Beekeeping for the Future
2017

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Antibiotic Use In Beekeeping

- Antimicrobial Resistance: a Global Concern
- Changes in Antimicrobial Use For Food Animals in Canada
- Antimicrobial Use Culture Shift - the Impact on Beekeepers
Antibiotic Use In Beekeeping: Part 1

Clarification:

**Antimicrobials:** the wide category of products used to kill or suppress the growth of bacteria.

**Antibiotics:** a specific category within the larger class of antimicrobials, the terms are often used interchangeably but in reality all antibiotics are antimicrobials but not all antimicrobials are antibiotics.

**AMR - Antimicrobial Resistance:** a naturally occurring process where by some bacteria, when exposed to antimicrobials, become resistant to the killing effect of those antimicrobials.
Antimicrobial Resistance is real and poses significant identified threat to:

- Animal health
- Animal welfare
- Human and public health
- Environmental health
Antimicrobial Resistance-A Global Concern

What Others are Saying:

- Off label use helps bolster the bottom line but in the process, bacteria are developing antimicrobial resistance
- WHO- “urgent action is needed” to limit antibiotic use in agriculture
- Agriculture plays a major role in promoting antibiotic resistance
Antimicrobial Resistance-A Global Concern

Outcomes of Resistance:
- Treatment failure in target animal.
- Treatment failure in non-target animals, including humans.
- Development of Super Bugs (bacteria resistant to multiple antimicrobials)
- Human fatalities and increased cost of health care
- Threatening the access to antimicrobials in animal production and health
Antimicrobial Resistance - A Global Concern

Human Deaths Related to AMR-2016 (British Study)

- USA 50,000/year
- Globally 700,000/year
- Estimated by year 2050 if no change in policies 10,000,000/deaths per year
Antimicrobial Resistance—A Global Concern

World Health Organization
- reduce antimicrobial use in humans and animals
- improve surveillance
- prevent and control the spread of drug-resistant infections
- stimulate research and innovation
Global concern regarding antimicrobial resistance:
- Identified need to maintain effectiveness of antimicrobials FOR HUMANS AND ANIMALS
- Need for continued access to antimicrobials for livestock and other animals
- Desire to maintain market access;
- Objective to obtain market advantage;
- Public integrity of the industry;
- The right thing to do for both animal and human health
Antimicrobial Resistance - A Global Concern

Use of antimicrobials (USA Study)

- 50% of prescriptions for antimicrobials in human hospitals were unnecessary
- 45% of prescriptions for human use were for a condition that antimicrobials could not help
- 80% of all antimicrobial use was in farm animals
Antimicrobial Resistance - A Global Concern

Generally, the use of antimicrobials in food producing animals includes:

- Production Use (growth promotion)
- Disease Prevention
- Disease Control
- Disease Treatment
Global Pressure for Change

**WHO, OIE and FAO**: A Tripartite Partnership

- International organizations that implement United Nations initiatives and treaties globally
- OIE (World Organization for Animal Health) a reference organization for the development of standards in regards to animal health and zoonotic diseases
- 2015: commitment to support WHO Action Plan on AMR
- 2016: mandate to compile AMR activities into strategy (Canada is a member of OIE)
Global Pressure for Change

WHO, OIE and FAO: A Tripartite Partnership

- OIE to align with WHO on development of a One Health Action Plan
- Sept 2016-United Nations declaration signed to take action on AMR
- Canada is a signatory to this declaration
- National commitment to coordinate the various activities on AMR and develop a national action plan, with established deadlines
Antibiotic Use In Beekeeping
Part 2

Changes in Antimicrobial Use For Food Animals in Canada:
Dr. Simon Otto