

## Producer Opinions on Antibiotic Use in the Beef Industry

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### Introduction

Antibiotic use in the beef industry is of increasing interest to consumers and has become a point of discussion for producers, veterinarians, and professional scientists in recent years. With the vast amount of information available on the internet and social media, consumers are becoming more knowledgeable about beef production practices and the use of antibiotics in the food animal industries. Furthermore, scientists have devoted a large amount of time and money to research to investigate consumer opinions and perspectives about management practices used in food animal production. However, many of these investigations fail to include the opinions and perspectives of the producers who raise these animals. Therefore, the objective of this survey was to explore producer practices and opinions on antibiotic use and antibiotic resistance in the beef industry.

Key words: antibiotics, beef cattle, antibiotic resistance

### Experimental Procedures

Survey participants were recruited through popular public and private websites and magazines relating to beef cattle production. All producers with access to these resources were encouraged to participate, and provided a link to the survey. The survey was available from September 10 to October 15, 2015. All participants remained anonymous.

The survey consisted of 26 questions addressing demographics, producers' relationships with their veterinarians, antibiotic use on the producers' operations, and producer opinions on antibiotic use, antibiotic resistance, and consumer perceptions of antibiotic use in the beef industry. Data were collected using Kansas State University's web-based survey system, and downloaded into Microsoft Excel for summary and analysis.

### Results and Discussion

Two hundred and sixty surveys were submitted from producers in 48 states, and 1 province in Canada (Table 1). Cow-calf production units were most commonly reported, followed by stocker, backgrounder, and finishing operations (Table 2). Producers were instructed to select all types of operations that apply to their production unit, therefore the sum of percentages shown is greater than 100% (Table 2).

Veterinary oversight is increasingly important, as federal and state regulations increase in the United States. Eighty-five percent of participants indicated that they use veterinary services regularly, for a number of reasons; however, only 23% stated that they have a written, documented, and signed veterinary-client-patient relationship with their veterinarian (Figure 1). This could indicate that a valid veterinary-client-patient relationship exists, but producers and veterinarians simply do not have written documentation of its existence. Such documentation will likely become common in the future, as increased federal and state regulation of feed-grade antibiotics will require written proof that the veterinary-client-patient relationship exists.

When asked about the frequency of use of antibiotics on their operations, producers indicated that injectable antibiotics are rarely utilized, and oral antibiotics are used once per month or never (Figure 2). The most frequent use of antibiotics on the farm, ranch, or feedyard are for treatment of Bovine Respiratory Disease, foot rot, and pinkeye. Most antibiotics used by the producers surveyed are bought directly from a veterinarian. Ninety-three percent of respondents reported that they always follow label directions when using antibiotics, and 95% reported that if they do not follow label directions, they consult a veterinarian before doing so. All but one producer indicated that withdrawal times are always followed when an antibiotic is administered to an animal; however, in a subsequent question, the same producer indicated that he/she thought it important that withdrawal times are always followed when antibiotics are used.

Ninety-one percent of survey participants indicated that Beef Quality Assurance is an important industry resource for guidance on antibiotic use and prevention of residues. The use of industry resources and guidelines on the use of antibiotics is increasingly important as more federal and state regulations are put into effect, including the implementation of the Veterinary Feed Directive. When asked about producer awareness of this new rule, 81% of participants indicated that they were familiar with the legislation. Producers were asked their opinions on the new rule, and 70 respondents expressed a negative attitude toward the law, 46 respondents indicated a positive attitude, and 56 were either indifferent or expressed mixed opinions.

Finally, survey questions asked about producers' opinions on antibiotic use and resistance in the beef industry, and their opinions on consumers' perceptions of antibiotic use in the industry. Producers were asked "Do you believe that resistance to antibiotics is an issue in the beef industry?" Sixty-six percent of respondents reported disagreement (answering 0 to 5 on a 0 to 10 scale), while 33% reported agreement (Figure 3). In a subsequent question, asking, "How much do you believe antibiotic use in the beef industry contributes to antibiotic resistance in the general (human and livestock) population?," 88% reported little or not at all, while 12% expressed the opposite opinion (Figure 4). Producers were also asked questions about consumer knowledge and perceptions of the beef industry, and 98% of producers reported that they did not think that consumers are knowledgeable about antibiotic use in the beef industry. Perceived consumer opinions varied, but generated mostly negative remarks.

## Implications

This survey shows that beef producers are willing to share information about their production systems and management strategies, including their use of antibiotics. The

survey provides valuable insight into the practices and opinions of producers in the beef industry. While survey data inherently have limitations, the information provided here adds to the body of knowledge about management practices and antibiotic use in the beef industry, and helps provide producers a voice in the scientific community.

**Table 1. Location of survey participants by region in the United States and Canada to evaluate producer practices and opinions on antibiotic use and antibiotic resistance in the beef industry**

Region	Number of respondents
Northeast (Maine, New Hampshire, Vermont, Delaware, Rhode Island, New York, Massachusetts)	1
Mid-Atlantic (Pennsylvania, New Jersey, Maryland, West Virginia, Virginia)	30
Southeast (Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana)	50
Great Lakes (Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota)	28
Central (Missouri, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Arkansas, Oklahoma)	96
Southwest (Texas, New Mexico, Arizona)	12
Mountain (Colorado, Wyoming, Montana, Idaho, Utah, Nevada)	18
Pacific West (California, Oregon, Washington)	11
Alaska and Canada	3
No response	11
Total surveys accessed	260

**Table 2. Type of production operation reported by survey participants in the United States and Canada to evaluate producer practices and opinions on antibiotic use and antibiotic resistance in the beef industry**

Operation type	Number of responses	% respondents <sup>1</sup>
Cow/calf operation	218	88%
Stocker operation	46	19%
Backgrounder/grower yard	35	14%
Finishing yard	51	21%

<sup>1</sup>Participants were instructed to select all operation types that applied to their production unit.

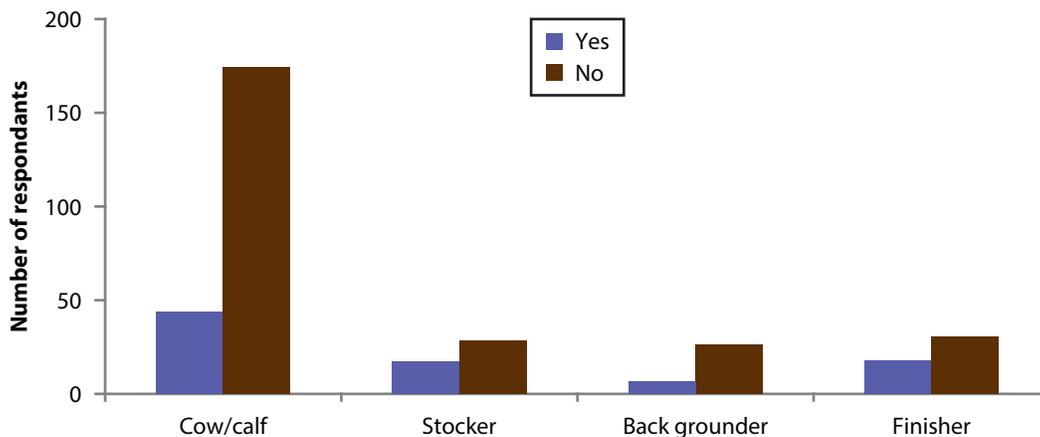


Figure 1. Documentation of valid veterinary-client-producer relationship by operation type for survey participants in the United States and Canada.

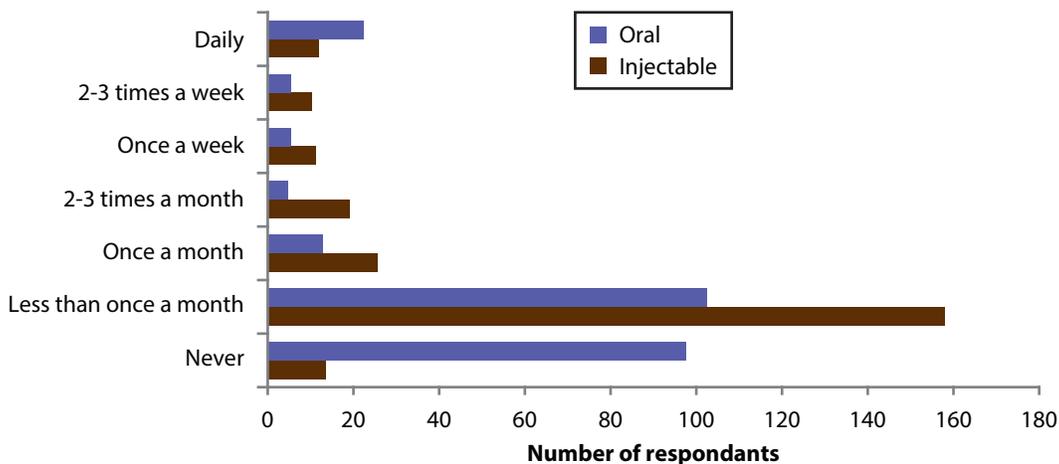


Figure 2. Frequency of use of oral and injectable antibiotics by survey participants in the United States and Canada.

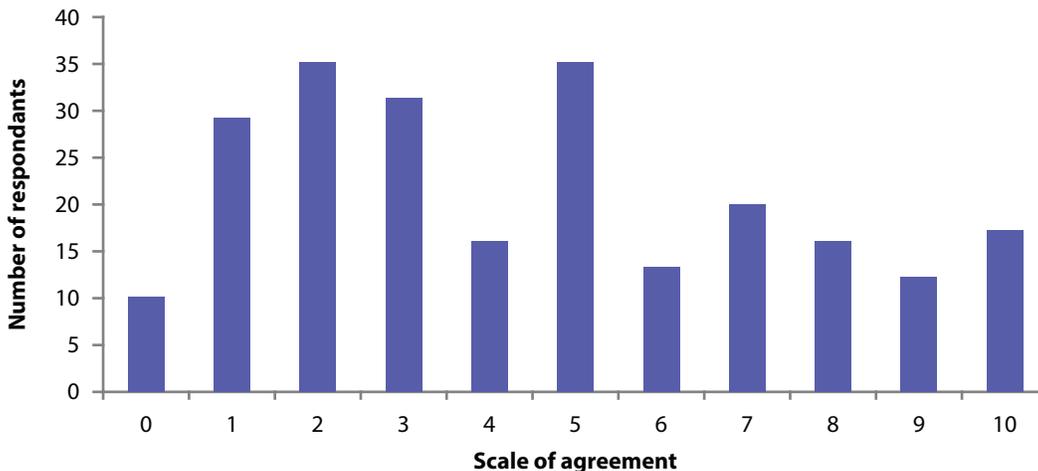


Figure 3. Results of the question, “On a scale of zero to ten, with zero being ‘Strongly Disagree’ and ten being ‘Strongly Agree’ do you believe that resistance to antibiotics is an issue in the beef industry?”

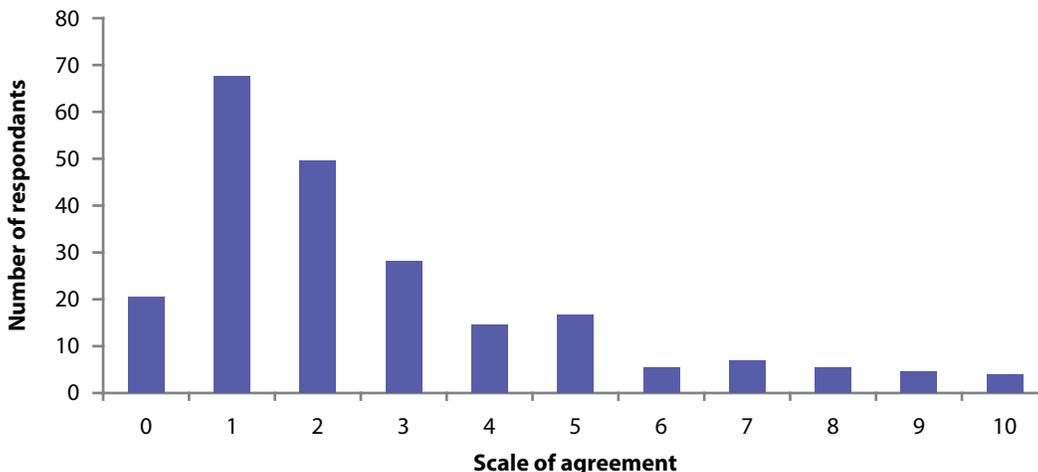


Figure 4. Results of the question “On a scale of zero to ten, with zero being ‘Not At All’ and ten being ‘Contributes A Lot,’ how much do you believe antibiotic use in the beef industry contributes to resistance in the general (human and livestock) population?”