

RISK FACTORS FOR ANTIBIOTICS USE AND SPREAD OF *MYCOPLASMA BOVIS* IN VEAL CALVES FEEDLOTS

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Context and objectives

Mycoplasma bovis : Major pathogenic bacteria in respiratory complex in veal calves' feedlots

Resistant to AB, rapid and wide diffusion within a lot, persistence in lung → increase the risk of AB use

Vaccination difficult : antigenic variation and young age

How to control it before spreading ? 2 longitudinal studies in commercial calves' feedlots
to assess propositions somewhat realistic linked with :

- Proved oral infection* : facilitated by automatic milk delivery with shared nipple
- Low nasal carrying and seropositivity at entry in feedlots**
 - Only a few contaminated calves at entry : reduced risk in small feedlots



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* Maunsell et al, 2012

**Arcangioli et al, 2008

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Material and methods

Feedlots type

Observation in 26 lots in specialized farms;

All in - All out; Arrival 2-5 weeks old calves (mean 22,5 days-55 kg) after sorting center; In winter season
Access to treatments data until the end of respiratory outbreaks (3-4 weeks without collective treatment)

2014 : 7 « Weaning lots » : Calves weaned in 2 months, rapid introduction of solid aliment, less ADG

2017-2018 : 19 Veal calves, maintained with milk all along a fattening period of 4-5 months

Mainly, two veterinary structures

Statistically, NO association (very weak) with this factor

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Lots were of small (9 lots < 50 calves) or big size (17 lots > 50 calves) : 30 to 519 calves in the same lot, median 130 calves

19 lots with share nipple (AMD) and 7 lots with individual feeding by nipple or bucket

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Collected data and description

Observation period :

Entry → 3-4 weeks without any collective AB treatment OR end of weaning period;
→ median observation time = 58 days (41-81)

Serological sampling at entry and at the end of the observation period on 10-15 random calves

Elisa testing : TO EVALUATE INFECTION SPREADING, not only exposure (BioX®)
→ Seropositivity at arrival = 3.4% (0 - 9.8%)

AB treatments : one AB specialty = one treatment (even if two AB); duration of each treatment

- Number of treatments → Mean 3.8 AB per calf (1.7 – 5.9)
- Proxy of treatment incidence (on the period) → 160 +/-81 per 1000 calves

Multivariate generalized linear model with herds as a random effect :

feeding system, lot size (in log), feedlot type, entry age/weight, observ. time, seropositive calf at entry
use of AB OR seroconversion to *Mycoplasma bovis* (for antibiotic use),
and first order interactions

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Results

Association to *M. bovis* seroconversion

Feeding system, lot size (in log₂), interaction between both

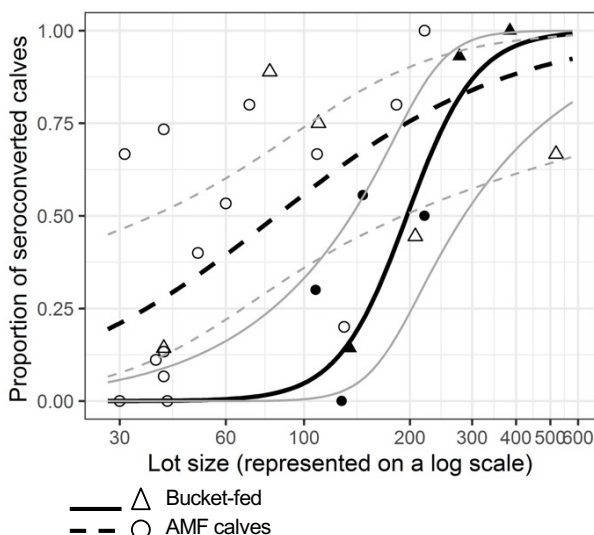
Size lot : Odd ratio = 2.9 per two-fold increase

Bucket feeding : Odd ratio = 0.03

But increased quicker with lot size

Similar to AMF above 100-200 calves

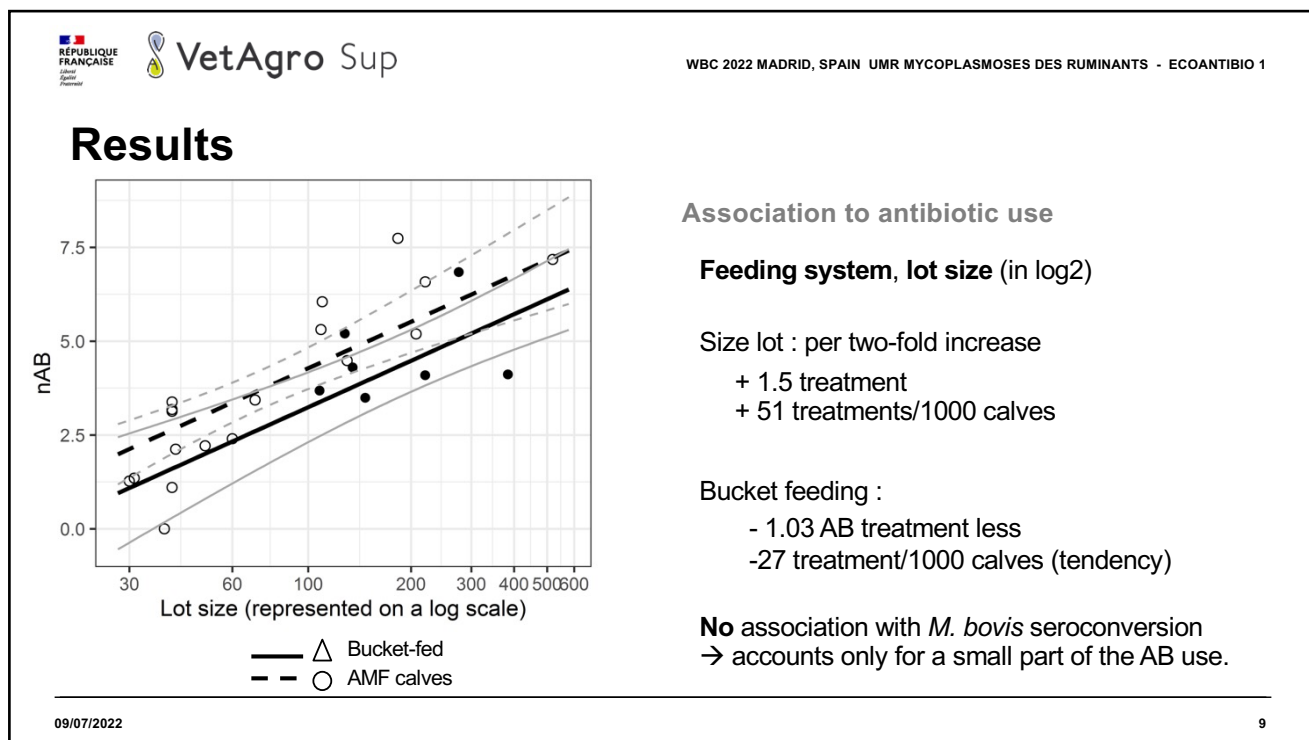
No association with the presence of a seropositive calf at entry (but median size = 130 calves, so with around 3% seroprevalence all the lots were similarly affected)



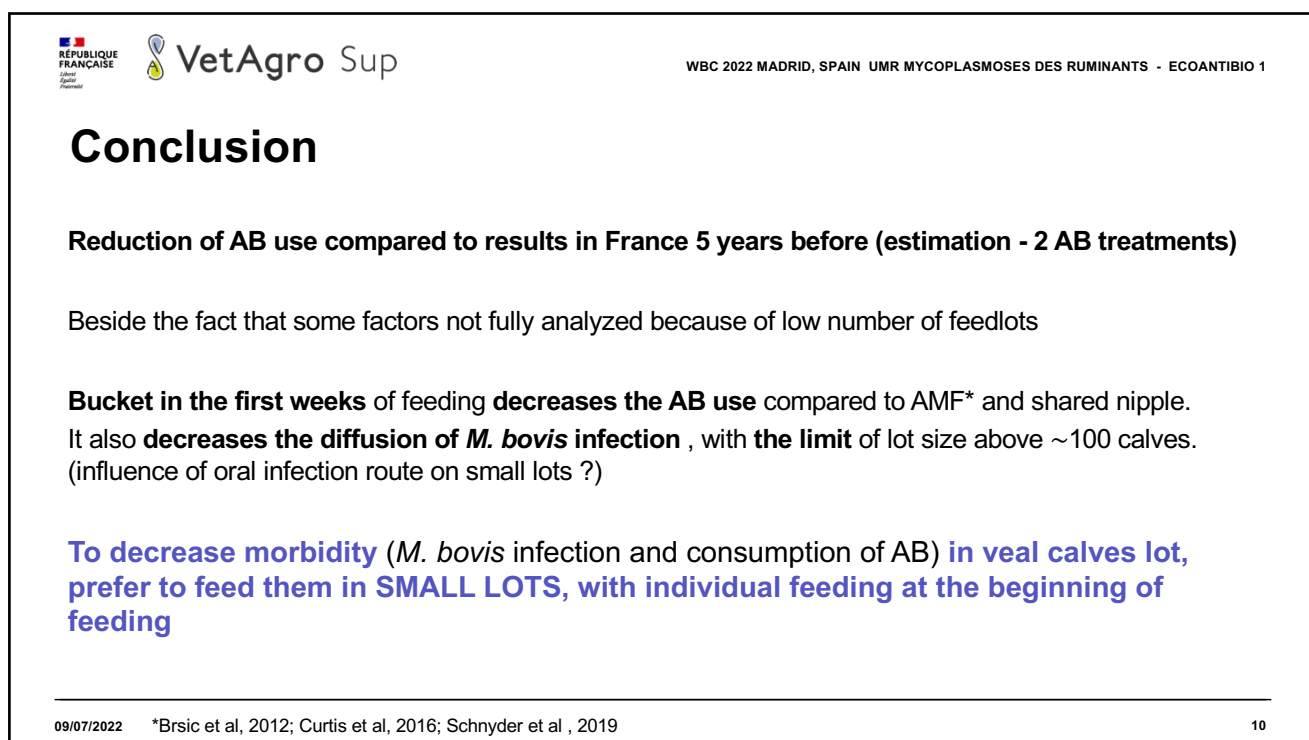
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