Antibiotic Use in the Beef Industry: The Producer Perspective

Tiffany Lee, MS, DVM
Beef Producers in the United States

Photos courtesy of Winter Feedyard and Kara Lee
Beef Producers in the United States

Photos courtesy of Patsy Tompkins, Marvin Thaller, and Tina Waite
Beef Producers in the United States
Giving the Producers a Voice

Consumer Attitudes and Use of Antibiotics

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Recent antibiotic use is a risk factor for infection or colonization with resistant bacterial pathogens. Demand for antibiotics can be affected by consumers’ knowledge, attitudes, and practices. In 1998–1999, the Foodborne Diseases Active Surveillance Network (FoodNet) conducted a population-based, random-digit dialing telephone survey, including questions regarding respondents’ knowledge-prescribing (8–14) and patient demand (15–17). Factors contributing to inappropriate prescribing practices have been elucidated. In particular, numerous studies of adults have shown that patients’ expectations or physicians’ perceptions of those expectations affect the physicians’ prescribing behavior (10,13,16–24).
Giving the Producers a Voice

• National Cattlemen’s Beef Association
• State Livestock Associations
• National Institute for Animal Agriculture
Giving the Producers a Voice

"I believe that cattle producers face a trade-off between profitability and animal welfare."

McKendree & Tonsor, 2014
Producer Survey on Antibiotics

• The first of its kind
• Developed by veterinarians at Kansas State University
• Twenty-six questions exploring antibiotic use and opinions on resistance at the producer level
  – First-hand knowledge of how and why antibiotics are used
Producer Survey on Antibiotics

• Recruited participation from producers through industry avenues
  – BEEF magazine
  – Beef Cattle Institute website and Facebook page
  – Working Ranch Magazine
  – NCBA
Producer Survey on Antibiotics

- Data collected using KSU’s online survey system, Qualtrics
- Data summarized using Microsoft Excel® software
Survey Results: Demographics

Alberta: 1
None given: 11
Survey Results: Demographics

- Production units in multiple states
  - One state: 231
  - Two states: 12
  - Three states: 1
  - Eight states: 2
  - No response: 13
Survey Results: Demographics

Types of Production Units

- Finishing yard
- Backgrounder/grower yard
- Stocker operation
- Cow/calf operation

Percent of Respondents
Cow/calf Operation

Photos courtesy of the Beef Cattle Institute at Kansas State University
Stocker Operation

Photos courtesy of Patsy Tompkins and the Beef Cattle Institute at Kansas State University
Backgrounder/grower yard

Photos courtesy of the Beef Cattle Institute at Kansas State University
Finishing Yard

Photos courtesy of the Beef Cattle Institute at Kansas State University
Survey Results: Antibiotic Use

How often are antibiotics used on your operation?

- Daily
- 2-3 Times a Week
- Once a Week
- 2-3 Times a Month
- Once a Month
- Less than Once a Month
- Never

Number of Respondents

Oral
Injectable
Survey Results: Antibiotic Use

Where do you buy your antibiotics?

- Over-the-counter (local COOP, etc.): 60 respondents
- Directly from a distributor: 40 respondents
- From a veterinarian: 120 respondents
- Directly from a drug company: 10 respondents
Survey Results: Antibiotic Use

Are label directions always followed when antibiotics are used?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<td>200</td>
<td>10</td>
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If label directions are not followed, do you consult with your veterinarian before using a drug off-label?

<table>
<thead>
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<th>Yes</th>
<th>No</th>
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<td>150</td>
<td>50</td>
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Survey Results: Antibiotic Use

• Are withdrawal times always followed when antibiotics are used?
  – One of 249 respondents replied “No”
  – All respondents indicated that they think adherence to withdrawal times is important
Survey Results: Relationship with Veterinarian

Do you utilize the services of a veterinarian regularly?

- Yes: 85%
- No: 15%
Survey Results: Relationship with Veterinarian

How often do you utilize the services of a veterinarian?

- Never
- As needed
- Daily
- Weekly
- Monthly
- Quarterly
- Semi-annually
- Annually
- Bi-weekly
- Haul-in
- Other (please specify)

Number of Respondents

- 0
- 10
- 20
- 30
- 40
- 50
- 60

"Other"
Survey Results: Relationship with Veterinarian

Reasons for Veterinary Visits

- A veterinarian never visits my production unit
- Emergencies only
- Scheduled appointments for sick/injured animals
- Scheduled consultation visits

Number of Respondents
Survey Results: Relationship with Veterinarian

Do you have a written, signed veterinary-client-patient relationship with your veterinarian?

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<th>Number of Respondents</th>
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<tr>
<td>Yes</td>
<td>23%</td>
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<tr>
<td>No</td>
<td>77%</td>
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What is a valid VCPR?

- FDA definition
  - A valid veterinarian-client-patient relationship is one in which:
    - A veterinarian has assumed the responsibility for making medical judgments regarding the health of (an) animal(s) and the need for medical treatment, and the client (the owner of the animal or animals or other caretaker) has agreed to follow the instructions of the veterinarian;
    - There is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s); and
    - The practicing veterinarian is readily available for followup in case of adverse reactions or failure of the regimen of therapy. Such a relationship can exist only when the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s), and/or by medically appropriate and timely visits to the premises where the animal(s) are kept.
What is a valid VCPR?

• AABP Guidelines
  – Written agreement: maintain written agreements for working relationships
  – Veterinary oversight: have a veterinarian of record
  – Relationship with consultants and other veterinarians: clarify any and all relationships
  – Treatment protocols: provide written protocols
  – Written/electronic treatment records
  – Prescription drugs: provide drugs or prescriptions for specific timeframes and specific protocols
Survey Results: Guidance on Antibiotic Use

Useful Industry Programs for Antibiotic Use Guidance

- BQA
- Veterinarian
- AABP
- Label directions
- Common sense
Survey Results: Veterinary Feed Directive

• Of 248 respondents 200 were aware of the VFD
• When asked their opinions on the regulations, producers had mixed responses
  – Bad: 70
  – Good: 49
  – Mixed opinion or indifferent: 56
Survey Results: Veterinary Feed Directive

• Producer opinions
  – “I think it is bad. Most producers would not give the antibiotics unless they were needed. A few bad apples ruin the whole basket.”
  – “It is good, in a sense, that it brings accountability to producers, but yet bad in that it is more regulations the producer has to deal with.”
Survey Results: Veterinary Feed Directive

• Producer opinions
  – “Indifferent. It will make access to these tools more cumbersome, but we will still use.”
  – “I think that it is a great idea, I think that it will give verification to farmer. Our current society is so judgmental on where their beef comes from and questions everything, this will show people that American Farmers are raising high quality beef for consumption.”
Survey Results: Antibiotic Resistance

On a scale of one to ten, with one being "Strongly Disagree" and ten being "Strongly Agree", do you believe that resistance to antibiotics is an issue in the beef industry?

- 67% of respondents believe it is an issue.
- 33% of respondents do not believe it is an issue.
Survey Results: Antibiotic Resistance

- Producer opinion of risk factors for antibiotic resistance in the beef industry
  - Over-use
  - Misuse
  - Lack of education about antibiotic use
Survey Results: Antibiotic Resistance

On a scale of one to ten, with one being "Not At All" and ten being "Contributes A Lot", how much do you believe antibiotic use in the beef industry contributes to resistance in the general (human and livestock) population?

- 88% believe it contributes a lot
- 12% believe it contributes not at all
Survey Results: Producer Perspective

Do you think that consumers are knowledgeable on the subject of antibiotic use on beef production units?

- Yes: 2%
- No: 98%
Survey Results: Producer Perspective

On a scale of one to ten, with one being "Completely Ignorant" and ten being "Very Knowledgeable", how knowledgeable do you think consumers are of antibiotic use on beef production units?
Survey Results: Producer Perspective

• Producers’ perceptions of consumer attitudes
  – “They feel that we are doing a terrible job and are treating every animal with antibiotics unnecessarily.”
  – “They don't understand our usage (mainly ionophores, which do not affect human medicine) and they assume that we are just giving injections left and right. They don't know we undergo training and that we don't want to have sick animals period, let alone that it is an additional cost.”
Survey Results: Producer Perspective

• Producers’ perceptions of consumer attitudes
  – “I hear some of my in-laws, nieces, nephews, and acquaintances make comments about the high levels of antibiotics, pesticides and hormones in beef. They want to buy beef from me because I "don't use those things." I attempt to correct the misconceptions, but a few months later they will make similar statements.”
Survey Results: Producer Perspective

• Producers’ perspective on consumer attitudes
  – “The vocal consumers sound off like irresponsible drug use is the norm, but the average person doesn't pay much attention to the issue. In spite of some bad press, I think most consumers trust the system.”
  – “Most think that beef producers do what is necessary to keep an animal healthy.”
Beef Producers in the United States

• Producers have a right to be heard.
  – They work too hard to watch their industry change at the hands of others.

• We have the time and resources to give them a voice—we should use them to do so!
Components to a stewardship program
(Pollack and Srinivasan, 2014)

• Leadership buy-in
• Accountability
• On-site expertise
• Action
• Tracking
• Reporting
• Education/training
Antibiotic stewardship program

• Leadership commitment
  – Dedicating necessary human, financial, and information technology resources

• Accountability
  – Appointing a single leader responsible for program outcomes and accountable to an executive-level committee.
    Experience with successful programs shows that a veterinary or feedlot manager leader is effective

• Drug expertise
  – Appointing a single person at a feedlot that is responsible for working to improve antibiotic use

• Action
  – Implementing at least 1 recommended action to optimize antibiotic usage, What management plans could be used to
    optimize antibiotic usage through improved case outcomes and foodborne pathogens, drug residues, etc.

• Tracking
  – Monitoring process measures (eg, adherence to facility-specific treatment guidelines, VCPR, BQA), case outcomes
    (eg, pull rates, retreatment rates, death loss), antibiotic use, antibiotic use and resistance (clinical pathogens,
    foodborne pathogens)

• Reporting
  – Regular reporting of the above information to doctors, nurses, and relevant staff

• Education
  – Educating feedlot doctors, cowboys and cattle managers about disease state management, resistance, and optimal
    prescribing

Adapted from Pollack, 2014
Where do the Producers Fit In?

- Leadership buy-in
- Accountability
- On-site expertise
- Action
- Tracking
- Reporting
- Education/training

IN ALL AREAS!
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Beef Producers in the United States