Antibiotic Use in Canadian Cow-Calf Herds

This survey is part of the research for the Canadian Cow-Calf Surveillance Network that is being conducted by researchers from the University of Saskatchewan and our collaborators at the University of Guelph, Université de Montréal and University of Calgary.

Your participation is voluntary. All of your responses will be kept confidential. Return of the survey by mail will indicate your consent to participate and have your deidentified responses summarized in the final report.

- **Please do not leave any blank spaces**, answer each question in the survey as best as you can. Either cross out the answer or write:
  - ❖ **'0's'** - there were no events in this category
  - ❖ or **'Not Applicable' (N/A)** - does not apply to my farm
  - ❖ or **'Don't Know'** - we do not have records specific to this question

- Please send back each page of the survey.

- Please return the survey in the stamped envelope provided

Please enter your full name: _____

If you have any questions regarding the questionnaire, feel free to call:

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Follow us on Twitter: @TheC3SN

The intent of this questionnaire is to understand antibiotic use in Canadian cow-calf herds between July 1, 2019 and June 30, 2020.

For the purpose of this survey, the term <u>antibiotic</u> will be considered equivalent to the term <u>antimicrobial</u>.

***Antibiotics* or *antimicrobials* are used in livestock production to treat or control bacterial infections.**

They include injectable medications, boluses, and feed and water additives such as tetracyclines, macrolides, sulfonamides and ionophores/coccidiostats. They do not include vaccines, treatments for lice, dewormers or nutritional supplements.

*Antibiotics or antimicrobials might be used to **treat animals that are sick and we are trying to make them better**. Antibiotics or antimicrobials might also be used in **animals that do not appear to be sick**, but where they are **likely to become sick if nothing is done to prevent or control the disease**.*

PART A.

Note: This page contains important examples and definitions. Please read and refer to it as you answer the survey questions.

Please fill out the following tables regarding the **antibiotics given to your cow-calf herd.** This includes all antibiotics which are:
- ✓ injected into muscle (IM), underneath the skin (SC) or into a blood vessel (IV)
- ✓ inserted directly into the udder (IMM)
- ✓ inserted directly into the uterus (IU)
- ✓ fed to the cattle, added to the water, or given by mouth (PO)
- ✓ applied to the surface of the eyes or skin (topical)

Please indicate:
- ✓ which antibiotics were used to treat cattle for each reason listed in the tables
- ✓ the percentage of animals treated in each age class <u>since July 1, 2019</u>
- ✓ the number of doses you would typically use to treat an animal for that reason with that drug
- ✓ the typical dose per animal
- ✓ the typical route of administration

If you have not treated any animals in a specific age class with antibiotics for a particular reason since July 1, 2019, simply check the appropriate box in the first column (*Please see the <u>example</u> below for Respiratory Disease in breeding females).

You can refer to the <u>Antibiotic Handbook</u> for a list of currently available antibiotics to help you find the names of the products used in your herd.

Fill out <u>one line per antibiotic used</u> for each reason.

Please refer to this <u>example</u> to answer the questions:
Breeding Females:

Reason for Antibiotic Use	Which Antibiotic(s) Did You Use?	Percentage of Animals Treated since July 1st 2019 (select only 1 category)	Typical Number of Doses Used/ Dose per Animal/ Route?
Mammary/Udder Disease *e.g. mastitis* ☐ *No animals treated for this condition since July 1, 2019*	*1. Excenel*	☐ <5% ☐ 31-70 % ☒ 6-30% ☐ 71-100%	*3 doses/14 mL per dose SC*
	2 Special Formula	☒ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	*2 doses/ 1 tube per day IMM*
	3. ---	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	
Respiratory Disease *e.g. pneumonia* ☒ *No animals treated for this condition since July 1, 2019*	*1. ---*	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	
	2. ---	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	
	3. ---	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	
Lameness *e.g. foot rot* ☐ *No animals treated for this condition since July 1, 2019*	*1. Nuflor*	☒ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	*Day 1 & 3 / 40 ml per day IM*
	2.	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	
	3.	☐ <5% ☐ 31-70 % ☐ 6-30% ☐ 71-100%	

1. Preweaned Calves: *(Calves born in 2019 and treated from July 1st to weaning, as well as calves born in 2020 and treated from birth to June 30th)*

What month did you start calving in 2019? _____

What month did you start calving in 2020? _____

Reason for Antibiotic Use	Which Antibiotic(s) Did You Use?	Percentage of Animals Treated since July 1st 2019 (select only 1 category)	Typical Number of Doses Used/ Dose per Animal/ Route?
Umbilical infection/Navel ill ☐ *No preweaned calves treated for this reason since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	3.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	4.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
Respiratory Disease *e.g. pneumonia / shipping fever* ☐ *No preweaned calves treated for this reason since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	3.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	4.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
Diarrhea / Bloat *e.g. scours / coccidiosis* ☐ *No preweaned calves treated for this reason since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	3.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	4.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
Arthritis / Lameness *e.g. joint ill / foot rot* ☐ *No preweaned calves treated for this reason since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	3.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	4.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
Disease Prevention *For what reason(s)?[1]* i._____ ii._____ ☐ *No preweaned calves given antibiotics for prevention since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
Other reason(s) for use? **(please specify)** i. _____ ii. _____ ☐ *No preweaned calves given antibiotics for other reason(s) since July 1, 2019*	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	1.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	
	2.	☐ <5% ☐ 31-70% ☐ 6-30% ☐ 71-100%	

[1] *Previously reported examples: antibiotics for the prevention of navel ill, scours, or pneumonia*

2. Weaned Calves *(Post-weaning for calves born in 2019 e.g. 2019-born replacement heifers, backgrounders or weaned calves pre-shipping)*

What month did you wean in 2019? _____

What % of weaned calves did you <u>sell</u> at weaning in 2019? _____

Reason for Antibiotic Use	Which Antibiotic(s) Did You Use?	Percentage of Animals Treated since July 1st 2019 (select only 1 category)	Typical Number of Doses Used/ Dose per Animal/ Route?
Eye Disease *e.g. pink eye* ☐ *No post-weaned calves treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Respiratory Disease *e.g. pneumonia / shipping fever* ☐ *No post-weaned calves treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Diarrhea / Bloat *e.g. coccidiosis* ☐ *No post-weaned calves treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Lameness *e.g. foot rot / arthritis* ☐ *No post-weaned calves treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Disease Prevention *e.g. pneumonia / liver abscesses* *Which disease(s)?* i._____ ii._____ ☐ *No post-weaned calves given antibiotics for prevention since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Other reason(s) for use? (please specify) i._____ ii._____	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	

3. Breeding Females: *(Treated between July 1st 2019 and June 30th 2020)*

Reason for Antibiotic Use in Cows/Heifers	Which Antibiotic(s) Did You Use?	Percentage of Animals Treated since July 1st 2019 (select only 1 category)	Typical Number of Doses Used/ Dose per Animal/ Route?
Eye Disease *e.g. pink eye* ☐ *No cows/heifers treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Respiratory Disease *e.g. pneumonia / shipping fever* ☐ *No cows/heifers treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Mammary / Udder Disease *e.g. mastitis* ☐ *No cows/heifers treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Lameness *e.g. foot rot / arthritis* ☐ *No cows/heifers treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Reproductive Tract Disease *e.g. metritis / uterine infection / retained placenta* ☐ *No cows/heifers treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Disease Prevention (please specify) i._____ ii._____ *e.g. coccidiosis / bloat* ☐ *No cows/heifers given antibiotics for prevention since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Other reason(s) for use? (please specify) i._____ ii._____	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	

4. Bulls: *(Treated between July 1ˢᵗ 2019 and June 30ᵗʰ 2020)*

Reason for Antibiotic Use	Which Antibiotic(s) Did You Use?	Percentage of Animals Treated since July 1ˢᵗ 2019 (select only 1 category)	Typical Number of Doses Used/ Dose per Animal/ Route?
Eye Disease *e.g. pink eye* ☐ *No bulls treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Respiratory Disease *e.g. pneumonia* ☐ *No bulls treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Lameness *e.g. foot rot / arthritis* ☐ *No bulls treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Reproductive Tract Disease *e.g. penis / prepuce injury* ☐ *No bulls treated for this reason since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	3.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	4.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Disease Prevention (please describe) i. _____ ii. _____ ☐ *No bulls given antibiotics for prevention since July 1, 2019*	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
Other reason(s) for use? (please describe) i._____ ii._____	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	1.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	
	2.	☐ *<5%* ☐ *31-70 %* ☐ *6-30%* ☐ *71-100%*	

PART B.

Please circle only <u>one</u> of the following responses to the following questions:

1. Over the last 5 years, I have noticed the effectiveness of antibiotics for treating <u>RESPIRATORY</u> disease (e.g. pneumonia in a preweaned calf or shipping fever for post weaned calves) on my farm has:

       INCREASED   STAYED THE SAME   DECREASED   NO OPINION

2. Over the last 5 years, I have noticed the effectiveness of antibiotics for treating <u>GASTROINTESTINAL</u> disease (e.g. calf scours in a 3-day old calf) on my farm has:

       INCREASED   STAYED THE SAME   DECREASED   NO OPINION

3. Over the last 5 years, I have noticed the effectiveness of antibiotics for treating <u>LAMENESS</u> (e.g. foot rot in mature cows) on my farm has:

       INCREASED   STAYED THE SAME   DECREASED   NO OPINION

4. Reports of <u>antibiotic resistance in cattle</u> and the <u>potential loss of treatment effectiveness</u> from antibiotic resistance in my herd has limited the choice of drugs used to treat sick animals in my herd in the past 5 years:

       AGREE   NEUTRAL   DISAGREE   NO OPINION

5. The potential for antibiotic use in cattle to impact <u>antibiotic resistance in human medicine</u> has limited the use of Category 1 drugs (*e.g. Excenel, Excede, Baytril*) to treat sick animals in my herd in the past 5 years:

       AGREE   NEUTRAL   DISAGREE   NO OPINION

For questions 6 to 9, please place an X beside <u>up to 3 options</u> that best represent your management practices. Only X the options you <u>actually use</u>. Leave the rest blank.

Please refer to this <u>example</u> to answer the following questions:

If your first antibiotic treatment failed in treating GASTROINTESTINAL disease, what was your next course of action in the <u>last year</u>?

__ *Provide no further treatment*
__ *Treat with a different antibiotic*
_X_ *Treat with a different drug/product that is not an antibiotic (Please specify):* <u>Oral electrolytes</u>
_X_ *Consult a veterinarian*
__ *Cull or euthanize the animal*
__ *Other (Please specify)* _____

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6. **If your first antibiotic treatment failed in treating RESPIRATORY disease (e.g. pneumonia in a preweaned calf), what was your next course of action in the <u>last year</u>?**

____ Provide no further treatment
____ Treat with a different antibiotic
____ Treat with a different drug/product that is not an antibiotic
        (Please specify): _____
____ Cull or euthanize the animal
____ Consult a veterinarian
____ Other (Please specify): _____

7. **If your first antibiotic treatment failed in treating GASTROINTESTINAL disease (e.g. scours in a 3-day old calf), what was your next course of action in the <u>last year</u>?**

____ Provide no further treatment
____ Treat with a different antibiotic
____ Treat with a different drug/product that is not an antibiotic
        (Please specify): _____
____ Cull or euthanize the animal
____ Consult a veterinarian
____ Other (Please specify): _____

8. **If your first antibiotic treatment failed in treating LAMENESS (e.g. foot rot in a mature cow), what was your next course of action in the <u>last year</u>?**

____ Provide no further treatment
____ Treat with a different antibiotic
____ Treat with a different drug/product that is not an antibiotic
        (Please specify): _____
____ Cull or euthanize the animal
____ Consult a veterinarian
____ Other (Please specify): _____

9. **What are your <u>main sources</u> of information regarding antibiotics?**

____ Your veterinarian
____ Feed or drug company representatives
____ Industry/drug company websites
____ Beef industry meetings/trade shows
____ Friends and neighbors
____ Government publications/ websites
____ Nutritionists
____ Producer publications (e.g. newspapers, magazines)
____ Scientific journals
____ Social media/blogs
____ Other (Please specify): _____

10. Select your <u>top 3 reasons</u> for deciding <u>whether or not to treat</u> a calf/cow/bull with antibiotics when it is sick: *(Place an **X** beside your 3 choices)*

_____ Verbal (phone/in-person) recommendations from my veterinarian **for this animal**

_____ Written recommendations from my veterinarian specific **for this animal**

_____ Written <u>treatment protocol</u> from my veterinarian **for my herd** describing who to treat and when to treat

_____ Verbal (phone/in-person) advice from my veterinarian **not specific** to this animal

_____ Drug cost versus chance of success?

_____ Drug accessibility – i.e. can I buy it when I need it?

_____ Withdrawal time

_____ Whether more than 1 dose is needed

_____ Route of administration (under skin, in muscle, oral (bolus, in feed, in water), etc.)

_____ Cost of the disease in my herd (# sick, lost performance (i.e. decreased gain, pregnancy loss), # dead)

_____ Severity of the disease / clinical signs – i.e. how sick is the animal?

_____ Concern about the animal's well-being

_____ Potential for the drug not to work due to antibiotic resistance

_____ Other (Please specify): _____

_____ **Not applicable** – I do not use antibiotics in my animals

11. Select your <u>top 3 reasons</u> for deciding <u>which antibiotic to use</u> in treating one of your calves/cows/bulls when it is sick: *(Place an **X** beside your 3 choices)*

_____ Verbal (phone/in-person) recommendations from my veterinarian **for this animal**

_____ Written recommendations from my veterinarian **for this animal**

_____ Written <u>treatment protocol</u> from my veterinarian **for my herd** describing who to treat, when to treat, and what product to use

_____ Verbal (phone/in-person) advice from my veterinarian **not specific** to this animal

_____ Advice from a friend/neighbor/co-worker

_____ Drug cost versus chance of success?

_____ Drug accessibility – i.e. can I buy it when I need it?

_____ Withdrawal time

_____ Whether I have to mix the drug before use

_____ Whether the drug needs to be refrigerated

_____ Potential reactions or side effects of the drug (i.e. safety issues)

_____ Whether more than 1 dose is needed

_____ Route of administration (under skin, in muscle, oral (bolus, in feed, in water), etc.)

_____ Cost of the disease in my herd (# sick, lost performance (i.e. decreased gain, pregnancy loss), # dead)

_____ Severity of the disease / clinical signs – i.e. how sick is the animal?

_____ Concern about the animal's well-being

_____ Potential for antibiotic resistance to result from the use of this drug

_____ Potential for the drug not to work due to antibiotic resistance

_____ Other (Please specify): _____

_____ **Not applicable** – I do not use antibiotics in my animals

12. Select your <u>top 3 reasons</u> for deciding <u>how much antibiotic to use</u>
(e.g. how many mL/cc or boluses) **and how many doses you will give to an animal:**
(Place an X beside your 3 choices)

_____ Verbal (phone/in-person) recommendations from my veterinarian **for this animal**

_____ Written recommendations from my veterinarian **for this animal**

_____ Written <u>treatment protocol</u> from my veterinarian **for my herd** describing who to treat, when to treat, what product to use and how much

_____ Verbal (phone/in-person) advice from my veterinarian **not specific** to this animal

_____ Advice from a friend/neighbor/co-worker

_____ Use the same amount I have always used

_____ Based on a visual estimate of the animal's weight

_____ Based on a measured weight of the animal (weigh scale)

_____ Drug cost

_____ Withdrawal time

_____ Route of administration (under skin, in muscle, oral (bolus, in feed, in water), etc.)

_____ Package label instructions

_____ Instructions on the internet

_____ Other (Please specify): _____

_____ **Not applicable** – I do not use antibiotics in my animals

13. Did you keep <u>individual animal</u> treatment records in 2019/2020?
(e.g. Calf #62 treated for pneumonia with 30 ml Nuflor) (*Check <u>**all**</u> applicable options*)

☐ Yes – handwritten   ☐ Yes – computerized   ☐ Yes – smartphone   ☐ No

14. Did you keep <u>group</u> or <u>herd level</u> treatment records in 2019/2020?
i.e. a written count of animals treated and when (e.g. 8 calves treated for pneumonia with Nuflor)
(*Check <u>**all**</u> applicable options*)

☐ Yes – handwritten   ☐ Yes – computerized   ☐ Yes – smartphone   ☐ No

15. Are you aware of initiatives to increase antibiotic stewardship *(ensuring that the beef industry uses the right antibiotics in the right animals at the right dose at the right time)***?**

☐ Yes   ☐ No

16. If 'Yes' to question 15, where did you get information about this/these initiative(s)?
*(Please check <u>**all**</u> that apply)*

_____ **Not applicable**, I am not aware of any antibiotic stewardship initiatives
_____ Veterinarians – verbal recommendation
_____ Veterinarians – written treatment protocol
_____ Feed or drug company representatives
_____ Industry/drug company websites
_____ Friends and neighbors
_____ Government publications/ websites
_____ Nutritionists
_____ Beef industry meetings/trade shows
_____ Producer publications (newspapers, magazines)
_____ Scientific journals
_____ Social media/blogs

_____ Other (Please specify): _____

17. In your opinion, how important is the issue of antibiotic resistance to the beef industry?
   (Circle the best answer)

   VERY IMPORTANT   MODERATELY IMPORTANT   NOT IMPORTANT

In December 2018, there was a change to federal regulations in how livestock producers could purchase medically important antibiotics *(i.e. antimicrobials important to human medicine – excludes ionophores such as Monensin)* **limiting them to being available only through prescriptions from veterinarians.**

   You can refer to the Beef Cattle Research Council website for more information:
   http://www.beefresearch.ca/blog/prescription-required-for-livestock-cattle-antibiotics-december-2018-repost/

18. Has <u>antibiotic use</u> in your herd been affected by the regulation change that came into effect December 2018?   *(Circle the <u>best</u> answer)*

   DECREASED   NO CHANGE   INCREASED

Comments:_____

_____

19. Has your <u>access to antibiotics</u> changed? *(Circle the <u>best</u> answer)*

   DECREASED   NO CHANGE   INCREASED

Comments:_____

_____

20. Has the <u>cost of antibiotic use </u>in your herd changed? *(Circle the <u>best</u> answer)*

   DECREASED   NO CHANGE   INCREASED

Comments:_____

_____

21. How did you first become aware of the need for a prescription to buy antibiotics?
   *(Please place an **X** beside the <u>one</u> most appropriate answer)*

   _____ **Not applicable**, I was not aware of a change in how antibiotics can be purchased for livestock

   I first learned about this from:
   _____ Veterinarians
   _____ Feed or Drug Company representatives
   _____ Industry/drug company websites
   _____ Friends and neighbors
   _____ Government publications/ websites
   _____ Nutritionists
   _____ Beef industry meetings/trade shows
   _____ Producer publications (e.g. newspapers, magazines)
   _____ Scientific journals
   _____ Social media/blogs
   _____ Webinars

   _____ I don't remember

   _____ Other (Please specify): _____

22. **What percentage of treatments for sick animals do you administer using a remote delivery system for antibiotics** (i.e. tools to help administer injectable antibiotics to cattle that you cannot restrain in a chute system/head gate/squeeze)**?**

(Please enter the best estimate of the __percentage__ of treatments (%) next to all that apply.)

____ **Not applicable**, we have only administered antibiotics to animals restrained in a chute system, head gate, squeeze or stanchion/tied-stalls

____ Dart gun with medicinal delivery dart

____ Cross bow with medicinal delivery dart

____ Blow gun with medicinal delivery dart

____ Pole syringe

____ Rope and restrain on pasture with traditional syringe

____ In feed or water

____ Other (Please specify): _____

Comments:_____

_____

23. **Do you have any other comments related to antibiotic use, antibiotic resistance, or the need for antibiotic stewardship in the beef industry?**

_____

_____

_____

_____

_____

_____

_____

_____

24. **Would you be willing to share a copy of your individual animal treatment records with the study in 2021? (*please circle one*)**

<div align="center">

YES   **MAYBE**   **NO**

</div>

For example, cow #U42 treated for footrot with Draxxin July 23rd.
- Each herd providing their completed treatment records for the year will receive an additional $300 incentive from the project.
- We will be interested in individual animal and group treatment records collected from January 1, 2021 to December 31, 2021.
- We can provide you with a paper-based or smartphone-based treatment records system for data collection if you would like, or we can use a clear copy, scan or good quality cell phone picture of whatever record system you are using now.