Secure Milk Supply Plan: Federal, State, Industry, and Academic Partnership

Eric Paulson

SMS SECURE MILK SUPPLY

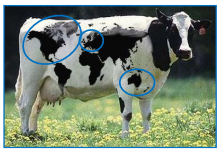
Introduction

- FMD = National **animal health** emergency
  - Animal, product movement restrictions
- Dairy industry: Just-in-time supply
  - Disrupted movement will impact normal business and raw milk supply
- Pre-event planning **critical** to maintain dairy industry survival and control FMD

"Secure Milk Supply Plan"

Why Should We Be Concerned?

World Organization for Animal Health (OIE) has 178 member countries



- 66 countries free of FMD
- 96 countries are endemic and have never been free of FMD
- 11 countries have free zones either with or without vaccination
- 5 countries were free and recently suffered from a re-emergence of FMD

Leon, E. A. Transboundary and Emerging Diseases. 59 (Suppl. 1) pages 1-14, 2012

Business Continuity Planning

- Minimize unintended negative effects of disease and disease response, while achieving response goals
  - Control or eradicate disease without "destroying" the industry

SECURE FOOD SUPPLY PLANS

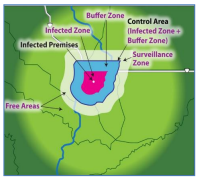
Business Continuity Planning

- Minimize unintended negative effects of disease and disease response, while achieving response goals
  - Control or eradicate disease without "destroying" the industry
- Provide risk-based solutions derived from scientific data, national and international standards
  - Ability to continue key operations of production of safe, high quality food

SECURE FOOD SUPPLY PLANS

USDA FMD Response Plan

- Establish FMD Control Area
  - Infected and Buffer Zone
  - Quarantine
  - **Movement by permit, only, based on risk**
  - Movement controls in place until Control Area released



- Secure Food Supply Plans working on business continuity for affected, not *infected* premises

SECURE FOOD SUPPLY PLANS

Why do we need the SMS Plan?

- Frequent milk movements

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- Frequent milk movements
- Just-in-time product
- Limited capacity, time
- Maintain income, business

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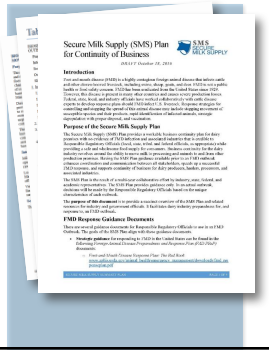
Secure Milk Supply Plan


Secure Milk Supply (SMS) Plan for Continuity of Business

- Partnership
- Voluntary participation
- Continued shipment of milk and milk products
- Provides tools to help protect cattle from FMD
- Guidance for issuing permits

SMS Partners

National Partners

Industry
- Working groups, topic experts

Academia
- Iowa State University
- University of California, Davis
- University of Minnesota

USDA-APHIS-VS
- National Preparedness and Incident Coordination Center (NPIC)
- Centers for Epidemiology and Animal Health (CEAH)

Regional Partners
- California
- Colorado
- New England States Animal Agricultural Security Alliance (NESAASA)
  - CT, MA, ME, NH, RI, VT
- Mid-Atlantic States
  - VA, MD, TN, NC, SC, DE, WV, NJ, NY, PA, GA, OH
- Michigan
- Pacific Northwest
  - WA, OR
- WI, MN

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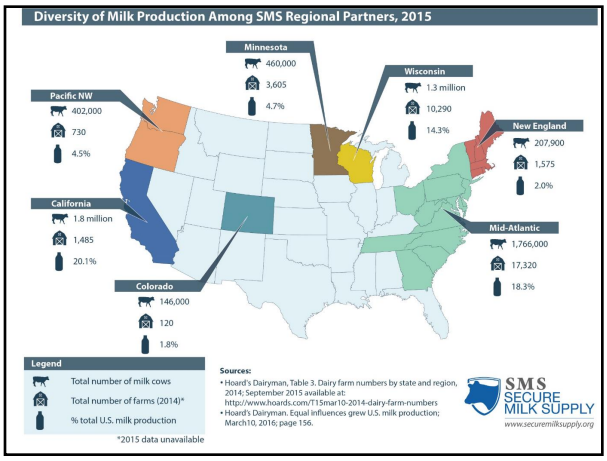

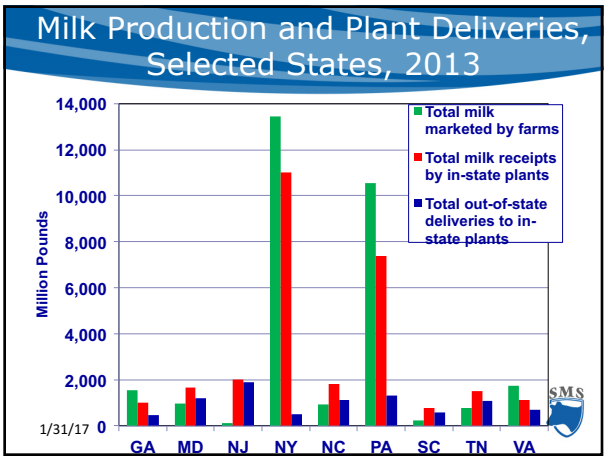

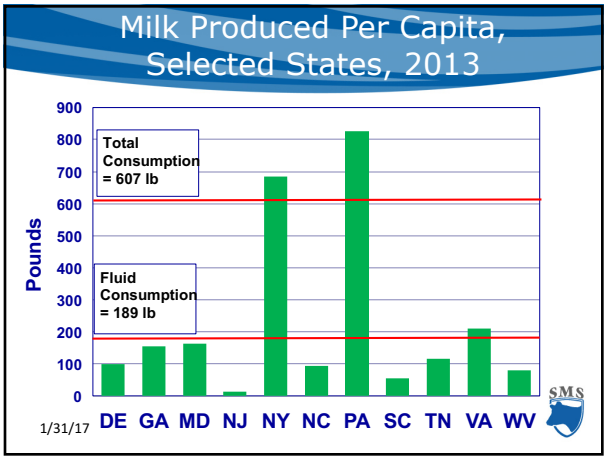

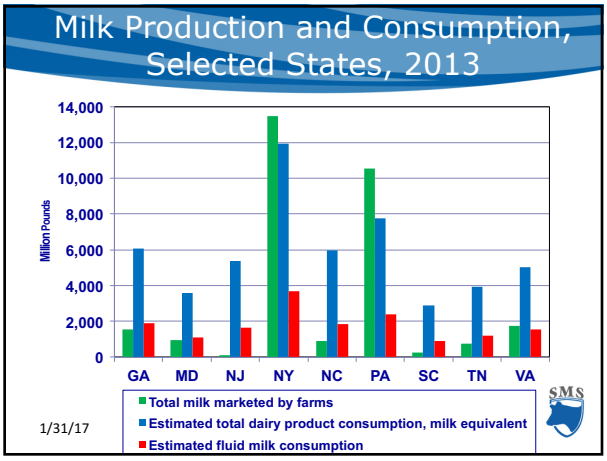

Raw Milk Sources within the 11-State Area, mil .lb

From \ To	DE	GA	MD	NJ	NY	NC
Delaware	R		R			R
Georgia		533				59
Maryland	2		470	53	13	25
New Jersey	29			116	1	
New York		R	.3	610	10,479	
North Carolina		R	1.8			718
Pennsylvania		R	1,129	1,260	481	37
South Carolina		12				33
Tennessee		4				107
Virginia		R	19			498
W. Virginia			2			

R = Restricted information

Major Suppliers of Raw Milk, mil .lb

From \ To	PA	SC	TN	VA	WV
Delaware					
Georgia		97	10	R	
Maryland	199	R	296	116	
New Jersey					
New York	327			3	
North Carolina	R	130	R	1	
Pennsylvania	6,052			531	
South Carolina		210		R	
Tennessee			441	R	
Virginia	R	45	37	420	
W. Virginia	9		R	51	R

R = Restricted information

Other Sources of Raw Milk

- 17 States outside the 12-State area supplied unpasteurized milk to cooperating state plants: AL, AR, FL, IL, IN, KS, KY, LA, MA, MI, MS, MO, NM, OH, OK, TX, WI
- 11 cooperating states + 17 other supply states = a supply area of 28 states
- Milk moves among the 11 states
  - Primarily from North to South (but sometimes from South to North)
  - Milk moves among the 11 cooperating states, even for deficit states

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Daily Milk Sales, 2013

Item	PA	SC	TN	VA	WV	11 States
Dairy cows, 000's	533	16	48	95	10	1,500
Dairy farms	7200	75	390	640	80	14,485
Herd size, cows	74	213	123	148	125	104
Milk/cow, lb	19,822	16,500	15,959	18,337	15,200	20,431
Farm price, $/100 lb	$21.60	$23.00	$21.50	$22.90	$20.30	$21.40
Milk Income /cow/day	$11.73	$10.40	$9.40	$11.50	$8.45	$11.92
Milk Income /herd/day	$868	$2,218	$1,157	$1,708	$1,057	$1,244
State milk prod., mil. lb	10,565	264	767	1,742	152	30,647
Milk Income /state/day	$6,252,239	$166,356	$451,224	$1,092,935	$84,537	$18,024,700

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Summary

- If there were total movement restrictions for 48 hours in all 12 states and all milk was lost:
  - ~ $2,450 per farm in lost milk sales
  - ~ $36,000,000 in lost farm milk sales
- Longer term losses depend on the size and location of control areas
- Farms in control areas may be prevented from shipping milk for several days, threatening viability

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Moving Milk During FMD Outbreak

Guidance

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Complex Issue

- Control Areas established around Infected Premises
  - Manage animal, animal product movement within, into, out of Control Area
- Regulatory Officials balance risks
  - Allowing raw milk movement
  - Not allowing movement, on-farm disposal of raw milk
- Decision based on risk, outbreak, Control Area characteristics

Proactive Risk Assessments

Risk of moving raw milk from an FMD infected, but undetected, dairy farm to processing

Shed the virus 2 to 4 days *before* clinical signs appear

FMD is NOT a public health or food safety concern

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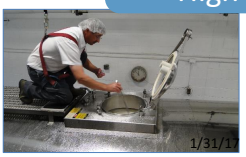
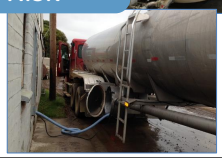
Risk of Raw Milk Movement

- Current industry practices
- Grade A Pasteurized Milk Ordinance (PMO)

Moderate to High Risk





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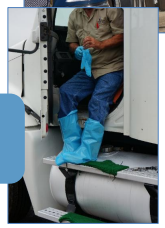
Risk Decreases with Biosecurity



Negligible to Moderate

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Biosecurity Protection

- Routine level of biosecurity is <u>not sufficient</u> to protect from a newly introduced, highly contagious disease (e.g., HPAI, FMD, CSF, ASF)
  - No herd or flock immunity
  - High levels of pathogen shedding and low levels of resistance
  - Recognize biosecurity is expensive, inconvenient for people
  - Losses from FMD infection expensive, inconvenient for cattle

Principles of Biosecurity

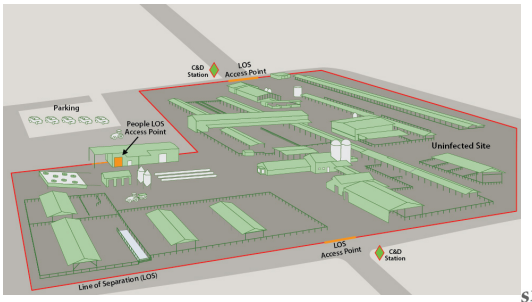
Producer's responsibility to keep their animals from becoming infected

1. Operation-specific enhanced biosecurity plan
2. Biosecurity Manager
   - Develop, monitor plan
3. Line of Separation (LOS)
   - Nothing should cross LOS that can introduce virus
   - Outdoor housed animals more difficult to protect from infection, but LOS concept can help

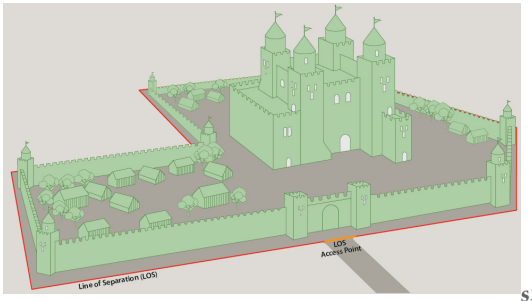
Line of Separation (LOS)

- A clearly identified boundary around or within a dairy premises to separate off-farm traffic from on-farm movements of vehicles, items, people, animals
- Only cross LOS through a controlled access point following appropriate biosecurity measures

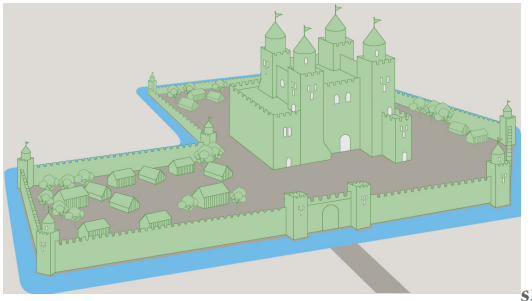
SMS Plan: LOS



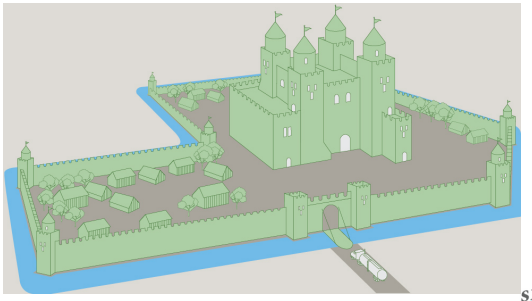
SMS Plan: LOS



SMS Plan: LOS



SMS Plan: LOS



Every Tanker Entry Crosses LOS

Milk House OUTSIDE LOS

Biosecurity Impact

- Risk assessment = Negligible
- Industry, Officials = Acceptable
- Dairies in a Control Area
  - Move raw milk until told to stop?
  - Stop raw milk until permitted to move?
- Balance the risks…

Milk Movement from Control Areas in FMD Outbreak

Dairy premises that are **NOT Infected, Suspect, or Contact Premises** will be informed by Responsible Regulatory Officials:

EITHER

- Continue moving milk to processing
  - May require a Premises Identification Number (PIN) and some form of pre-certification by state

OR

- Stop moving milk, become a Monitored Premises
  - Requires having a valid PIN, be inspected to ensure adequate biosecurity and surveillance, and obtain a milk movement permit

http://securemilksupply.org/Assets/SMS-Milk-Movement-FMD-Control-Areas_FINAL.pdf

Milk Processor Recommendations

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FMD Virus in Dairy Products

- Animal health issue: Cows can shed FMD virus in milk before showing clinical signs
- Standard milk pasteurization (HTST) and some cheese processing times and temperatures used in the US are not sufficient to completely eliminate FMDv from dairy products
  - No research on higher times/temps ability to fully inactivate FMD virus
- **FMD is not a public health or food safety concern**

Inactivation of FMDv in Milk, Cream

Animal Consumption

1. HTST process applied twice; or
2. HTST combined with another physical treatment
   - Maintaining a pH 6 or lower for at least 1 hour or
   - Additional heating to at least 72°C (161°F) combined with desiccation;
3. UHT combined with another physical treatment referred to in point 2 above

Human Consumption

1. A process applying a minimum temperature of 132°C (270°F) for at least 1 second (UHT), **-OR-**
2. Milk with pH less than 7.0, a process applying a minimum temperature of 72°C (161°F) for at least 15 seconds (HTST), **-OR-**
3. Milk with pH of 7.0 or over, the HTST process applied twice

www.oie.int/index.php?id=169&L=0&htmfile=chapitre_fmd.htm

Management of Infected Premises

- Large or prolonged outbreak
  - Depopulation no longer an option
- Acceptable options for milk from infected farms
  - Infected, Suspect, Contact Premises
  - Not a public health or food safety concern
  - Work with processors, communications
- Managing infected animals through to recovery

Remaining Challenges

- Pre-certification process
  - Farms, processors
- Information management and timely, scalable permitting
- FMD vaccine surge capacity
- Consumer outreach and education
- Mitigation of risk to rapidly growing dairy export market

Special Thanks

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  North Carolina State University

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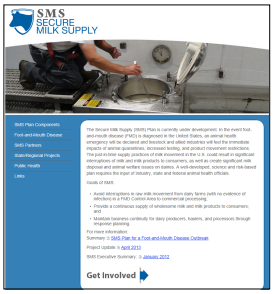

Questions?

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Welcome input and engagement!

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