



Development of a new antibiotic composition for a rabbit SEMEN DILUTION medium (GALAP®)



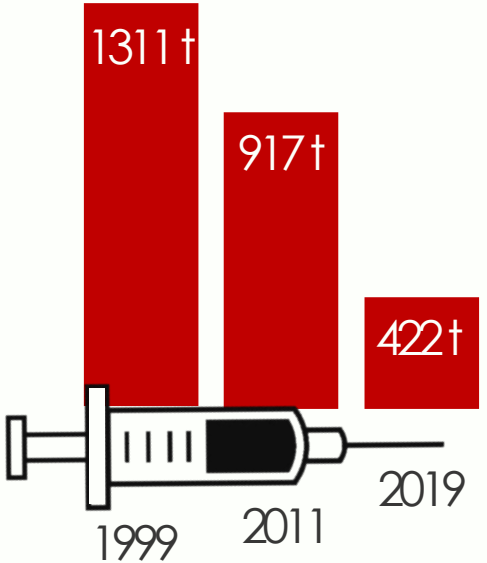
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Field Trial Scientist

12th World Rabbit Congress, 3-5th Nov. 2021 – Nantes (France)

Context

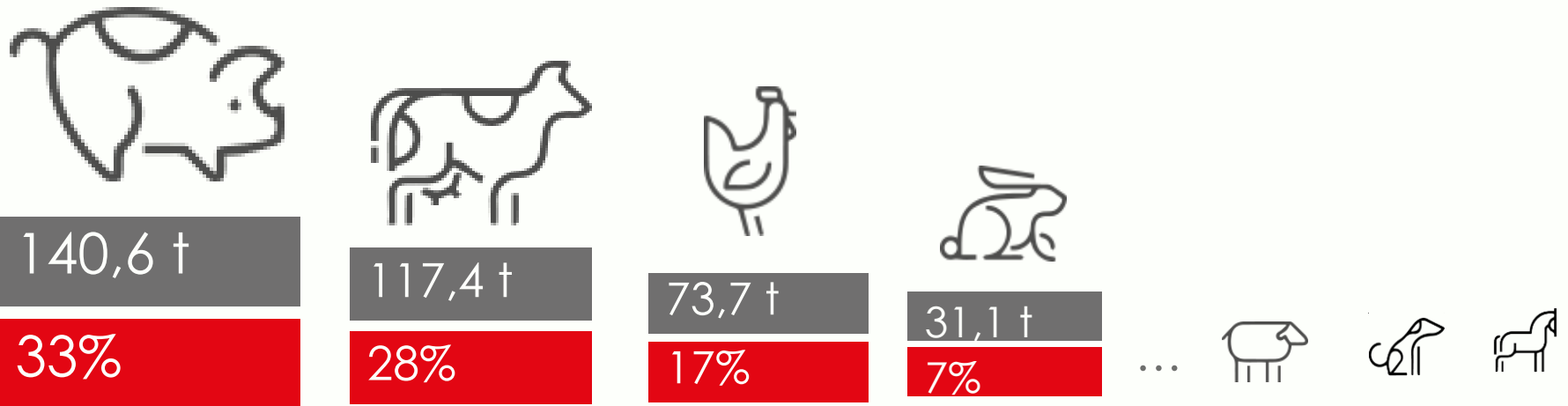
Antibiotic resistance → dangerously high levels in all regions of the world.

Intensive and abusive use of antibiotics in animal production.



Antibiotic consumption in French farms
ANSES, 2019

Distribution of the 422 ton (t) sold in 2019 in French farms:



Context

Efforts to reduce or replace the use of antibiotics

→ Especially those classified as “Critically Important Antimicrobials for Human Medicine”:

-Quinolones (enrofloxacin)

-Penicillin

-Ansamycin ...

Find a substitute for quinolone (enrofloxacin) in GALAP® medium



Study carried out in breeding farms





Bacteriology and Antibiograms

10 ejaculates, **29** colonies isolated and identified

Rabbit semen microbiota identified

- *Pseudomonas* spp. (40% of ejaculates)
- *Enterococcus* spp. (70%)
- *Candida* spp. (50%)
- *Staphylococcus aureus* (70%)
- *Proteus* spp. (50%)
- KES (50%) (*Klebsiella*, *Enterobacter*, *Serratia*)

(URITEST N Kit and Urine system Plus Kit (Liofilmchem))

ANTIBIOTICS (µg)	Resistant	Intermediate	Sensitive	p. value
	%	%	%	
ENROFLOXACIN 5	41,4	13,8	44,8	/
AMIKACIN 30	24,1	3,4	72,4	NS
GENTAMYCIN 30	3,4	6,9	89,7	***
LINCOMICIN 15	75,9	0,0	24,1	*
PENICILIN G 1 IU	82,8	0,0	17,2	*
TYLOSIN 30	75,9	0,0	24,1	*

Number of diluted ejaculates presenting bacterial growth after inoculation :

GALAP®
w/o AB

3/10

Original
GALAP®

0/10

GALAP®
0,3g/L*
gentamycin

0/10



(* based on Bresciani et al, 2014)



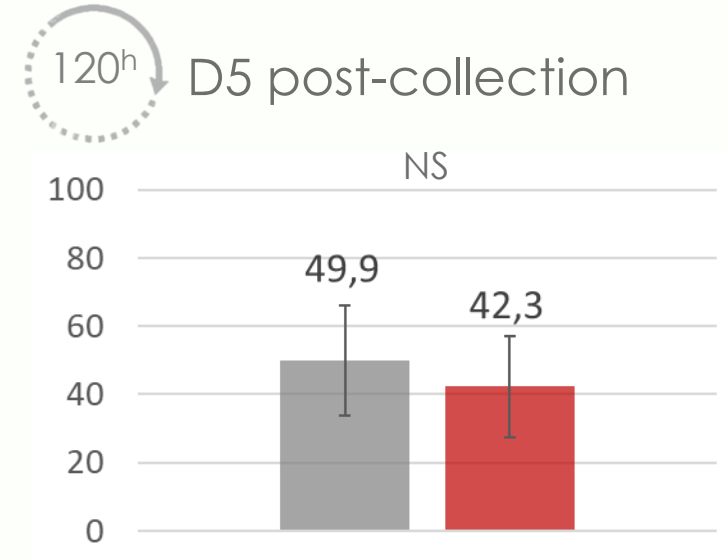
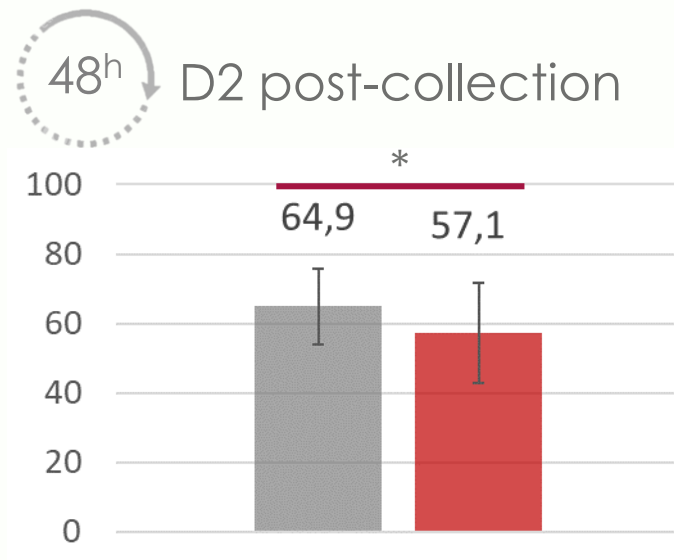
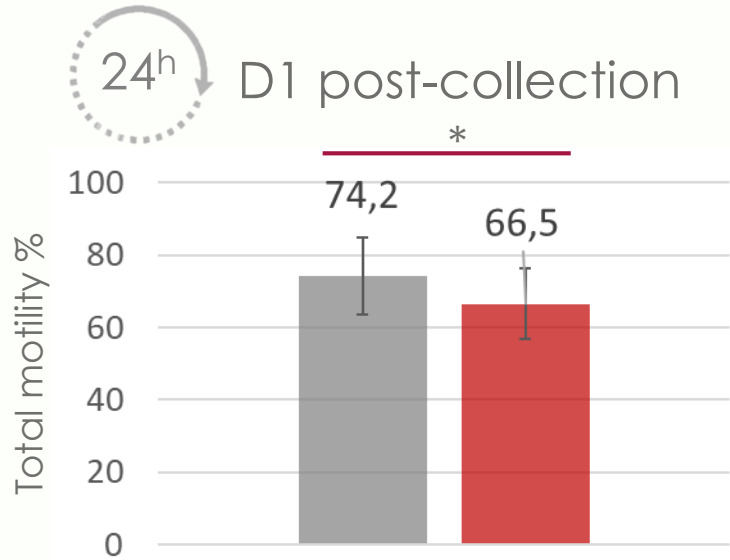
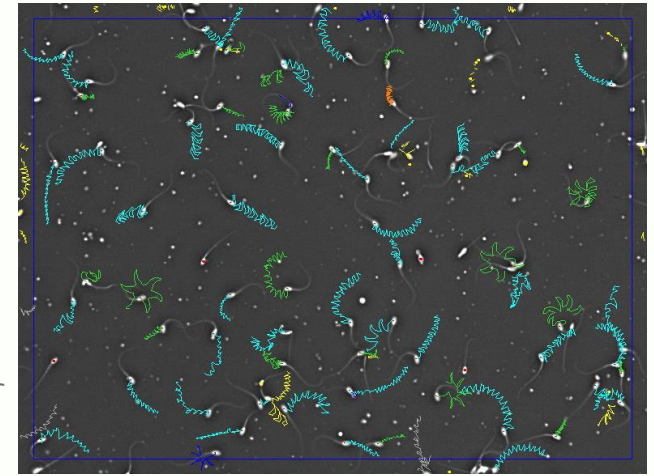
Total motility results

Total motility at **D0 (collection day)** = **77,7 ± 10,2 %**

Original GALAP®

New GALAP®

Rabbit spermatozoa captured with the IVOSII



Slight decrease in total sperm motility in the New GALAP® at D1 and D2 post-collection

Is there an effect of the medium on fertility?



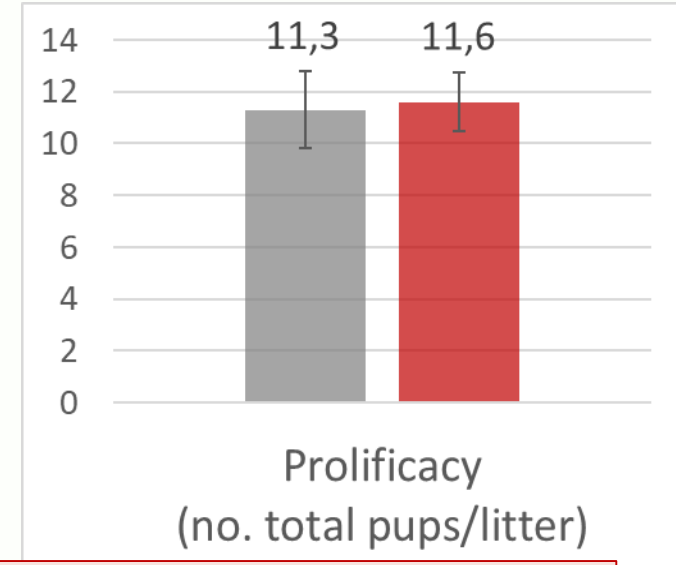
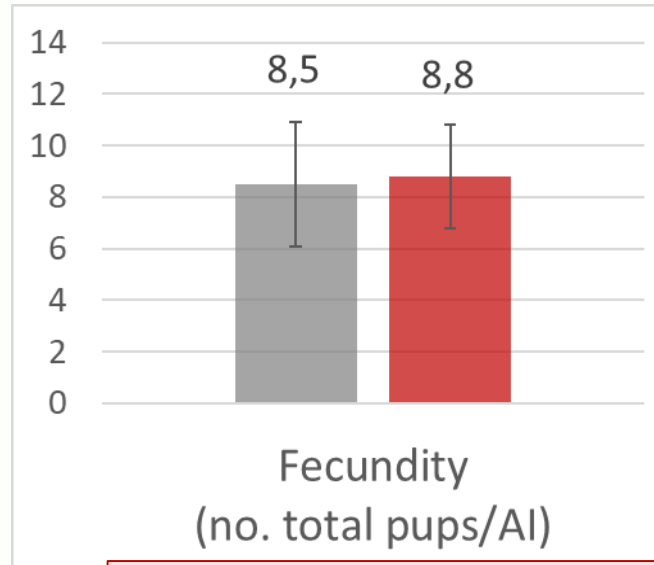
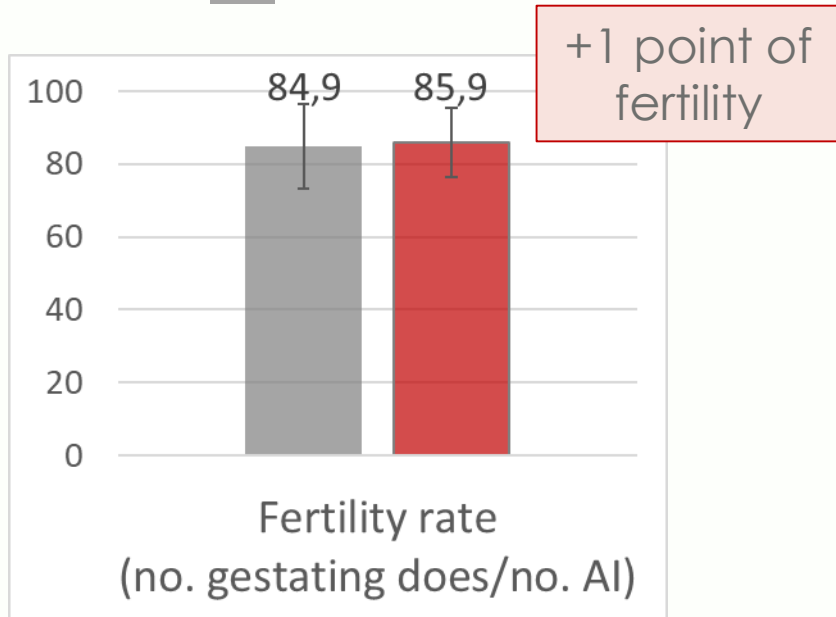
Artificial insemination results

with 25M. total sperm cells / dose (24 h post-collection, +17°C)



■ Original GALAP® (n=90)

■ New GALAP® (n=90)



+0,3 pups per litter and AI with the New GALAP®

No significant difference between the Original and the New GALAP®
66% of motility in those doses = the **minimum 17 million motile sperm cells per dose recommended by Theau-Clément et al. 2016.**

Conclusion

~~Enrofloxacin~~



Gentamycin



Ref.
028657

New GALAP® Antibiotic formulation



At 24 hours
post-
collection
and dilution
1:10

Validated in
2 breeding
farms

No toxic
effect of the
GALAP with
gentamycin



Thanks for your attention

Sabine Camugli, Olivier Carion, Arantxa Echegaray,
Guy Delhomme G, Eric Schmitt.



Partners



<https://www.anses.fr/fr/system/files/ANMV-Ra-Antibiotiques2019.pdf>

Theau-Clément M, Ailloud E, Sanchez A, Saleil G, Brun JM. 2016. Relationships between rabbit semen characteristics and fertilising ability after insemination. *animal* 10: 426–431.

Bresciani C, Cabassi CS, Morini G, Taddei S, Bettini R, Bigliardi E, Ianni FD, Sabbioni A, Parmigiani E. 2014. Boar Semen Bacterial Contamination in Italy and Antibiotic Efficacy in a Modified Extender. *Italian Journal of Animal Science* 13: 3082.

