

14. A New Live Animal Traceability System Regime: Lessons from the Past, Current Overview, and Implementation

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Lee is a Graduate Research Assistant at Kansas State University where he is pursuing a Ph.D. in Agricultural Economics. He earned his M.S. degree in Agricultural Economics from Michigan State University and received his B.S. degree in Agricultural Business with a Minor in Animal Science from the University of Wisconsin-River Falls. Lee's research interests lie in the fields of price analysis and marketing with an application to the livestock industry. In particular, he is interested in analyzing agricultural price determinants, price forecasts, market demand, marketing strategies, and policy.

Kevin Dhuyvetter

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Kevin Dhuyvetter assists farmers, landowners, and others throughout Kansas with risk and return assessment of alternative crop and livestock production and marketing systems. He works extensively with land-related issues such as buying and leasing land. Current research projects are looking at factors impacting land values, economics of no-tillage and other crop-related production technologies, the economics of grazing systems, and factors affecting feeder cattle prices and basis, and the economic returns of alternative dairy systems. One of Kevin's trademarks is his development of decision tools that can be used by clientele for helping them with the myriad of decisions they face in their operations.

Glynn Tonsor

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Glynn T. Tonsor joined the Dept. of Agricultural Economics at Kansas State University in March 2010 as an Assistant Professor. He obtained his Ph.D. from KSU in 2006 and was an Assistant Professor in the Dept. of Agricultural, Food, and Resource Economics at Michigan State University from May 2006 to March 2010. Glynn's current efforts are primarily devoted to a range of integrated research and extension activities with particular focus on the cattle/beef and swine/pork industries. He has broad interests and experiences which span issues throughout the meat supply chain. Through both applied research and first-hand knowledge with livestock production, Glynn has expertise in topics including animal identification and traceability, animal welfare and handling, food safety, and price risk management and analysis. Glynn's research on a host of livestock economic issues has resulted in 19 published journal articles and over 50 other publications.

Abstract/Summary

The United States Department of Agriculture is developing a new voluntary animal disease traceability system framework. This will involve moving from a single system (National Animal Identification System - NAIS) to a collection of systems led by individual states. This presentation will briefly discuss the likely reasons for NAIS failure and give an overview of the new framework. Emphasis will be placed on summarizing implications of animal traceability for the beef industry and individual producers. Finally, we will discuss the implementation of both public and private traceability programs.

2010
RISK AND PROFIT
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K-State Alumni Center
MANHATTAN, KS

AUGUST 19-20, 2010

**A WALK
ON THE
WILD SIDE**
Mercurial
Markets, Policy
Perplexity, and
Management
Migraines



A New Live Animal Traceability System Regime

What Individual States Should Know, Current Overview, and Implementation

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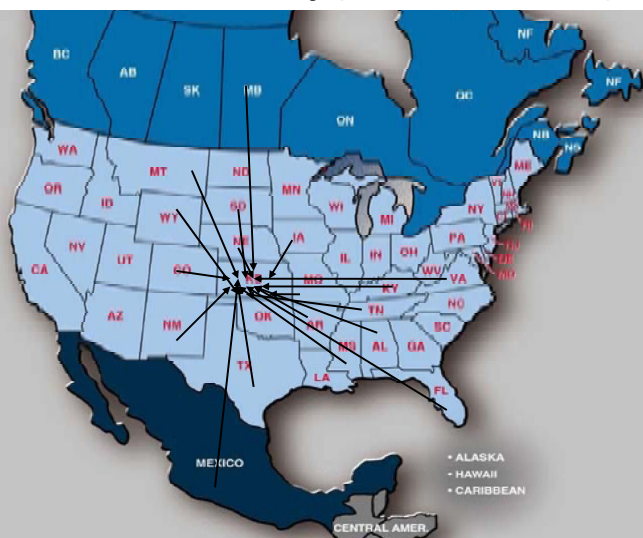


Traceability is Important

- Quickly locate and mitigate the spread of disease
- Reduce animal health deaths and outbreaks
 - Limit owners impacted
 - Reduce economic strain
- Market access
- Marketing
- Enhanced management

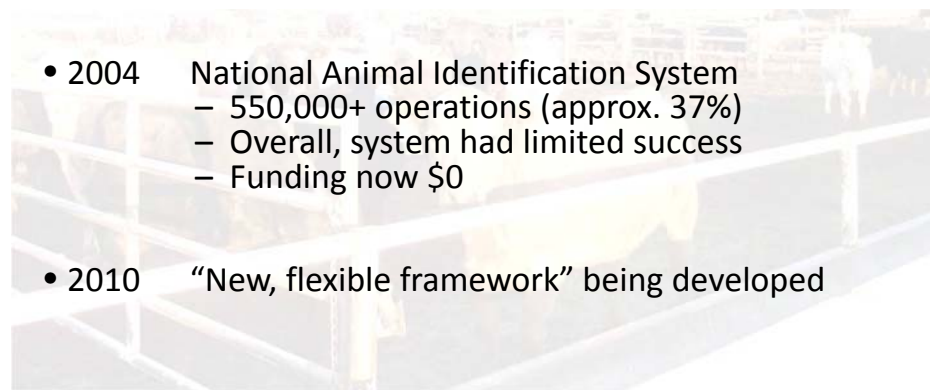


4 to 4.5 Million Head of Cattle Shipped into KS Annually (80,000+ hd/wk)



Traceability in the US: Past and Present

- 2002 National Identification Work Plan (NIWP)
- 2003 U.S. Animal Identification Plan (USAIP)
- 2004 National Animal Identification System
 - 550,000+ operations (approx. 37%)
 - Overall, system had limited success
 - Funding now \$0
- 2010 “New, flexible framework” being developed





USDA NEWS RELEASE

United States Department of Agriculture • Office of Communications • 1400 Independence Avenue, SW
Washington, DC 20250-1300 • Voice (202) 720-4623 • Email: us-news@usda.gov • Web: <http://www.usda.gov>

Release No. 0053.10 Contact:
USDA Office of Communications (202) 720-4623

USDA ANNOUNCES NEW FRAMEWORK FOR ANIMAL DISEASE TRACEABILITY

February 5, 2010...“United States Department of Agriculture (USDA) will develop a new flexible framework for animal traceability in the U.S. The new animal disease traceability system framework is one led by individual states and tribal nations, where USDA will serve as a partner.”

giving single opportunity for farmers and ranchers and the public to provide us with continued input through this process.

One of USDA's first steps will be to convene a forum with animal health leaders for the States and Tribal Nations to initiate a dialogue about the possible ways of achieving the flexible, coordinated approach to animal disease traceability we envision. Additionally, USDA will be reorganizing the Secretary's Advisory Committee on Animal Health to address specific issues, such as creditability and liability.

Although USDA has a robust system in place to protect U.S. agriculture, with today's announcement, the Department will also be taking several additional actions to further strengthen protection against the entry and spread of disease. These steps will include accelerating actions to lessen the risk from diseases—such as tuberculosis—spread by imported animals, initiating and updating analyses on how animal disease travel into the country, improving response capabilities, and focusing on greater collaboration and analyses with States and industry on potential disease risk events.

Basic content...

- Listening sessions provided producer & stakeholder feedback
- Only applies to animals moving interstate
- Will allow for basic options (i.e., brite tag, RFID, official brands)
- Traceability data will be owned and maintained at the discretion of states/tribal nations

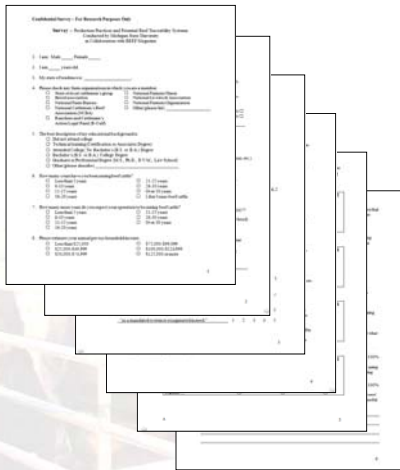
Problem Statement

U.S. traceability systems lack a clear identity; systems have had limited success.

Challenge: Taking the views of industry participants into consideration.

Key unanswered issue: How should traceability systems be designed and promoted to obtain voluntary producer participation?

Survey



2,000 surveys mailed to U.S. cow-calf producers
– 609 useable surveys (30.5%)

BEEF Magazine subscribers

Several results on issues not discussed in this slide are available in:
– BEEF magazine; <http://beefmagazine.com/beef-quality/0801-survey-id-feedback/>.
– Journal of Agricultural and Applied Economics & Journal of Agricultural Economics.
– K-State Research and Extension; <http://www.agmanager.info/livestock/marketing/AnimalID/default.asp>.

NAIS Registrations

Are your operation's premise(s) currently registered with USDA in NAIS (National Animal Identification System)? Yes or No.
→ 38.4% (37.2% USDA)

- ✓ Membership in NCBA +
- ✓ Membership in R-Calf -
- ✓ Believed in mandatory NAIS +
- ✓ Use local auctions to market cattle -
- ✓ Use individual or group identification +
- ✓ Use no identification -
- ✓ Larger operations -

Increasing Consumer Confidence

In designing a national, individual animal traceability system, how important is the following issue in the U.S. beef industry?

	Entirely Unimportant	Unimportant	Neutral	Important	Very Important
Increasing consumer confidence	8.02%	6.31%	18.67%	38.97%	28.04%

- ✓ Membership in R-Calf -
- ✓ Premises registered in NAIS -
- ✓ Use local auctions to market cattle -

Cost to Participating Producer

In designing a national, individual animal traceability system how concerned are you regarding the following issue in the U.S. beef industry?

	Entirely Unconcerned	Unconcerned	Neutral	Concerned	Very Concerned
Cost to participating producer	9.50%	2.80%	22.01%	33.47%	32.23%

- ✓ Membership in NCBA +
- ✓ Membership in R-Calf +
- ✓ Use local auctions to market cattle +
- ✓ Larger herd size +

Traceability vs. COOL

Indicate your level of agreement with the following statement:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Implementing individual animal traceability systems is unnecessary if COOL was implemented nationally.	15.00%	8.24%	27.61%	20.50%	28.66%

- ✓ Membership in NCBA -
- ✓ Membership in R-Calf +
- ✓ Use local auctions to market cattle +
- ✓ Use individual/group identification -
- ✓ Use no identification +

Choice Experiment: Example

Choice Set 1			
Attribute	NAIS		No
	Traceability	Advanced Traceability	Traceability
Premium/Discount (\$/head)	\$0.00	\$15.00	-\$7.50
Managing Entity	Government	Private - Not Industry	
Additional Information	Age Verification, Production Practices, Performance/Genetic, and Health/Vaccinations		
I choose...			

Producers' Preferences

3 producer segments

- “Premises Registered: Prefer *Advanced Traceability* to *NAIS*” – 47%
- “Premises Not Registered: Prefer *No Traceability*” – 22%
- “Auction Users: Strongly against *Advanced Traceability*” – 31%

Removal of traceability options contributes negatively to the economic welfare of producers – Assumes no \$/head market adjustments...

	Class 1 “Premises Registered”	Class 2 “Premises Not Registered”	Class 3 “Auction Users”
Removal of No Traceability	-\$2.32 [-\$2.34, -\$2.30]	-\$89.89 [-\$93.46, -\$86.66]	-\$0.76 [-\$0.77, -\$0.75]
Mandatory NAIS Traceability	-\$19.10 [-\$19.29, -\$18.91]	-\$118.82 [-\$123.98, -\$114.19]	-\$0.76 [-\$0.77, -\$0.75]

Bottom line: participation will likely be slow under all voluntary traceability systems...

What did producers specifically tell us...

- “Ranchers want to know what it will cost them to implement traceability.”
- “The cow/calf producer cannot stand to carry the major costs of traceability.”
- “The cow-calf producer would bear the most cost with the systems proposed.”
- “Participation in any traceability for individual animals will depend primarily on costs. Small producers won't participate in any program.”
- “We have 30 cows - what's the cost of traceability for us?”
- “Large producers are for most part in opposition because of potential cost.”
- “Start up cost and additional labor required to implement is not cost effective.”

Alternative Verification Programs

- PVP, QSA, Independent 3rd Party, 2nd Party Verification, Self Certification, Do Nothing (most to least “effective”)
- Self- Certification:
 - Signed affidavit; free-rider and moral hazard problems
 - Not sufficient for Japanese exports (PVP/QSA or USDA grader backed age verification)
- 2nd or Independent 3rd party:
 - Lack government credibility; likely not sufficient for export
- QSA:
 - Government credibility, but not flexible = less marketing value
- PVP:
 - More expensive; most flexibility and credibility

Where is the Industry Going?

Verification Systems:

- Ensure traceability system is working properly
- Auditable procedures for collection and transfer of information
- Requirements vary by program

USDA Approved QSA's and PVP's:

- 27 QSAs and 24 PVPs involving cattle (as of 8/20/10 USDA listing)
- <http://www.usverified.com/proto/USDAVerificationPageLinks.html>
- All 27 QSAs verify age & source
- Ex PVPs: age & source, non-hormone treated, grass fed, born & raised USA, etc...

Producer Records for QSA/PVP Participation

- Not standardized; specific to QSA/PVP
- Basic recommendations:
 - Have all calves individually tagged with unique # at/near birth (or placement for feedlots)
 - Keep detailed records
 - Calves: At least record date of first and last calves
 - Feedlots: placement & exit dates; origination points
 - Records of all cattle sales
 - Keep records for at least 3 years
- Extra information of potential value:
 - Vaccinations, implants, or health treatments

Estimated Costs of Implementing a Verification Program (Cow-Calf Sector)

Proposed Change	Example 1	Example 2
Does your operation Currently tag?	_____	_____
Average number of breeding females	_____	_____
eID tag cost, \$/unit	_____	_____
Program Components		
Tag Applicator Costs		
eID tag applicator cost, \$/unit	_____	_____
eID Tag Labor Cost		
Labor rate, \$/hour	_____	_____
Labor and Chute Costs		
Number of employees	_____	_____
Cost of tagging service, \$/head	_____	_____
Chute charge per head	_____	_____
Data Accumulator		
Initial cost, total	_____	_____
Program Enrollment Cost		
Initial fee, total	_____	_____
Per animal fee, \$/head	_____	_____
On-site evaluation, total	_____	_____
Renewal fee, total	_____	_____
Per animal renewal fee, \$/head	_____	_____
How many years do expect to be in this program?	_____	_____
Management Componentes		
Electronic Reader Cost		
Cost of reader, \$/unit	_____	_____
Software Cost		
Initial cost, \$	_____	_____
Final Cost Breakdown		
Interest rate on RFID investment	_____	_____
Interest rate on operating costs	_____	_____
Months calf tag purchased	_____	_____

Self Certification: Currently tag vs. currently do not tag

✓\$2.25/tag

✓121 animals

✓Do not use RFID for management purposes

Overview of Costs – Currently Tag			Overview of Costs – Currently No Tag		
Breakdown of Costs (\$)	\$/head sold	percent	Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.30	100.0%	Tags and Tagging Cost	\$6.55	100.0%
Program Enrollment	N/A	N/A	Program Enrollment	N/A	N/A
Reading Costs	N/A	N/A	Reading Costs	N/A	N/A
Interest on Breeding Herd Tags	N/A	N/A	Interest on Breeding Herd Tags	N/A	N/A
TOTAL	\$4.30	100.0%	TOTAL	\$6.55	100.0%

Currently tag vs. currently do not tag

✓\$2.25/tag

✓121 animals

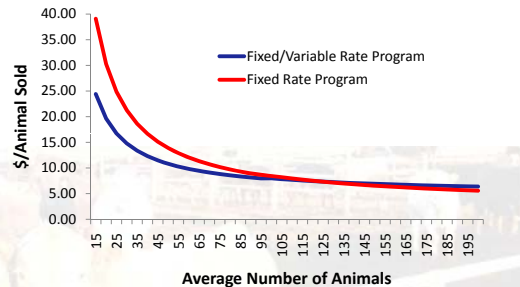
✓Fixed/variable rate program

✓Do not use RFID for management purposes

Overview of Costs – Currently Tag			Overview of Costs – Currently No Tag		
Breakdown of Costs (\$)	\$/head sold	percent	Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.30	58.0%	Tags and Tagging Cost	\$6.55	69.4%
Program Enrollment	\$3.12	42.0%	Program Enrollment	\$2.88	30.6%
Reading Costs	\$0.00	0.0%	Reading Costs	\$0.00	0.0%
Interest on Breeding Herd Tags	N/A	N/A	Interest on Breeding Herd Tags	N/A	0.0%
TOTAL	\$7.42	100.0%	TOTAL	\$9.43	100.0%

Fixed/variable rate program vs. fixed rate program

- ✓ \$2.25/tag
- ✓ Currently tag
- ✓ 121 animals
- ✓ Do not use RFID for management purposes

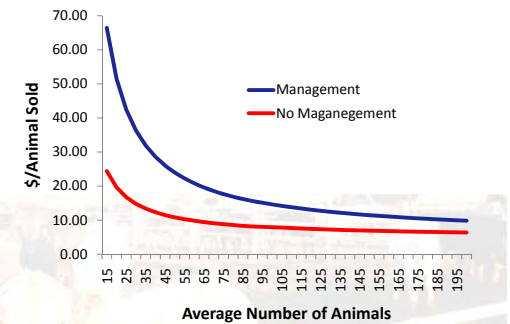


Overview of Costs – Program 1		
Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.30	56.4%
Program Enrollment	\$3.12	40.8%
Reading Costs	\$0.00	0.0%
Interest on Breeding Herd Tags	N/A	N/A
TOTAL	\$7.42	100.0%

Overview of Costs – Program 2		
Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.00	56.4%
Program Enrollment	\$3.47	40.8%
Reading Costs	\$0.00	0.0%
Interest on Breeding Herd Tags	N/A	N/A
TOTAL	\$7.47	100.0%

Management vs. No Management

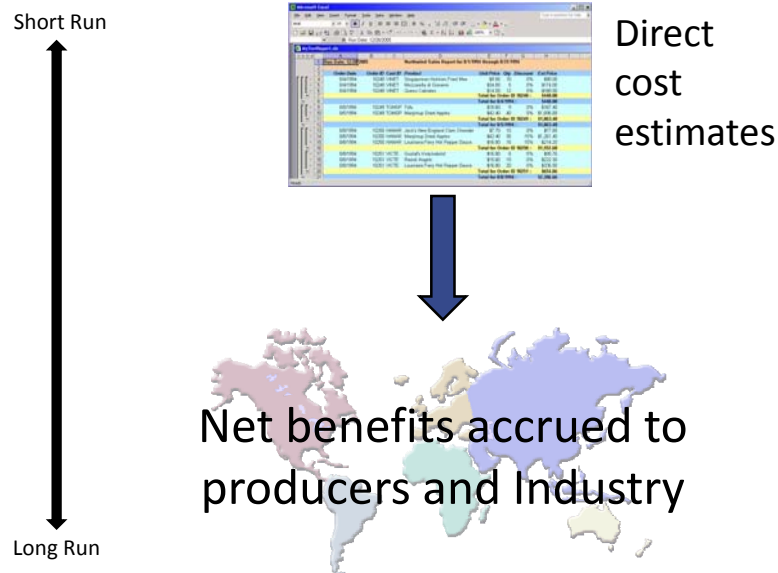
- ✓ \$2.25/tag
- ✓ Currently tag
- ✓ 121 animals
- ✓ Fixed/variable rate program



Overview of Costs - Management		
Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.30	33.1%
Program Enrollment	\$3.12	24.0%
Reading Costs	\$5.36	41.3%
Interest on Breeding Herd Tags	\$0.22	1.7%
TOTAL	\$13.00	100.0%

Overview of Costs – No Management		
Breakdown of Costs (\$)	\$/head sold	percent
Tags and Tagging Cost	\$4.30	58.0%
Program Enrollment	\$3.12	42.0%
Reading Costs	\$0.00	0.0%
Interest on Breeding Herd Tags	N/A	N/A
TOTAL	\$7.42	100.0%

Beyond Direct Costs and Benefits



Potential Value

- Animal health (proactive and reactive)
- Food safety concerns
 - Foreign and domestic consumers
- Credence attribute verification
 - Organic, COOL, Natural, Age, GM-free,...
- Improving management
 - On-farm AND throughout supply chain
 - Competition implications across species
- Bioterrorism risk control
- Properly assign liability

Traceability becoming the Global Standard

Comparison of Cattle Population and Identification and Traceability Systems

Country	Cattle Population (1,000 hd) ¹	Premises ID ²	Individual Cattle ID ²	Group / Lot Cattle ID ²	Electronic Cattle ID ²	Record Animal Movement ²	Retire Animal Number ²
Australia	28,560	M	M	V	M	M	M
Botswana	3,100	V	M	NA	M	M	V
Brazil	207,157	M	V	M	V	M	V
Canada	14,830	V	M	NA	M	V	M
European Union	90,355	M	M	V	V	M	M
Japan	4,391	M	M	V	V	M	M
Mexico	28,648	V	V	V	V	V	V
Namibia	2,384	M	M	V	V	M	M
New Zealand*	9,652	V	V	V	V	V	V
South Korea*	2,484	M	M	V	V	M	M
Uruguay	11,956	M	M	V	M	M	M
United States*	96,702	V	V	V	V	V	V
World	1,383,157						

Competing export countries
Major importing countries

¹All numbers are for cattle populations in 2006 as reported by the Food and Agriculture Organization of the United Nations (FAOSTAT, 2008).

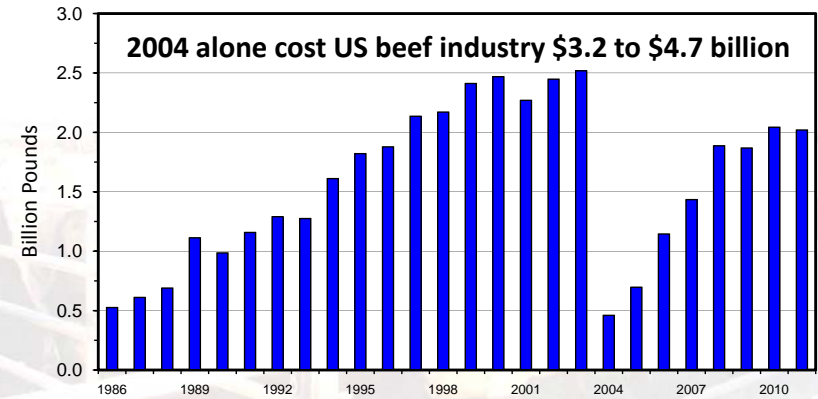
²M = Mandatory, V = Voluntary, NA = Not Allowed

* Indicates a voluntary program. The requirements listed are for those who choose to participate
Source: Bowling et al. (2008). Reproduced with permission from Editor-in-Chief, *Professional Animal Scientist*.

Source: NAIS Benefit-Cost Analysis Study Results

Market Access

U.S. Beef Exports, 1986-2010



Source: USDA-ERS &FAS; Compiled & Forecasts by LMIC and Coffey et al. 2005

What if we do nothing?

Net Annual Gain in Total Beef Revenue Less Variable Costs

Export Market Loss Status Quo

0%	10%	25%	50%
(\$/head sold)			
\$0.00	-\$7.31	-\$18.25	-\$36.47

Source: Schroeder et al. 2009, Benefit Cost Analysis of the National Animal Identification System.

What if we do something?...Example

Animal Identification and Tracing in the United States

“If the United States were able to increase beef exports to South Korea to levels occurring prior to the BSE discovery, this would represent an increase of more than 35%. Thus, maintaining market access to even a single large export market could completely offset beef producer costs of animal identification.”

Pendell, Brester, Schroeder, Dhuyvetter, and Tonsor
2010 *American Journal of Agricultural Economics*

Implications for the Beef Industry

Countries/firms WITH traceability/verification:

- Access new or sustain existing markets
- Protect brand valuation/differentiation
- Assist in reducing non-tariff trade barrier issues

Countries/firms WITHOUT traceability/verification:

- Risk falling behind on all fronts - Less Information

Traceability in the U.S. is treading water, waiting for something to happen

- If we adopt traceability, considerable potential economic value

The screenshot shows the AgManager website interface. The main navigation menu includes: Home / Livestock Marketing, Market Outlook and Newsletters, Charts and Databases, Marketing Extension Bulletins, USDA News, Reports, Futures Market Prices, Budgets, Economics, LRP and Policy, Related Sites, and Cross-Subject Areas. Below the menu is a table titled "Livestock & Meat Marketing: Animal ID and Traceability" with columns for Title, Author, Date, Factsheet, Paper, or Journal article, or Spreadsheet, and Video.

Title	Author	Date	Factsheet, Paper, or Journal article, or Spreadsheet	Video
Cow-Calf Producer Beliefs About Traceability	Tonsor and Schulz	July, 2010	Factsheet - MF2044	
Cow-Calf Producer Preferences for Traceability	Tonsor and Schulz	July, 2010	Factsheet - MF2943 Journal Article - JAE	WMV MP4
Benefit Cost Analysis of the National Animal Identification System	Schroeder, et al.	January, 2009	Research Paper	
Adopting Animal Identification Systems and Services in Kansas Auction Markets	Bolte, et al.	May, 2007	K-State Bulletin	
Lessons from Australia	Tonsor and Schroeder	Summer, 2006	Factsheet Presentation	
Estimating Costs of RFID (Radio Frequency Identification) Systems	Dhuyvetter, Blasi	July, 2005	Spreadsheet	
LMC's Cattle Identification Systems Fact Sheets and Presentations	LMC	2004-2006	View	

Questions/Comments

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