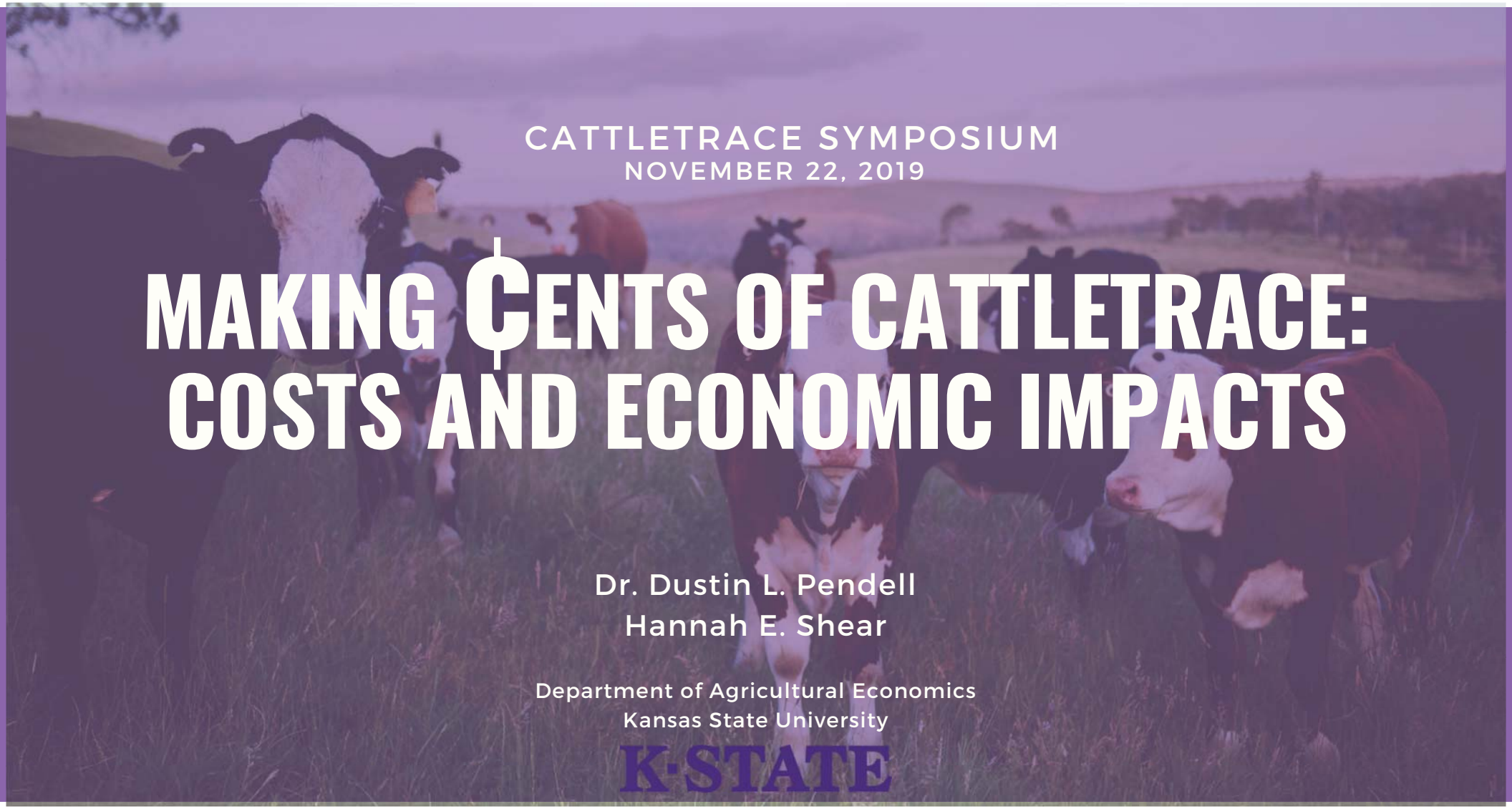

CATTLETRACE SYMPOSIUM
NOVEMBER 22, 2019

MAKING ¢ENTS OF CATTLETRACE: COSTS AND ECONOMIC IMPACTS

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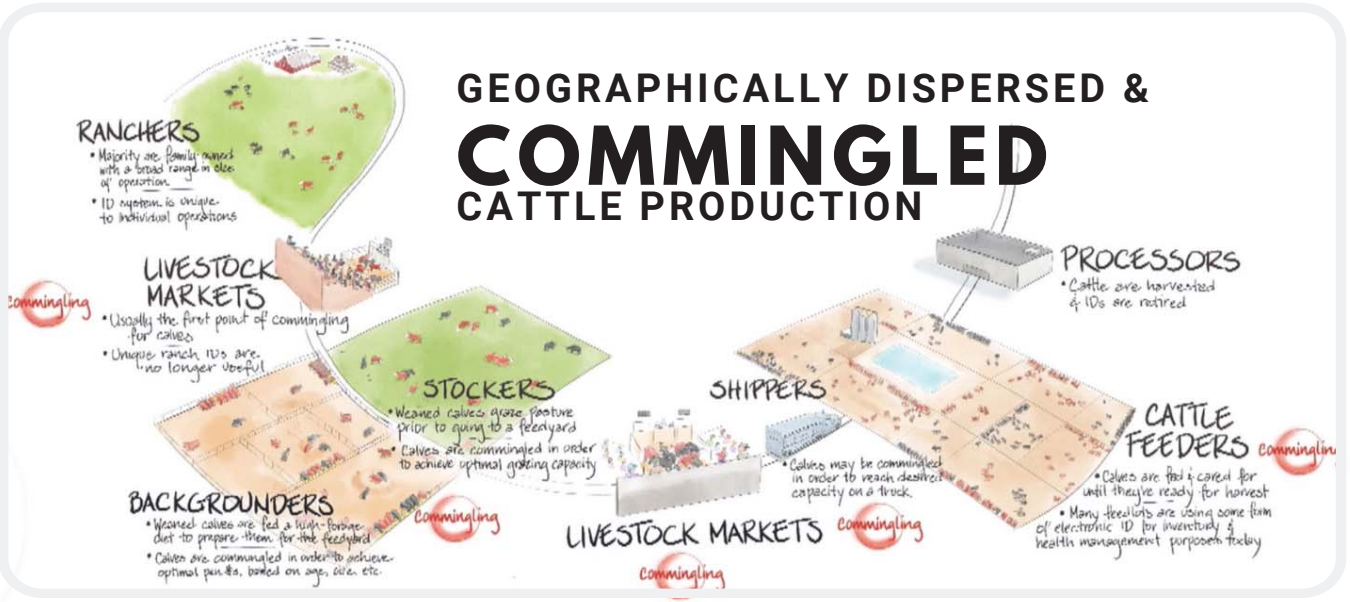
K-STATE

PROBLEM OVERVIEW



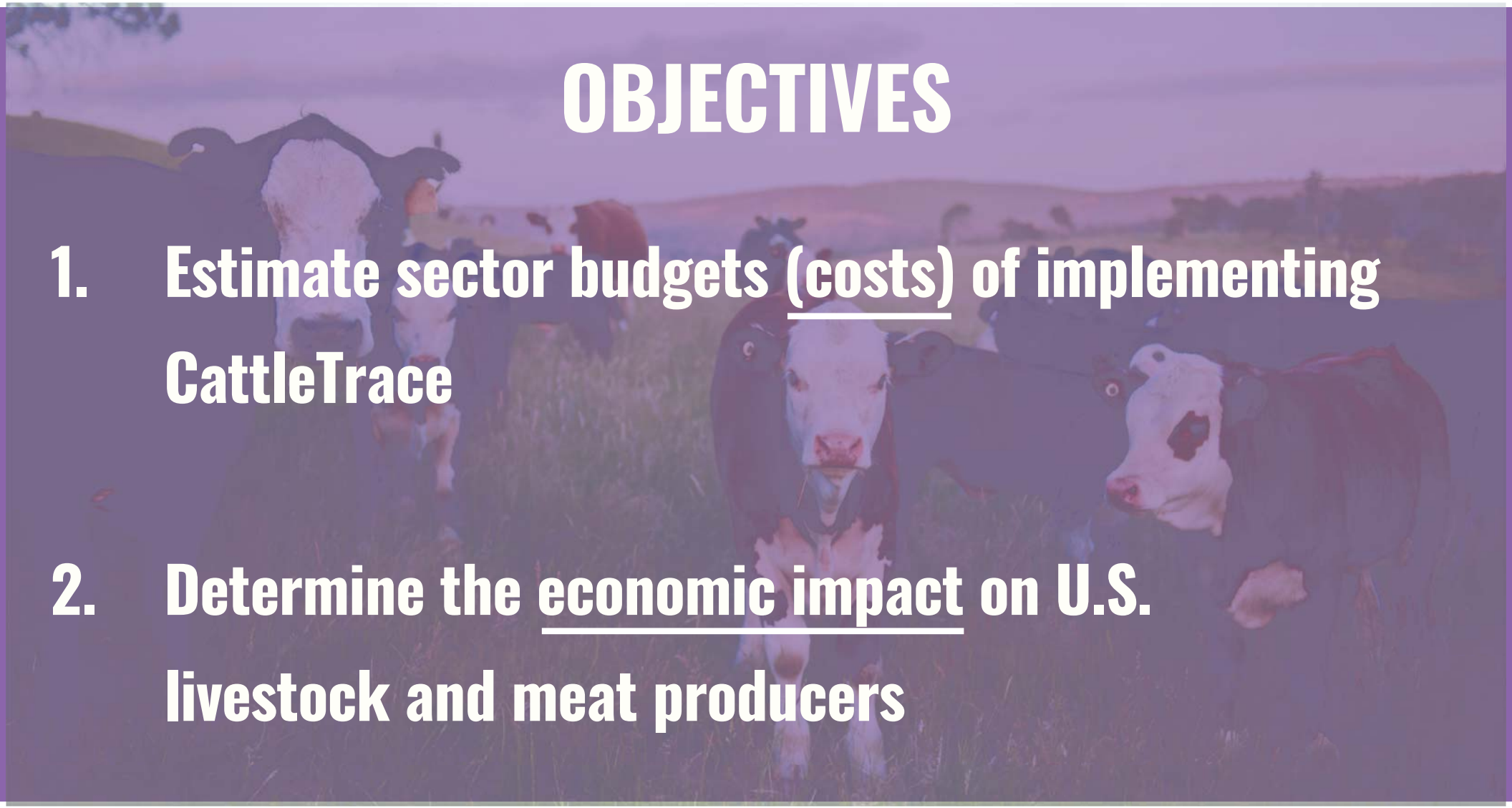
PILOT PROGRAM: CATTLETRACE

CATTLE TRACE

THE INDUSTRY-DRIVEN PILOT PROJECT FOR ANIMAL DISEASE TRACEABILITY

CattleTrace

1. Develop a purpose-built infrastructure for an animal disease traceability system
2. Evaluate the efficiency & capabilities of the animal disease traceability system & infrastructure
3. And determine the value proposition of an animal disease traceability system



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

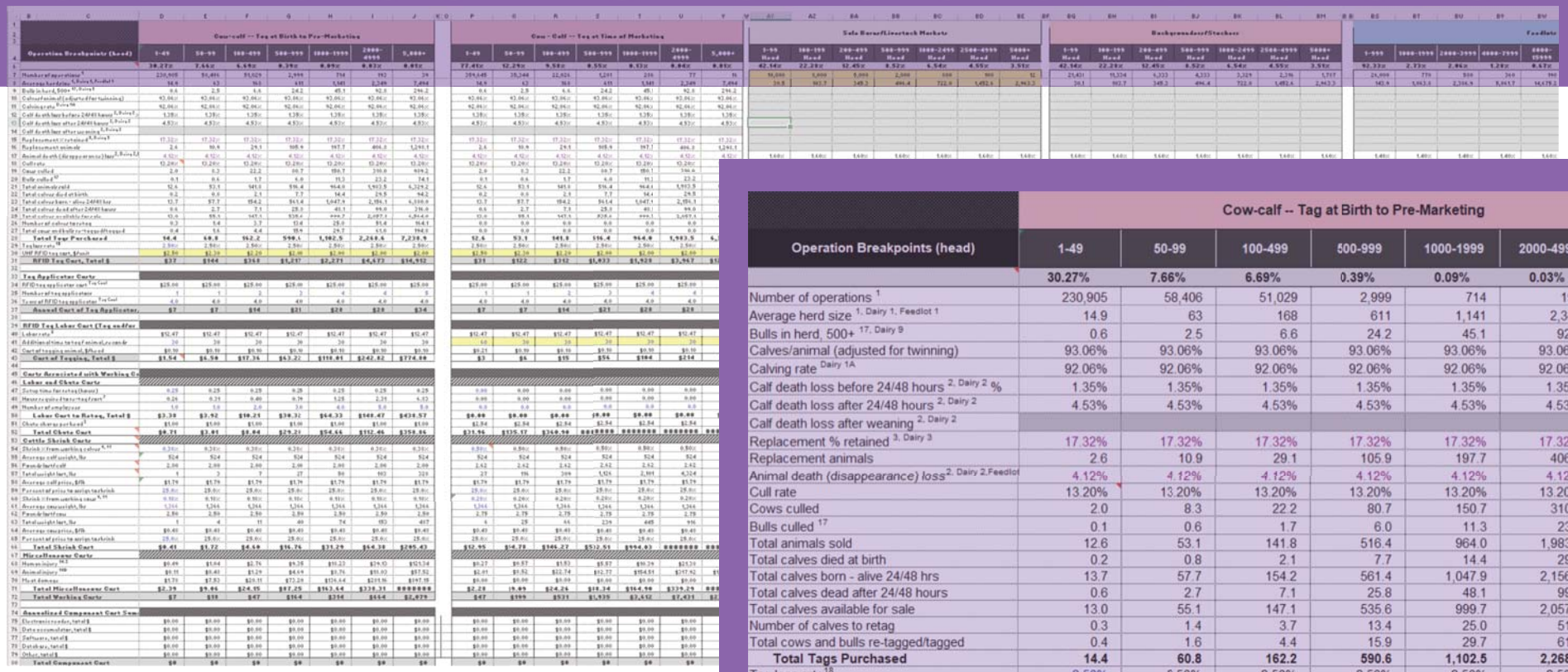
SALE BARNS

FEEDYARDS

PACKERS

highly segmented

Comprehensive Budget



Operation Breakpoints (head)	Cow-calf -- Tag at Birth to Pre-Marketing						
	1-49	50-99	100-499	500-999	1000-1999	2000-4999	5,000+
	30.27%	7.66%	6.69%	0.39%	0.09%	0.03%	0.01%
Number of operations [1]	230,905	58,406	51,029	2,999	714	193	39
Average herd size [1, Dairy 1, Feedlot 1]	14.9	63	168	611	1,141	2,349	7,494
Bulls in herd, 500+ [17, Dairy 9]	0.6	2.5	6.6	24.2	45.1	92.8	296.2
Calves/animal (adjusted for twinning)	93.06%	93.06%	93.06%	93.06%	93.06%	93.06%	93.06%
Calving rate [Dairy 1A]	92.06%	92.06%	92.06%	92.06%	92.06%	92.06%	92.06%
Calf death loss before 24/48 hours [2, Dairy 2] %	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%
Calf death loss after 24/48 hours [2, Dairy 2]	4.53%	4.53%	4.53%	4.53%	4.53%	4.53%	4.53%
Calf death loss after weaning [2, Dairy 2]							
Replacement % retained [3, Dairy 3]	17.32%	17.32%	17.32%	17.32%	17.32%	17.32%	17.32%
Replacement animals	2.6	10.9	29.1	105.9	197.7	406.8	1,298.1
Animal death (disappearance) loss [2, Dairy 2,Feedlot	4.12%	4.12%	4.12%	4.12%	4.12%	4.12%	4.12%
Cull rate	13.20%	13.20%	13.20%	13.20%	13.20%	13.20%	13.20%
Cows culled	2.0	8.3	22.2	80.7	150.7	310.0	989.2
Bulls culled [17]	0.1	0.6	1.7	6.0	11.3	23.2	74.1
Total animals sold	12.6	53.1	141.8	516.4	964.0	1,983.5	6,329.2
Total calves died at birth	0.2	0.8	2.1	7.7	14.4	29.5	94.2
Total calves born - alive 24/48 hrs	13.7	57.7	154.2	561.4	1,047.9	2,156.1	6,880.0
Total calves dead after 24/48 hours	0.6	2.7	7.1	25.8	48.1	99.0	316.0
Total calves available for sale	13.0	55.1	147.1	535.6	999.7	2,057.1	6,564.0
Number of calves to retag	0.3	1.4	3.7	13.4	25.0	51.4	164.1
Total cows and bulls re-tagged/tagged	0.4	1.6	4.4	15.9	29.7	61.0	194.8
Total Tags Purchased	**14.4**	**60.8**	**162.2**	**590.6**	**1,102.5**	**2,268.6**	**7,238.9**
Tag loss rate [18]	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%

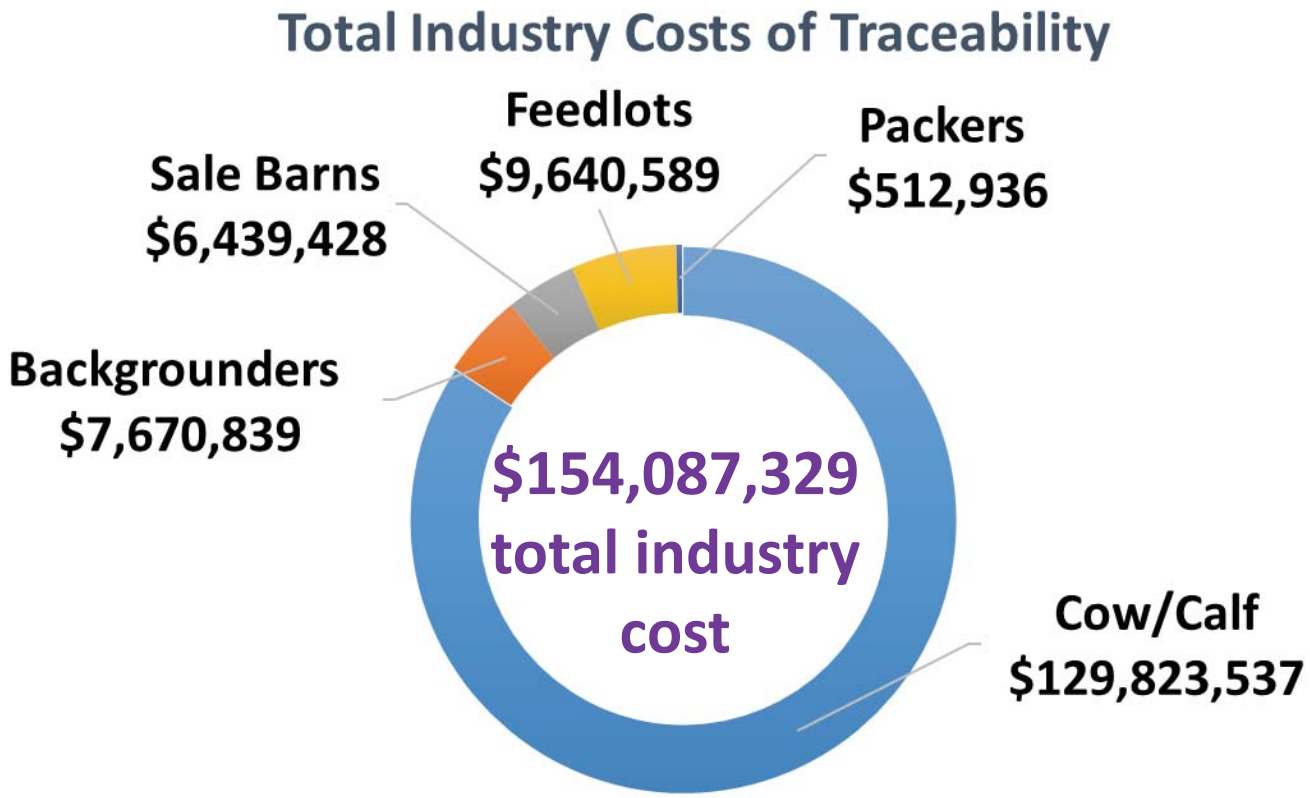
Sector Estimations: Cow/Calf

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

cow/calf

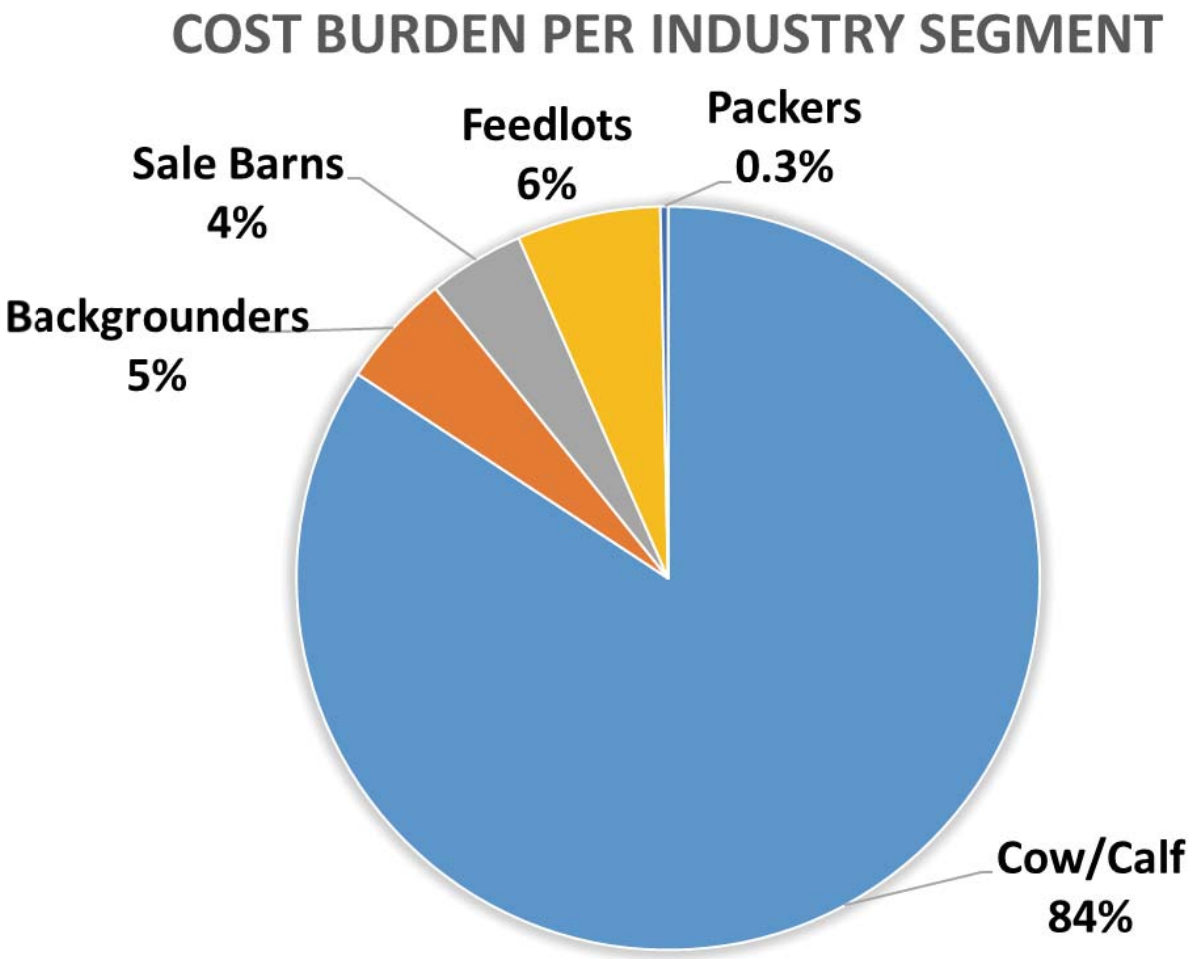
Economic Costs by Sector

industry cost

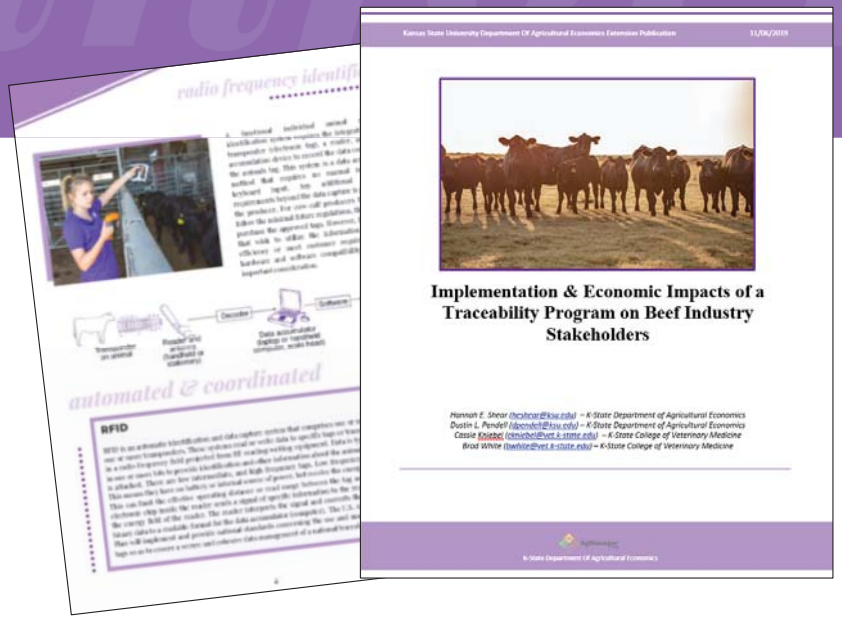


Economic Costs by Sector

industry impact

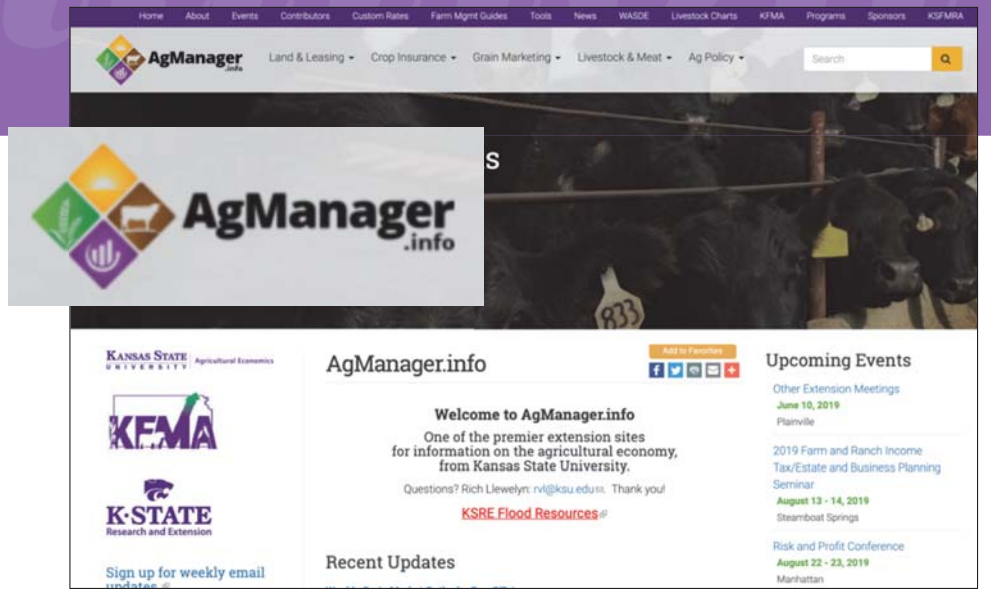


Factsheet



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

OBJECTIVES

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

- ✓ COST ONLY
- ✓ COST SHARING
- ✓ EXPORT DEMAND NEEDED
- ✓ DOMESTIC DEMAND NEEDED

Scenario 1:
Cost Only, No Benefit

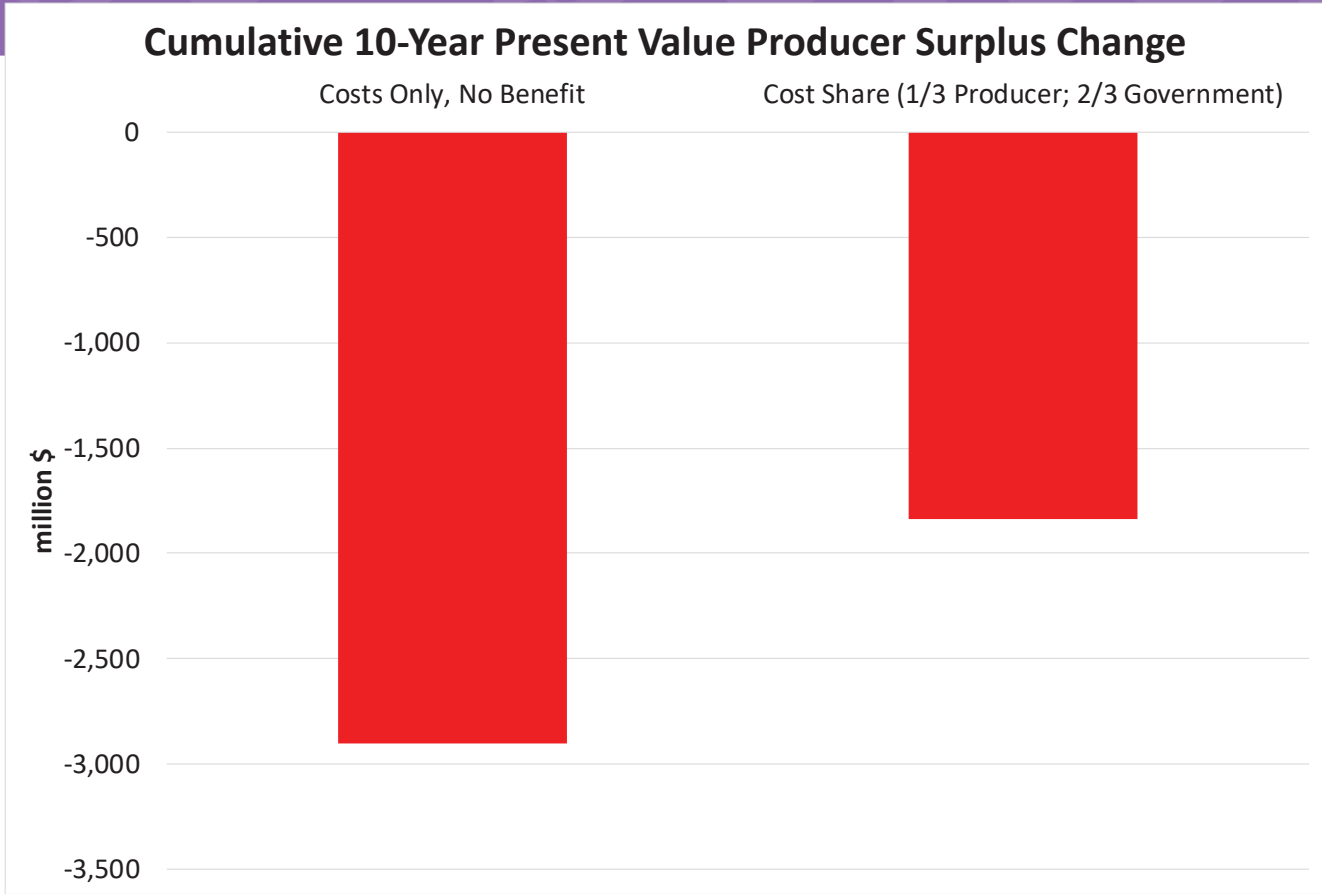
Costs and Percentage Supply Changes		
	100% adoption	
	Cost (1,000 $)	%
Beef Sector:		
Packer	513	0.0009
Feedlot	17,311	0.0333
Cow/Calf	129,823	0.2548

Scenario 2:
Cost Sharing with State and Federal Govt.

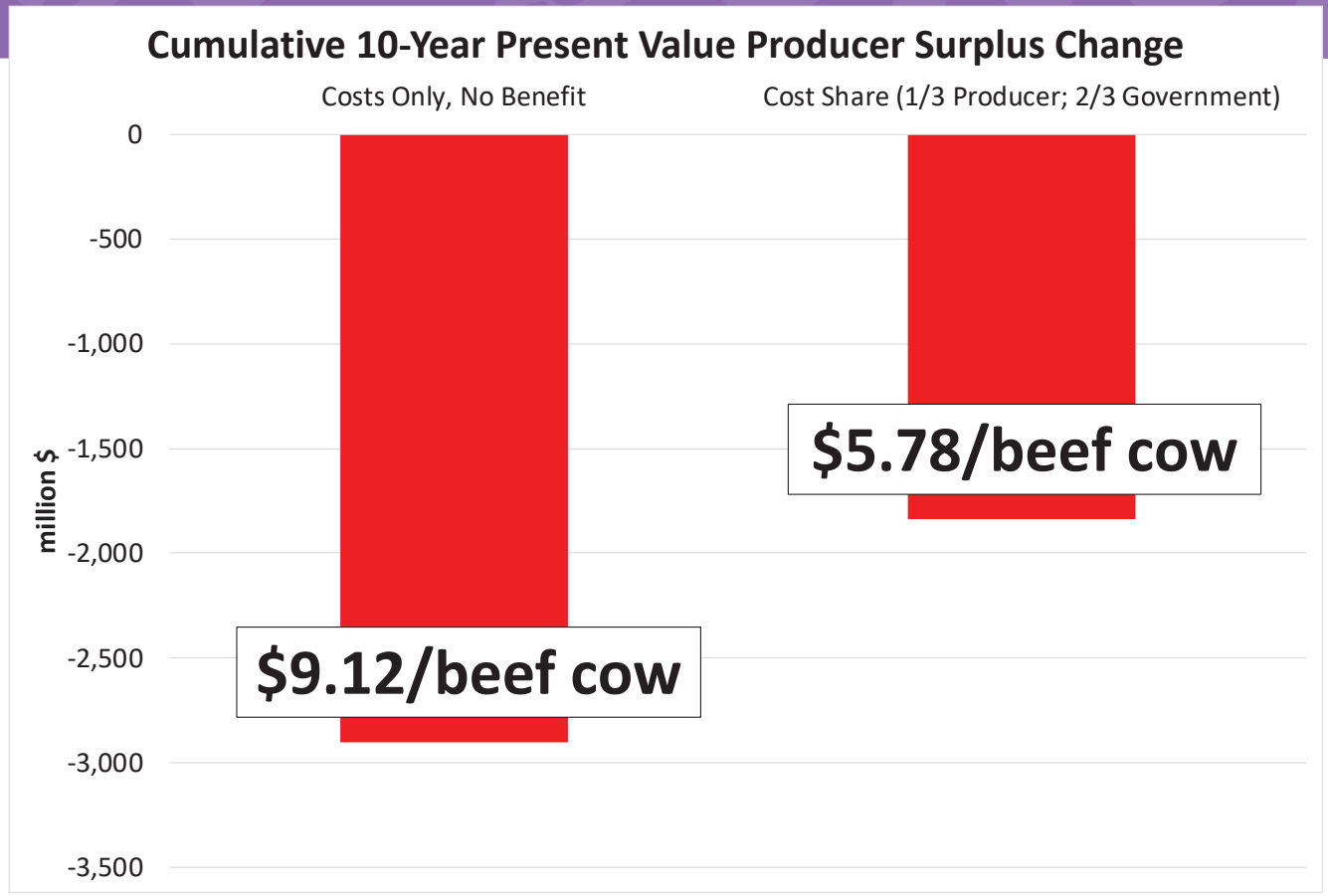
Scenario 2:
Cost Sharing with State and Federal Govt.

"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

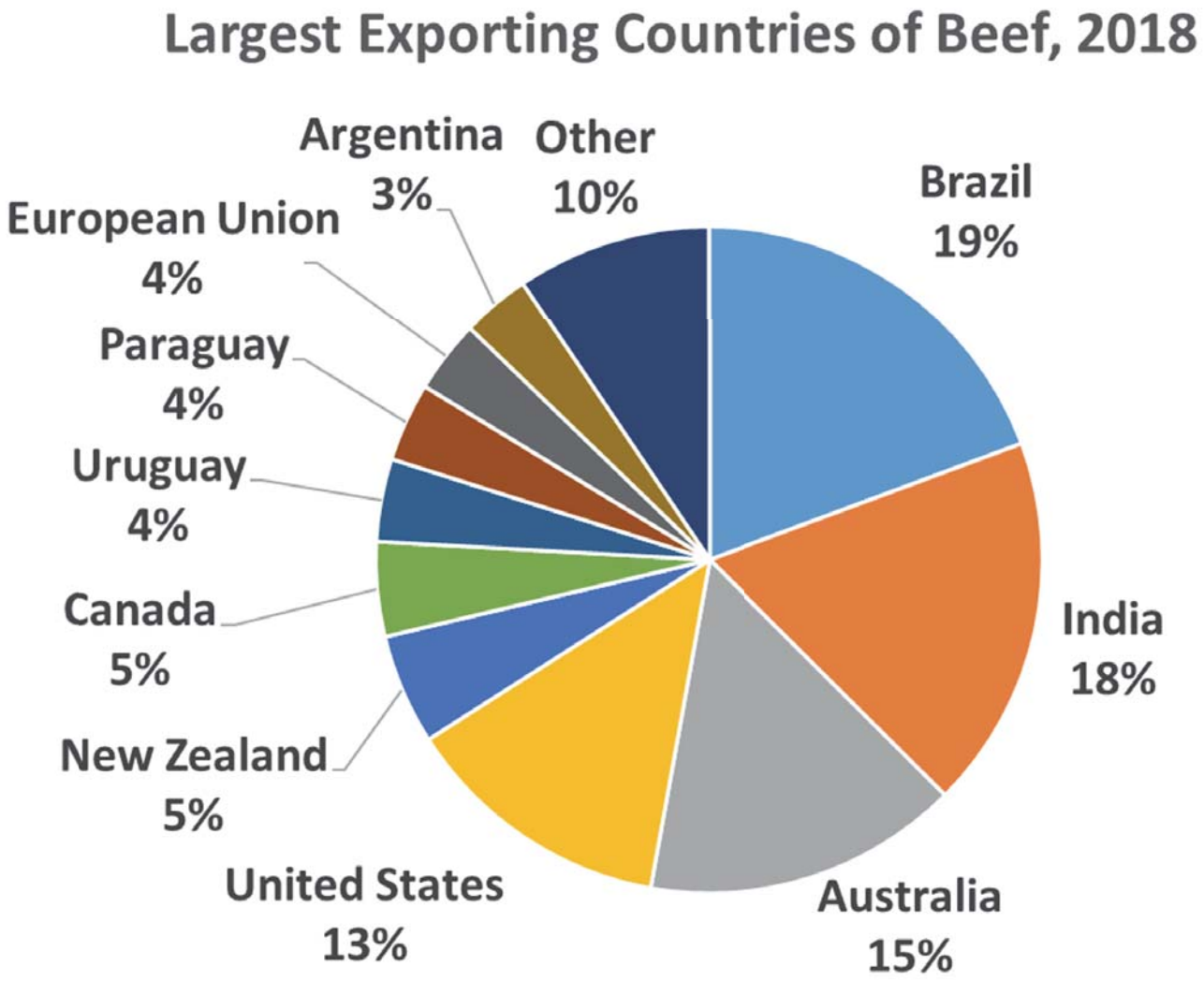
Source: WPI Report

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



Source: USDA-FAS

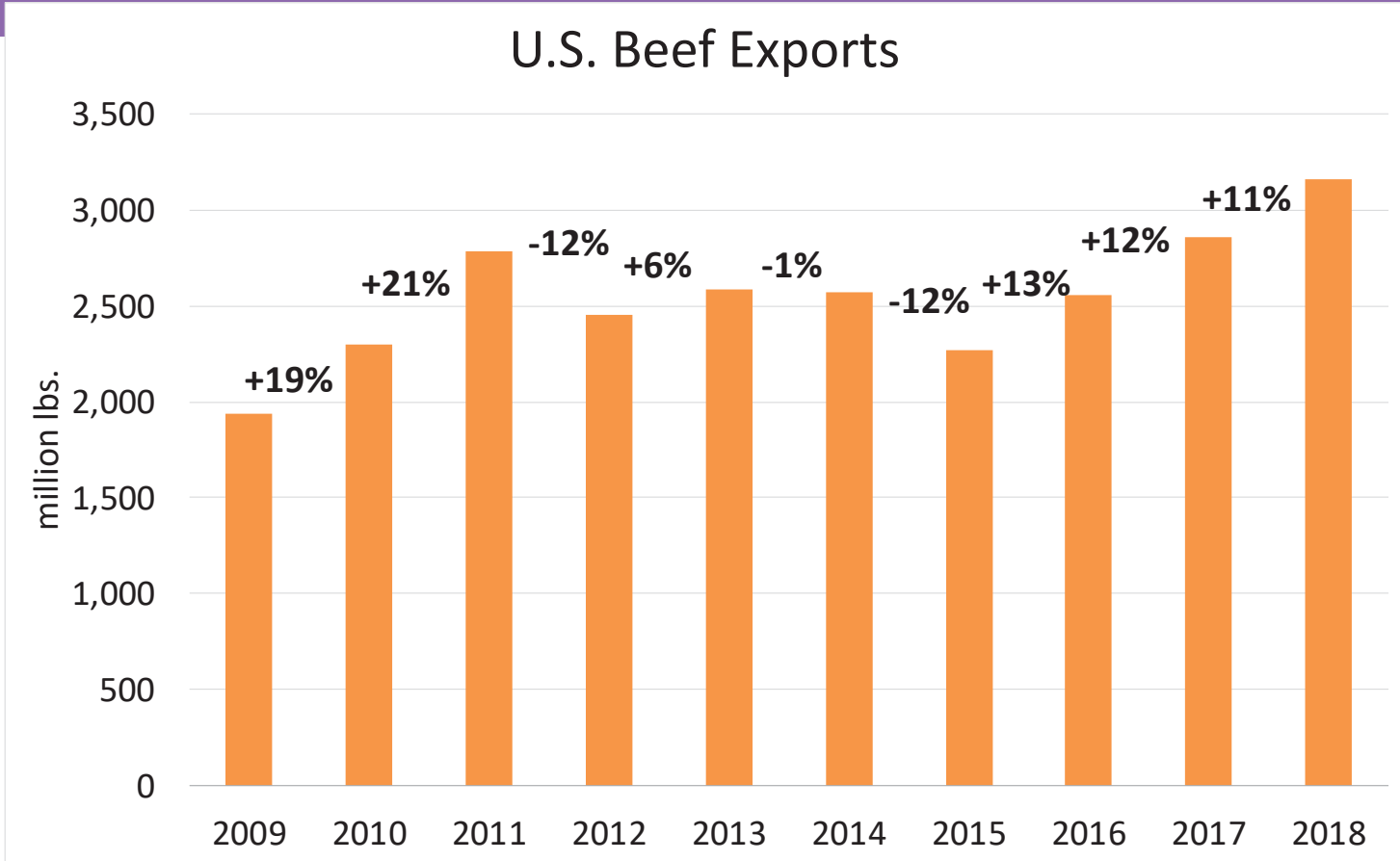
Scenario 3:
Export Demand Needed

Increase of

17.7%

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

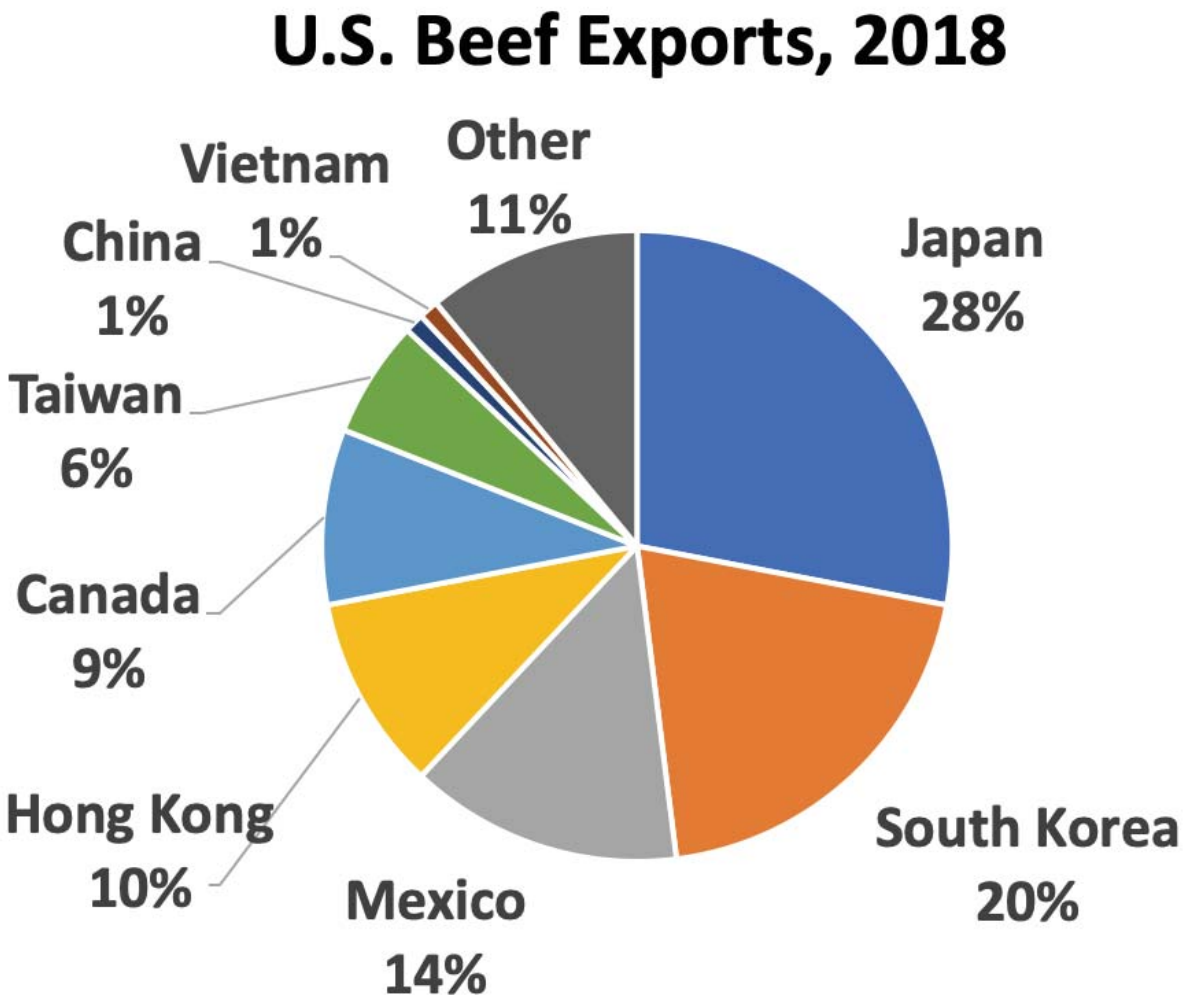
Cattle & Beef: Export Demand



Source: LMIC

Cattle & Beef: Exports

market access



Source: LMIC

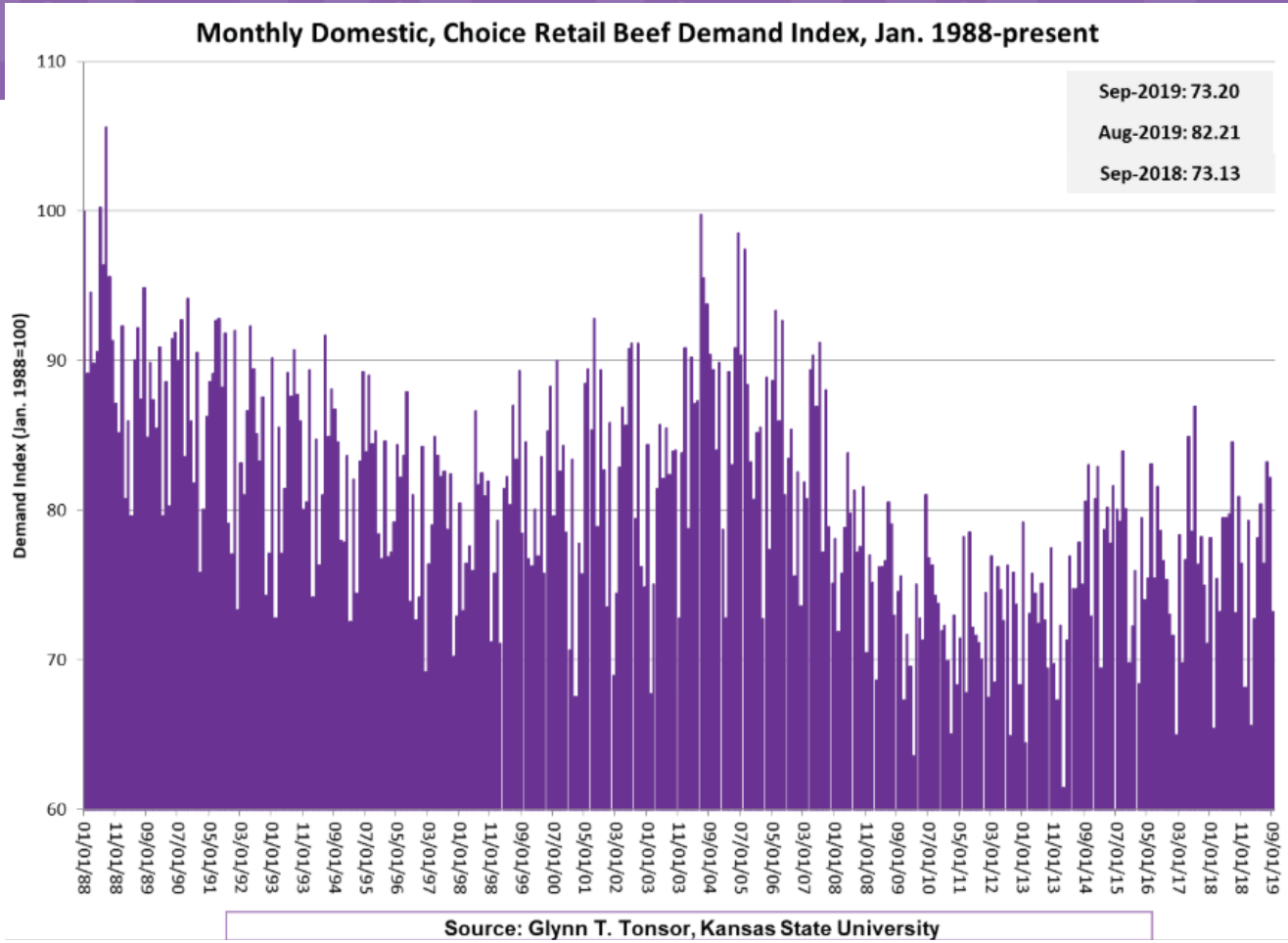
Scenario 4:
Domestic Demand Needed

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.