Hannah Dairy Research Foundation

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Research Paper Summary

Antimicrobial usage and antimicrobial resistance in Scottish dairy herds: a survey of farmers' knowledge, behaviours and attitudes

Short title: **Scottish antimicrobial usage**

Key words: **Dairy; antimicrobials; AMR; farmer attitude**

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Practical point

In dairying, antimicrobials are used frequently to treat infections, such as mastitis. Incorrect antimicrobial usage (AMU) can be associated with development of antimicrobial resistance (AMR). A Scottish dairy farmer survey reported that knowledge of antimicrobials was varied. Results suggest that Scottish dairy farmers are aware of AMR and have reduced AMU. However, there is a lack of understanding around antimicrobials and correct usage. The study suggests that more work is needed to improve farmers knowledge of appropriate AMU and intentions to combat AMR.

Background

Antimicrobial resistance (AMR) is a major public health concern. Development of resistant bacteria on farm may make treatment of animals with bacterial infections more difficult, reducing animal welfare and resulting in economic loss. Research has shown that AMU in animals may contribute to AMR in humans. Therefore, addressing irresponsible AMU in farming can help prevent negative animal and public health consequences.

Work undertaken

The study by Borelli et al. (2023) utilised a voluntary online survey to collect information around AMU and AMR.

The survey was split into four sections. Section one explored farmer awareness and understanding of AMR, importance of the opinion of specific supply chain actors (e.g., vet, milk buyer), and contact with vets. Section two investigated AMU and practices to reduce reliance on antimicrobials. Section three explored farmer concerns and opinions about AMR, reducing AMU in livestock, AMU impact on public health, and importance of best practice. Section four gathered demographic and production information.

In total, 61 respondents completed the survey, which accounted for roughly 7% of the population of Scottish dairy farmers in 2021. Farmer understanding of antimicrobials was varied. Although all understood antimicrobials are effective against bacteria, 31% believed they were also effective against viruses and 25% against parasites. Almost half of respondents thought that antimicrobials have an anti-inflammatory and/or analgesic (pain reducing) effect. Farmers ranked information from vets significantly more reliable than other sources, followed by milk buyers. Information from other farmers was considered a less trustworthy source of information.

Most farmers (90%) had implemented practices to reduce AMU and reported a decrease in AMU in recent years. However, half thought limiting AMU was difficult, with limited facilities and lack of knowledge being the main barriers.

Most farmers (89%) believed that reducing AMU on UK dairy farms is important, but less agreed there was too much reliance on antimicrobials, or that they were concerned about AMR on UK dairy farms. Most participants (82%) agreed that AMU on farms might contribute to the emergence of AMR in livestock, but less so with links to AMR in humans.

This research showed that significant progress has been made regarding AMU and best practice. However, it highlighted that understanding and attitudes towards AMR varied greatly. Results may suggest farmers do not see AMR as a current risk, and daily challenges are more of a concern currently. Sustainable AMU on farm needs to be part of a wider holistic approach to farm animal health, with support to all stakeholders in the dairy industry to improve animal health and resilience.

Reference

Borelli, E., Ellis, K., Tomlinson, M., Hotchkiss, E. 2023. Antimicrobial usage and resistance in Scottish dairy herds: a survey of farmers' knowledge, behaviours and attitudes. BMC Veterinary Research, 19: 72.