavourable effect (P=0.11) ??

Morbidity:
Higher number of cases, only for high energy + restriction = interaction?

Health risk (dead+morb)
[Energy] : unfavourable effect (P=0.05)

CONCLUSIONS

Limited intake level (-20% from AL) for 4 weeks =

1. Better digestion and feed efficiency
2. lower growth almost compensated at end of fattening
with one week of free intake
3. lower mortality

High dietary energy concentration :

- Interaction "energy level" X restriction for energy digestion
- Reduce the "negative impact" of a limited intake on growth
- Impact on digestive health ?? Interaction



Thank you for your attention



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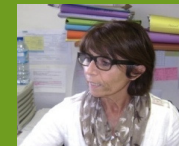
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