



➤ Influence of genetic diversity at individual and group level on the health of growing rabbits

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## ➤ Experimental hypotheses

Does increasing genetic diversity in rabbits promote health ?

Does mixing 2 breeds within a litter promote health?

- Comparison of 2 genetic types:



Purebred

« productive »

« susceptible to disease (?) »

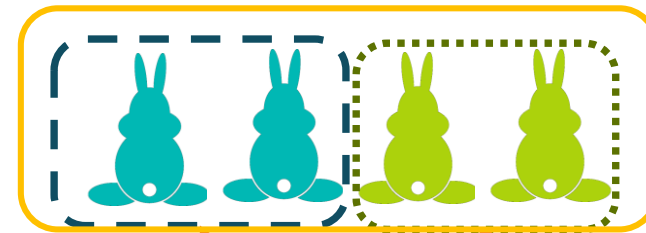
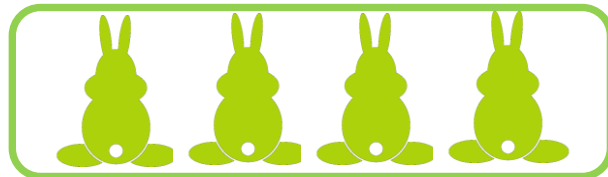
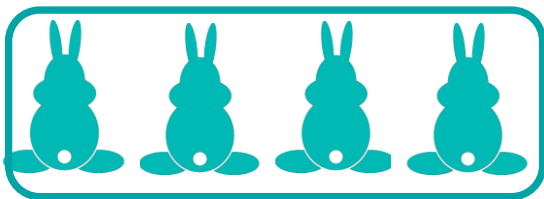


Crossbred => increased heterozygosity

« robust »

« resistant to disease (?) »

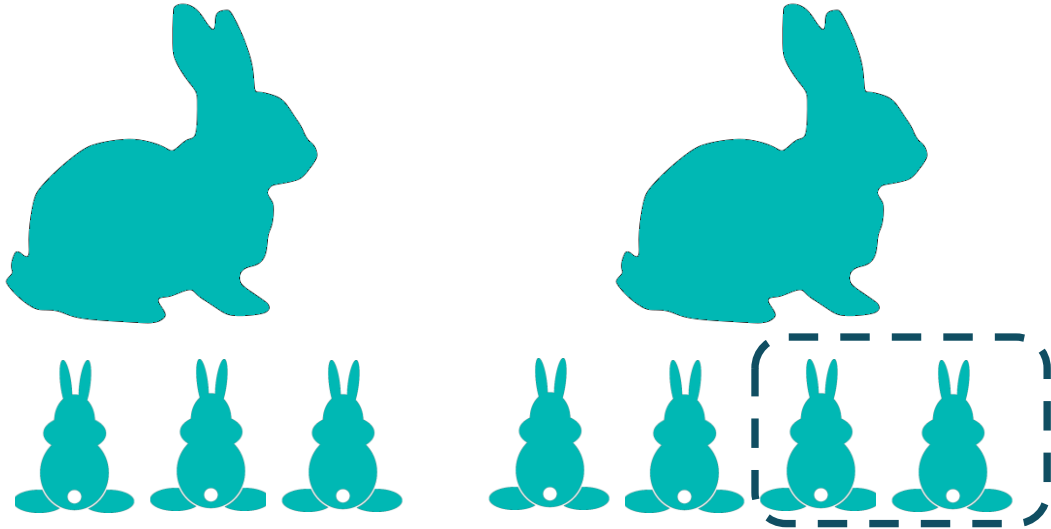
- Identification of a group effect / herd immunity effect ? :



indirect protection

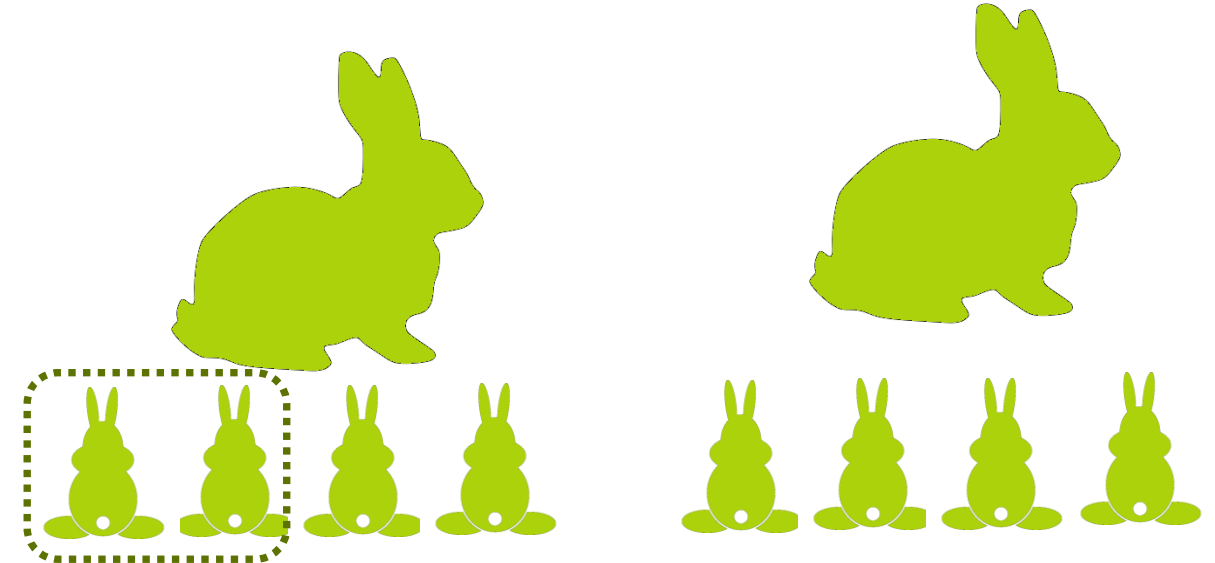
## > Genetic types

Purebred INRA 1777 does



Purebred INRA 1777 kits

Crossbred INRA 1777x  
Fauve-de-Bourgogne does



Crossbred  $\frac{1}{4}$  INRA 1777  
 $\frac{3}{4}$  Fauve-de-Bourgogne kits

## > Cross-fostering strategies at birth

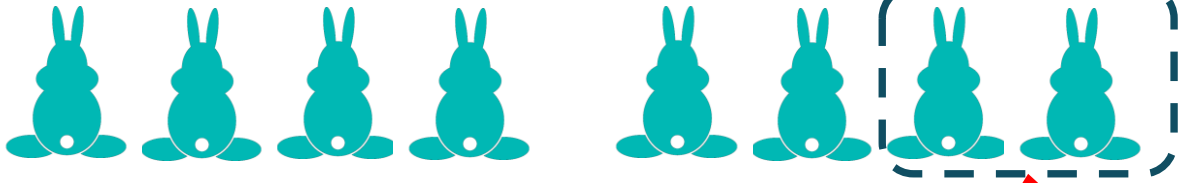
Purebred INRA 1777 does



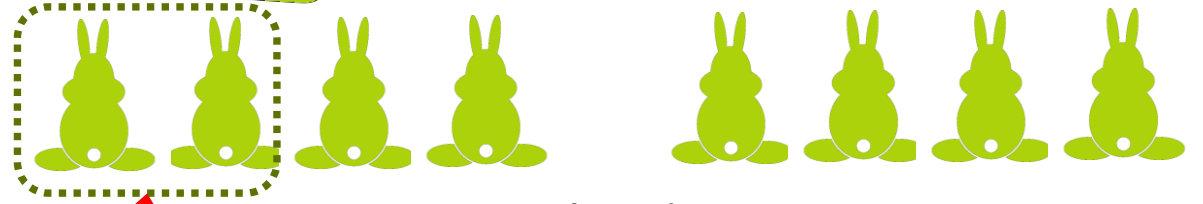
Crossbred INRA 1777x  
Fauve-de-Bourgogne does



Purebred INRA 1777 kits



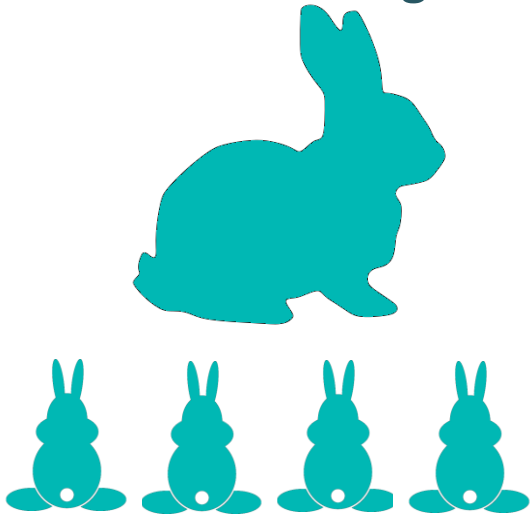
Crossbred  $\frac{1}{4}$  INRA 1777  
 $\frac{3}{4}$  Fauve-de-Bourgogne kits



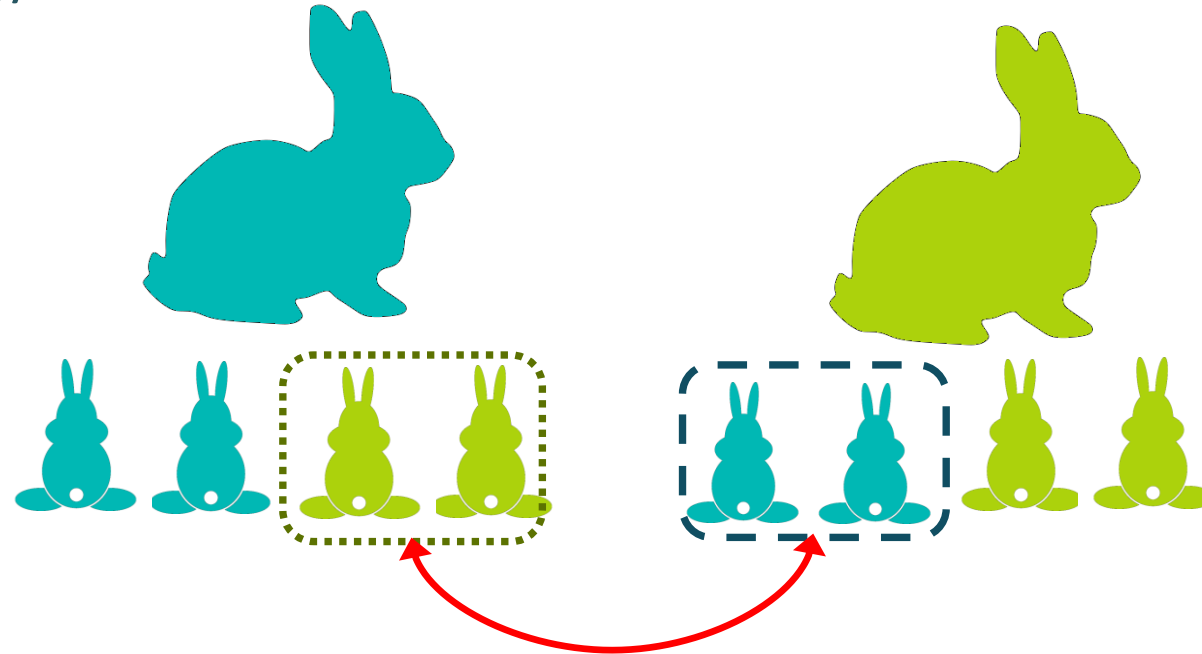
Between Breed  
cross-fostering strategy

## > 2 cross-fostering strategies

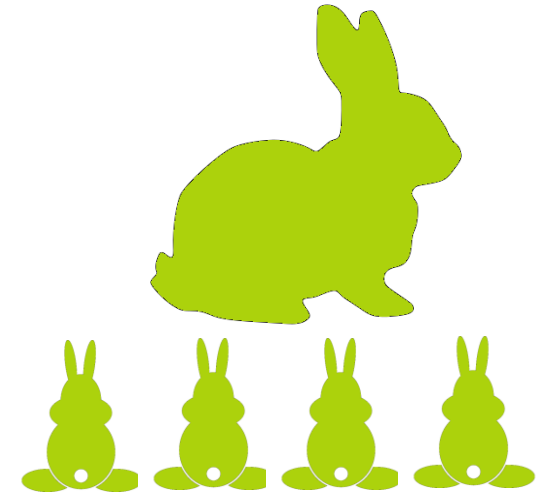
Within Breed  
cross-fostering strategy



Between Breed  
cross-fostering strategy



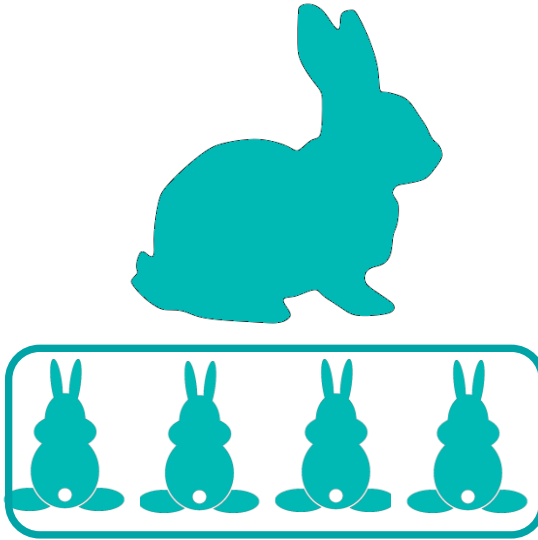
Within Breed  
cross-fostering strategy



Between Breed  
cross-fostering strategy

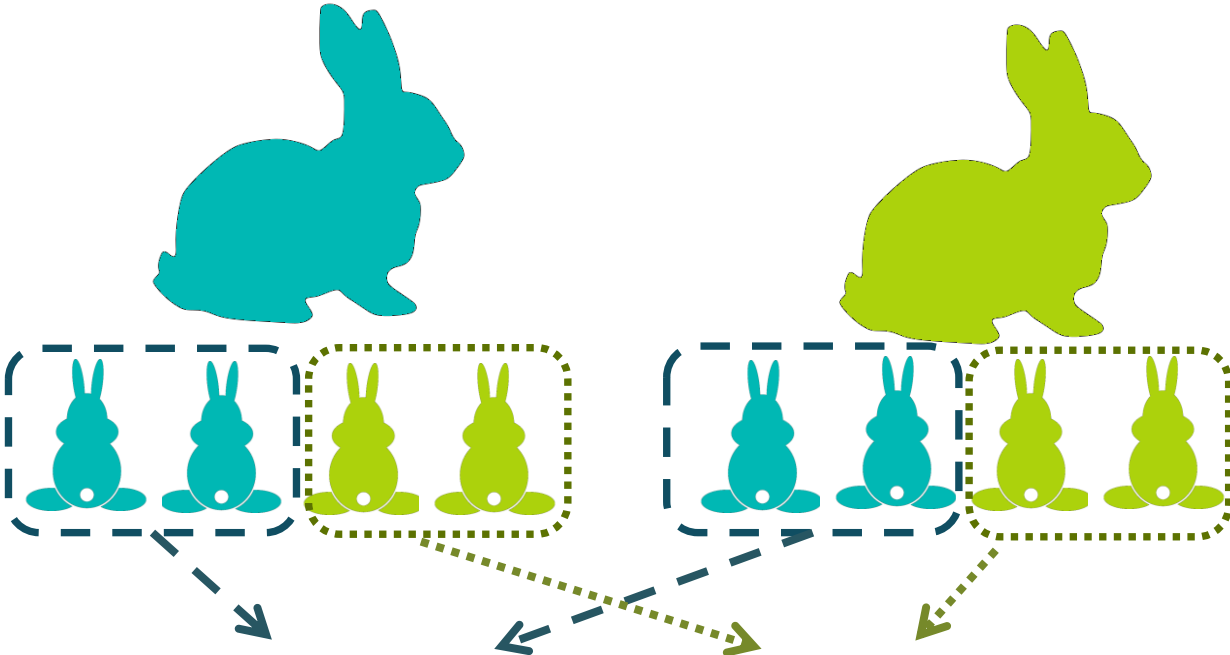
> 2 breeds and 2 cross-fostering strategies for 4 experimental groups of kits

Within Breed  
cross-fostering strategy



INRA Within

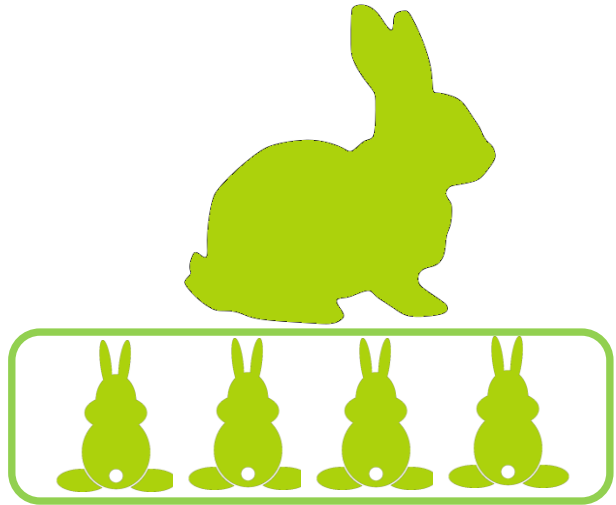
Between Breed  
cross-fostering strategy



INRA Between

Crossbreed Between

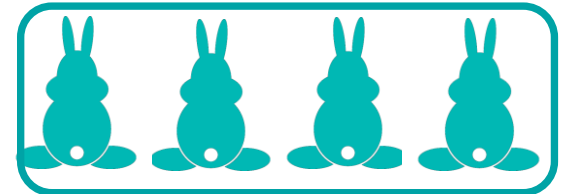
Within Breed  
cross-fostering strategy



Crossbreed Within

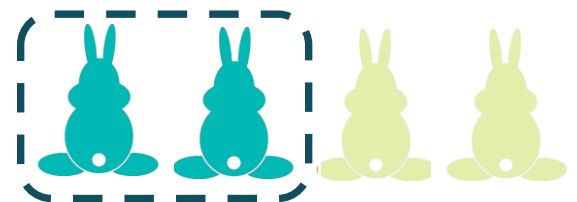


➤ 2 breeds and 2 cross-fostering strategies for 4 experimental groups of kits



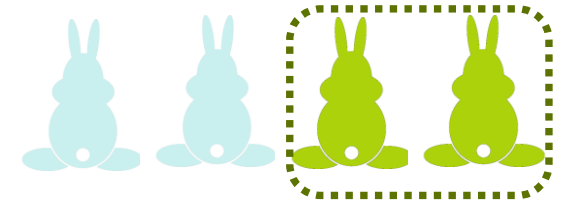
INRA Within

$n = 465$



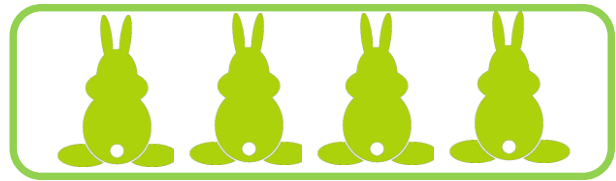
INRA Between

$n = 452$



Crossbreed Between

$n = 402$



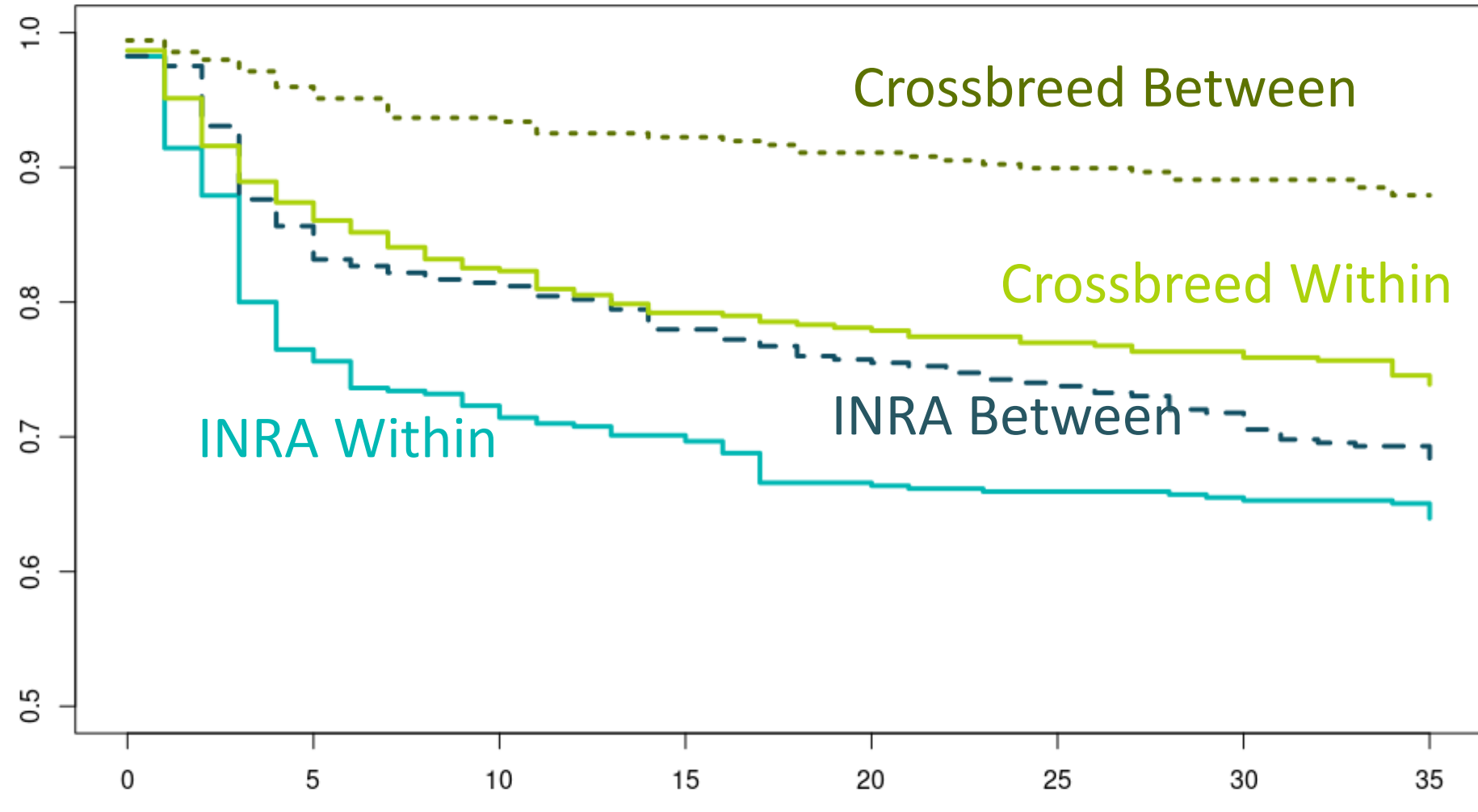
Crossbreed Within

$n = 348$

Groups maintained from birth to 63 days of age

➤ Survival: the **Crossbred Between** group has the highest survival before weaning

Survival probability



Significant effects:

- Genetic type \*\*\*  
Crossbreed > INRA

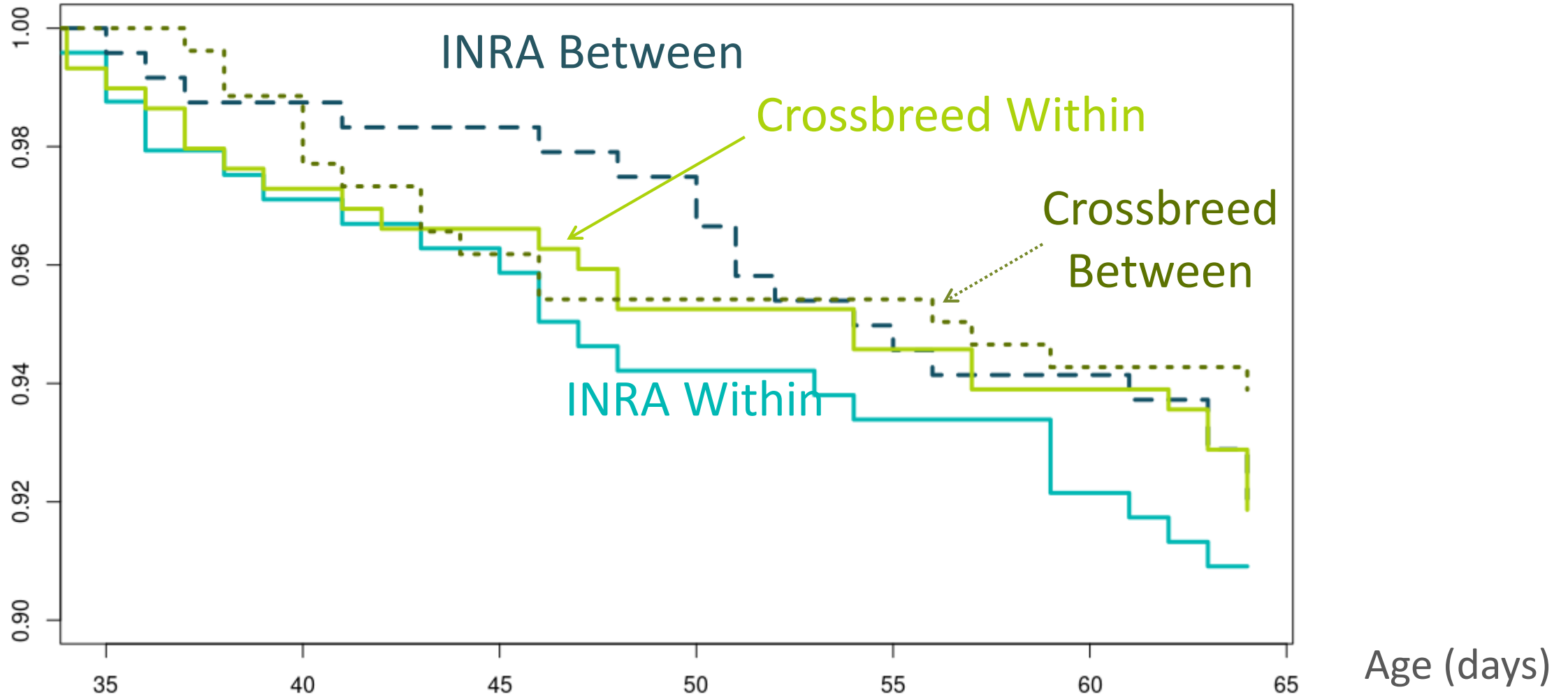
- Cross-fostering strategy \*\*\*  
Between breed > Within breed



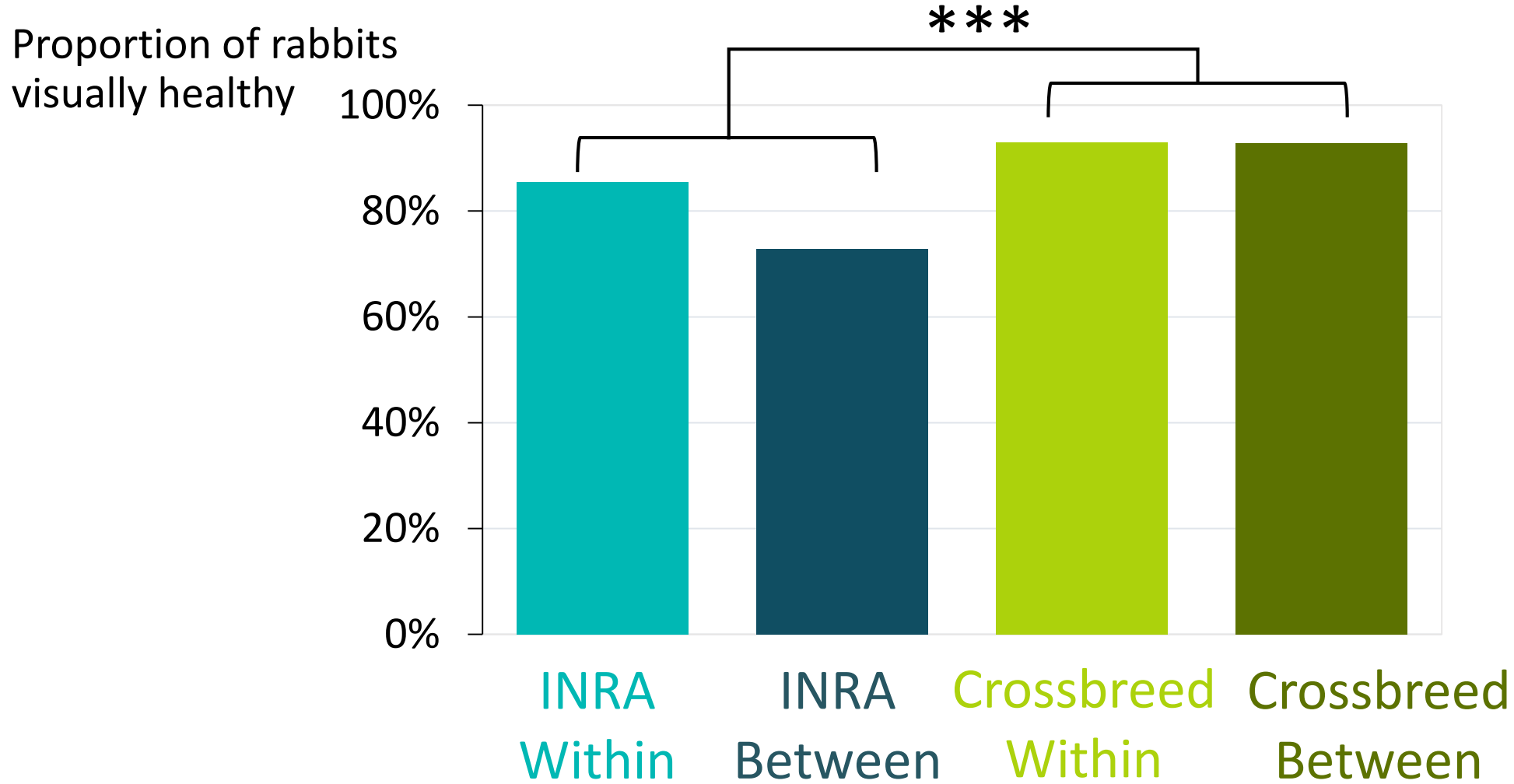


➤ Survival: no significant difference between groups after weaning

Survival probability



➤ Heath: Crossbreed are healthier at 63 days of age



## ➤ Conclusion: positive effect of mixing kit breeds within litter

- Breed effect :  
Crossbreed > Purebred INRA 1777  
on pre-weaning survival and health at 63 days of age
  - Group effect :  
Between breed cross-fostering strategy beneficial on pre-weaning survival
- ⇒ Introduction of genetic diversity within litter seems to be beneficial for rabbit health
- Perspective:  
Try with other breeds  
Compare herds with 2 or more breeds with purebred herds



INRAE

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