EAAP Annual Meeting 28th August 2018

Session 27

Investigation of early feed intake: does suckling rabbit have pellet preferences?

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EAAP
European Federation of Animal Science

INRA
SCIENCE & IMPACT

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Context of the study

High incidence of digestive disorders around weaning

antibiotics

Hypothesis : Early feeding could guide microbiota implantation process, thus improve rabbit health

No access to feed before 15-17d

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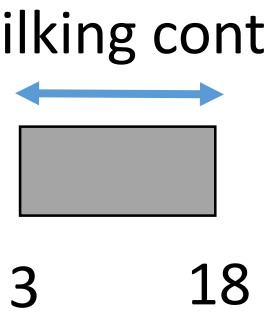
Objectives :

(1) Gain more knowledge on early feeding ability

(2) Determine how to stimulate pups solid feed intake with attractive pellet presentation

Material and methods : animal husbandry



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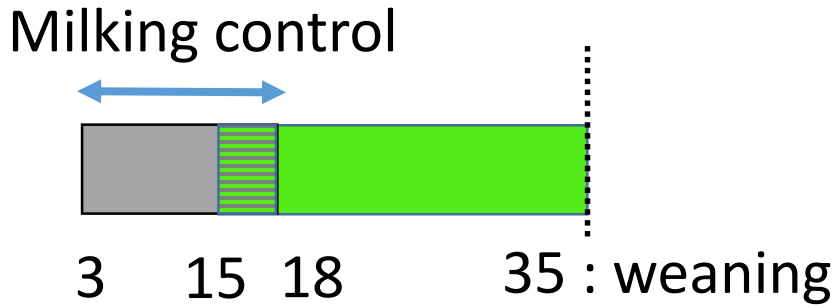
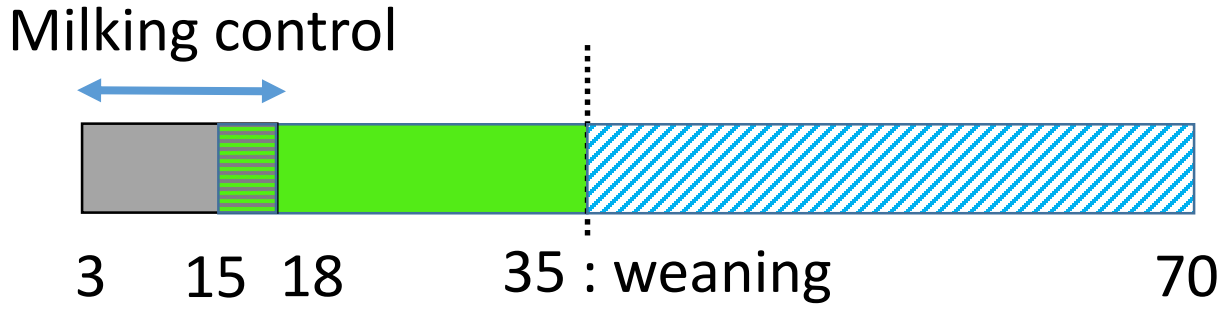


: feed in the nest
(daily measurements from d8)

: feed outside the nest

2 kinds of pellets available

Material and methods : animal husbandry



: feed in the nest
(daily measurements from d8)

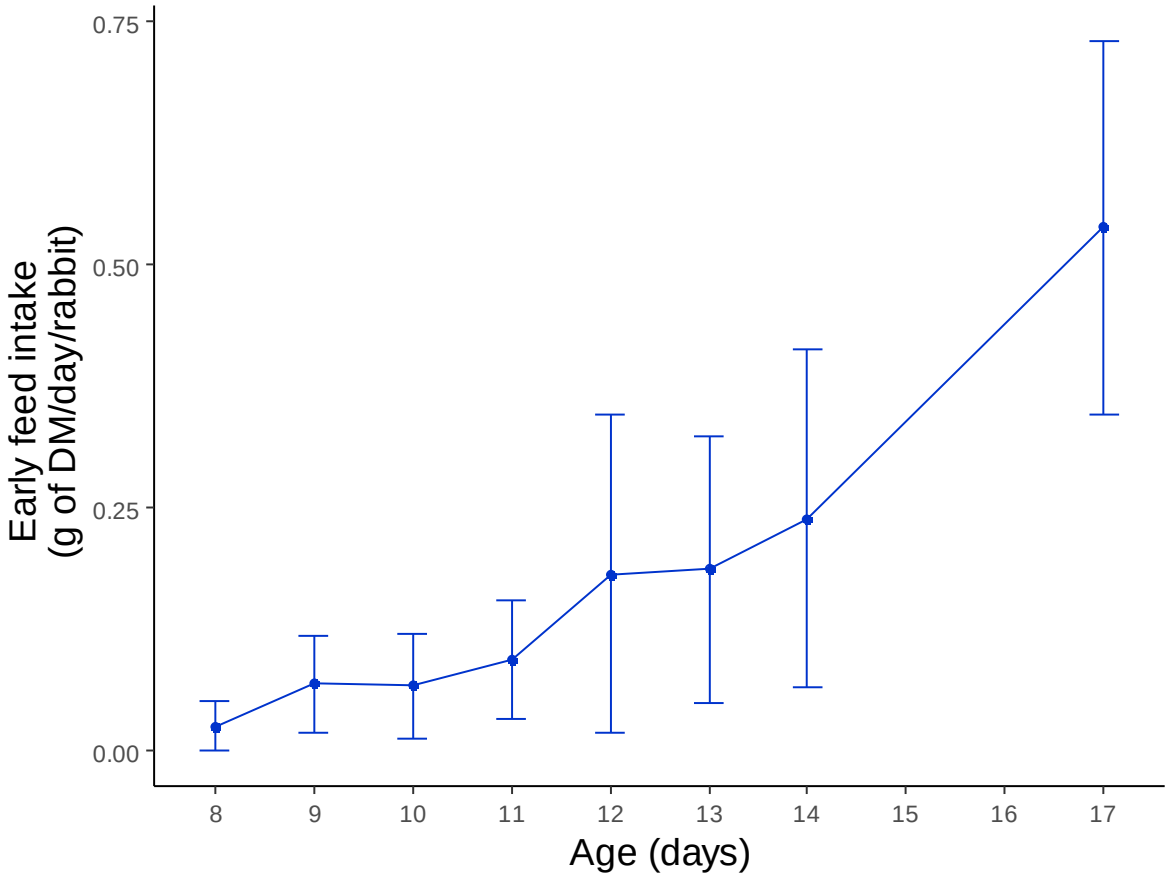
: feed outside the nest

2 kinds of pellets available

: classical fattening

Dynamic of suckling rabbit early feed intake

Trial 1. and trial 2.



From 8d to 17d, total consumption of **2.5 g of DM/rabbit**
and total dry feed consumption = 0.6% of total fresh milk consumption

Dynamic of suckling rabbit early feed intake

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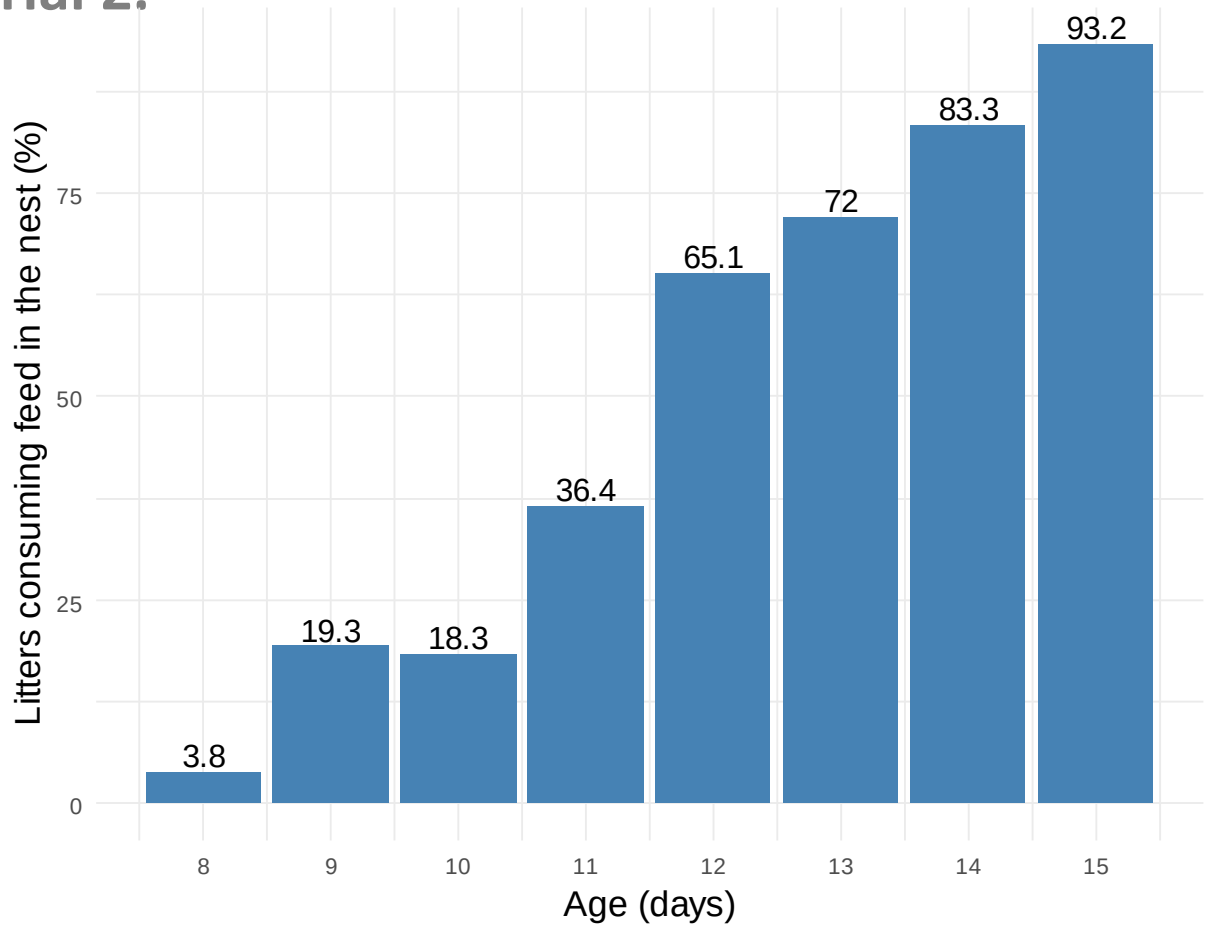


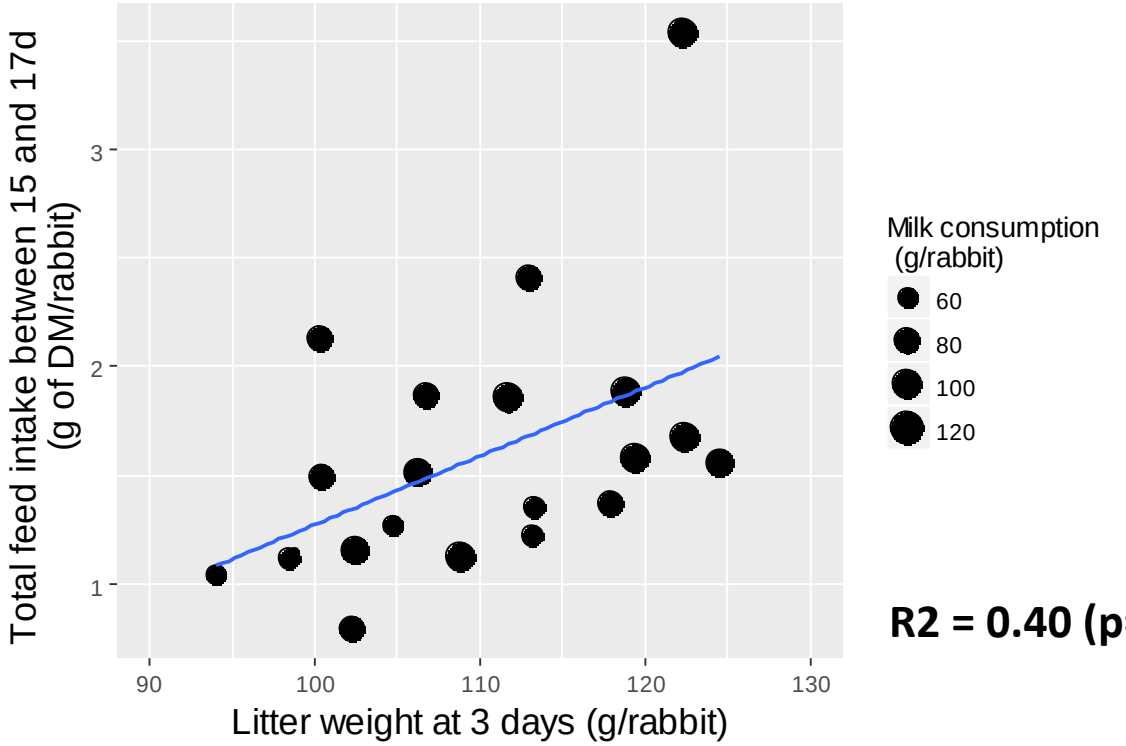
From 8d to 17d, total consumption of **2.5 g of DM/rabbit**
and total dry feed consumption = 0.6% of total fresh milk consumption

Dynamic of suckling rabbit early feed intake : investigation of inter-litter variability

Trial 2.

Which variables affect feed consumption from 7 to 20 days-old ?

Effects	p-value
Age	***
Feed treatment	NS
Litter weight at 3 d	***
Milk consumption	NS
Nest quality	NS



R2 = 0.40 (p=0.05)

Material and methods : experimental feed

Trial 1.

	A	B	C	D
Diam (mm)	2	3	4	6

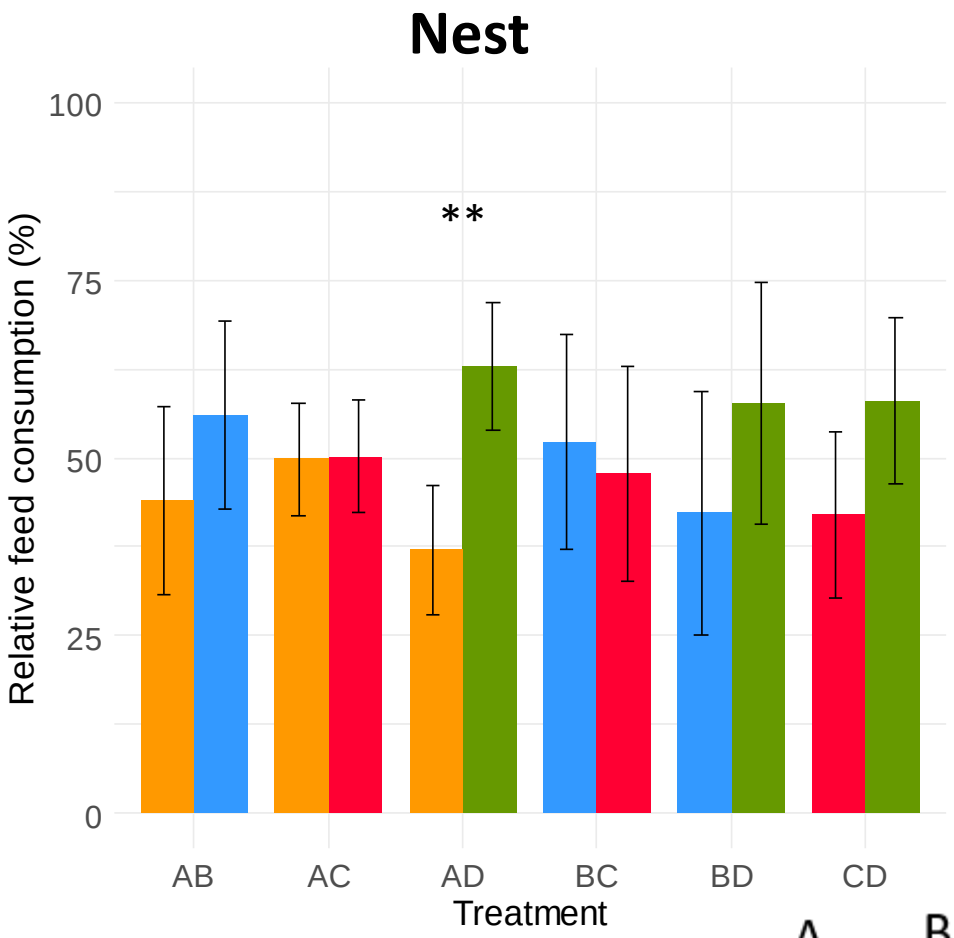
Tested in pairs

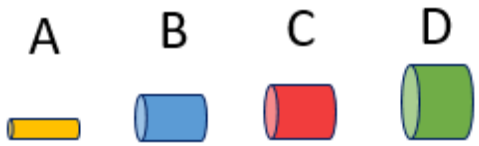
→ 6 treatments (*n*=60 litters)

Did pellet diameter affect suckling rabbit consumption ?

Trial 1. Example treatment AB :

$$\text{relative consumption pellet A} = \frac{Quantity\ A}{Quantity\ A + Quantity\ B} * 100$$





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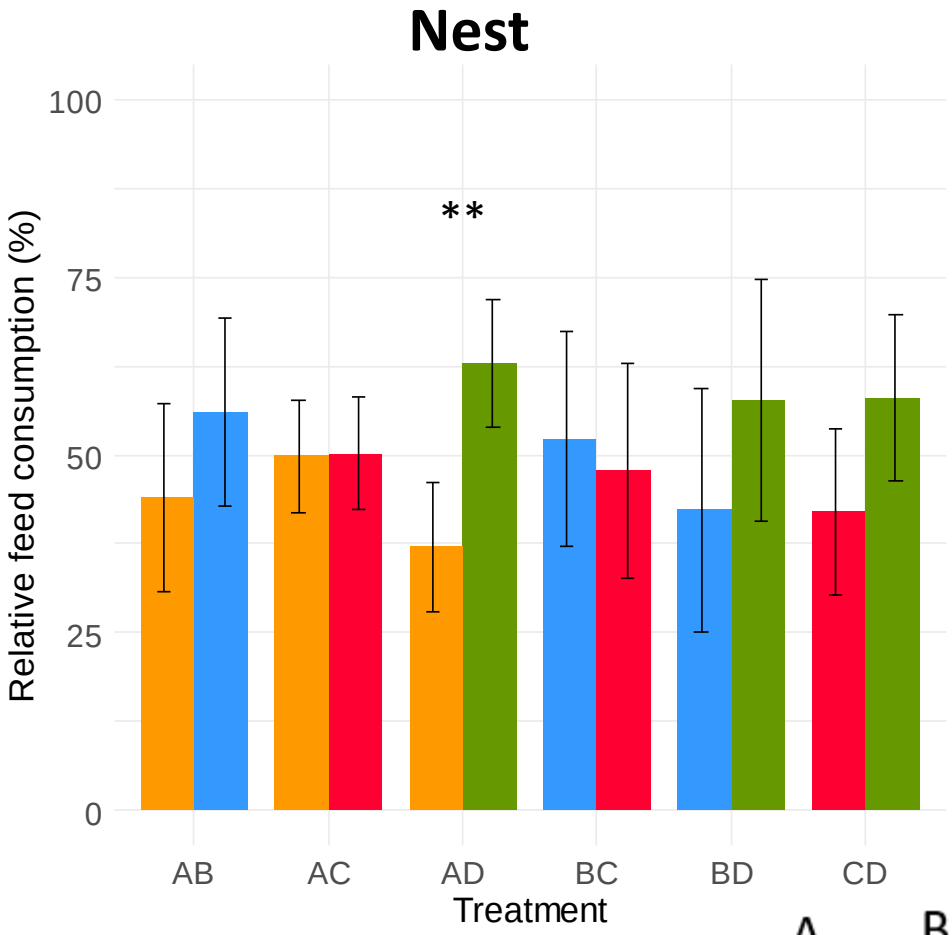
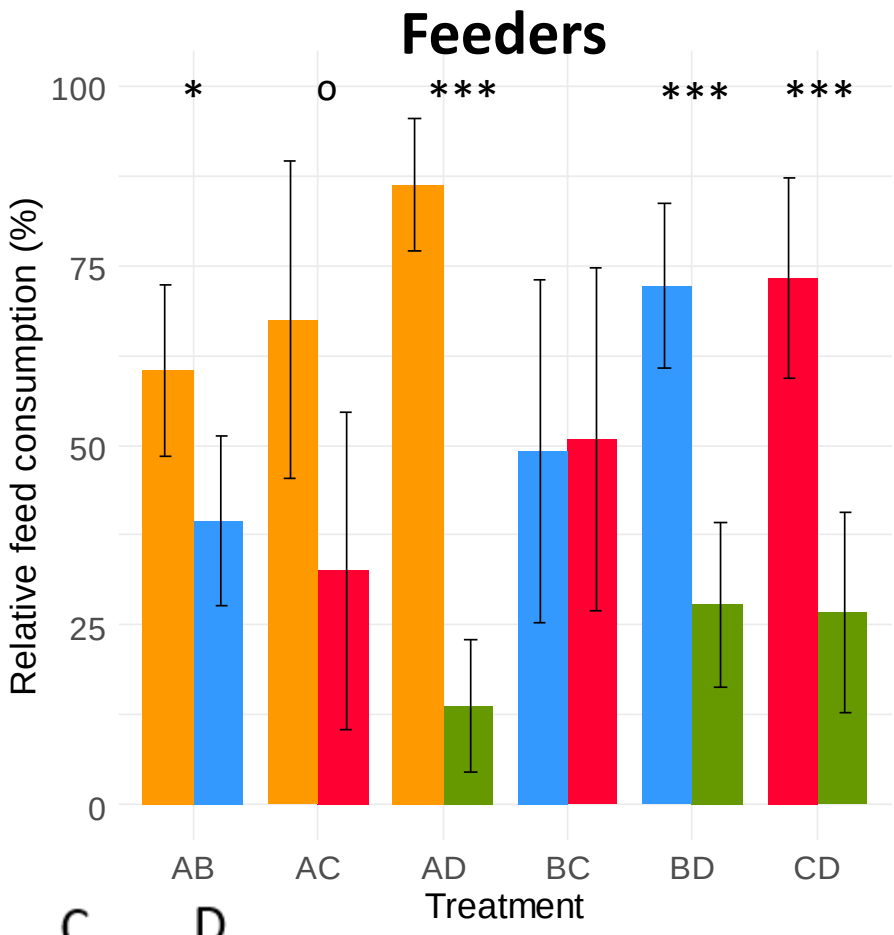
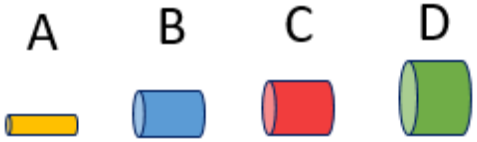






o P<0.1

Relationship between feed preference and physical pellets characteristics

Trial 1.

- No clear preferences for a specific pellet in the nest
- Outside nest : pellet A is attractive / aversion for pellet D

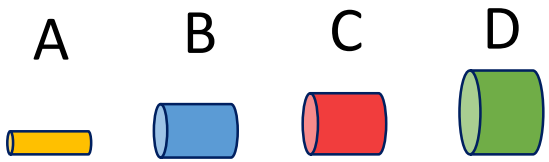
How to explain these preferences ?

Feed	Diameter (mm)	Hardness (MPa)	Durability
Pellet A	2.0	1.2 ^{ab}	95 ^{a}
Pellet B	3.0	1.4 ^{b}	95 ^{a}
Pellet C	4.0	1.4 ^{b}	92 ^{a}
Pellet D	6.0	1.1 ^{a}	86 ^{b}

Small diameter might explain preferences for A over B and C
Large diameter and low durability might explain low palatability of D

Material and methods : experimental feed

Trial 1.



Tested in pairs

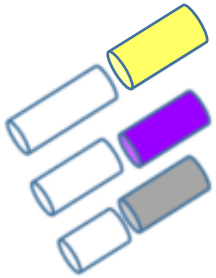
Diam (mm) 2 3 4 6

→ 6 treatments (*n*=60 litters)

Trial 2.

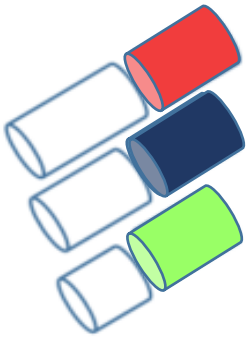
Different compression rates
(= die channel length / die diameter)

⌀ 2,5 mm



4
4.8
5.6

⌀ 4 mm



4.6
5
6

Tested in pairs

→ 6 treatments (*n*=63 litters)

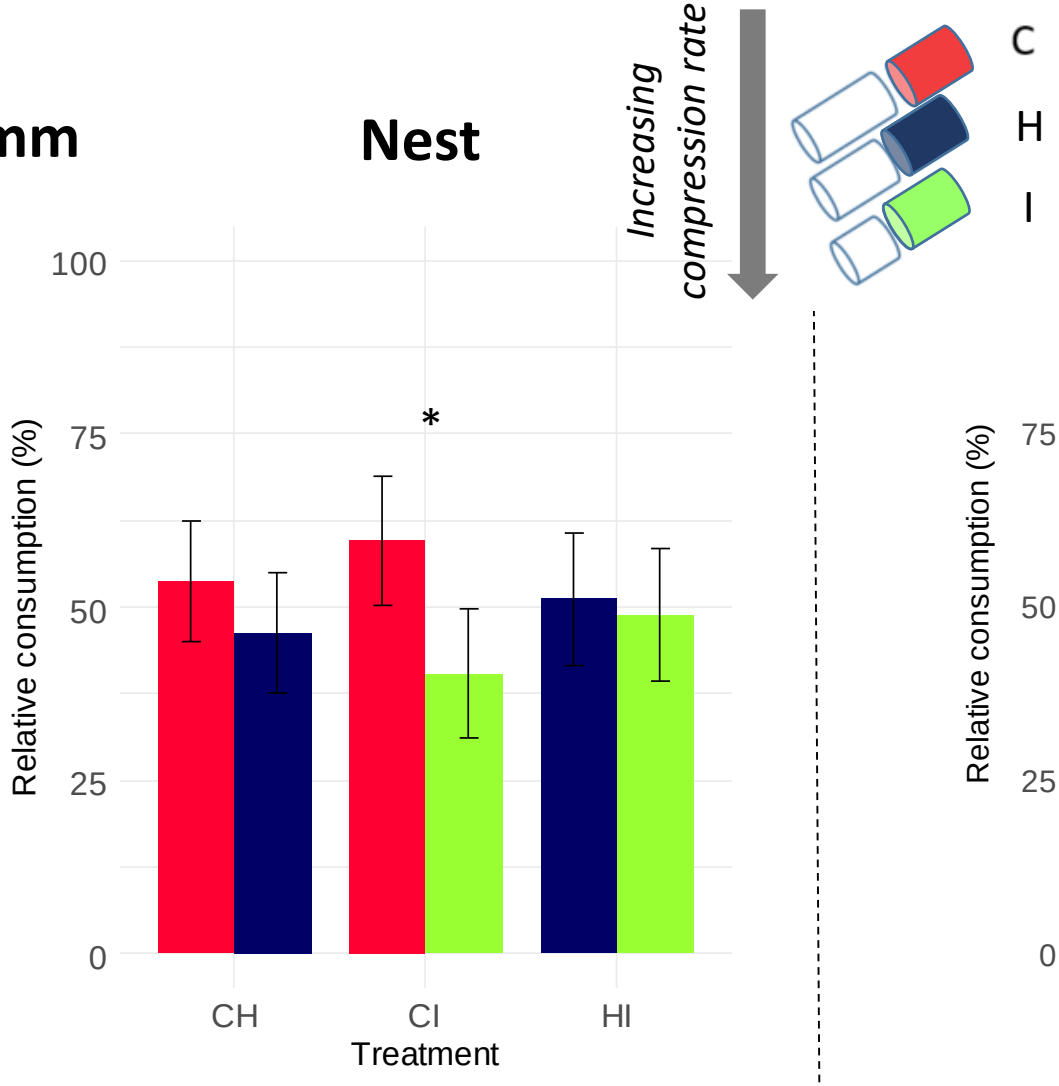
✓ Pellet physical and chemical properties controlled

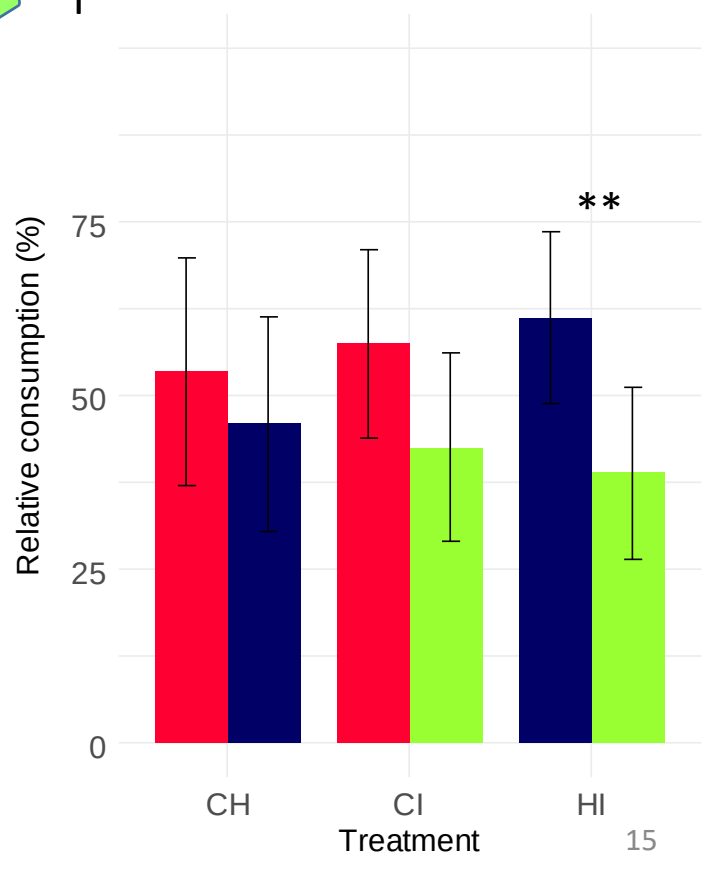
Did compression rates affect suckling rabbit consumption ?

Trial 2.

⌀ 2,5 mm : no compression rate effect

⌀ 4 mm





Conclusion

✓**First success to stimulate and evaluate kits consumption** from 8d with pellets

✓**Better knowledge of early feeding consumption** :

- Low quantities compared to milk (0.1 - 2%)
- Variability in the feeding onset and in the amount consumed
- Significant effect of the initial litter weight
- Pellet diameter can modify palatability outside of the nest
  → small diameter pellet may be of interest

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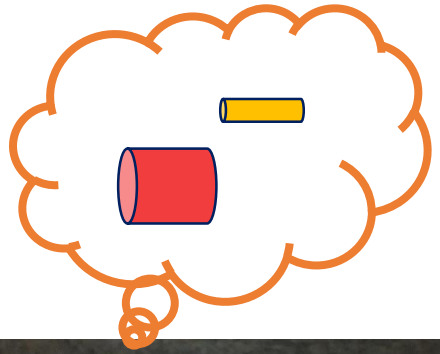
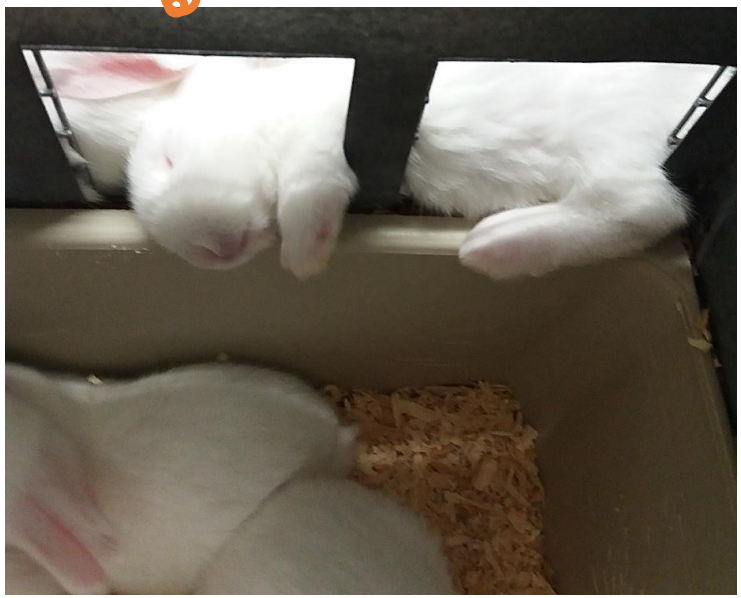
Prospects :

Analysis of early dietary intervention on growth performance, microbiome composition and rabbit health

Thanks for your attention !

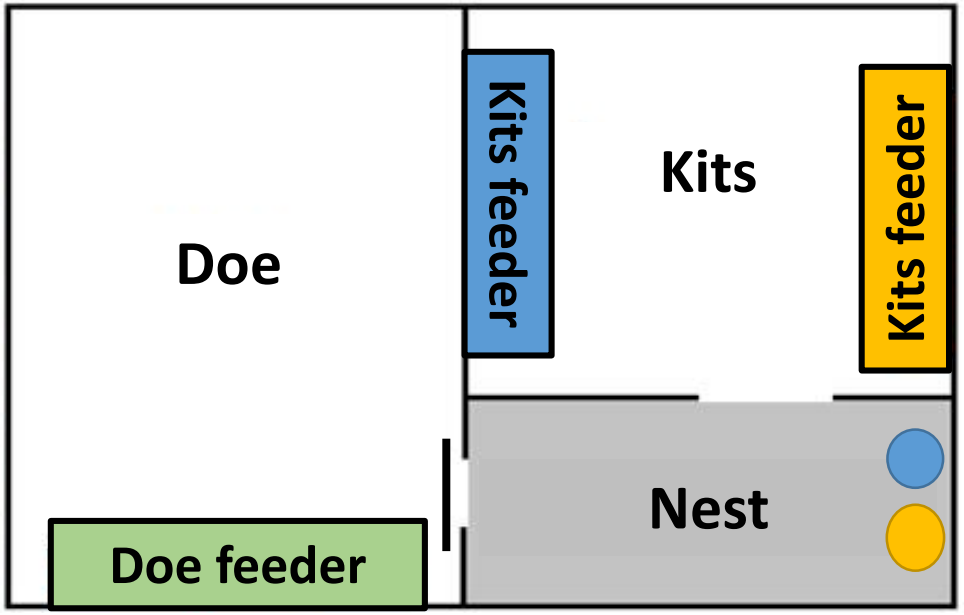




Contact information : charlotte.paes@inra.fr

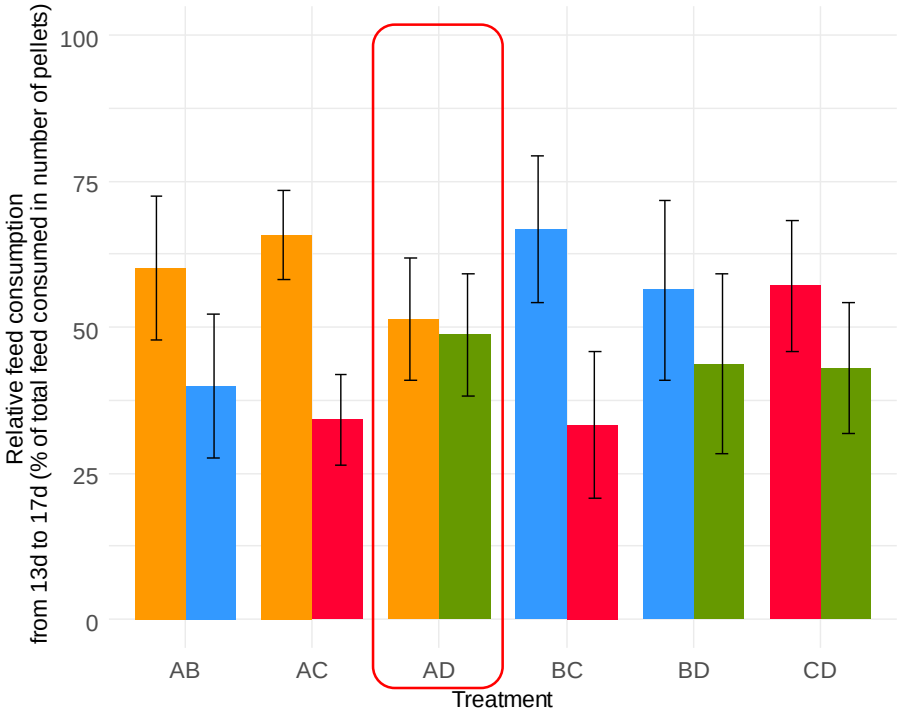
Material and methods : animal husbandry (2)

Between 15d and 18d :

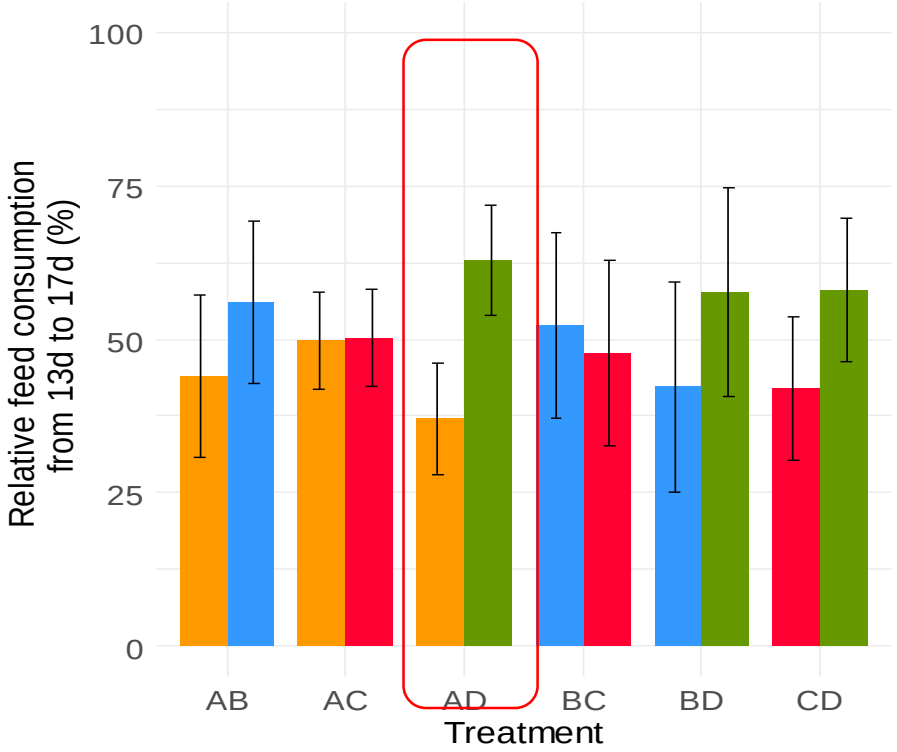


Nest

Data in number of pellets

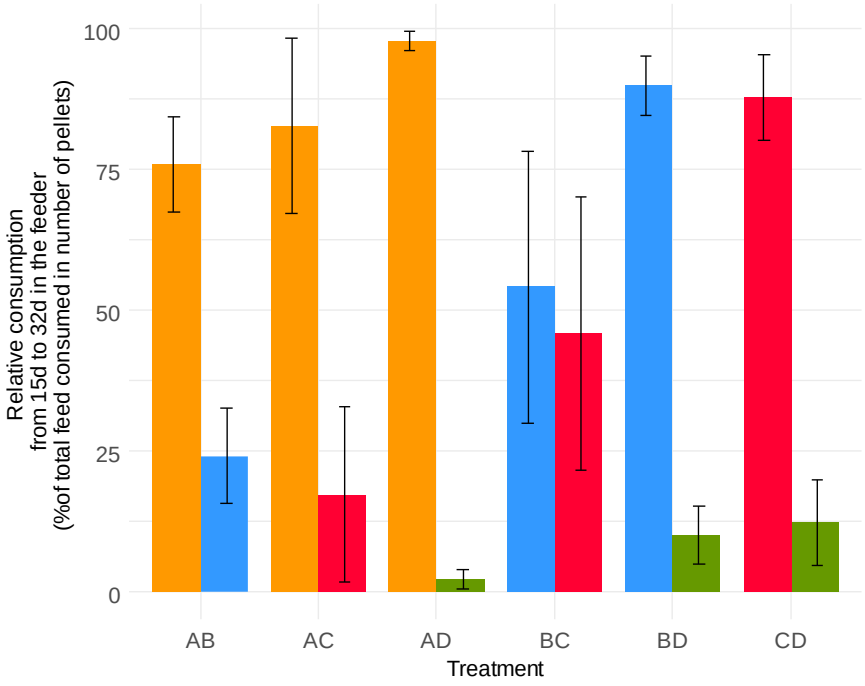


Data in grams



Feeders

Data in number of pellets



Data in grams