Factors associated with usage of antimicrobials in commercial mink (Neovison vison) production in Denmark - DTU Orbit (23/07/2018)

Factors associated with usage of antimicrobials in commercial mink (Neovison vison) production in Denmark

The American mink (Neovison vison) is used for commercial fur production in Denmark. In recent years, antimicrobial prescription for Danish mink has been increasing. In this study, the patterns and trends in antimicrobial use in mink were described and a multi-variable variance analysis was carried out with the objective of identifying risk factors for antimicrobial use on herd level. The study was based on register data for 2007-2012. Information on antimicrobial use was obtained from the national database VetStat, monitoring all medicinal products used for animals on prescription level. Data on microbiological feed quality was obtained from the Voluntary Feed Control under the Mink producers Organization, and data on herd size and the relation between farm and feed producer was obtained from the registers at Kopenhagen Fur, based on yearly reporting from the mink producers. Descriptive analysis showed a clear significant effect of season on antimicrobial use, with a peak in "treatment proportions", TP (defined daily doses per kg biomass-days) in May, around the time of whelping, and a high level in the following months. In autumn, a minor peak in antimicrobial use occurred throughout the study period. From 2007 to 2011, a 102% increase in annual antimicrobial TP was noted; on herd level, the increase was associated with an increasing frequency of prescription, and a decrease in the amounts prescribed in months with prescription. A binomial model showed that on herd level, the annual number of months with antimicrobial prescription was significantly (p<0.01) affected by feed producer, veterinarian, disease (specific laboratory diagnosis) infection, herd size and year, with an interaction between feed producer and year. A log-normal model showed that in months with antimicrobial use, the TP on herd level was significantly (p<0.001) affected by year, month (season), feed producer, feed quality score, veterinarian, herd size and laboratory confirmed diagnosis of specific infections; additionally the interaction terms year×feed producer and herd size×month were significant (p<0.001). In conclusion, antimicrobial use on herd level was significantly associated with the microbiological food quality, the feed producer, and the veterinarian. The prescription patterns varied significantly between veterinarians, and some veterinarians were associated with both larger and more frequent prescriptions of antimicrobials at herd level. Herd size is associated with different prescription patterns. Finally, infection with Pseudomonas aeruginosa, astrovirus, influenza virus and Salmonella spp. was associated with an increase in antimicrobial use.

General information
State: Published
Organisations: National Veterinary Institute, Section for Epidemiology, Department of Applied Mathematics and Computer Science , Statistics and Data Analysis, Kopenhagen Fur
Authors: Jensen, V. F. (Intern), Sommer, H. M. (Intern), Struve, T. (Ekstern), Clausen, J. (Ekstern), Chriél, M. (Intern)
Pages: 170-182
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Preventive Veterinary Medicine
Volume: 126
ISSN (Print): 0167-5877
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.26 SJR 1.144 SNIP 1.31
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.2 SJR 1.249 SNIP 1.361
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.282 SNIP 1.177 CiteScore 2.1
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.27 SNIP 1.407 CiteScore 2.37
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 1.264 SNIP 1.529 CiteScore 2.49
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2