

# *COMMUNITY SECURITY IN BEEF PRODUCTION SUSTAINABILITY*

*July 1, 2022*

*Sustainability Research Program, Project #1845*

*Final Technical Report – **Appendices***

*National Cattlemen's Beef Association*

*J.D. Wulforth, University of Idaho*

*Hana Fancher, University of Wyoming*

*John Ritten, University of Wyoming*

*Amy Nagler, University of Wyoming*

## APPENDICES

### Appendix A

	Trip#	Dates	Days	States	MILES		
					air	car	mc
2021	1	4/28-5/4	7	ID, NV, CA, OR, WA	0	0	1,916
	2	5/18-6/2	16	ID, MT, WY, CO, KS, MO, TN, NC	2,659	850	3,216
	3	7/6-7/10	6	ID, MT, WY	0	1,572	0
	4	7/21 - 7/23	3	ID	0	830	0
	5	8/4 - 8/6	3	ID, MT	405	230	300
	6	8/9-8/13	5	TN	5,448	0	0
	7	8/17 - 8/20	4	ID, OR, WA	0	0	1,037
	8	8/28 - 9/2	6	ID MT, WY	0	0	1,477
	9	9/14-10/2	19	ID, NV, CA, AZ, NM, UT	0	0	5,099
	10	11/29 - 12/11	13	NC, VA, CA	4,280	363	358
2022	11	1/25 - 1/29	5	ID, MT	0	1,560	0
	12	2/1 - 2/12	12	TX, NM	3,892	393	562
	13	2/15 - 2/19	5	GA, FL	3,030	470	0
	14	3/1 - 3/5	5	MO, IL, AR	3,260	685	248
	15	3/23 - 3/28	6	TX, WA, ID	4,393	633	340
	16	3/29 - 4/1	4	ND	3,620	460	0
	17	4/4 - 4/9	6	AZ, NM	7,235	870	0
	18	4/19 - 4/23	5	NE	4,040	195	30
	19	4/26 - 5/4	9	FL	5,815	885	804
	20	5/6	1	ID, WA	0	265	0
	21	5/9 - 5/12	4	KY, IN, OH	5,725	0	560
	22	5/17 - 5/28	12	NC, SC	5,585	0	1,744
Totals					59,387	10,261	17,691

Figure A1. Complete list of sociological fieldwork trips (dates, states, transportation)

## Appendix B



December 22, 2020

To: J. Wulforth

From: University of Idaho Institutional Review Board

Approval Date: December 22, 2020

Title: Community security in beef production sustainability

Protocol: 20-211, Reference: 011604

Exempt under Category 2 at 45 CFR 46.104(d)(2).

---

On behalf of the Institutional Review Board at the University of Idaho, I am pleased to inform you that the protocol for this research project has been certified as exempt under the category listed above. If you will be conducting in-person research, please be sure to adhere to the CDC recommendations, local Public Health guidelines and local ordinances, in addition to the University of Idaho requirements here: <https://www.uidaho.edu/vandal-health-clinic/coronavirus/research>. If you will be making changes to your procedures, please submit an Amendment. For this protocol, please submit an Amendment once the final versions of recruitments, consent, and questions are developed. While the protocol is approved as Exempt, a copy of the actual articles to be used should be submitted to the IRB for its records.

This certification is valid only for the study protocol as it was submitted. Studies certified as Exempt are not subject to continuing review and this certification does not expire. However, if changes are made to the study protocol, you must submit the changes through [VERAS](#) for review before implementing the changes. Amendments may include but are not limited to, changes in study population, study personnel, study instruments, consent documents, recruitment materials, sites of research, etc.

As Principal Investigator, you are responsible for ensuring compliance with all applicable FERPA regulations, University of Idaho policies, state and federal regulations. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice. The Principal Investigator is responsible for ensuring that all study personnel have completed the online human subjects training requirement. Please complete the *Continuing Review and Closure Form* in VERAS when the project is completed.

You are required to notify the IRB in a timely manner if any unanticipated or adverse events occur during the study, if you experience an increased risk to the participants, or if you have participants withdraw or register complaints about the study.

Figure B1. UI Institutional Review Board (IRB) protocol (p1)

IRB Exempt Category (Categories) for this submission:

Category 2: Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: i. The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; ii. Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or iii. The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by .111(a)(7).

## **Appendix C**

*Community Security in Beef Production Sustainability*  
National Cattlemen's Beef Association, Project #1845, 2020-2022

### **Interview protocol**

1. What are the core elements of how you would describe the surrounding community area?
  - a. What makes the community persist?
  - b. What gives the community structure?
  - c. What gives the community social cohesion?
2. How would you describe the key components of the beef production industry?
3. What is your role(s) within beef production?
  - a. Where does your operation fit into the supply chain?
  - b. How do you approach determining your herd size? sales process / timing?
4. How would you describe the key factors that influence your decision-making for beef production?
  - a. What social impacts (+ & -) occur in the surrounding community?
  - b. How does beef production relate to the long-term health of your community?
  - c. Looking forward, do you see change in the future about what may change with these factors and impacts?
5. How would you describe a resilient future of your community?
  - a. What external threats do you see that pose risks to beef production sustainability?

Figure C1. Complete sociological interview guide

## **Appendix D: Census Data Analyses, Tables and Figures**

### **Tables**

**Table D1. US Beef Cow Inventory and Percent Change by NCBA Region, 1980 and 2021.** (Source: LMIC)

US Beef Cow Inventory (1,000 head)			
<b>Region</b>	<b>1980</b>	<b>2021</b>	<b>Percent Change</b>
Region 1 Northeast	3,943	3,148	-20%
Region 2 Southeast	5,580	4,130	-26%
Region 3 Midwest	5,536	3,936	-29%
Region 4 Southern Great Plains	8,825	7,799	-12%
Region 5 Northwest & Rocky Mountains	4,602	4,000	-13%
Region 6 Pacific & Southwest	2,466	1,993	-19%
Region 7 Central & Northern Great Plains	6,155	6,151	0%
<b>US Total</b>	<b>37,107</b>	<b>31,157</b>	<b>-16%</b>
Source: Livestock Marketing Information Center (LMIC)			

**Table D2. US Steers over 500 lbs. Inventory and Percent Change by NCBA Region, 1980 and 2021.** (Source: LMIC)

US Steers over 500 lbs. Inventory (1,000 head)			
Region	1980	2021	Percent Change
Region 1 Northeast	1,533	1,131	-26%
Region 2 Southeast	597	407	-32%
Region 3 Midwest	3,666	2,695	-26%
Region 4 Southern Great Plains	2,986	3,790	27%
Region 5 Rocky Mountain & Northwest	1,747	1,860	6%
Region 6 Pacific & Southwest	1,784	1,139	-36%
Region 7 Central and Northern Great Plains	3,736	5,575	49%
<b>US total</b>	<b>19,785</b>	<b>22,172</b>	<b>12%</b>
Source: Livestock Marketing Information Center (LMIC)			

**Table D3. US Cattle on Feed Inventory and Percent Change, by NCBA Region, 1980 and 2021.**

(Source: LMIC)

US Cattle on Feed Inventory (1,000 head)			
<b>Region</b>	<b>1980</b>	<b>2021</b>	<b>Percent Change</b>
Region 1 Northeast	794	599	-25%
Region 2 Southeast	231	(N)	-
Region 3 Midwest	2472	2150	-13%
Region 4 Southern Great Plains	2311	3225	40%
Region 5 Rocky Mountains & Northwest	1557	1912	23%
Region 6 Pacific & Southwest	1514	846	-44%
Region 7 Central and Northern Great Plains	3339	5889	76%
<b>US total</b>	<b>12221</b>	<b>14707.4</b>	<b>20%</b>
Source: Livestock Information Marketing Center			
(N) No data available			



**Table D4. Number, Size, and Percent Change of Ranches, 2002 and 2017.** (Sources: US Agricultural Census 2002, US Agricultural Census 2017)

<b>Number of Ranches and Average Acreage</b>					
Region	Year	Number of Ranches	% Change Number of Ranches	Ranch Average Acres (weighted*)	% Change Ranch Average Acres
Region 1 Northeast	2002	101043		154	
Region 1 Northeast	2017	102093	1%	140	-9%
Region 2 Southeast	2002	137198		178	
Region 2 Southeast	2017	112137	-18%	107	-40%
Region 3 Midwest	2002	83453		219	
Region 3 Midwest	2017	78166	-6%	159	-27%
Region 4 Southern Great Plains	2002	200905		563	
Region 4 Southern Great Plains	2017	202710	1%	552	-2%
Region 5 Rocky Mountains & Northwest	2002	49650		1894	
Region 5 Rocky Mountains & Northwest	2017	55977	13%	1497	-21%
Region 6 Pacific & Southwest	2002	24542		3362	
Region 6 Pacific & Southwest	2017	33571	37%	1737	-48%
Region 7 Central & Northern Great Plains	2002	50879		1358	
Region 7 Central & Northern Great Plains	2017	43259	-15%	1300	-4%
<b>US total</b>	<b>2002</b>	<b>664431</b>		<b>632</b>	
<b>US total</b>	<b>2017</b>	<b>641496</b>	<b>-3%</b>	<b>565</b>	<b>-11%</b>
(weighted *) these are weighted averages; the regional average was calculated by taking the average of individual state values (within the region) and the values were weighted by the number of ranches in each state (within the region)					
Source: US Agricultural Census 2002, US Agricultural Census 2017					

**Table D5. Number, Size, and Percent Change of Feedlots, 2002 and 2017.** (Sources: US Agricultural Census 2002, US Agricultural Census 2017)

<b>Number of Feedlots and Average Acreage</b>					
Region	Year	Number of Feedlots	% Change Number of Feedlots	Feedlot Average Acres (weighted*)	% Change Feedlot Average Acres
Region 1 Northeast	2002	18069		147	
Region 1 Northeast	2017	3004	-83%	295	101%
Region 2 Southeast	2002	927		115	
Region 2 Southeast	2017	204	-78%	148	28%
Region 3 Midwest	2002	16544		297	
Region 3 Midwest	2017	5778	-65%	436	47%
Region 4 Southern Great Plains	2002	7615		386	
Region 4 Southern Great Plains	2017	375	-95%	2008	420%
Region 5 Rocky Mountains & Northwest	2002	4996		726	
Region 5 Rocky Mountains & Northwest	2017	977	-80%	2837	291%
Region 6 Pacific & Southwest	2002	1450		1802	
Region 6 Pacific & Southwest	2017	386	-73%	4678	160%
Region 7 Central & Northern Great Plains	2002	5858		1538	
Region 7 Central & Northern Great Plains	2017	2637	-55%	2039	33%
<b>US total</b>	<b>2002</b>	<b>55472</b>		<b>468</b>	
<b>US total</b>	<b>2017</b>	<b>13379</b>	<b>-76%</b>	<b>1058</b>	<b>126%</b>
(weighted *) these are weighted averages; the regional average was calculated by taking the average of individual state values (within the region) and the values were weighted by the number of ranches in each state (within the region)					
Source: US Agricultural Census 2002, US Agricultural Census 2017					

**Table D6. Principal Operator Average Age, 2002 and 2017.**

(Sources: USDA Ag Census, 2012 and 2017 – Summary by North American Classification System)

<b>Average Age of Principle Operators: Ranches and Feedlots, by Region: 2002 - 2017</b>					
		Ranch (NAICS 112111)		Feedlot (NAICS 112112)	
Region	Year	Ranch Principal Operator Average Age (weighted*)	% Change Rancher Average Age	Feedlot Principal Operator Average Age (weighted*)	% Change Feedlot Operator Average Age
Region 1 Northeast	2002	56		53	
Region 1 Northeast	2017	56	0%	54	2%
Region 2 Southeast	2002	58		56	
Region 2 Southeast	2017	59	1%	60	8%
Region 3 Midwest	2002	55		53	
Region 3 Midwest	2017	56	0%	54	3%
Region 4 Southern Great Plains	2002	57		55	
Region 4 Southern Great Plains	2017	58	2%	59	8%
Region 5 Rocky Mountains & Northwest	2002	56		54	
Region 5 Rocky Mountains & Northwest	2017	57	3%	57	4%
Region 6 Pacific & Southwest	2002	58		56	
Region 6 Pacific & Southwest	2017	59	2%	56	1%
Region 7 Central & Northern Great Plains	2002	54		52	
Region 7 Central & Northern Great Plains	2017	54	1%	53	3%
<b>US total</b>	<b>2002</b>	<b>56.7</b>		<b>53.3</b>	
<b>US total</b>	<b>2017</b>	<b>57.4</b>	<b>1%</b>	<b>54.5</b>	<b>2%</b>
(weighted *) these are weighted averages; the regional average was calculated by taking the average of individual state values (within the region) and the values were weighted by the number of ranches in each state (within the region)					
<b>Source:</b> US Agricultural Census 2002, US Agricultural Census 2017, Summary by North American Industry Classification System					

**Table D7. Net Cash Farm Income by NCBA Region, 2012 and 2017.**

(Source: USDA Ag Census (2012 and 2017): Summary by North American Classification System)

Net Cash Farm Income 2012 - 2017 by Region											
Number of Operations & \$ / Operation											
		Ranching (NAICS 112111)					Feedlots (NAICS 112112)				
		Nominal 2012 value	<a href="#">real value adjusted to 2021 dollars</a>	Nominal 2017 value	<a href="#">real value adjusted to 2021 dollars</a>	% Change	Nominal 2012 value	<a href="#">real value adjusted to 2021 dollars</a>	Nominal 2017 value	<a href="#">real value adjusted to 2021 dollars</a>	% Change
<b>REGION 1</b>											
# operations	regional total	101,768		102,093		0.3%	3,249 <sup>1</sup>		3,004 <sup>1</sup>	-7.5%	
\$/ operation	regional average	\$(4,669.47)	\$(5,251.22)	\$(4,554.29)	\$(5,349.95)	-1.9%	\$42,466 <sup>1</sup>	\$47,757	\$63,655 <sup>1</sup>	\$74,776	56.6%
<b>REGION 2</b>											
# operations	regional total	126,383		125,720		-0.5%	83 <sup>1</sup>		211 <sup>1</sup>	154.2%	
\$/ operation	regional average	\$(4,948)	\$(5,564.00)	\$(2,966)	\$(3,484)	37.4%	\$36,467 <sup>1</sup>	\$41,010	\$15,994 <sup>1</sup>	\$18,788	-54.2%
<b>REGION 3</b>											
# operations	regional total	75345		78166		3.7%	5461		5778	5.8%	
\$/ operation	regional average	\$4,833	\$5,435	\$8,643	\$10,153	86.8%	\$60,819	\$68,396	\$76,226	\$89,543	30.9%
<b>REGION 4</b>											
# operations	regional total	190,674		202,710		6.3%	1,270		375	-70.5%	
\$/ operation	regional average	\$(1,886)	\$(2,121)	\$(1,262)	\$(1,482)	30.1%	\$130,556 <sup>1</sup>	\$146,821	\$3,325,243 <sup>1</sup>	\$3,906,176	2560.5%
<b>REGION 5</b>											
# operations	regional total	51,580		55,977		8.5%	905 <sup>1</sup>		977 <sup>1</sup>	8.0%	
\$/ operation	regional average	\$16,318	\$18,351	\$15,199	\$17,854	-2.7%	\$448,604 <sup>1</sup>	\$504,494	\$467,111 <sup>1</sup>	\$548,717	8.8%
<b>REGION 6</b>											
# operations	regional total	32,406		33,571		3.6%	376 <sup>1</sup>		386 <sup>1</sup>	2.7%	
\$/ operation	regional average	\$5,315	\$5,977	\$8,038	\$9,442	58.0%	\$36,437 <sup>1</sup>	\$40,977	\$720,651 <sup>1</sup>	\$846,551	1965.9%
<b>REGION 7</b>											
# operations	regional total	41,016		43,259		5.5%	2,378		2,637	10.9%	
\$/ operation	regional average	\$38,231	\$42,994	\$45,020	\$52,885	23.0%	\$328127	\$369,007	\$489,805	\$575,376	55.9%
<b>US TOTAL</b>											
# operations	regional total	619,172		641,496		3.6%	13,734		13,379	-2.6%	
\$/ operation	regional average	\$2,119	\$2,383	\$3,904	\$4,586	92.4%	\$200,299	\$225,253	\$376,840	\$442,675	96.5%

Source: US Agricultural Census (2012 and 2017) - Table 68. Summary by North American Industry Classification System: 2012; Table 75. Summary by North American Industry Classification System: 2017

<sup>1</sup> These regional sums and/or averages contain missing values at the state level. If there was a missing value in either or both years (2012 or 2017) then the state level data was excluded from the regional calculation.

**Table D8. Ranches with Beef Cow Inventory, Categorized by Head and by NCBA Region, 2017.** (Sources: US Agricultural Census 2012, US Agricultural Census 2017)

Comparison of Operations with 2017 Inventory: %Ranches v.s. %Cows											
Region 1			Region 2			Region 3			Region 4		
Ranch Inventory of beef cows	% Ranches	% Beef Cows	Ranch Inventory of beef cows	% Ranches	% Beef Cows	Ranch Inventory of beef cows	% Ranches	% Beef Cows	Ranch Inventory of beef cows	% Ranches	% Beef Cows
Farms with 1 to 19 head	40%	15%	Farms with 1 to 19 head	35%	9%	Farms with 1 to 19 head	27%	7%	Farms with 1 to 19 head	32%	7%
Farms with 20 to 49 head	41%	33%	Farms with 20 to 49 head	40%	22%	Farms with 20 to 49 head	41%	24%	Farms with 20 to 49 head	39%	19%
Farms with 50 to 99 head	13%	23%	Farms with 50 to 99 head	15%	18%	Farms with 50 to 99 head	20%	25%	Farms with 50 to 99 head	16%	17%
Farms with 100 to 199 head	4%	16%	Farms with 100 to 199 head	6%	15%	Farms with 100 to 199 head	9%	23%	Farms with 100 to 199 head	8%	16%
Farms with 200 to 499 head	1%	9%	Farms with 200 to 499 head	2%	12%	Farms with 200 to 499 head	3%	14%	Farms with 200 to 499 head	3%	14%
Farms with 500 or more head	0.12%	2%	Farms with 500 or more head	1%	11%	Farms with 500 or more head	0.34%	5%	Farms with 500 or more head	1%	12%
Farms with 500 to 999 head	0.10%	2%	Farms with 500 to 999 head	0.41%	5%	Farms with 500 to 999 head	0.29%	3%	Farms with 500 to 999 head	1%	6%
Farms with 1000 to 2499 head	0.02%	0.30%	Farms with 1000 to 2499 head	0.12%	3%	Farms with 1000 to 2499 head	0.05%	0.00%	Farms with 1000 to 2499 head	0.18%	4%
Farms with 2500 or more head	0.00%	0.00%	Farms with 2500 or more head	0.03%	3%	Farms with 2500 or more head	0.01%	0.00%	Farms with 2500 or more head	0.03%	2%
Farms with 2500 to 4999 head	0.00%	0.00%	Farms with 2500 to 4999 head	0.01%	1%	Farms with 2500 to 4999 head	0.01%	0.00%	Farms with 2500 to 4999 head	0.03%	1%
Farms with 5000 or more head	0.00%	0.00%	Farms with 5000 or more head	0.01%	2%	Farms with 5000 or more head	0.00%	0.00%	Farms with 5000 or more head	0.01%	1%
Region 5			Region 6			Region 7					
Ranch Inventory of beef cows	% Ranches	% Beef Cows	Ranch Inventory of beef cows	% Ranches	% Beef Cows	Ranch Inventory of beef cows	% Ranches	% Beef Cows			
Farms with 1 to 19 head	21%	2%	Farms with 1 to 19 head	29%	2%	Farms with 1 to 19 head	15%	1%			
Farms with 20 to 49 head	27%	5%	Farms with 20 to 49 head	30%	6%	Farms with 20 to 49 head	28%	6%			
Farms with 50 to 99 head	16%	7%	Farms with 50 to 99 head	15%	7%	Farms with 50 to 99 head	21%	10%			
Farms with 100 to 199 head	14%	12%	Farms with 100 to 199 head	10%	8%	Farms with 100 to 199 head	17%	17%			
Farms with 200 to 499 head	13%	24%	Farms with 200 to 499 head	8%	16%	Farms with 200 to 499 head	13%	28%			
Farms with 500 or more head	4%	25%	Farms with 500 or more head	4%	29%	Farms with 500 or more head	3%	18%			
Farms with 500 to 999 head	3%	13%	Farms with 500 to 999 head	3%	10%	Farms with 500 to 999 head	2%	11%			
Farms with 1000 to 2499 head	1%	8%	Farms with 1000 to 2499 head	1%	9%	Farms with 1000 to 2499 head	0%	4%			
Farms with 2500 or more head	0.13%	3%	Farms with 2500 or more head	0.24%	7%	Farms with 2500 or more head	0.06%	2%			
Farms with 2500 to 4999 head	0.10%	1%	Farms with 2500 to 4999 head	0.18%	3%	Farms with 2500 to 4999 head	0.05%	1%			
Farms with 5000 or more head	0.03%	0.47%	Farms with 5000 or more head	0.06%	3%	Farms with 5000 or more head	0.01%	1%			

Source: USDA Census of Agriculture 2017; Table 12: Cattle and Calves -- Inventory: 2017 and 2012

**Table D9. Feedlots with Inventory, Categorized by Head and by NCBA Region, 2017.** (Sources: US Agricultural Census 2012, US Agricultural Census 2017)

Comparison of Operations with 2017 Cattle on Feed Inventory: %Farms v.s. %Cattle											
Region 1			Region 2			Region 3			Region 4		
	% Farms	% Cattle on Feed		% Farms	% Cattle on Feed		% Farms	% Cattle on Feed		% Farms	% Cattle on Feed
Farms with 1 to 19 head	21%	2%	Farms with 1 to 19 head	0%	0%	Farms with 1 to 19 head	12%	1%	Farms with 1 to 19 head	6%	0%
Farms with 20 to 49 head	31%	8%	Farms with 20 to 49 head	60%	14%	Farms with 20 to 49 head	24%	3%	Farms with 20 to 49 head	16%	0%
Farms with 50 to 99 head	21%	11%	Farms with 50 to 99 head	6%	4%	Farms with 50 to 99 head	19%	4%	Farms with 50 to 99 head	18%	0%
Farms with 100 to 199 head	13%	14%	Farms with 100 to 199 head	6%	6%	Farms with 100 to 199 head	14%	6%	Farms with 100 to 199 head	11%	0%
Farms with 200 to 499 head	8%	20%	Farms with 200 to 499 head	10%	21%	Farms with 200 to 499 head	12%	12%	Farms with 200 to 499 head	9%	0%
Farms with 500 or more head	3%	25%	Farms with 500 or more head	9%	54%	Farms with 500 or more head	9.52%	37%	Farms with 500 or more head	20%	50%
Farms with 500 to 999 head	3%	13%	Farms with 500 to 999 head	3.70%	0%	Farms with 500 to 999 head	6.91%	16%	Farms with 500 to 999 head	1%	0%
Farms with 1000 to 2499 head	1%	2%	Farms with 1000 to 2499 head	4.94%	0%	Farms with 1000 to 2499 head	1.88%	9.40%	Farms with 1000 to 2499 head	0.85%	0%
Farms with 2500 or more head	0%	5%	Farms with 2500 or more head	0.00%	0%	Farms with 2500 or more head	0.73%	11.20%	Farms with 2500 or more head	17.72%	50%
Region 5			Region 6			Region 7					
	% Farms	% Cattle on Feed		% Farms	% Cattle on Feed		% Farms	% Cattle on Feed		% Farms	% Cattle on Feed
Farms with 1 to 19 head	13%	0%	Farms with 1 to 19 head	10%	0%	Farms with 1 to 19 head	4%	0%			
Farms with 20 to 49 head	12%	0%	Farms with 20 to 49 head	16%	0%	Farms with 20 to 49 head	10%	0%			
Farms with 50 to 99 head	17%	0%	Farms with 50 to 99 head	18%	0%	Farms with 50 to 99 head	12%	0%			
Farms with 100 to 199 head	11%	0%	Farms with 100 to 199 head	12%	0%	Farms with 100 to 199 head	15%	1%			
Farms with 200 to 499 head	12%	1%	Farms with 200 to 499 head	12%	1%	Farms with 200 to 499 head	16%	2%			
Farms with 500 or more head	17%	49%	Farms with 500 or more head	17%	59%	Farms with 500 or more head	22%	48%			
Farms with 500 to 999 head	5%	1%	Farms with 500 to 999 head	7%	1%	Farms with 500 to 999 head	10%	3%			
Farms with 1000 to 2499 head	4%	2%	Farms with 1000 to 2499 head	4%	1%	Farms with 1000 to 2499 head	5%	3%			
Farms with 2500 or more head	9%	46%	Farms with 2500 or more head	6.55%	38%	Farms with 2500 or more head	6.88%	41%			

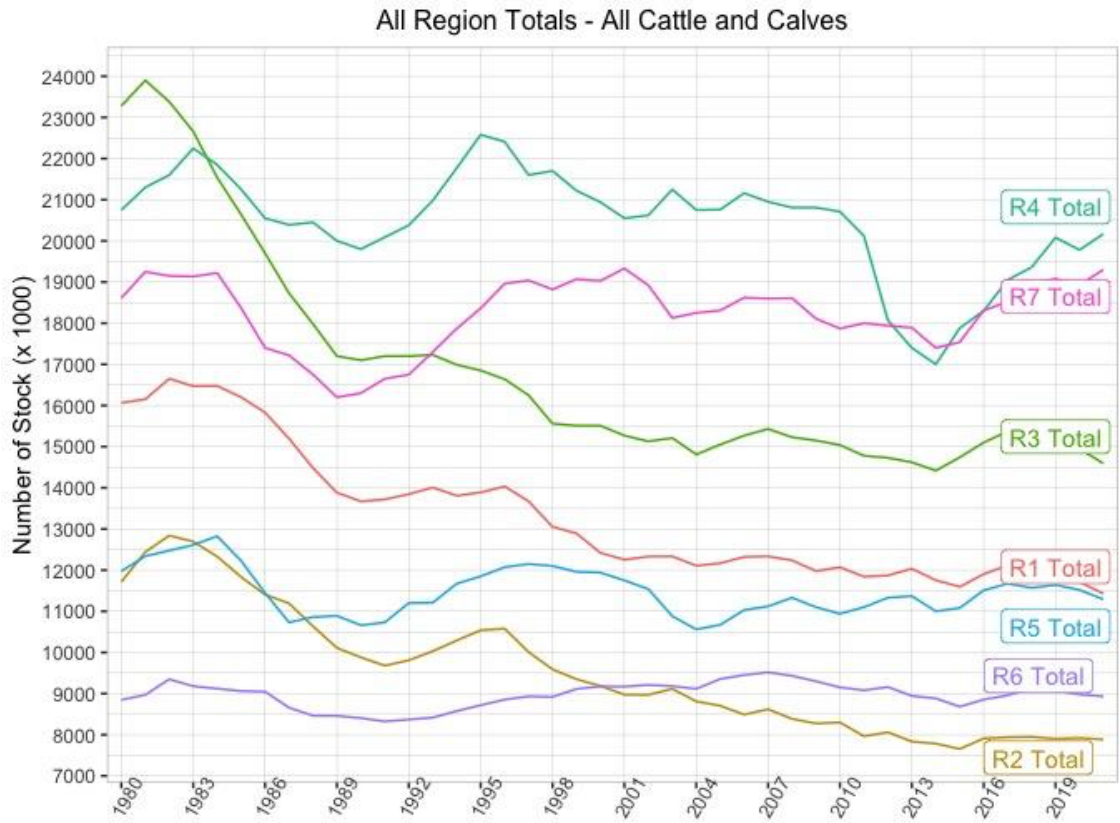
Source: USDA Census of Agriculture 2017; Table 12: Cattle and Calves -- Inventory: 2017 and 2012

**Table D10. National Proportion of Ranches (NAICS 112111) with Cattle & Calves, 2017.**

(Source: USDA Agricultural Census 2017: Table 75. Summary by North American Classification System)

<b>National Proportion Of Cattle &amp; Calves on Ranches<sup>1</sup> Inventory 2017</b>	
US Total	
<b>Inventory Category</b>	<b>Proportion</b>
Farms with 1 to 9	27%
Farms with 10 to 49	45%
Farms with 50 to 99	13%
Farms with 100 to 199	8%
Farms with 200 to 499	5%
Farms with 500 or more	2%
<sup>1</sup> These data reflect 'Cattle & Calves' data on a NAICS 112111 operations	
Source: US Agricultural Census 2017: Table 75: Summary by North American Industry Classification System	

**Figures**



*includes dairy*

**Figure D1. Totals of 'All Cattle and Calves', by NCBA Region, 1980 to 2020.**

(Source: LMIC, Annual January 1 Cattle Inventory, by State)



### Beef Cow Inventory

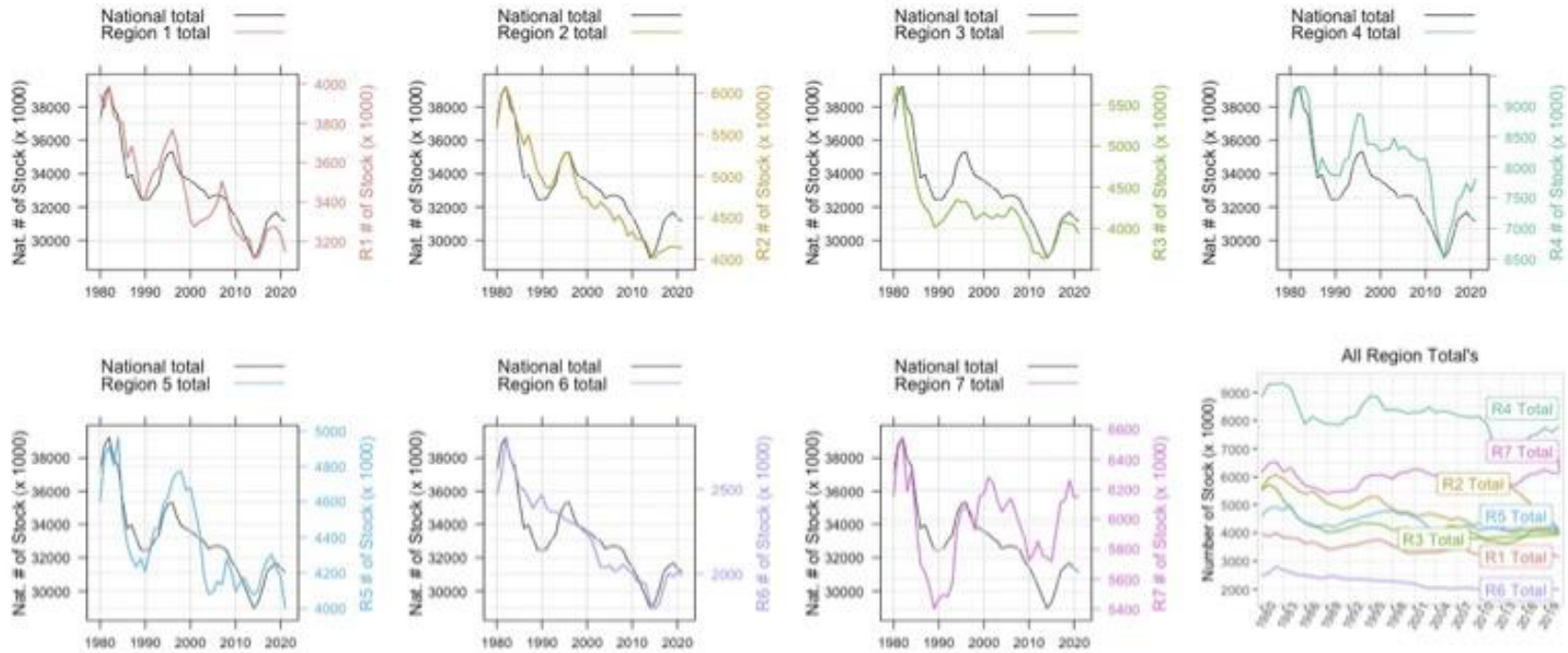
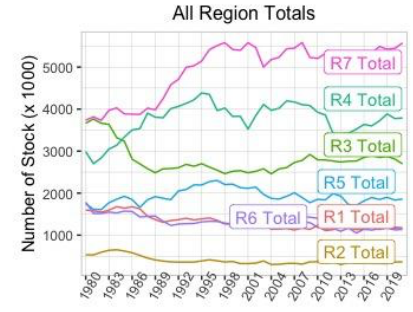
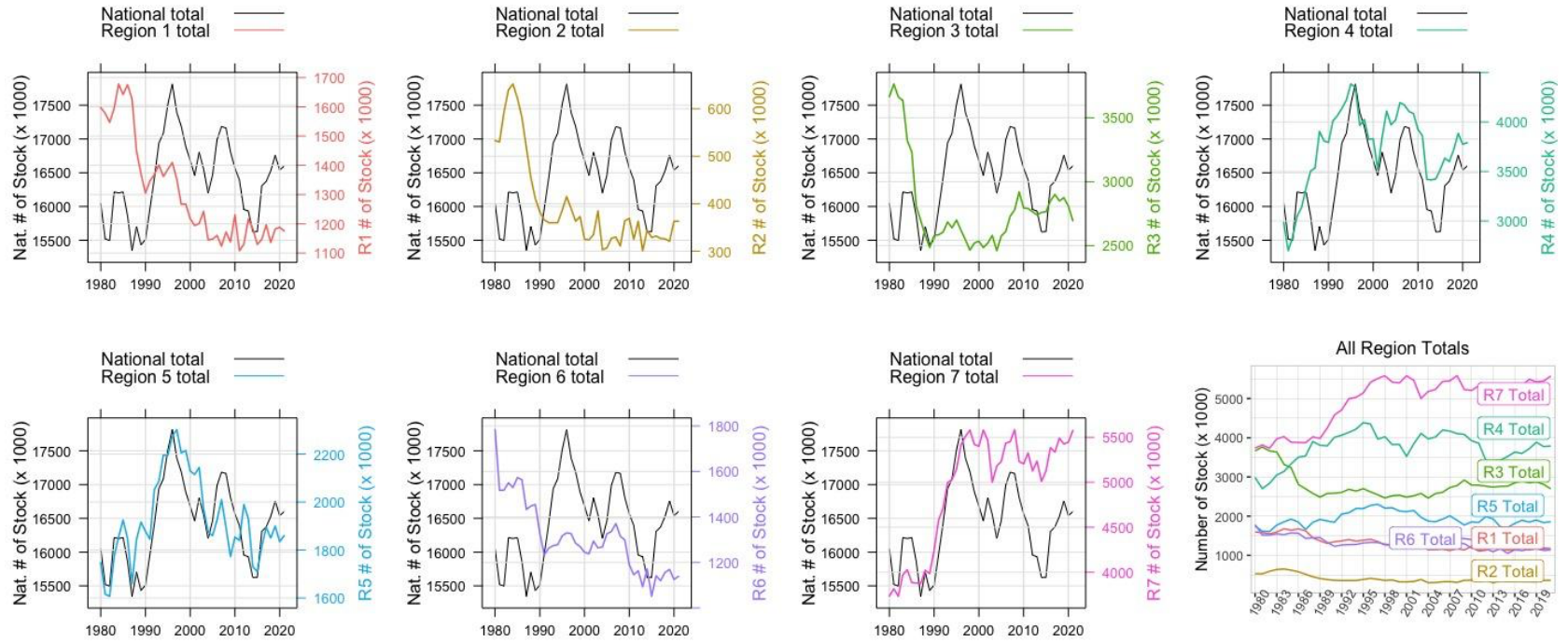


Figure D2. 'Beef Cows' Timeseries Panel, by Region, 1980 to 2020. (Source: LMIC)

### Steers Regional Totals vs National Steer Total



*includes dairy*

Figure D3. 'Steers over 500lbs' Timeseries Panel, by Region, 1980 to 2020. (Source: LMIC)

### All Cattle On Feed

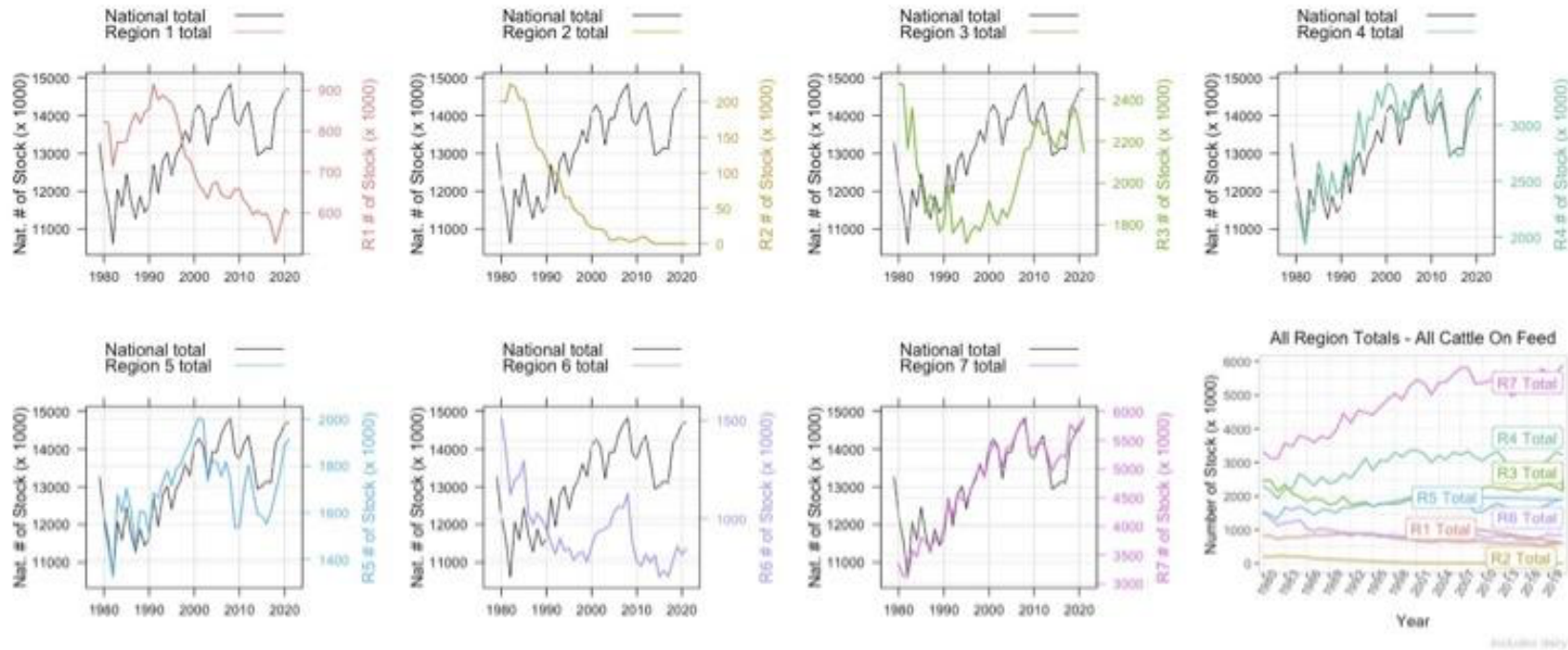
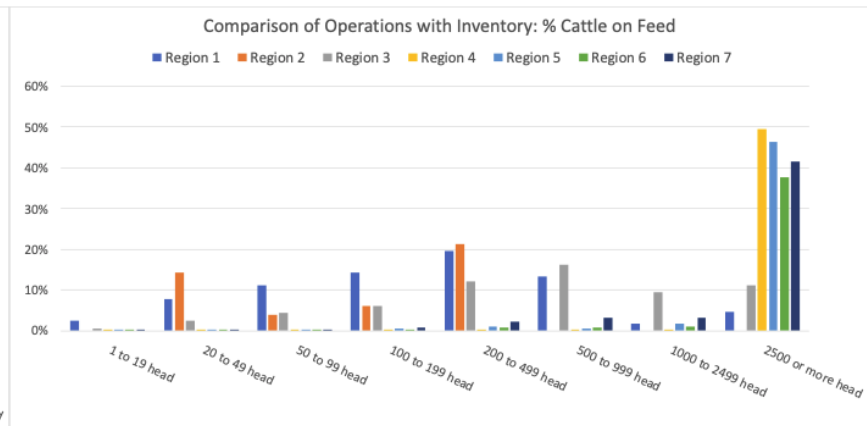
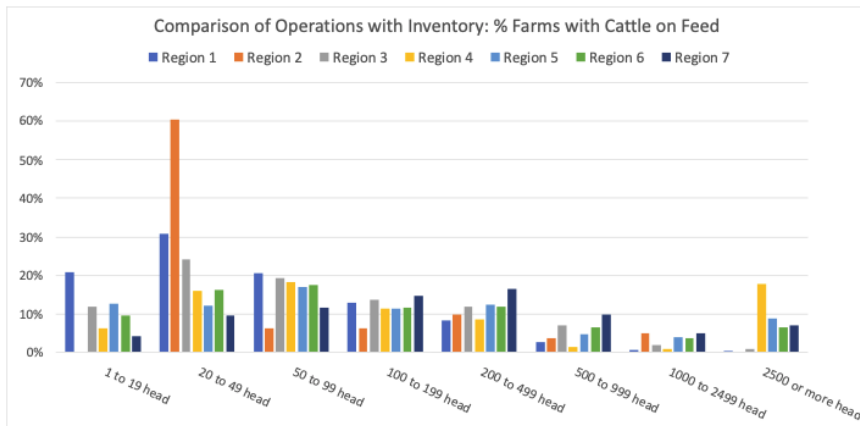
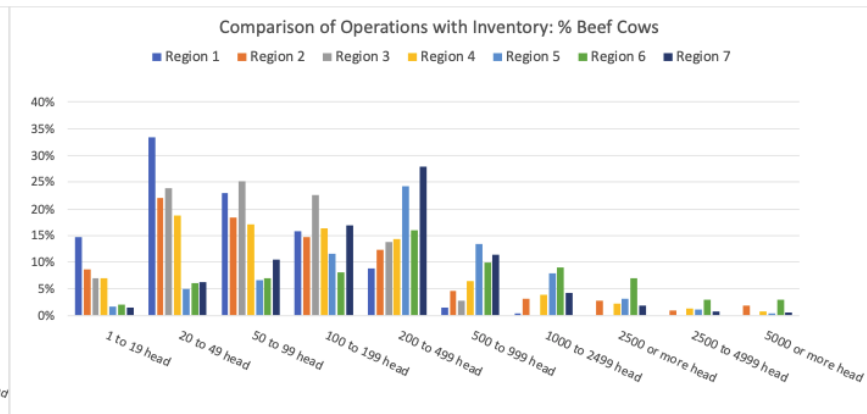
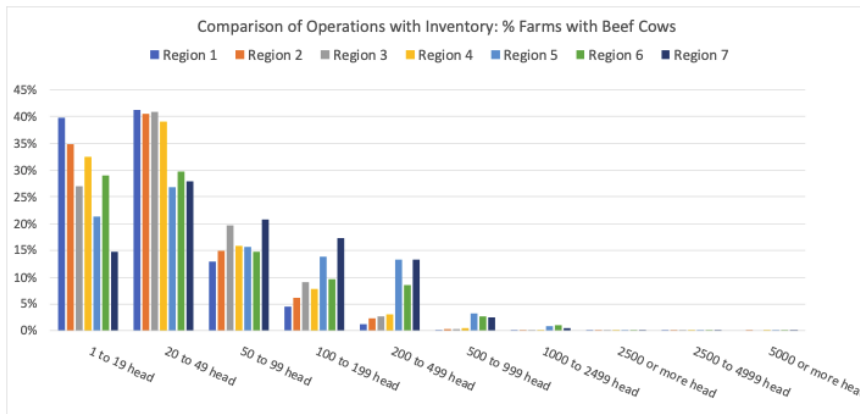
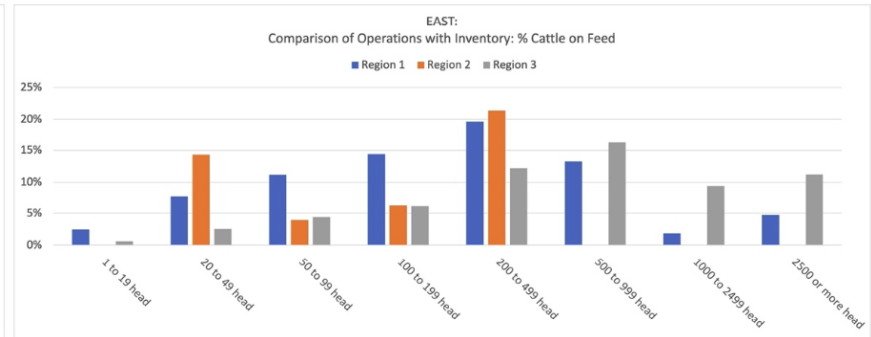
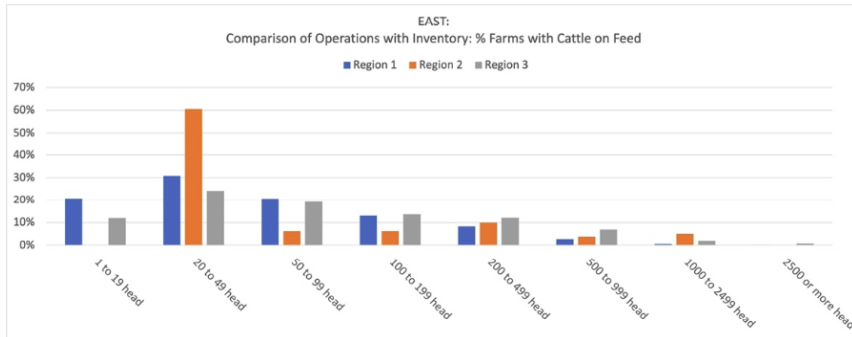
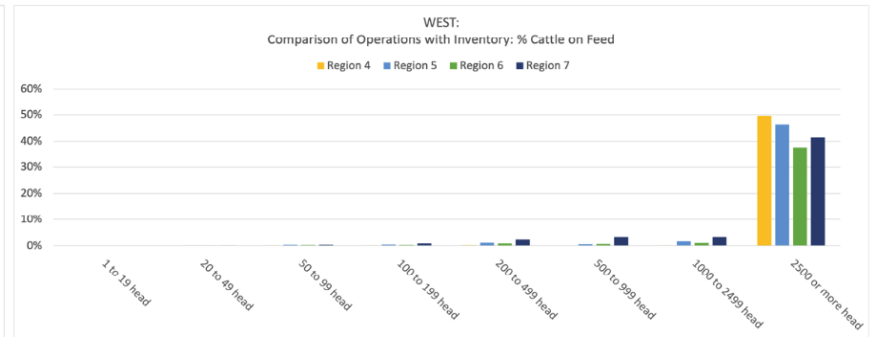
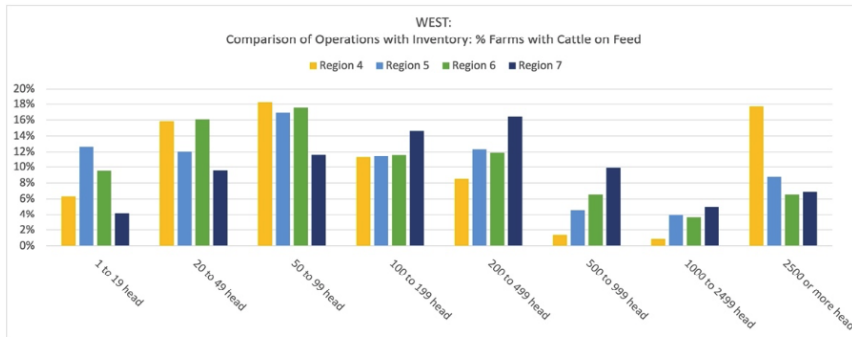


Figure D4. 'Cattle on Feed' Timeseries Panel, by Region, 1980 to 2020. (Source: LMIC)

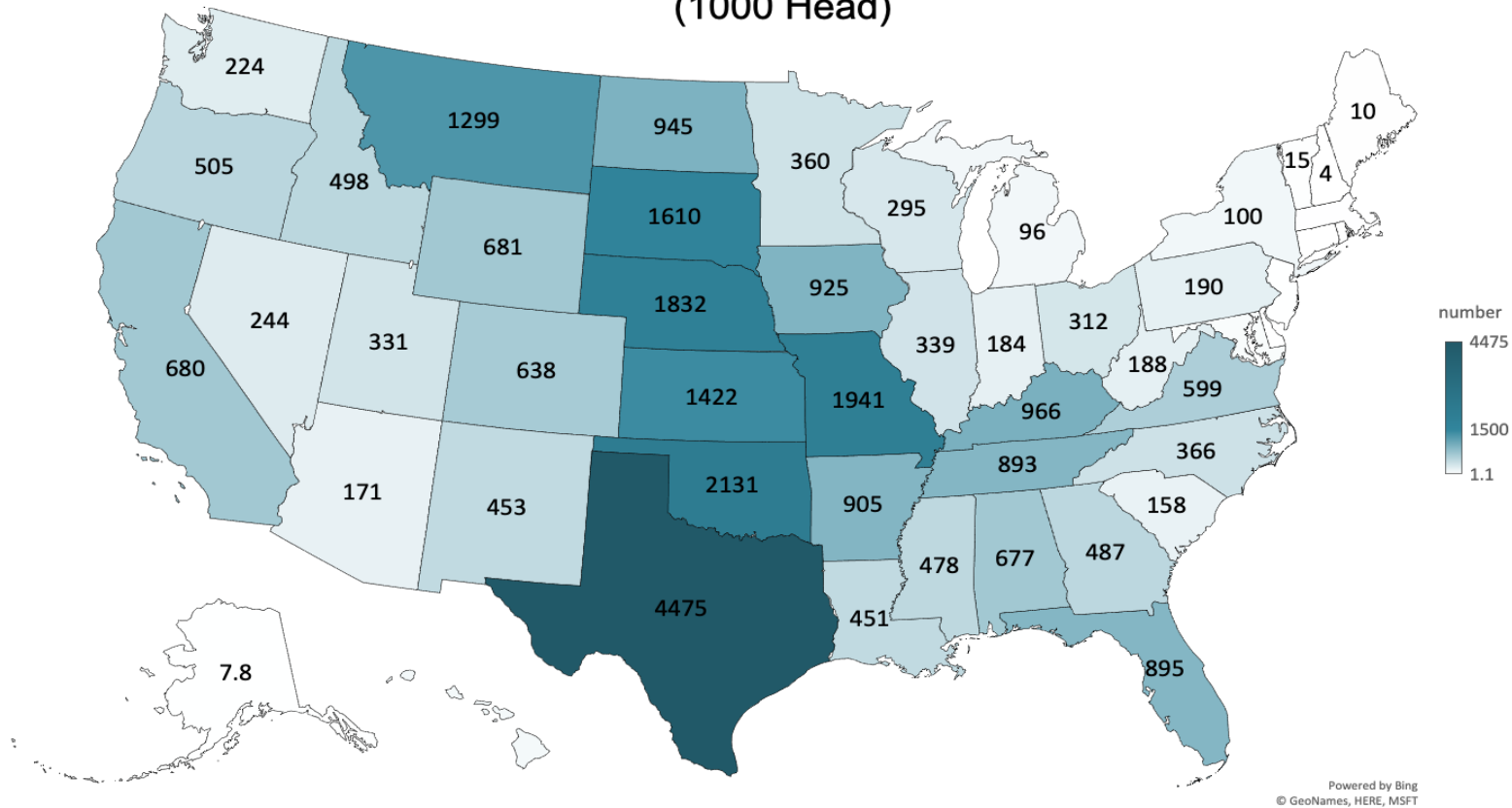


**Figure D5. Comparison of Operations with Inventory of Beef Cows and Cattle on Feed, by NCBA Region, 2017.**  
 (Source: USDA Agricultural Census 2017: Table 12. Cattle and Calves - Inventory: 2017)



**Figure D6. Western and Eastern Comparison of Operations with Inventory of Cattle on Feed, by NCBA Region, 2017.**  
 (Source: USDA Agricultural Census 2017: Table 12. Cattle and Calves - Inventory: 2017)

## BEEF COWS THAT CALVED JANUARY 1, 2022 (1000 Head)

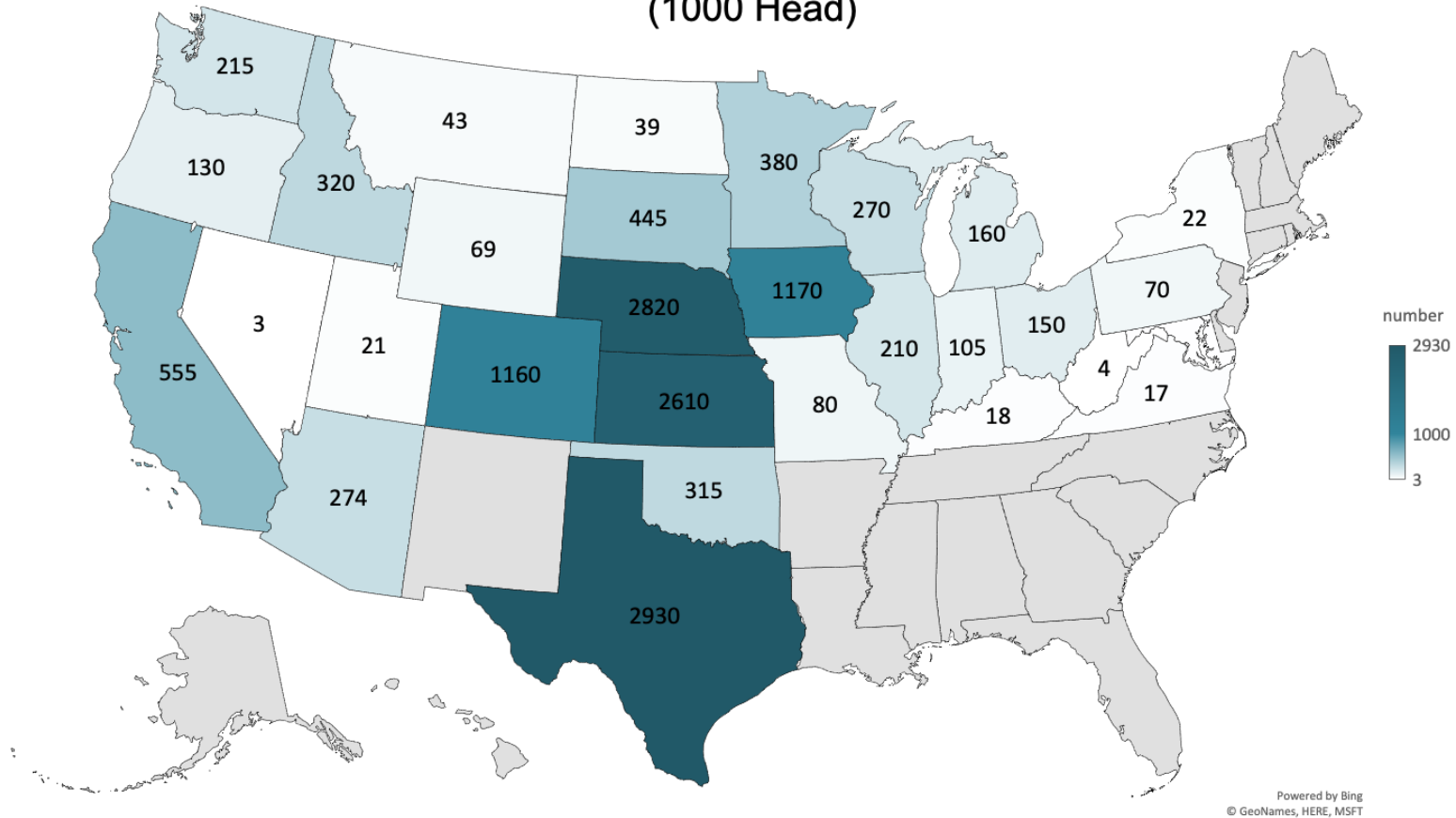


Livestock Marketing Information Center  
Data Source: USDA-NASS

Powered by Bing  
© GeoNames, HERE, MSFT

Figure D7. Current inventory as of January 1, 2022 of 'Beef Cows that have Calved', by state. (Source: LMIC)

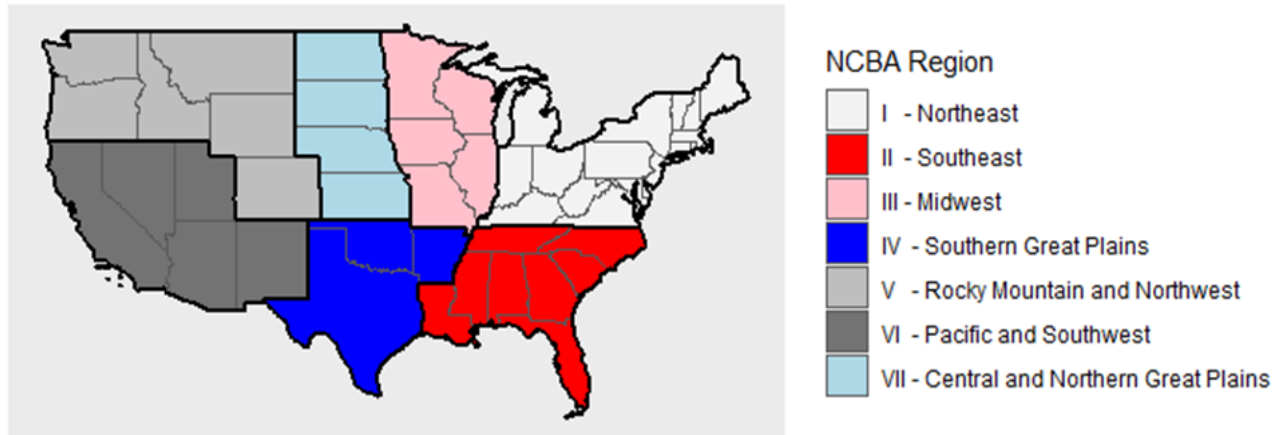
## CATTLE ON FEED JANUARY 1, 2022 (1000 Head)



Livestock Marketing Information Center  
Data Source: USDA-NASS

**Figure D8. Current inventory as of January 1, 2022 of 'Cattle on Feed', by state. (Source: LMIC)**

### National Cattlemen's Beef Association (NCBA) Regions



Source: <https://www.ncba.org/about/leadership/executive-committee>

**Figure D9. National Cattlemen's Beef Association Regions.** (Source: <https://ncba.org/about/leadership/executive-committee>)



## Appendix E: Public Rangelands Methodology

**Table E1. Active Federal Grazing Permits (AUMs), Cash Rent for Pastureland (\$/AUM) Used to Estimate Monthly and Annual Production Value by State and US Total.** (Sources: BLM, USFS, NASS)

States with Federal Grazing	BLM active AUMs <sup>1</sup>	USFS active cattle AUMs <sup>2</sup>	Total Federal AUMs (BLM + USFS)	Rent \$/AUM <sup>3</sup>	Monthly production value (\$million) <sup>4</sup>	Annual production value (\$billion) <sup>5</sup>
Arizona	857,344	839,019	1,696,363	\$10.00	\$17.0	\$0.20
Arkansas		5,879	5,879	\$20.46*	\$0.1	\$0.00
California	303,015	296,512	599,527	\$22.00	\$13.2	\$0.16
Colorado	844,328	683,550	1,527,878	\$19.50	\$29.8	\$0.36
Florida		792	792	\$20.46*	\$0.0	\$0.00
Georgia		1,452	1,452	\$20.46*	\$0.0	\$0.00
Idaho	2,044,164	510,216	2,554,380	\$19.00	\$48.5	\$0.58
Illinois		7,308	7,308	\$20.46*	\$0.1	\$0.00
Kansas		30,200	30,200	\$22.50	\$0.7	\$0.01
Louisiana		260	260	\$20.46*	\$0.0	\$0.00
Missouri		13,332	13,332	\$20.46*	\$0.3	\$0.00
Montana	1,689,477	446,399	2,135,876	\$26.50	\$56.6	\$0.68
Nebraska	1,356	107,011	108,367	\$49.00	\$5.3	\$0.06
Nevada	2,903,627	177,090	3,080,717	\$9.75	\$30.0	\$0.36
New Mexico	2,483,085	672,818	3,155,903	\$16.50	\$52.1	\$0.62
New York		13,498	13,498	\$20.46*	\$0.3	\$0.00
North Dakota	22,356	529,903	552,259	\$23.00	\$12.7	\$0.15
Ohio		121	121	\$20.46*	\$0.0	\$0.00
Oklahoma		12,611	12,611	\$11.00	\$0.1	\$0.00
Oregon	1,362,029	404,524	1,766,553	\$18.50	\$32.7	\$0.39
South Dakota	104,592	417,321	521,913	\$33.00	\$17.2	\$0.21
Texas		19,659	19,659	\$10.00	\$0.2	\$0.00
Utah	1,892,684	458,620	2,351,304	\$18.50	\$43.5	\$0.52
Virginia		6,011	6,011	\$20.46*	\$0.1	\$0.00
Washington	41,396	72,678	114,074	\$14.50	\$1.7	\$0.02
West Virginia		3,736	3,736	\$20.46*	\$0.1	\$0.00
Wyoming	2,116,164	430,811	2,546,975	\$24.50	\$62.4	\$0.75
<b>US Total</b>	<b>16,665,617</b>	<b>6,161,331</b>	<b>22,826,948</b>	<b>\$20.46</b>	<b>\$467.0</b>	<b>\$5.60</b>

**Notes:**

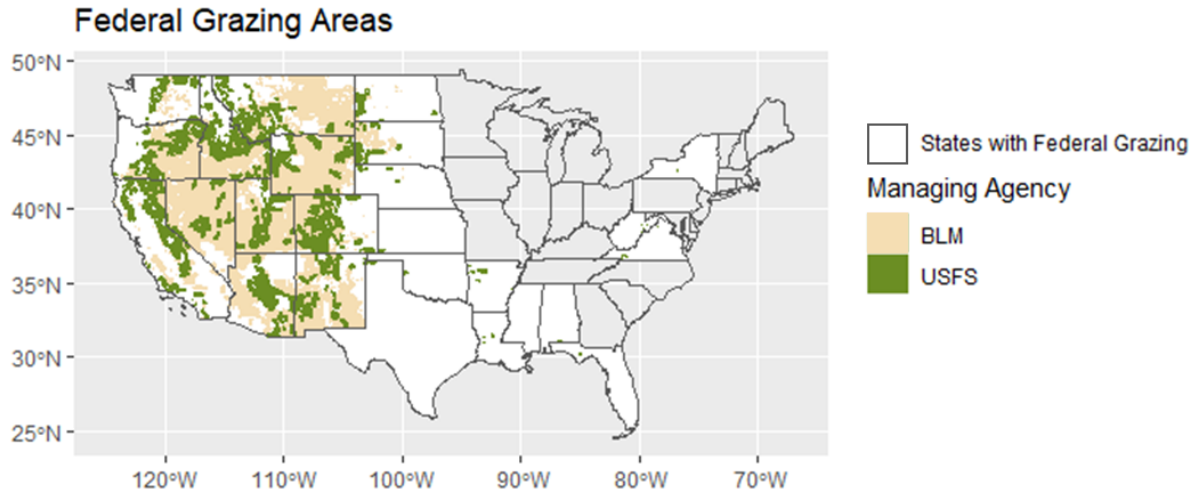
<sup>1</sup> Source: BLM National Data Download, 2020.

<sup>2</sup> Source: USFS Grazing Statistical Summary Fiscal Year 2020.

<sup>3</sup> Source: NASS Rent per AUM, price paid, measured in \$/month. \* Average value.

<sup>4</sup> Total Federal AUMs \* Rent in millions of dollars.

<sup>5</sup> AUM monthly value multiplied by 12 months in billions of dollars.



Sources: BLM National Data, BLM Grazing Allotments, accessed May 2022;  
USFS geodata S\_USA.Allotment, accessed June 2022

**Figure E1. Federal Bureau of Land Management (BLM) and Forest Service (USFS) Grazing Areas.** (Sources: BLM, USFS)