

Manure Tracker: On the Trail of Hormones, Antimicrobials and Antimicrobial Resistance Genes

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Hormones are used in beef cattle production in Canada to increase performance and hence profitability by enhancing feed efficiency and weight gain. Trenbolone acetate (TBA), a synthetic androgen, is a steroid growth promoter administered by implantation in feedlot animal's ears. Melengestrol acetate (MGA) is a synthetic progestin administered in feed. Antimicrobials are also used mostly therapeutically for disease treatment/prevention but also sub-therapeutically for growth promotion. Both hormones and antimicrobials are excreted in manure and land application has the potential to spread these compounds to wider environments where they may interfere with ecosystem function. Antimicrobials may also contribute to a greater prevalence of antimicrobial resistant bacteria through an increase in the introduction and selection for antimicrobial resistance genes (ARG) in the environment, generating a potential public health concern. This presentation will outline the work underway at AAFC-Lethbridge (+ collaborators) in tracking the fate of hormones, antimicrobials and ARG in manure.

Key points:

- Hormones and antibiotics are used in beef cattle production in Canada and subsequently excreted in manure.
- What is the fate of these compounds once excreted, e.g. on feedlot pen floors, in pen runoff, during composting, or when applied to soil?
- Do management practices affect prevalence of antimicrobial resistance genes?
- Research underway at AAFC on these topics will be presented.