



CATTLETRACE SYMPOSIUM
NOVEMBER 22, 2019

MAKING CENTS OF CATTLETRACE: COSTS AND ECONOMIC IMPACTS

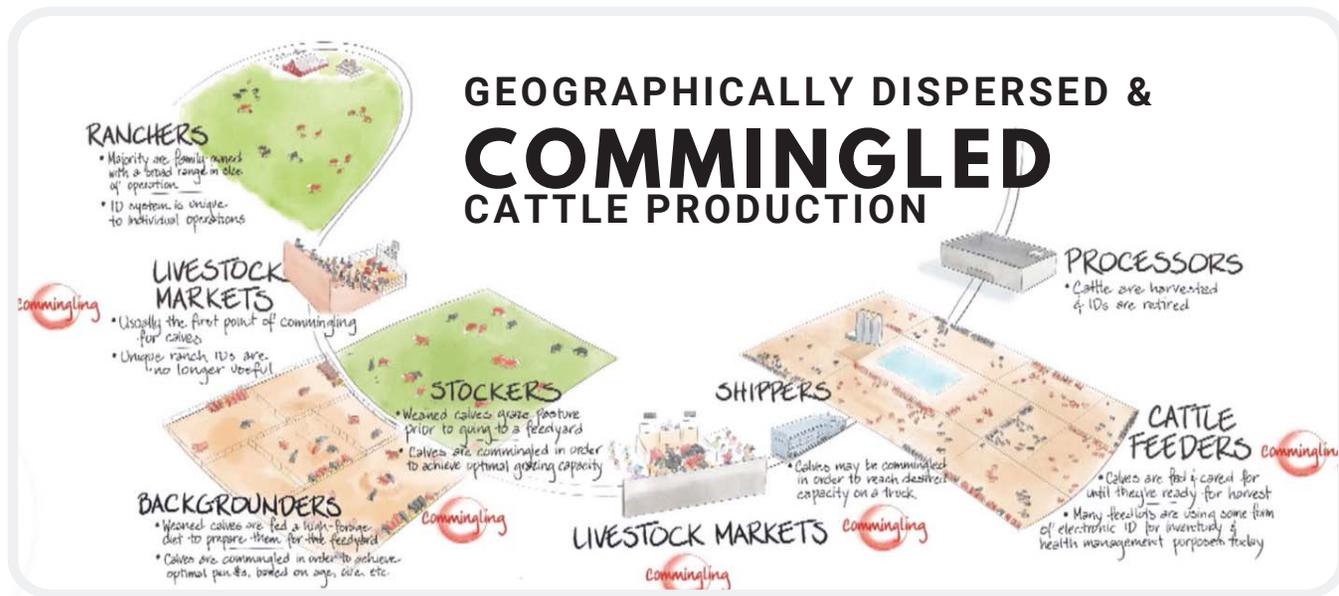
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K-STATE

PROBLEM OVERVIEW

disease
traceability



PILOT PROGRAM: CATTLETRACE

CATTLETRACE

THE INDUSTRY-DRIVEN PILOT PROJECT
FOR ANIMAL DISEASE TRACEABILITY

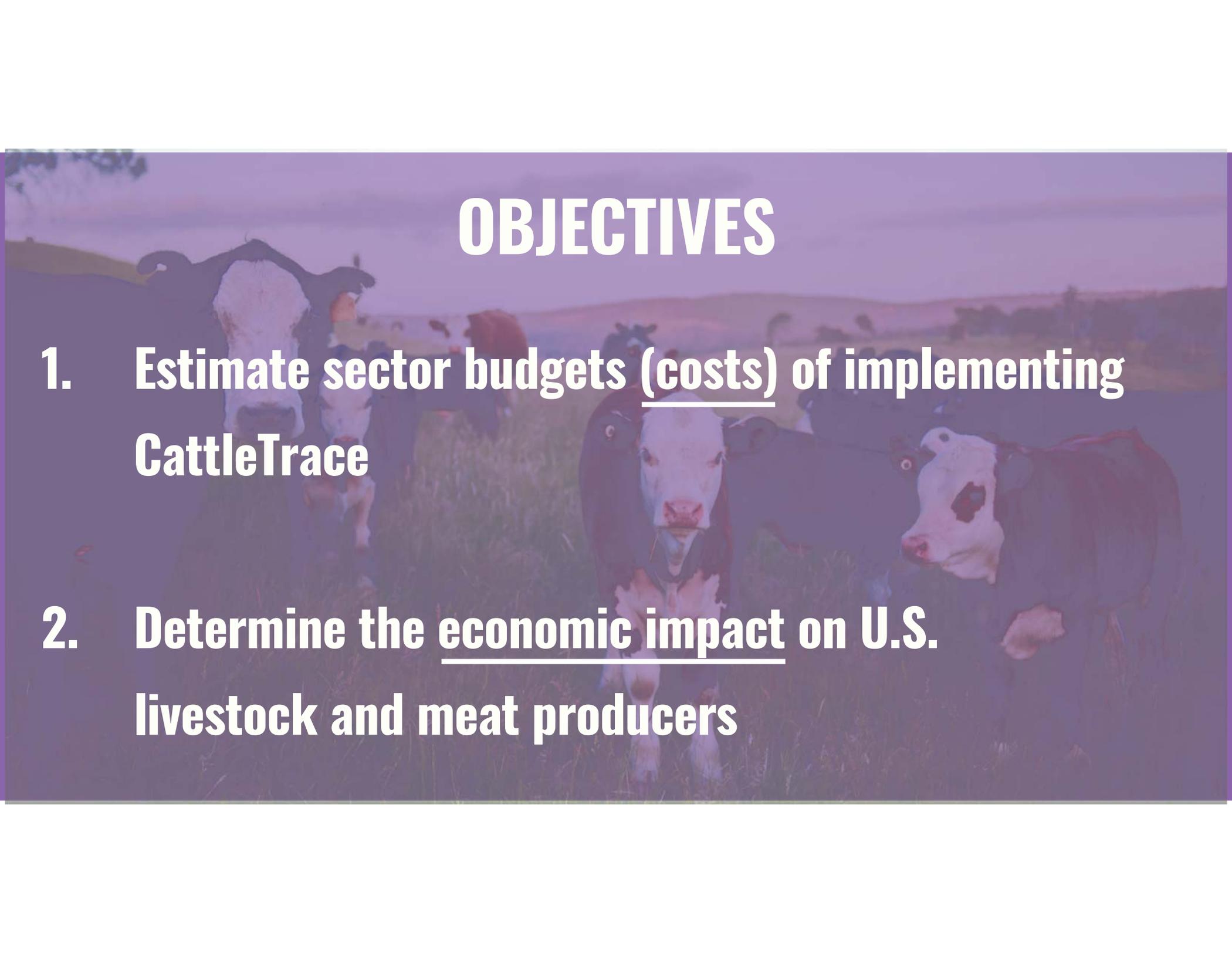
CattleTrace



1. Develop a purpose-built infrastructure for an animal disease traceability system

3. And determine the value proposition of an animal disease traceability system

2. Evaluate the efficiency & capabilities of the animal disease traceability system & infrastructure



OBJECTIVES

1. Estimate sector budgets (costs) of implementing CattleTrace
2. Determine the economic impact on U.S. livestock and meat producers



OBJECTIVES

- 1. Estimate sector budgets (costs) of implementing CattleTrace**

TOTAL BEEF INDUSTRY ANALYSIS



COW-CALF
& SEEDSTOCK



BACKGROUNDERS
& STOCKERS



SALE BARN



FEEDYARDS



PACKERS

highly segmented

Comprehensive Budget

1	Cow-calf -- Tag at Birth to Pre-Marketing													Sale Hereford/Steerhead						Backcross Hereford/Steerhead						Feedlot																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	1-49	50-99	100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000+	1,500+	2,000+	2,500+	3,000+	3,500+	4,000+	4,500+	5,000+	1-99	100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000+																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1	236,800	16,400	35,600	7,900	774	193	281	381	471	561	651	741	831	921	1,011	1,101	1,191	1,281	1,371	1,461	1,551	1,641	1,731	1,821	1,911	2,001	2,091	2,181	2,271	2,361	2,451	2,541	2,631	2,721	2,811	2,901	2,991	3,081	3,171	3,261	3,351	3,441	3,531	3,621	3,711	3,801	3,891	3,981	4,071	4,161	4,251	4,341	4,431	4,521	4,611	4,701	4,791	4,881	4,971	5,061	5,151	5,241	5,331	5,421	5,511	5,601	5,691	5,781	5,871	5,961	6,051	6,141	6,231	6,321	6,411	6,501	6,591	6,681	6,771	6,861	6,951	7,041	7,131	7,221	7,311	7,401	7,491	7,581	7,671	7,761	7,851	7,941	8,031	8,121	8,211	8,301	8,391	8,481	8,571	8,661	8,751	8,841	8,931	9,021	9,111	9,201	9,291	9,381	9,471	9,561	9,651	9,741	9,831	9,921	10,011	10,101	10,191	10,281	10,371	10,461	10,551	10,641	10,731	10,821	10,911	11,001	11,091	11,181	11,271	11,361	11,451	11,541	11,631	11,721	11,811	11,901	11,991	12,081	12,171	12,261	12,351	12,441	12,531	12,621	12,711	12,801	12,891	12,981	13,071	13,161	13,251	13,341	13,431	13,521	13,611	13,701	13,791	13,881	13,971	14,061	14,151	14,241	14,331	14,421	14,511	14,601	14,691	14,781	14,871	14,961	15,051	15,141	15,231	15,321	15,411	15,501	15,591	15,681	15,771	15,861	15,951	16,041	16,131	16,221	16,311	16,401	16,491	16,581	16,671	16,761	16,851	16,941	17,031	17,121	17,211	17,301	17,391	17,481	17,571	17,661	17,751	17,841	17,931	18,021	18,111	18,201	18,291	18,381	18,471	18,561	18,651	18,741	18,831	18,921	19,011	19,101	19,191	19,281	19,371	19,461	19,551	19,641	19,731	19,821	19,911	20,001	20,091	20,181	20,271	20,361	20,451	20,541	20,631	20,721	20,811	20,901	20,991	21,081	21,171	21,261	21,351	21,441	21,531	21,621	21,711	21,801	21,891	21,981	22,071	22,161	22,251	22,341	22,431	22,521	22,611	22,701	22,791	22,881	22,971	23,061	23,151	23,241	23,331	23,421	23,511	23,601	23,691	23,781	23,871	23,961	24,051	24,141	24,231	24,321	24,411	24,501	24,591	24,681	24,771	24,861	24,951	25,041	25,131	25,221	25,311	25,401	25,491	25,581	25,671	25,761	25,851	25,941	26,031	26,121	26,211	26,301	26,391	26,481	26,571	26,661	26,751	26,841	26,931	27,021	27,111	27,201	27,291	27,381	27,471	27,561	27,651	27,741	27,831	27,921	28,011	28,101	28,191	28,281	28,371	28,461	28,551	28,641	28,731	28,821	28,911	29,001	29,091	29,181	29,271	29,361	29,451	29,541	29,631	29,721	29,811	29,901	29,991	30,081	30,171	30,261	30,351	30,441	30,531	30,621	30,711	30,801	30,891	30,981	31,071	31,161	31,251	31,341	31,431	31,521	31,611	31,701	31,791	31,881	31,971	32,061	32,151	32,241	32,331	32,421	32,511	32,601	32,691	32,781	32,871	32,961	33,051	33,141	33,231	33,321	33,411	33,501	33,591	33,681	33,771	33,861	33,951	34,041	34,131	34,221	34,311	34,401	34,491	34,581	34,671	34,761	34,851	34,941	35,031	35,121	35,211	35,301	35,391	35,481	35,571	35,661	35,751	35,841	35,931	36,021	36,111	36,201	36,291	36,381	36,471	36,561	36,651	36,741	36,831	36,921	37,011	37,101	37,191	37,281	37,371	37,461	37,551	37,641	37,731	37,821	37,911	38,001	38,091	38,181	38,271	38,361	38,451	38,541	38,631	38,721	38,811	38,901	38,991	39,081	39,171	39,261	39,351	39,441	39,531	39,621	39,711	39,801	39,891	39,981	40,071	40,161	40,251	40,341	40,431	40,521	40,611	40,701	40,791	40,881	40,971	41,061	41,151	41,241	41,331	41,421	41,511	41,601	41,691	41,781	41,871	41,961	42,051	42,141	42,231	42,321	42,411	42,501	42,591	42,681	42,771	42,861	42,951	43,041	43,131	43,221	43,311	43,401	43,491	43,581	43,671	43,761	43,851	43,941	44,031	44,121	44,211	44,301	44,391	44,481	44,571	44,661	44,751	44,841	44,931	45,021	45,111	45,201	45,291	45,381	45,471	45,561	45,651	45,741	45,831	45,921	46,011	46,101	46,191	46,281	46,371	46,461	46,551	46,641	46,731	46,821	46,911	47,001	47,091	47,181	47,271	47,361	47,451	47,541	47,631	47,721	47,811	47,901	47,991	48,081	48,171	48,261	48,351	48,441	48,531	48,621	48,711	48,801	48,891	48,981	49,071	49,161	49,251	49,341	49,431	49,521	49,611	49,701	49,791	49,881	49,971	50,061	50,151	50,241	50,331	50,421	50,511	50,601	50,691	50,781	50,871	50,961	51,051	51,141	51,231	51,321	51,411	51,501	51,591	51,681	51,771	51,861	51,951	52,041	52,131	52,221	52,311	52,401	52,491	52,581	52,671	52,761	52,851	52,941	53,031	53,121	53,211	53,301	53,391	53,481	53,571	53,661	53,751	53,841	53,931	54,021	54,111	54,201	54,291	54,381	54,471	54,561	54,651	54,741	54,831	54,921	55,011	55,101	55,191	55,281	55,371	55,461	55,551	55,641	55,731	55,821	55,911	56,001	56,091	56,181	56,271	56,361	56,451	56,541	56,631	56,721	56,811	56,901	56,991	57,081	57,171	57,261	57,351	57,441	57,531	57,621	57,711	57,801	57,891	57,981	58,071	58,161	58,251	58,341	58,431	58,521	58,611	58,701	58,791	58,881	58,971	59,061	59,151	59,241	59,331	59,421	59,511	59,601	59,691	59,781	59,871	59,961	60,051	60,141	60,231	60,321	60,411	60,501	60,591	60,681	60,771	60,861	60,951	61,041	61,131	61,221	61,311	61,401	61,491	61,581	61,671	61,761	61,851	61,941	62,031	62,121	62,211	62,301	62,391	62,481	62,571	62,661	62,751	62,841	62,931	63,021	63,111	63,201	63,291	63,381	63,471	63,561	63,651	63,741	63,831	63,921	64,011	64,101	64,191	64,281	64,371	64,461	64,551	64,641	64,731	64,821	64,911	65,001	65,091	65,181	65,271	65,361	65,451	65,541	65,631	65,721	65,811	65,901	65,991	66,081	66,171	66,261	66,351	66,441	66,531	66,621	66,711	66,801	66,891	66,981	67,071	67,161	67,251	67,341	67,431	67,521	67,611	67,701	67,791	67,881	67,971	68,061	68,151	68,241	68,331	68,421	68,511	68,601	68,691	68,781	68,871	68,961	69,051	69,141	69,231	69,321	69,411	69,501	69,591	69,681	69,771	69,861	69,951	70,041	70,131	70,221	70,311	70,401	70,491	70,581	70,671	70,761	70,851	70,941	71,031	71,121	71,211	71,301	71,391	71,481	71,571	71,661	71,751	71,841	71,931	72,021	72,111	72,201	72,291	72,381	72,471	72,561	72,651	72,741	72,831	72,921	73,011	73,101	73,191	73,281	73,371	73,461	73,551	73,641	73,731	73,821	73,911	74,001	74,091	74,181	74,271	74,361	74,451	74,541	74,631	74,721	74,811	74,901	74,991	75,081	75,171	75,261	75,351	75,441	75,531	75,621	75,711	75,801	75,891	75,981	76,071	76,161	76,251	76,341	76,431	76,521	76,611	76,701	76,791	76,881	76,971	77,061	77,151	77,241	77,331	77,421	77,511	77,601	77,691	77,781	77,871	77,961	78,051	78,141	78,231	78,321	78,411	78,501	78,591	78,681	78,771	78,861	78,951	79,041	79,131	79,221	79,311	79,401	79,491	79,581	79,671	79,761	79,851	79,941	80,031	80,121	80,211	80,301	80,391	80,481	80,571	80,661	80,751	80,841	80,931	81,021	81,111	81,201	81,291	81,381	81,471	81,561	81,651	81,741	81,831	81,921	82,011	82,101	82,191	82,281	82,371	82,461	82,551	82,641	82,731	82,821	82,911	83,001	83,091	83,181	83,271	83,361	83,451	83,541	83,631	83,721	83,811	83,901	83,991	84,081	84,171	84,261	84,351	84,441	84,531	84,621	84,711	84,801	84,891	84,981	85,071	85,161	85,251	85,341	85,431	85,521	85,611	85,701	85,791	85,881	85,971	86,061	86,151	86,241	86,331	86,421	86,511	86,601	86,691	86,781	86,871	86,961	87,051	87,141	87,231	87,321	87,411	87,501	87,591	87,681	87,771	87,861	87,951	88,041	88,131	88,221	88,311	88,401	88,491	88,581	88,671	88,761	88,851	88,941	89,031	89,121	89,211	89,301</

Sector Estimations: Cow/Calf

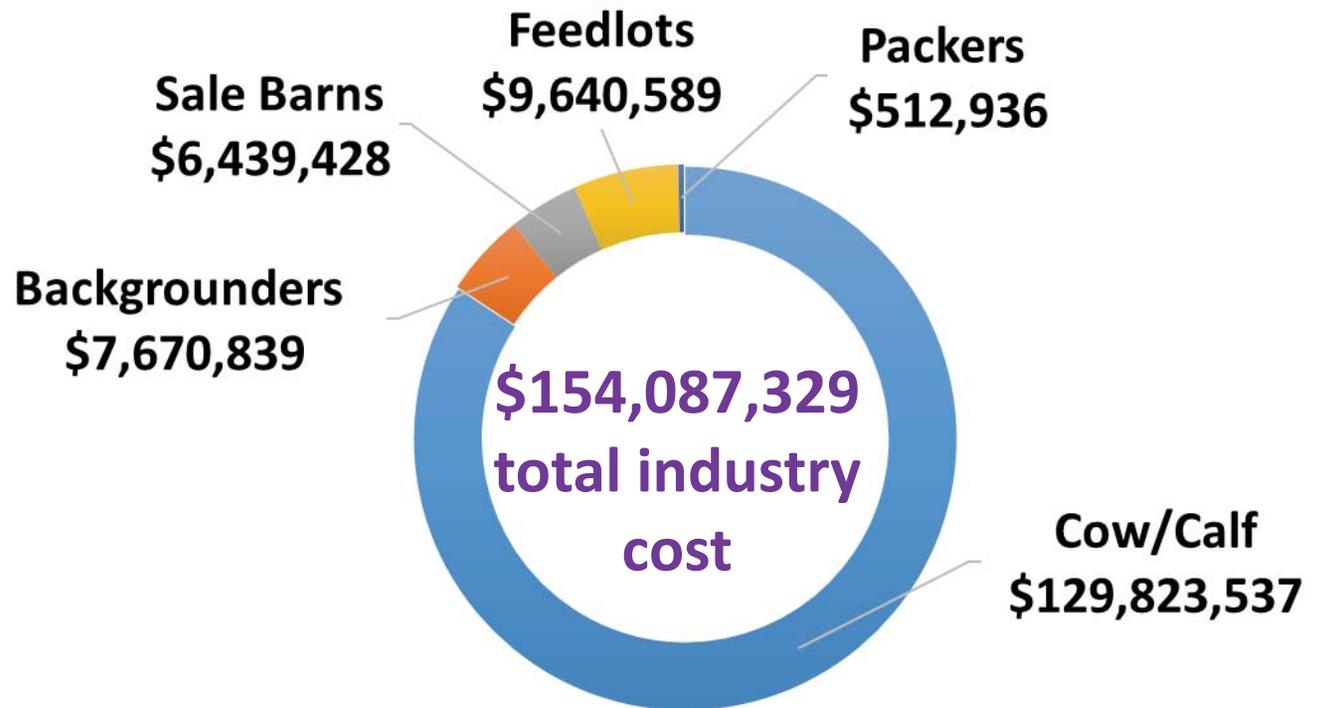
Table 2. Summary of CattleTrace Costs for Beef Cow/Calf Operations by Size of Operation, Tagging at Birth

	Size of Operation, number of head						
	1 to 49	50 to 99	100 to 499	500 to 999	1000 to 1999	2000 to 4999	5000+
Total annual cost, \$/operation	\$52	\$185	\$490	\$1,747	\$3,259	\$6,693	\$21,266
Total annual costs, \$/head sold	\$4.12	\$3.49	\$3.45	\$3.38	\$3.38	\$3.37	\$3.36
Total annual cost, \$/cow	\$3.48	\$2.95	\$2.92	\$2.86	\$2.85	\$2.85	\$2.84
Total number of operations	230,905	58,406	51,029	2,999	714	193	39
Total industry cost	\$11,956,219	\$10,826,487	\$25,006,011	\$5,238,931	\$2,326,619	\$1,290,365	\$835,118

Economic Costs by Sector

*industry
cost*

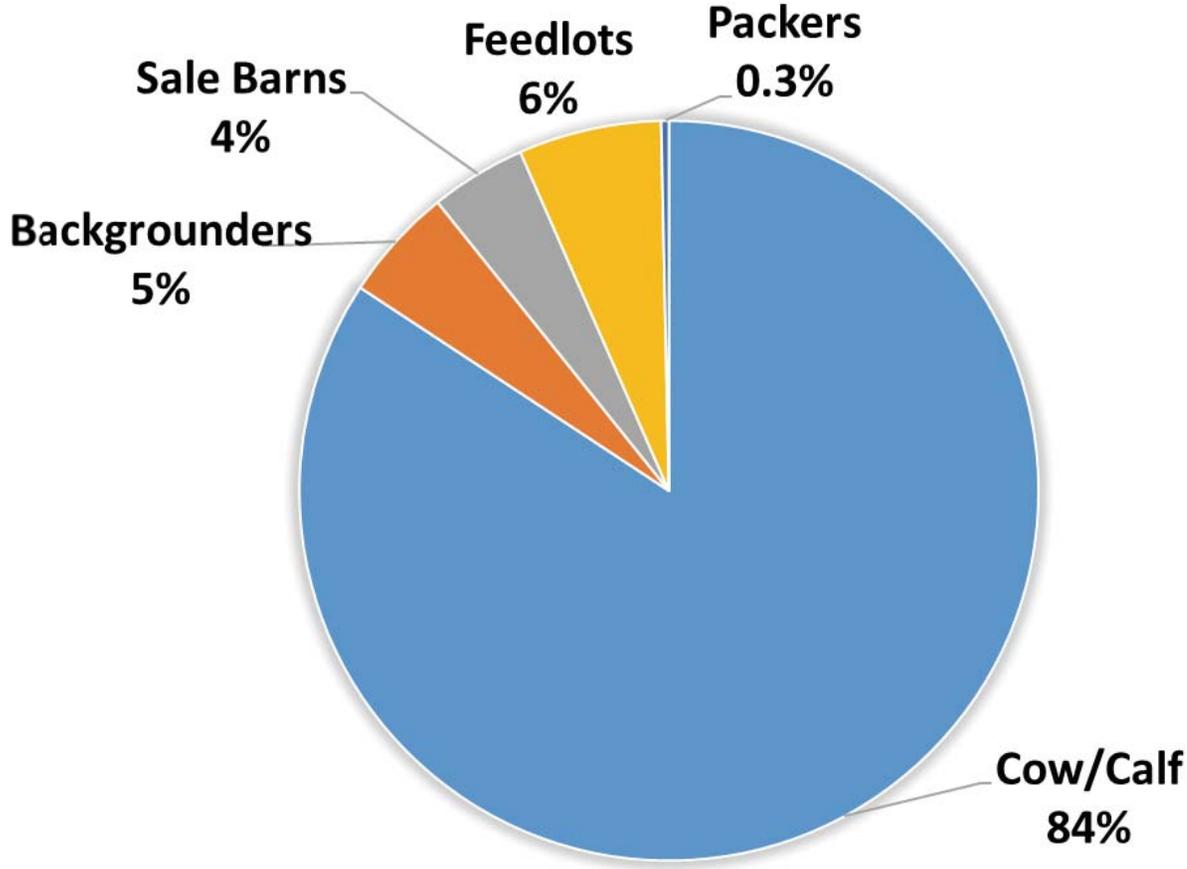
Total Industry Costs of Traceability



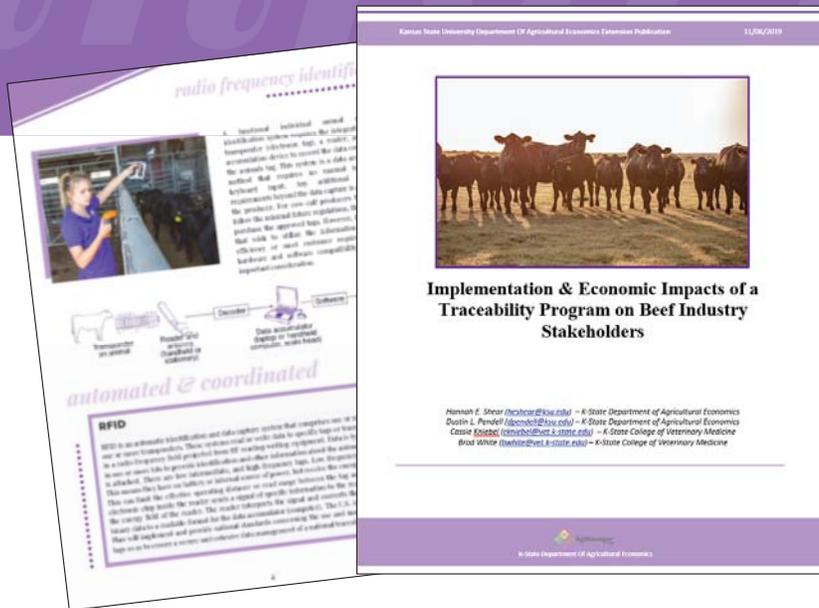
Economic Costs by Sector

*industry
impact*

COST BURDEN PER INDUSTRY SEGMENT

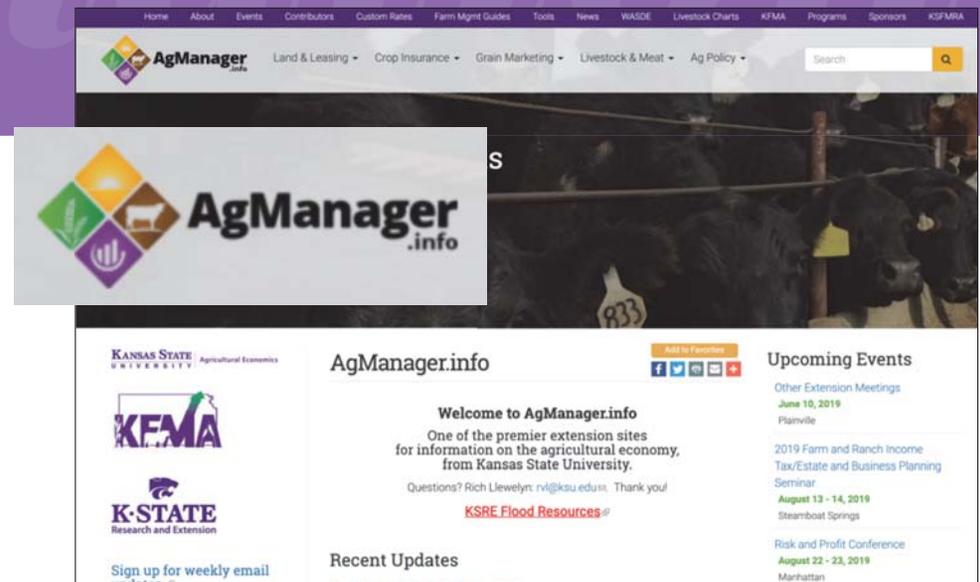


Information Factsheet



FACTSHEET

In an effort to share information with our audience, a factsheet was developed to include important traceability information as well as condensed versions of the budgets.



AgManager.info

Find out factsheet and budgets on AgManager.info

A photograph of a herd of cows in a grassy field, overlaid with a semi-transparent purple filter. The cows are of various breeds, including black and white, and brown and white. The background shows rolling hills under a soft, hazy sky.

OBJECTIVES

2. Determine the economic impact on U.S. livestock and meat producers

✓ **COST ONLY**

✓ **COST SHARING**

✓ **EXPORT DEMAND NEEDED**

✓ **DOMESTIC DEMAND NEEDED**

market

- Multi-Market, Multi-Level Modeling Framework
- Beef, Pork, Lamb, and Poultry
- 2018 prices and quantities

scenarios

Scenario 1: Cost Only, No Benefit

Costs and Percentage Supply Changes

	100% adoption	
	Cost (1,000 \$)	%
Beef Sector:		
Packer	513	0.0009
Feedlot	17,311	0.0333
Cow/Calf	129,823	0.2548

Scenario 2: Cost Sharing with State and Federal Govt.

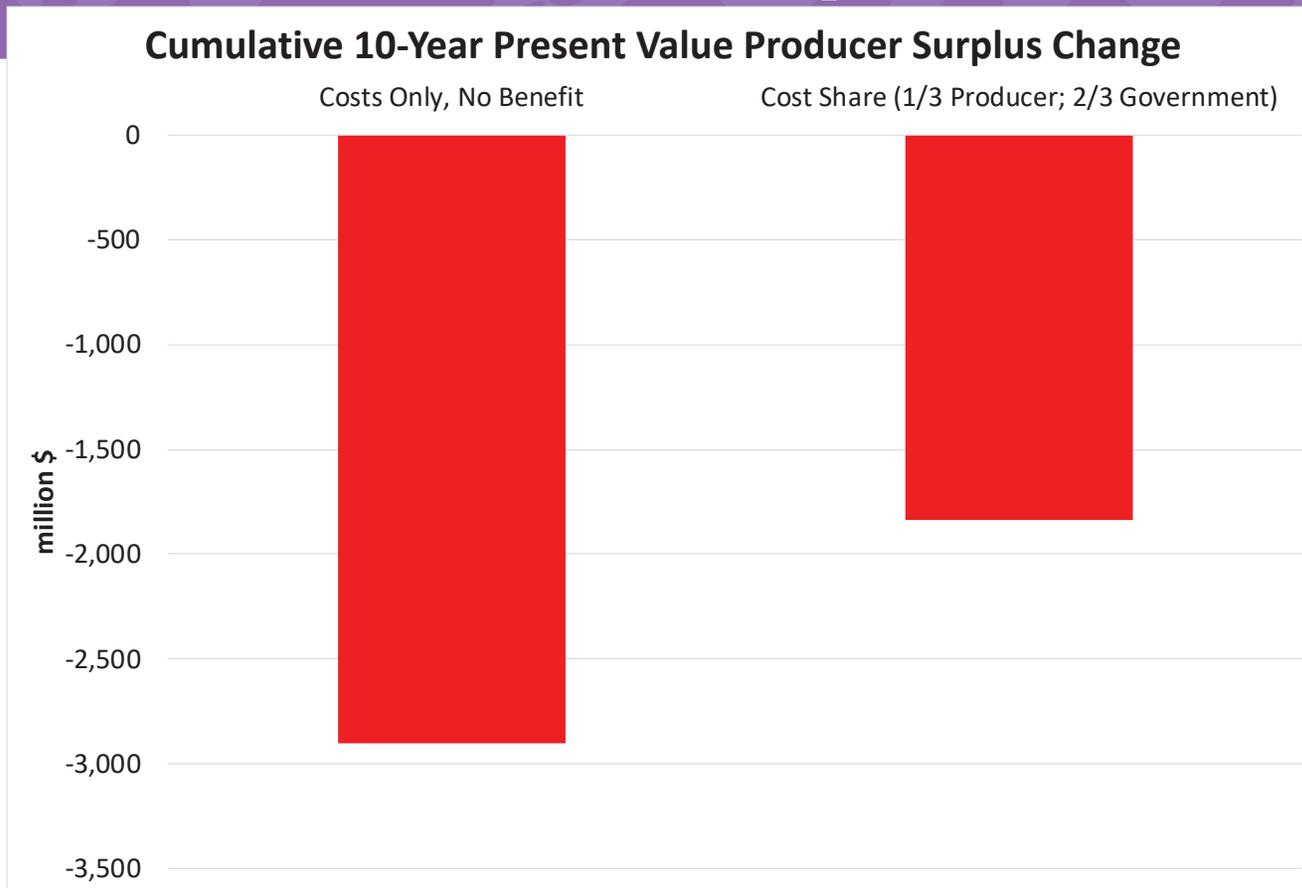


Scenario 2: Cost Sharing with State and Federal Govt.

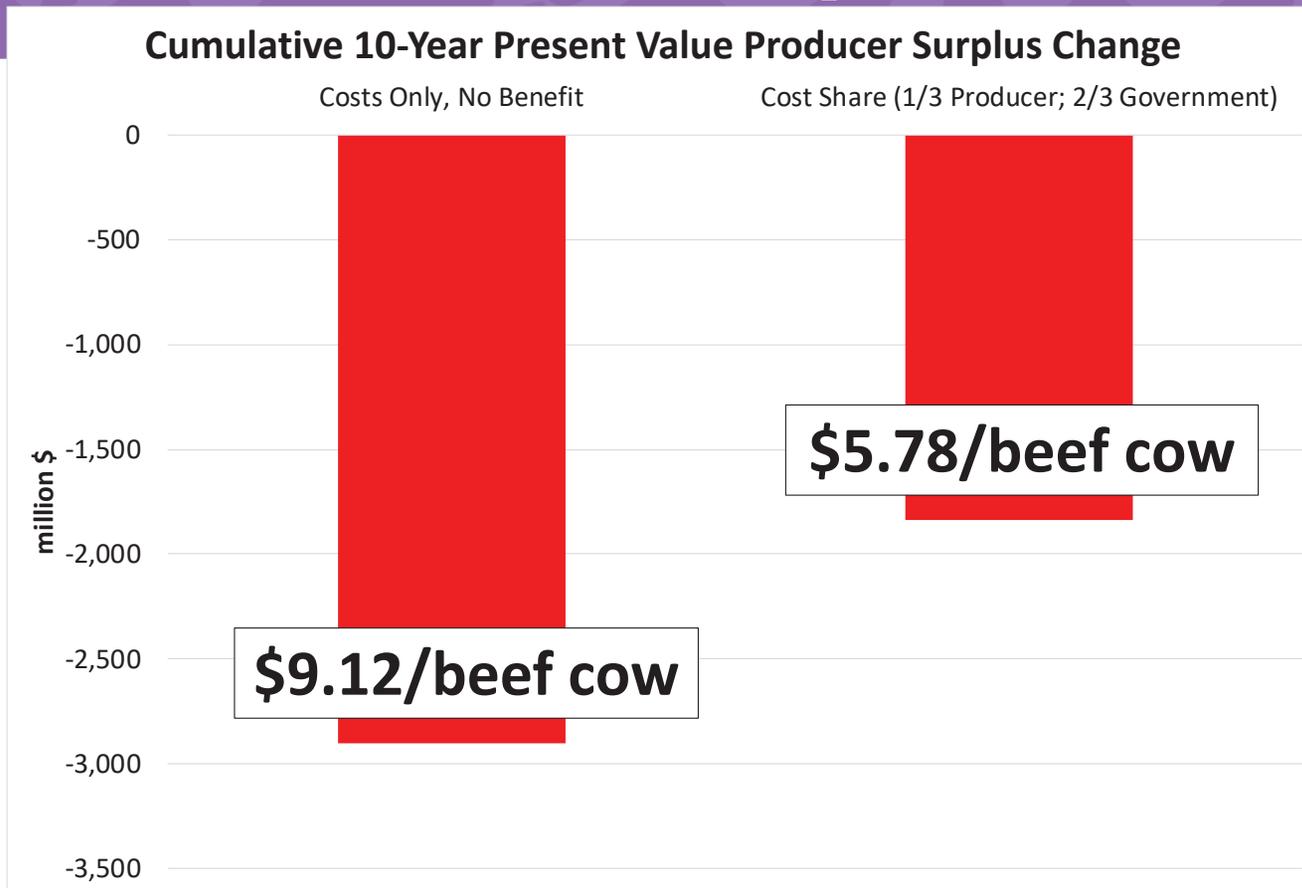


“Results show that policies would be most effective at reducing costs at the cow-calf level or offering cost-shares for feedlot producers who want to procure cattle with electronic traceability,” the report summarized.

Scenario 1 & 2: Economic Impacts



Scenario 1 & 2: Economic Impacts



Traceability Around the World

Summary of Cattle Traceability Systems of Selected Major Importers/Exporters

Country	System Name	Launch Date	Mandatory	National Individual Animal ID	ID System	Animal Movement Tracking	Motivation
Brazil	ERAS & SISBOV	2002-2003	Export Livestock, Unclear for Others	Yes for export	Various Forms	Yes for Export	Control FMD & Market Access to EU
Australia	NLIS (National Livestock ID System)	1999, Mandatory in 2005	Yes	Yes	RFID	Yes	Export Market Access, Food Safety, Animal Disease
USA	None	APHIS published draft rule in 2011	Breeding age livestock crossing state lines only	No	Various forms	No	Improve Animal Disease Traceback Capability
India	None	???	No	No	???	No	???
New Zealand	National Animal ID and Tracing	2006	Yes	Yes	RFID	Yes	Market Access & TB Management
Canada	Canadian Cattle ID Agency	2002	Yes	Yes	RFID	Pending legislation	Market Access Accelerated with BSE

Source: WPI Report

Traceability Around the World

Summary of Cattle Traceability Systems of Selected Major Importers/Exporters

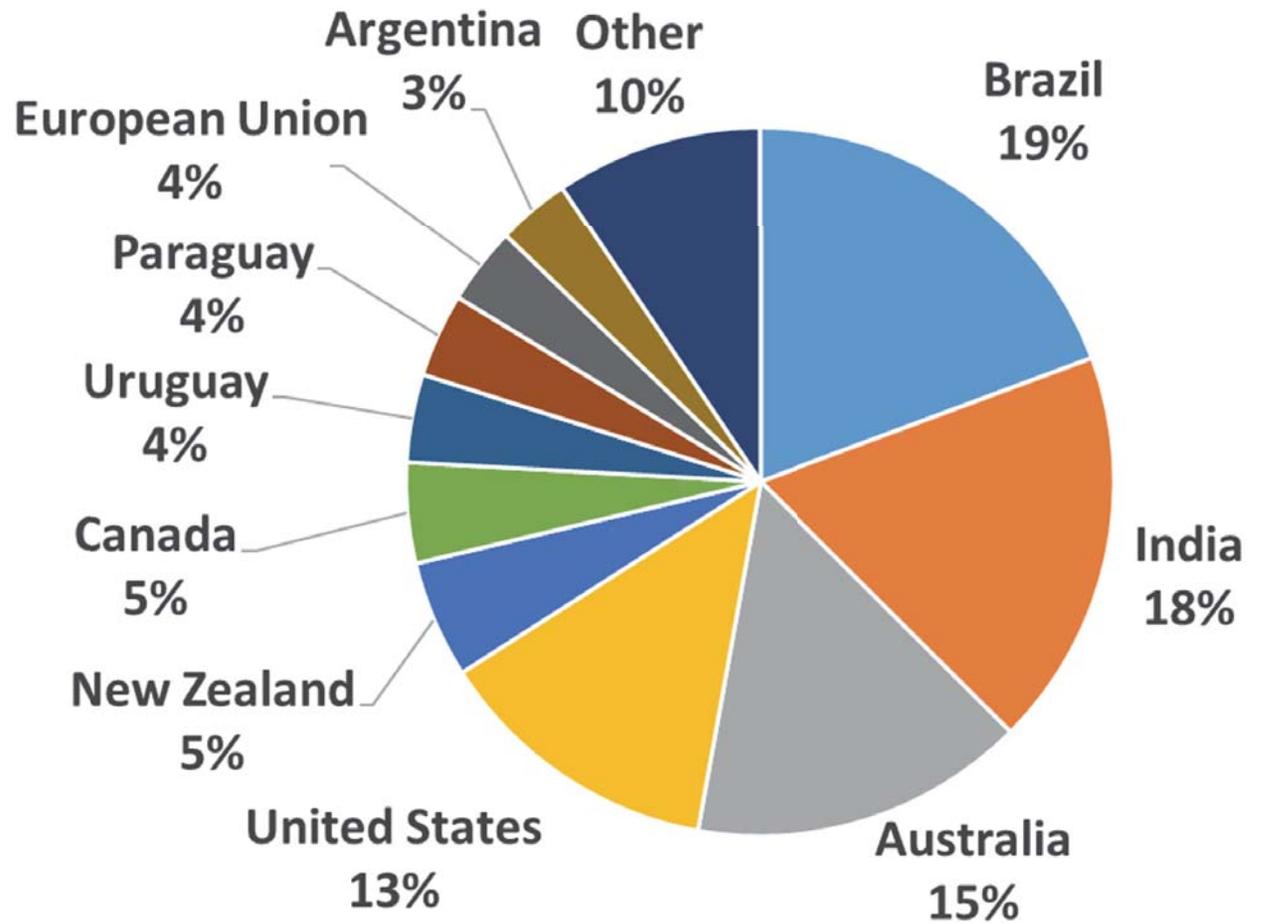
Country	System Name	Launch Date	Mandatory	National Individual Animal ID	ID System	Animal Movement Tracking	Motivation
Argentina	Argentina Animal Health System	2007	Yes	Yes	Various forms	???	Control FMD & Market Access
Uruguay	DICOSE	2006	Yes	Yes	RFID	YES	Control FMD & Market Access
Japan	The Beef Traceability Law	2003	Yes	Yes	Ear Tag	Yes	Response to BSE Discovery to Restore Consumer Confidence
EU	Unique to each member state	2000	Yes	Yes	No	Yes	Animal Health & BSE Response
Mexico	SINIGA	2003	No	Yes	Bar Code Tags	Yes	Animal Health, Census, Traceability
Korea	South Korea Beef Traceability System	2004 & Updated in 2009	Yes	Yes	RFID	YES	Consumer Food Safety Assurance and Animal Health Management

Source: WPI Report

Cattle & Beef: Exports

market
access

Largest Exporting Countries of Beef, 2018



Source: USDA-FAS

Scenario 3: Export Demand Needed

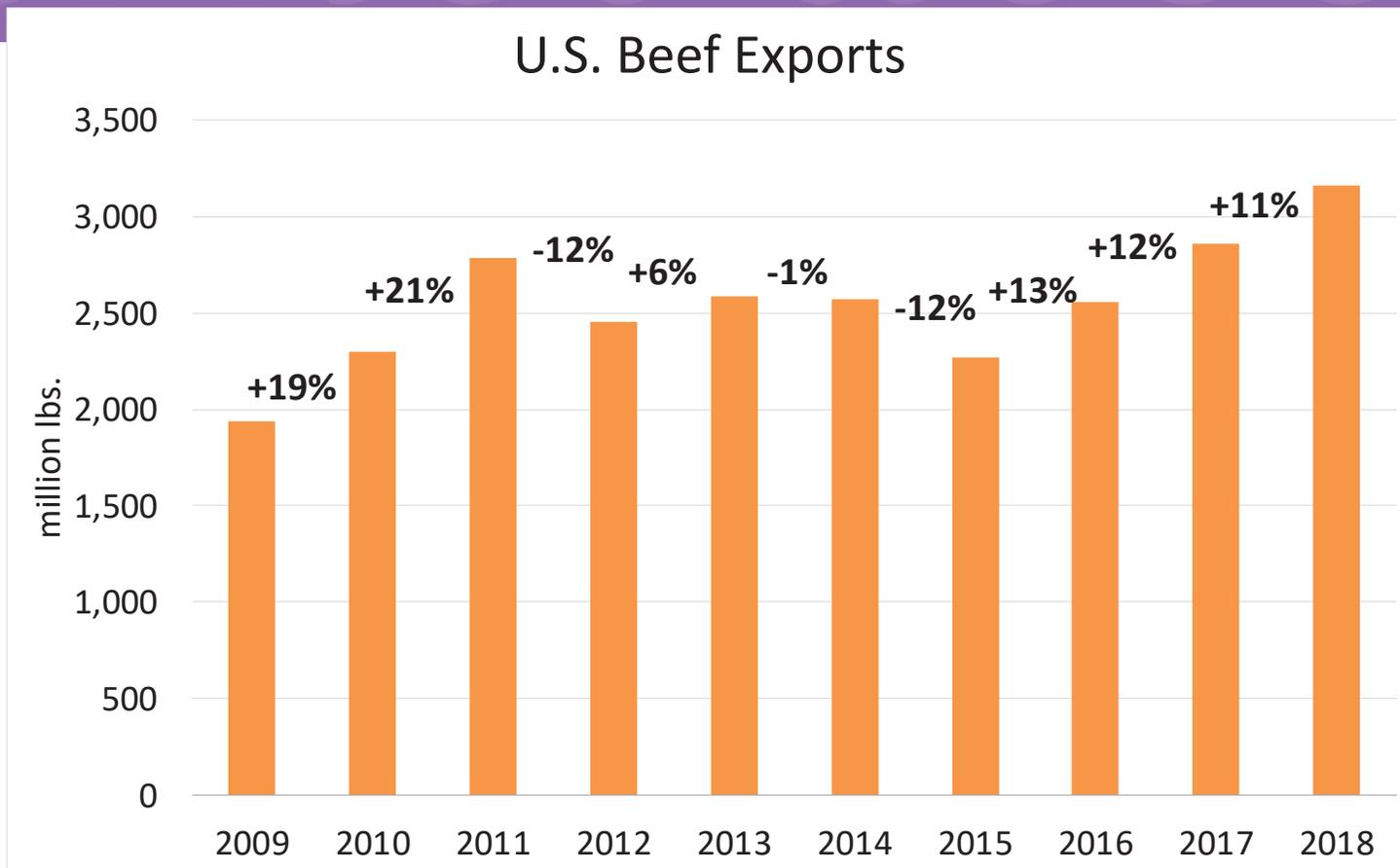


Increase of

17.7%

in export demand so beef producers
do not lose cumulative 10-year
present value producer surplus

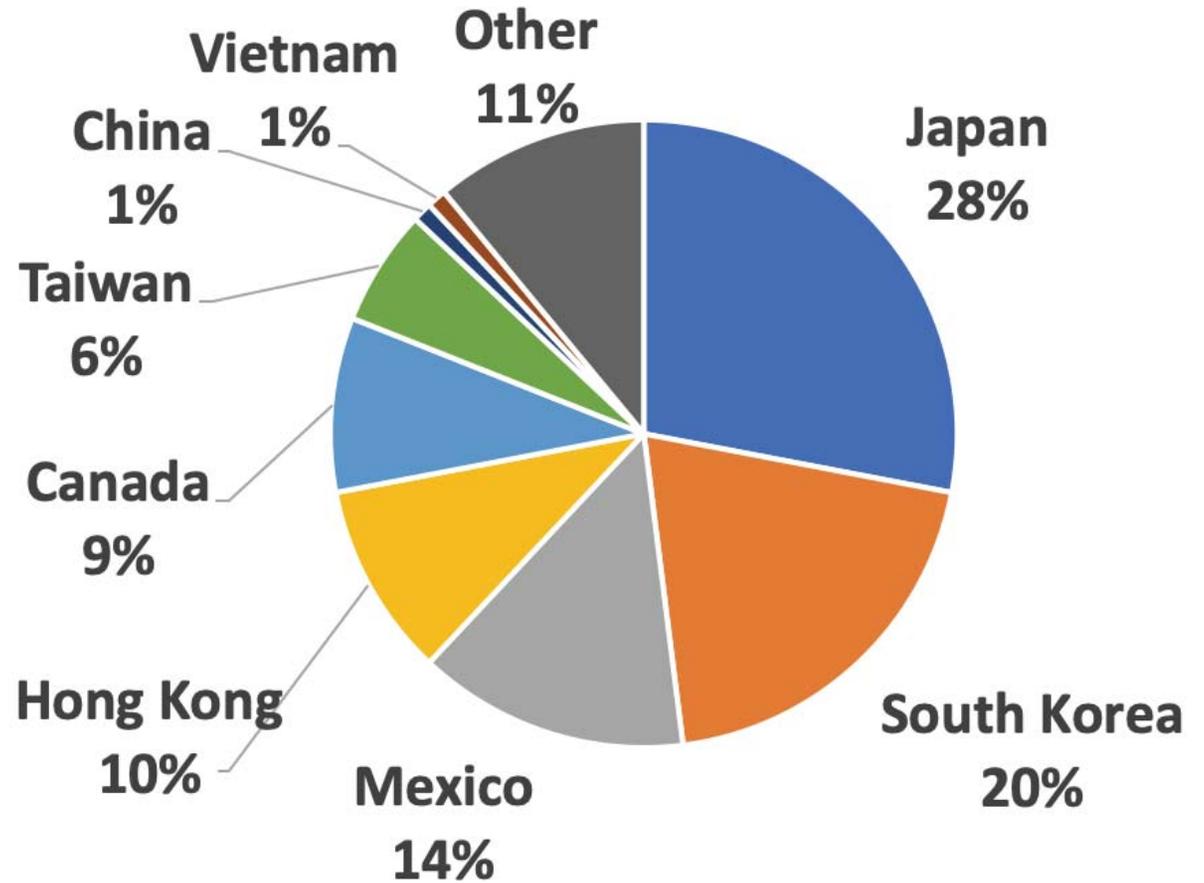
Cattle & Beef: Export Demand



Cattle & Beef: Exports

market
access

U.S. Beef Exports, 2018



Source: LMIC

Scenario 4: Domestic Demand Needed

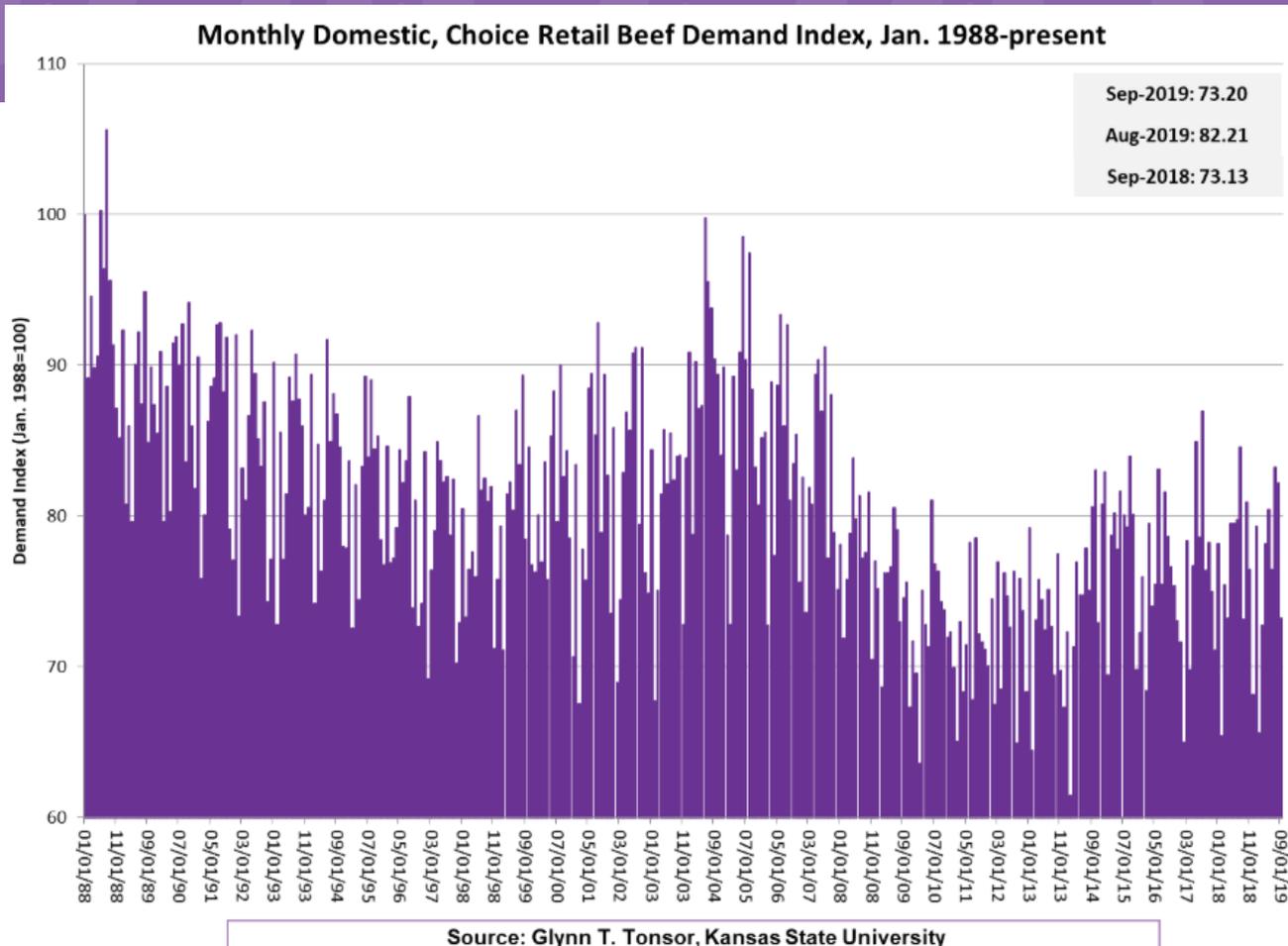


Increase of

1.9%

**Domestic demand to so beef
producers do not lose cumulative 10-
year present value producer surplus**

Cattle & Beef: Domestic Demand Index



Additional Benefits of Traceability

- Reduced impact of disease outbreaks
- Regionalization & compartmentalization, market access
- Reduces producer & government costs of animal disease testing and surveillance costs
- Enhance global competitiveness
- Enhance responsiveness to natural disasters
- Enhance food safety assurances
- Enhance livestock production management efficiency
- Enhance information flow and transparency in supply chain

Summary: Budgets

- Cost Estimates:
 - Average cost (\$/cow) for cow/calf herd range from \$2.84 to \$6.06/cow
 - Average cost (\$/cow) for backgrounder range from \$0.41 to \$0.83/cow
 - Average cost (\$/cow) for sale barns is \$0.14/cow
 - Average cost (\$/cow) for feedlots range from \$0.33 to \$0.55/cow
 - Average cost (\$/cow) for packers range from \$0.02 to \$0.18/cow
- Total Industry Cost to implement CattleTrace program: **\$154,087,329**

Summary: Market Scenarios

- If only adoption costs occur, losses of \$2.9 billion would accrue to the beef industry over a 10-year period
- If there was a cost-share between producers and government, the losses to the beef industry would be \$1.8 billion over a 10-year period
- A 17.7% increase in beef export demand would completely pay animal identification and tracing in the U.S. beef industry over a 10-year period
- A 1.9% increase in domestic beef demand would completely pay animal identification and tracing in the U.S. beef industry over a 10-year period

CONTACT US

FOR QUESTIONS AND CLARIFICATIONS

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Factsheet with budgets &
slides are available on
AgManager.info



*Thank
you.*