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*Summary*

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Title	<b>Risk factors for antibiotics use and spread of <i>Mycoplasma bovis</i> in veal calves feedlots</b>
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*Text*

Bovine respiratory disease (BRD) is the most antimicrobial-consuming disease in veal calves production. The presence of *Mycoplasma (M.) bovis*, as one of BRD causative agents, in a feeding lot could contribute to a wider use of antimicrobials as *M. bovis* is known to be persistent and resistant to most antimicrobial families. Controlling some risk factors for introduction or spread of this particular infectious agent may help to also reduce antibiotic (AB) use.

**Objectives:**

Two cross-sectional studies were set up to assess the effect of lot size and feeding systems on *M. bovis* infection spreading and on AB use. We also assess the effect of *M. bovis* spreading as a risk factor for increased AB use.

**Material & methods:**

Twenty-six feedlots were monitored from the "all-in" entry of calves until 3 consecutive weeks without any collective antimicrobial treatment. The spread of *M. bovis* was estimated through seroconversion tested using the BioK302 ELISA kit from BioX Diagnostics, on 10 to 15 calves' sera randomly sampled in each feedlot, at the entry and at the end of the observation period. All oral and injectable AB used meanwhile were recorded. The feedlots were selected according to their feeding system, either individual bucket (n=7) or automatic milk feeders with shared nipples (n=19), and their size, less (n=9) or more (n=17) than 50 calves. For both seroconversion and AB use, statistical analyses were conducted using multivariable generalized linear model with fattening farms as random effect. In both models, we initially included the following variables: feeding system, lot size, age, weight of calves and seropositivity to *M. bovis* at introduction and first order interaction between each variable. Use of AB and seroconversion rate to *M. bovis* were respectively included in the models for seroconversion and use of AB.

**Results:**

The lots were monitored for 42 to 81 days. *M. bovis* infection spread increased with lot size (odd ratio (OR) of 2.9 [1.4; 5.8] per two-fold increase in lot size). The proportion of seroconverted calves was lower in bucket-fed lots compared to automatic feeding lots with a shared nipple (OR = 0.03 [0.003; 0.41]). Analysis of the association with the presence of a seropositive calf at entry was inconclusive.

AB use was enhanced in larger feedlots with an increase of 1.5 treatments per two-fold increase of lot-size. For same-sized lots, the use of bucket could decrease AB consumption by up to 1.03 (-2.18;0.14) treatments per calf compared to automatic feeding. Lastly, no association between seroconversion to *M. bovis* and AB use was evidenced.

**Conclusion:**

*Bucket feeding in small size lots, i.e. with a maximum of 50 calves in a same room, contribute to limit seroconversion to *M. bovis* together with consumption of antibiotics.*

*Questions*

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