Biosecurity and Health Management by U.S. Cattle Producers 2018 Survey Summary



- Survey conducted by Kansas State University.
- Survey distributed by BEEF Magazine.
- Data collected October 22, 2018 to January 31, 2019.

Kansas State University Extension and Outreach

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Objective

This study was conducted to understand beef industry characteristics, biosecurity adoption, and how risks to beef health factor into producer decision making. The survey also attempts to gain insights on producer knowledge of foot-and-mouth disease.

Survey and Sample Design

This survey was developed by James Mitchell, assistant professor of agricultural economics and agribusiness at the University of Arkansas (formerly Kansas State University Ph.D. student), Glynn Tonsor, professor of agricultural economics at Kansas State University, and Lee Schulz, associate professor and extension livestock economist at Iowa State University. The survey questionnaire was vetted internally. Informa Engage formatted and printed the final survey questionnaire

BEEF Magazine developed an eligible mail distribution list of 2,000 United States cattle producers based on the requirement that the operation has at least 20 head of any cattle in inventory. In an effort to increase survey response, a \$1 bill, cover letter, and postage-paid return envelope were included in each invitation packet.

Data Collection and Survey Response

Survey procedures were approved by the Kansas State University Committee on Research Involving Human Subjects and Institutional Review Board (Proposal Number 9435). Informa Engage provided data collection and processing. Printed survey invitation packets were mailed on October 22, 2018, with no follow-up solicitation. Survey responses were accepted until January 31, 2019.

Data for 421 partially complete or complete responses were received on December 21, 2018. Data for an additional 21 partially complete or complete responses were received on February 20, 2019. The final response rate was 22%, and data included 442 partially complete or complete responses

Acknowledgements

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Biosecurity and Health Management by U.S. Cattle Producers

2018 Survey Summary

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Stated Choice Questions

	Number reporting	Percent reporting
Commercial	343	78.0%
Both Commercial and Seedstock	60	13.6%
Seedstock	20	4.5%
Other	17	3.9%
Total	440	100.0%

Which operation type best describes your cattle operation?

Which marketing method do you most frequently use in marketing your operation's cattle?

	Number reporting	Percent reporting
Sale barn/auction	264	60.1%
Direct-Video/Internet auction	25	5.7%
Direct-private treaty	90	20.5%
Consignment	3	0.7%
Forward contact	8	1.8%
Carcass basis	18	4.1%
Other	31	7.1%
Total	439	100.0%

Do the same buyers purchase cattle from your operation each year?

	Number	Percent
	reporting	reporting
No	237	67.5%
Yes	114	32.5%
Total	351	100.0%

Do you usually provide buyers with information about your operation's health programs?

	Number	Percent
	reporting	reporting
No	123	28.0%
Yes	316	72.0%
Total	439	100.0%

	Number	Percent
	reporting	reporting
Written documentation	139	44.4%
Electronic documentation	10	3.2%
Tell buyer orally	141	45.0%
Other	23	7.3%
Total	313	100.0%

How is this information most frequently shared?

Has your operation had any of the following disease outbreaks in the last 5 years? Bovine Viral Diarrhea Trichomoniasis

	Number reporting	Percent reporting	Number reporting	Percent reporting
Yes	23	5.6%	4	1.0%
No Disease Problems	387	94.4%	402	99.0%
Total	410	100.0%	406	100.0%

If yes, how many months ago was the most recent case?

E	Bovine Viral Dia	rrhea	Trichomor	niasis
	Number reporting	Percent reporting	Number reporting	Percent reporting
Less than 1 month ago	0	0.0%	0	0.0%
1 to 6 months ago	13	65.0%	0	0.0%
7 to 12 months ago	4	20.0%	0	0.0%
13 to 18 months ago	1	5.0%	0	0.0%
19 to 24 months ago	0	0.0%	0	0.0%
25 to 30 months ago	0	0.0%	0	0.0%
31 to 36 months ago	0	0.0%	0	0.0%
37 months or more	2	10.0%	3	100.0%
Total	20	100.0%	3	100.0%

	Bovine Tuberculosis		Vesicular Stomatitis	
	Number reporting	Percent reporting	Percent reporting	
Yes	0	0.0%	0	0.0%
No Disease Problems	405	100.0%	405	100.0%
Total	405	100.0%	405	100.0%

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Infectious Bovine Rhinotracheitis (IBRV)			Other*	
	Number reporting	Percent reporting	Number reporting	Percent reporting
Yes	13	3.2%	17	5.6%
No Disease Problems	395	96.8%	288	94.4%
Total	408	100.0%	305	100.0%

If yes, how many months ago was the most recent case? Infectious Bovine Rhinotracheitis (IBRV)

Infectious Bovine Rhinotracheitis (IBRV)			Other*	
	Number reporting	Percent reporting	Number reporting	Percent reporting
Less than 1 month ago	0	0.0%	0	0.0%
1 to 6 months ago	6	54.5%	7	50.0%
7 to 12 months ago	5	45.5%	3	21.4%
13 to 18 months ago	0	0.0%	1	7.1%
19 to 24 months ago	0	0.0%	3	21.4%
25 to 30 months ago	0	0.0%	0	0.0%
31 to 36 months ago	0	0.0%	0	0.0%
37 months or more	0	0.0%	0	0.0%
Total	11	100.0%	14	100.0%

During the last 12 months, did your operation consult a veterinarian for:

	Yes		Νο	
	Number reporting	Percent reporting	Number reporting	Percent reporting
Disease diagnosis or treatment?	219	37.1%	198	14.4%
Disease prevention?	249	42.1%	175	12.7%
Livestock deaths?	89	15.1%	301	21.8%
Information on biosecurity prevention?	23	3.9%	349	25.3%
Information on foreign animal diseases?	11	1.9%	356	25.8%
Total	591	100.0%	1379	100.0%



In which state is your cattle operation?

Biosecurity for beef cattle operations is often defined as the implementation of protocols designed to reduce the likelihood of unwanted pests and disease threats from entering the cattle herd. Which practice best describes the level of biosecurity implemented on your operation?

	Number reporting	Percent reporting
Maintain a closed herd	163	38.3%
No entry of new cattle but reentry of existing cattle allowed	19	4.5%
Entry of new cattle with known medical records and initial quarantine	88	20.7%
Entry of new cattle with known medical records but no initial quarantine	98	23.0%
Entry of new cattle with no known medical records and no initial quarantine	58	13.6%
Total	426	100.0%

How would you rate the biosecurity of your operation compared to other operations in your area?

	Number reporting	Percent reporting
Very low-1	17	4.0%
2	12	2.8%
3	15	3.5%
4	29	6.8%
5	77	18.1%
6	49	11.5%
7	82	19.2%

8	80	18.8%
9	35	8.2%
Very high-10	30	7.0%
Total	426	100.0%

Approximately, what portion of your total annual cow costs are allocated to biosecurity efforts?

	Number reporting	Percent reporting
Less than 10 percent	251	69.9%
10 to 19 percent	64	17.8%
20 to 29 percent	18	5.0%
30 to 39 percent	7	1.9%
40 to 49 percent	3	0.8%
50 percent or more	16	4.5%
Total	359	100.0%

How many times in the next 100 years do you think an FMD outbreak will occur in the U.S. livestock population (cattle, sheep, goats, swine?)

	Number reporting	Percent reporting
0 times	74	18.5%
1 time	69	17.3%
2 times	101	25.3%
3 times	46	11.5%
4 times	30	7.5%
5 times	28	7.0%
6 or more times	51	12.8%
Total	399	100.0%

If an FMD outbreak occurred in your operation, how long (number of months) do you think losses would persist?

	Number reporting	Percent reporting
Under 1 month	52	13.2%
1 to 3 months	58	14.7%
4 to 6 months	62	15.7%
7 to 9 months	16	4.1%
10 to 12 months	99	25.1%
13 to 15 months	13	3.3%
16 to 18 months	14	3.6%
19 months or longer	80	20.3%
Total	394	100.0%

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If an FMD outbreak occurred on your	operation, what do you think production losses
would be in dollars per cow?	

	Number	
	reporting	Percent reporting
\$0 per cow	5	1.3%
\$0.01-\$100 per cow	21	5.3%
\$100.01-\$200 per cow	34	8.6%
\$200.1-\$300 per cow	35	8.9%
\$300.01-\$400 per cow	38	9.6%
\$400.01-\$500 per cow	50	12.7%
\$500.01-\$600 per cow	30	7.6%
\$600.01-\$700 per cow	18	4.6%
\$700.01-\$800 per cow	19	4.8%
Over \$800 per cow	144	36.5%
Total	394	100.0%

If an FMD outbreak occurred on your operation, would you expect indemnity payments to be provided by the government?

	Number reporting	Percent reporting
No	231	55.3%
Yes	187	44.7%
Total	418	100.0%

If yes, would you expect indemnity payments provided by the government to be made available to cattle producers only in they could document biosecurity efforts?

	Number reporting	Percent reporting
No	84	46.4%
Yes	97	53.6%
Total	181	100.0%

Would you expect indemnity payments provided by the government to cover all of the production losses in cattle value?

	Number reporting	Percent reporting
No	86	47.5%
Yes	95	52.5%
Total	181	100.0%

If an FMD outbreak occurred in your operation, in your opinion how would buyers of your cattle likely respond? Buyers would continue to purchase cattle known to be FMD free or vaccinated against FMD at a discount of:

	Number reporting	Percent reporting
No discount, buyers would continue to purchase cattle as usual	82	21.0%
\$0.01-\$5.00 per hundredweight discount	29	7.4%
\$5.01-\$10.00 per hundredweight discount	61	15.6%
\$10.01-\$15.00per hundredweight discount	45	11.5%
\$15.01 per hundredweight or higher discount	173	44.4%
Total	390	100.0%

If an FMD outbreak occurred on your operation, in your opinion how would buyers of cattle likely respond? Buyers would entirely cease taking cattle for:

	Number reporting	Percent reporting
Not applicable, buyers would continue to purchase cattle as usual	56	14.0%
Under 1 month	16	4.0%
1 to 3 months	43	10.8%
4 to 6 months	47	11.8%
6 months or longer	238	59.5%
Total	400	100.0%

If you suspect FMD might be present on your operation, who would you contact?

	Number reporting	Percent reporting
U.S. Department of Agriculture (USDA)	107	13.0%
Neighboring and/or local beef producers	110	13.4%
Livestock buyers	41	5.0%
Private veterinarian	388	47.1%
State veterinarian	172	20.9%
Other	5	0.6%
Total	823	100.0%

For the biosecurity practices listed below, please check the left column for those used on your operation. Also please indicate by circling a number, how feasible you believe implementation of each would be if an FMD outbreak occurred in the U.S.

	Number reporting	Percent reporting
Used	44	15.2%
Highly Infeasible	67	23.1%
Infeasible	34	11.7%
Neutral	68	23.4%
Feasible	51	17.6%
Highly Feasible	26	9.0%
Total	290	100.0%

There is a designated biosecurity manager for the operation

An operation-specific, written, enhanced biosecurity plan has been developed

	Number reporting	Percent reporting
Used	17	7.0%
Highly Infeasible	46	19.0%
Infeasible	25	10.3%
Neutral	79	32.6%
Feasible	52	21.5%
Highly Feasible	23	9.5%
Total	242	100.0%

Animals come only from sources with documented enhanced biosecurity practices

	Number reporting	Percent reporting
Used	78	23.2%
Highly Infeasible	36	10.7%
Infeasible	18	5.4%
Neutral	75	22.3%
Feasible	77	22.9%
Highly Feasible	52	15.5%
Total	336	100.0%

A plan exists to manage animals in a biosecure manner on-site in the event animal movement is stopped for several weeks

	Number reporting	Percent reporting
Used	89	25.2%
Highly Infeasible	29	8.2%
Infeasible	17	4.8%
Neutral	69	19.5%
Feasible	111	31.4%
Highly Feasible	38	10.8%
Total	353	100.0%

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Feedstuffs are delivered, stored, mixed, and fed in a manner that minimizes contamination, and feed spills are cleaned promptly

	Number reporting	Percent reporting
Used	195	38.8%
Highly Infeasible	26	5.2%
Infeasible	10	2.0%
Neutral	65	12.9%
Feasible	116	23.1%
Highly Feasible	90	17.9%
Total	502	100.0%

A line of Separation (LOS) is an outer control boundary around, or within, the premises to limit movement of virus into areas where animals can be exposed. Please check the left column for those used on your operation. Also please indicate by circling a number, how feasible you believe implementation of each would be if an FMD outbreak occurred in the U.S.

A line of separation is clearly defined and marked in the operation

	Number reporting	Percent reporting
Used	60	19.5%
Highly Infeasible	47	15.3%
Infeasible	34	11.1%
Neutral	70	22.8%
Feasible	64	20.8%
Highly Feasible	32	10.4%
Total	307	100.0%

Entry to the operation is restricted to a limited number of access points

	Number reporting	Percent reporting
Used	119	30.4%
Highly Infeasible	34	8.7%
Infeasible	39	9.9%
Neutral	49	12.5%
Feasible	102	26.0%
Highly Feasible	49	12.5%
Total	392	100.0%

	Number	Percent
	reporting	reporting
Used	114	28.8%
Highly Infeasible	51	12.9%
Infeasible	51	12.9%
Neutral	47	11.9%
Feasible	81	20.5%
Highly Feasible	52	13.1%
Total	396	100.0%

Nose-to-nose contact with livestock on adjacent premises is prevented

Access is limited to individuals who are essential to the operation

	Number reporting	Percent reporting
Used	118	29.7%
Highly Infeasible	31	7.8%
Infeasible	25	6.3%
Neutral	57	14.4%
Feasible	108	27.2%
Highly Feasible	58	14.6%
Total	397	100.0%

Vehicles, trailers, and equipment that cross the LOS are properly cleaned at an Access Point

	Number reporting	Percent reporting
Used	66	20.1%
Highly Infeasible	32	9.8%
Infeasible	47	14.3%
Neutral	67	20.4%
Feasible	81	24.7%
Highly Feasible	35	10.7%
Total	328	100.0%

Animals leaving the operation only move in one direction across the LOS at an Access Point

	Number reporting	Percent reporting
Used	84	24.1%
Highly Infeasible	28	8.0%
Infeasible	37	10.6%
Neutral	65	18.7%
Feasible	96	27.6%
Highly Feasible	38	10.9%
Total	348	100.0%

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	Number reporting	Percent reporting
Used	103	27.8%
Highly Infeasible	30	8.1%
Infeasible	45	12.1%
Neutral	59	15.9%
Feasible	94	25.3%
Highly Feasible	40	10.8%
Total	371	100.0%

The area designated for loading/unloading animals is not a people entry point

Areas contaminated by personnel or animals after unloading are properly cleaned and disinfected

	Number reporting	Percent reporting
Used	46	15.5%
Highly Infeasible	32	10.8%
Infeasible	52	17.5%
Neutral	75	25.3%
Feasible	66	22.2%
Highly Feasible	26	8.8%
Total	297	100.0%

Please indicate your level of agreement with the following statements

I am willing to take animal health risks in order to make more money

	Number reporting	Percent reporting
Strongly disagree	167	40.2%
Disagree	132	31.8%
Neutral	58	14.0%
Agree	46	11.1%
Strongly agree	12	2.9%
Total	415	100.0%

With respect to the conduct of my business, I prefer certainty to uncertainty

		Percent
	Number reporting	reporting
Strongly disagree	12	2.9%
Disagree	15	3.6%
Neutral	62	15.1%

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Agree	214	52.1%
Strongly agree	108	26.3%
Total	411	100.0%

I am willing to take financial risks in order to realize higher average returns

	Number reporting	Percent reporting
Strongly disagree	57	14.0%
Disagree	58	14.2%
Neutral	142	34.8%
Agree	133	32.6%
Strongly agree	18	4.4%
Total	408	100.0%

My cattle operation is protected from financial risks

	Number reporting	Percent reporting
Strongly disagree	42	10.4%
Disagree	116	28.6%
Neutral	163	40.2%
Agree	68	16.8%
Strongly agree	16	4.0%
Total	405	100.0%

My cattle operation is protected from animal disease risks

	Number reporting	Percent reporting
Strongly disagree	23	5.7%
Disagree	84	20.9%
Neutral	129	32.1%
Agree	137	34.1%
Strongly agree	29	7.2%
Total	402	100.0%

With respect to animal health, I prefer certainty to uncertainty

	Number reporting	Percent reporting
Strongly disagree	8	1.9%
Disagree	7	1.7%
Neutral	47	11.3%

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Agree	210	50.4%
Strongly agree	145	34.8%
Total	417	100.0%

Which animal identification methods do you currently use?

	Number reporting	Percent reporting
Plastic ear tag	401	42.8%
Metal ("Bright") tag	18	1.9%
Brand	227	24.2%
Tattoo	81	8.6%
Brucellosis tag	147	15.7%
Electronic ear tag (RFID)	46	4.9%
None	8	0.9%
Other	9	1.0%
Total	937	100.0%

What is your age?

	Number	Percent
	reporting	reporting
21-30 years	11	3%
31-40 years	18	4%
41-50 years	26	6%
51-60 years	89	20%
61-70 years	160	37%
71-80 years	101	23%
81 years or more	32	7%
Total	437	100%

What is your gender?

	Number reporting	Percent reporting
Male	401	92%
Female	36	8%
Total	437	100%

What is the highest level of education that you have completed?

	Number reporting	Percent reporting
High school graduate/GED	231	53%
Some college or 2-year college/technical degree	91	21%
4-year college degree	84	19%
Graduate degree (MS, PhD, DVM, etc.)	26	6%
Other	5	1%
Total	437	100%

Approximately, what portion of your household income is from on-farm sources?

	Number reporting	Percent reporting
0% to 25%	66	16.4%
26% to 50%	98	24.3%
51% to 75%	49	12.2%
76% to 99%	69	17.1%
100%	121	30.0%
Total	403	100.0%

What was your inventory on January 1, 2018 of cows, replacement heifers (bred or open), and bulls?

cows		
	Number reporting	Percent reporting
Less than 100	131	32.7%
100 to 249	166	41.4%
250 to 499	64	16.0%
500 or more	40	10.0%
Total	401	100.0%

Replacement Heifers

Cows

	Number reporting	Percent reporting
Less than 25	187	51.8%
25 to 49	71	19.7%
50 to 74	42	11.6%
75 or more	61	16.9%
Total	361	100.0%

Bul	ls
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	Number reporting	Percent reporting
Less than 5	142	36.8%
5 to 14	149	38.6%
15 t0 24	44	11.4%
25 or more	51	13.2%
Total	386	100.0%

What was your annual cow cost for 2018?

	Number Reporting	Percent Reporting
Less than \$250 per head	33	13.9%
\$250 to \$499 per head	79	33.2%
\$500 to \$749 per head	85	35.7%
\$750 to \$999 per head	22	9.2%
\$1000 or more per head	19	8.0%
Total	238	100.0%

How many years of experience in cattle production do you have?

	Number Reporting	Percent Reporting
Less than 20 years	27	6%
20 to 39 years	87	20%
40 to 59 years	235	55%
60 to 79 years	77	18%
80 years or more	3	1%
Total	429	100%

How many more years do you expect to be in cattle production?

	Number	Percent
	Reporting	Reporting
Less than 10 years	106	29.7%
10 to 19 years	132	37.0%
20 to 29 years	66	18.5%
30 to 39 years	25	7.0%
40 to 49 years	13	3.6%
50 years or more	15	4.2%
Total	357	100.0%

Prevalence rate (%) - 90%, Positive rate (%) - 50%, Government response policy- Conditional herd depopulation, Indemnity policy (%) - 0%, Livestock buyer discount (\$/cwt) - \$10

	Number Reporting	Percent Reporting
Yes	124	76.1%
No	39	23.9%
Total	163	100.0%

Prevalence rate (%) - 90%,

Positive rate (%) - 50%,

Government response policy- Conditional herd depopulation,

Indemnity policy (%) - 0%,

Livestock buyer discount (\$/cwt) - \$10

	Number	Percent
	Reporting	Reporting
Yes	141	86.5%
No	22	13.5%
Total	163	100.0%

Prevalence rate (%) - 50%,

Positive rate (%) - 10%,

Government response policy- Full herd depopulation,

Indemnity policy (%) - 0%,

Livestock buyer discount (\$/cwt) - \$10

	Number	Percent
	Reporting	Reporting
Yes	94	58.4%
No	67	41.6%
Total	161	100.0%

Prevalence rate (%) - 10%, Positive rate (%) - 50%, Government response policy- Vaccinate, Indemnity policy (%) - 0%, Livestock buyer discount (\$/cwt) - \$5

	Number Reporting	Percent Reporting
Yes	130	78.8%
No	35	21.2%
Total	165	100.0%

Prevalence rate (%) - 10%,

Positive rate (%) - 50%,

Government response policy- Full herd depopulation,

Indemnity policy (%) - 100%,

Livestock buyer discount (\$/cwt) - \$0

	Number	Percent
	Reporting	Reporting
Yes	143	85.6%
No	24	14.4%
Total	167	100.0%

Prevalence rate (%) - 90%,

Positive rate (%) - 90%,

Government response policy- Full herd depopulation,

Indemnity policy (%) - 50%,

Livestock buyer discount (\$/cwt) - \$5

	Number	Percent
	Reporting	Reporting
Yes	196	82.7%
No	41	17.3%
Total	237	100.0%

Prevalence rate (%) - 90%, Positive rate (%) - 10%, Government response policy- Vaccinate, Indemnity policy (%) - 100%, Livestock buyer discount (\$/cwt) - \$0

	Number Reporting	Percent Reporting
Yes	220	92.8%
No	17	7.2%
Total	237	100.0%

Prevalence rate (%) - 50%,

Positive rate (%) - 90%,

Government response policy- Conditional herd depopulation,

Indemnity policy (%) - 0%,

Livestock buyer discount (\$/cwt) - \$0

	Number	Percent
	Reporting	Reporting
Yes	180	77.6%
No	52	22.4%
Total	232	100.0%

Prevalence rate (%) - 50%,

Positive rate (%) - 10%,

Government response policy- Conditional herd depopulation,

Indemnity policy (%) - 100%,

Livestock buyer discount (\$/cwt) - \$5

	Number	Percent
	Reporting	Reporting
Yes	205	88.0%
No	28	12.0%
Total	233	100.0%

Prevalence rate (%) - 10%, Positive rate (%) - 90%, Government response policy-Vaccinate, Indemnity policy (%) - 100%, Livestock buyer discount (\$/cwt) - \$5

	Number Reporting	Percent Reporting
Yes	203	90.2%
No	22	9.8%
Total	225	100.0%

Prevalence rate (%) - 10%,

Positive rate (%) - 10%,

Government response policy- Conditional herd depopulation, Indemnity policy (%) - 50%,

Livestock buyer discount (\$/cwt) - \$0

	Number	Percent
	Reporting	Reporting
Yes	170	75.9%
No	54	24.1%
Total	224	100.0%

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