



## Objective

Bacterial bronchopneumonia caused by *Mannheimia haemolytica*, *Pasteurella multocida* and/or *Histophilus somni* remains a major cause of morbidity and mortality in beef and dairy cattle worldwide. Among antimicrobials licensed for BP treatment, florfenicol is often selected as first line antimicrobial because of its high level of efficacy. A systematic review was conducted to evaluate sensitivity to florfenicol (FFE) of *M. haemolytica*, *P. multocida*, and *H. somni* recently isolated from cattle in Europe, USA and Canada.



## Materials and methods

PRISMA guidelines were followed. Original articles in English, French and Italian published between 2014 and 2019 were searched in CAB (Commonwealth Agricultural Bureau) Abstracts and PubMed/MEDLINE databases on Feb 2nd, 2019. The following keywords were used for the search: (antibiotic resistance OR antimicrobial resistance) AND (*Mannheimia haemolytica* OR *Pasteurella multocida* OR *Histophilus somni*). Articles were included in the review based on the following criteria: clinical isolates originating from Europe, USA or Canada; sensitivity/resistance defined based on CLSI guidelines; reporting phenotypic resistance against FFE; clinical isolates obtained after 2010.



## Results

	Number of strains	EUROPE	USA	CANADA
<i>M. haemolytica</i>	2067	78 – 99% (n=285)	11 – 100% (n=1136)	96 – 100% (n=646)
<i>P. multocida</i>	1207	99 – 100% (n=185)	99 – 100% (n=410)	86 – 99% (n=612)
<i>H. somni</i>	732	100% (n=66)	100% (n=307)	98 – 100% (n=359)

### Proportions of *M. haemolytica*, *P. multocida* and *H. somni* isolates sensitive to florfenicol in Europe, USA and Canada (based on 12 recent original scientific articles)

- Susceptibility to FFE was high in *P. multocida* and *H. somni* strains isolated in Europe, US or Canada during the last 5 to 10 years (>86%).
- Susceptibility to FFE was also high in *M. haemolytica* isolated from Canada and Europe. However, it was sometimes reduced in *M. haemolytica* recovered from cattle previously exposed to antimicrobials as curative or preventive treatment (e.g. metaphylaxis) in the US.



## Conclusions

- This systematic review provides the most up-to-date information available in the scientific literature regarding susceptibility to florfenicol of *M. haemolytica*, *P. multocida*, and *H. somni* recently isolated from cattle in Europe, USA and Canada.
- The relatively low prevalence of Pasteurellaceae resistant to florfenicol indicates that genes conferring resistance to florfenicol such as floR or fexA are not widely distributed among Pasteurellaceae originating from cattle and that new mechanism of resistances to florfenicol are probably slow to develop.