

Maine Workshop on FMD Vulnerability and Preparedness



May 23, 2011

Topics to Help Focus Discussion

- 1. Vulnerability assessment for continuity of dairy operations**
- 2. National best practices and response plans**
 - **Federal Emergency Plans (FAD PReP)**
 - **Resources for communicating with the public and stakeholders about FMD risk and response**
 - **Secure Milk Supply (SMS) and Secure Egg Supply (SES) Plans as models for improving preparedness**
- 3. Suggested issues for New England states to pursue**

Importance of Milk Movement for FMD Planning

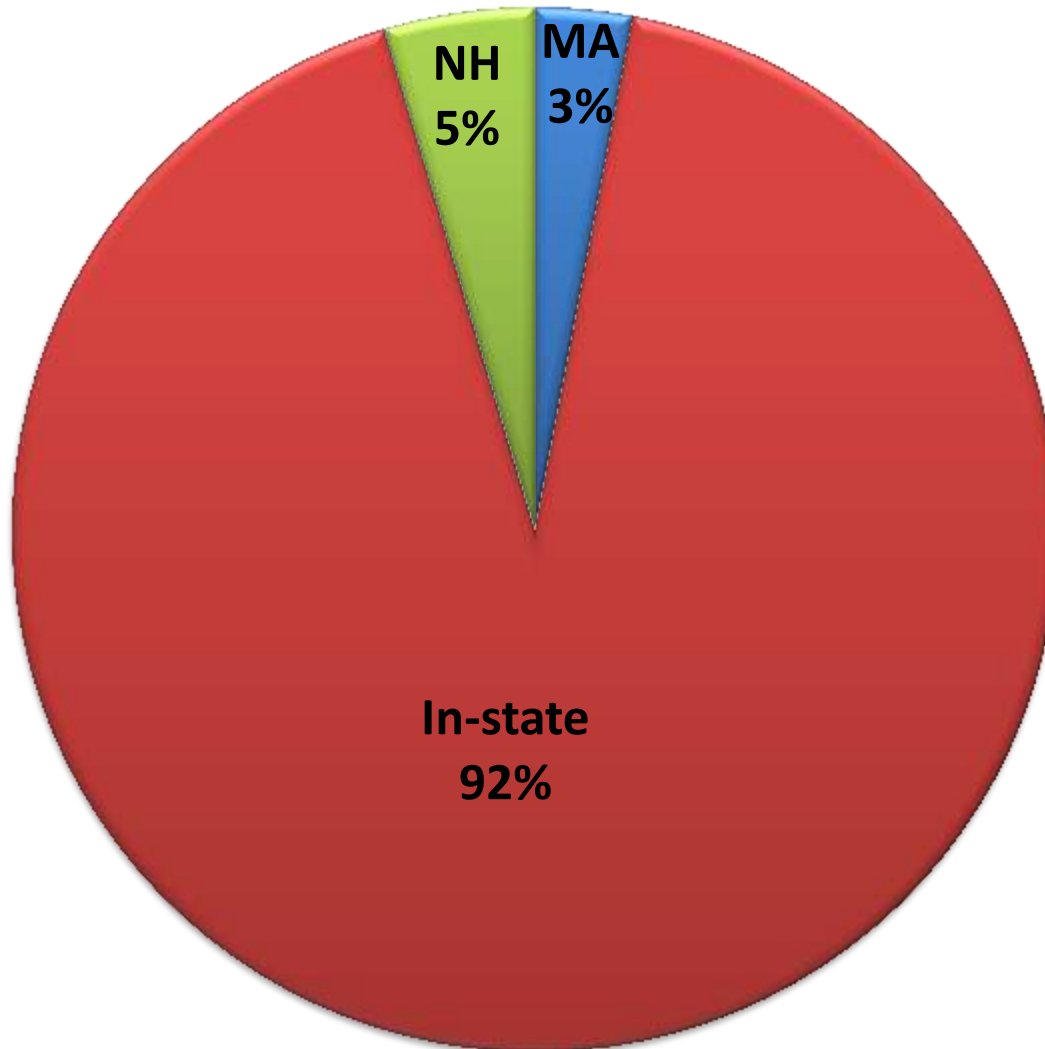
FMD response will require controlling movement of animals and animal products, including traffic to and from farms, but . . .

- **Consumers rely on milk moving from farm to table.**
- **Farms, co-ops, processors, haulers, and vendors rely on milk movement to stay in business.**
- **Animals rely on farm deliveries for feed and care.**
- **Environmental quality depends on keeping milk flowing and animals alive.**

Maine

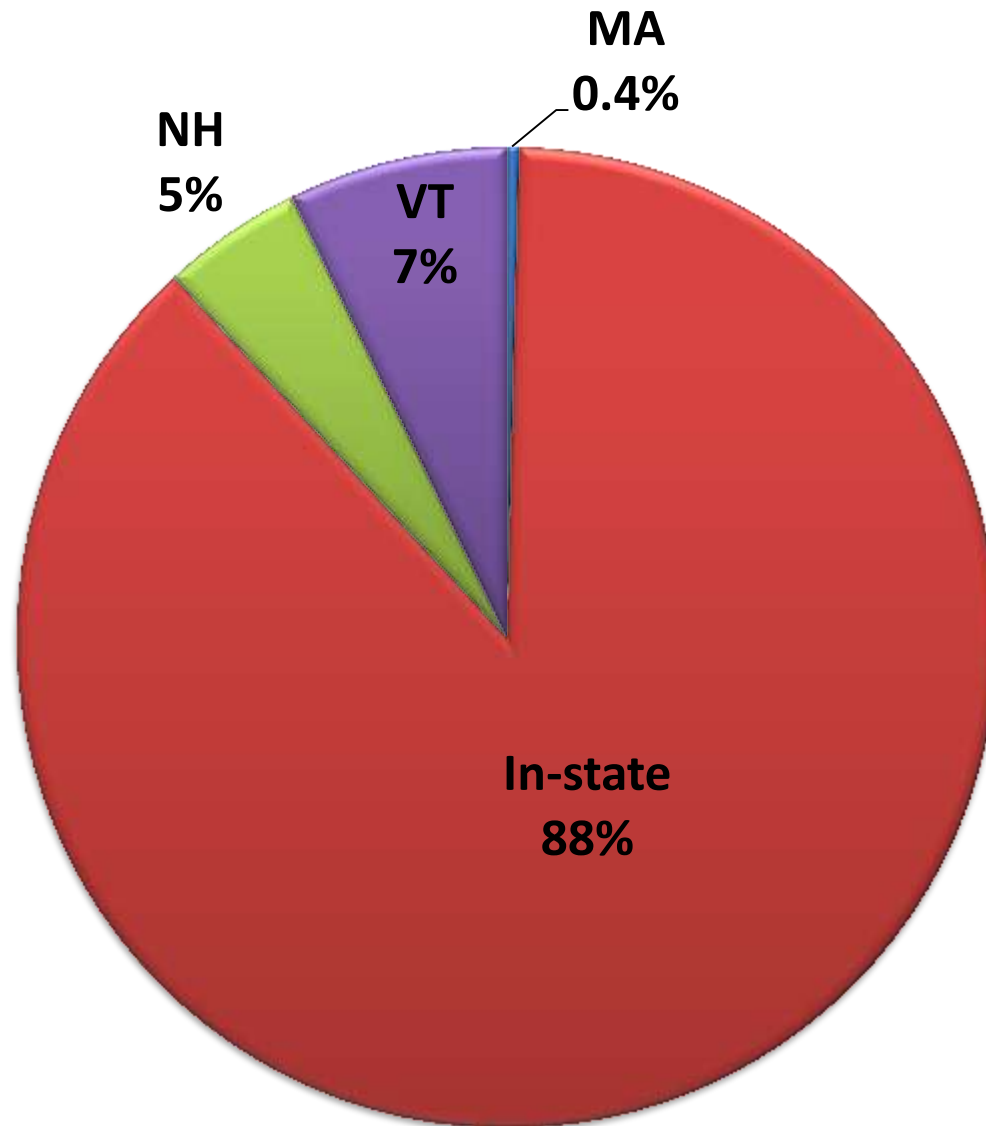


Destinations for ME Dairy Farms: Where Milk Goes



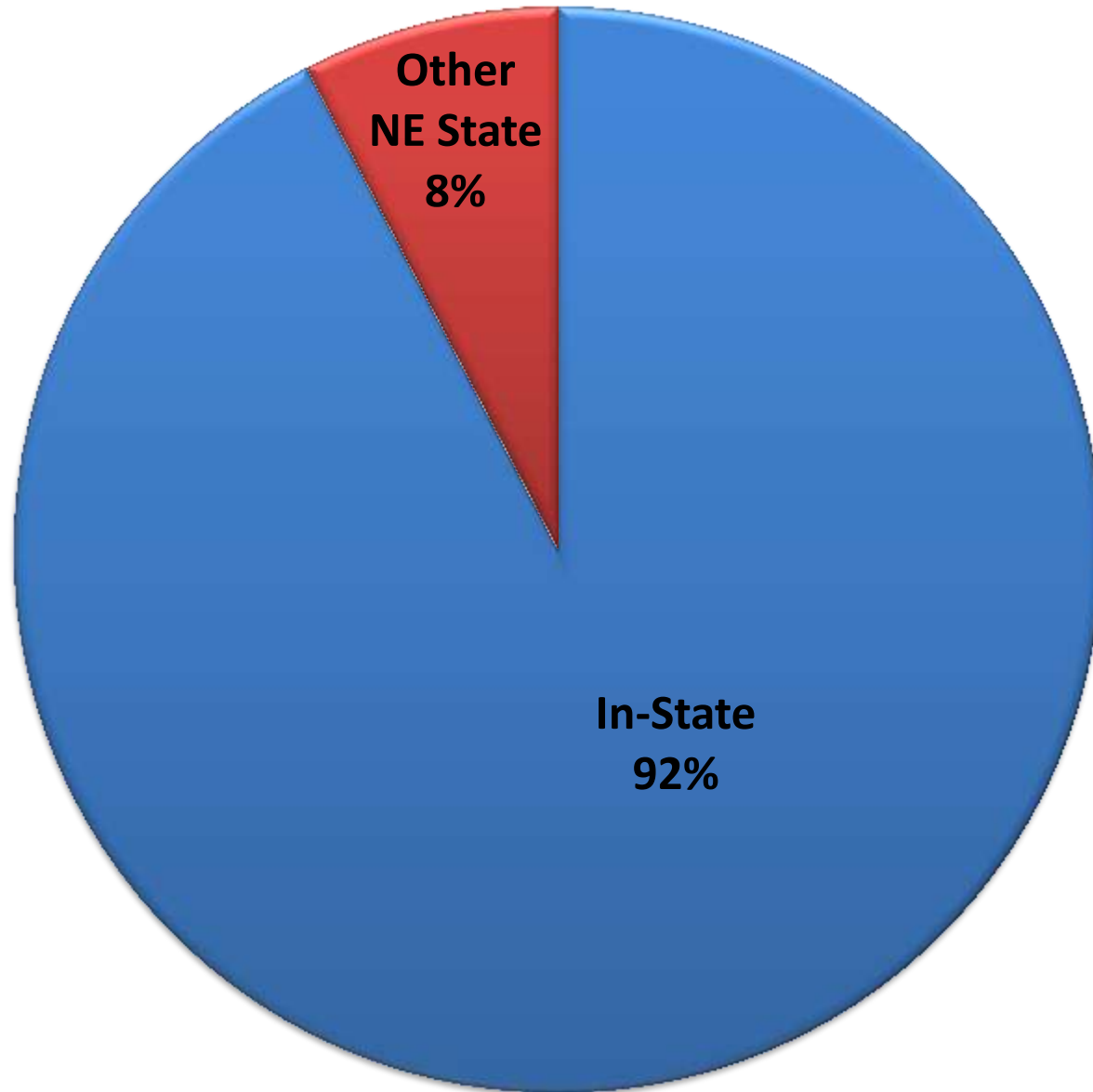
1/2010 Production = 50 million pounds⁵

Suppliers for ME Dairy Plants: Where Milk Comes From

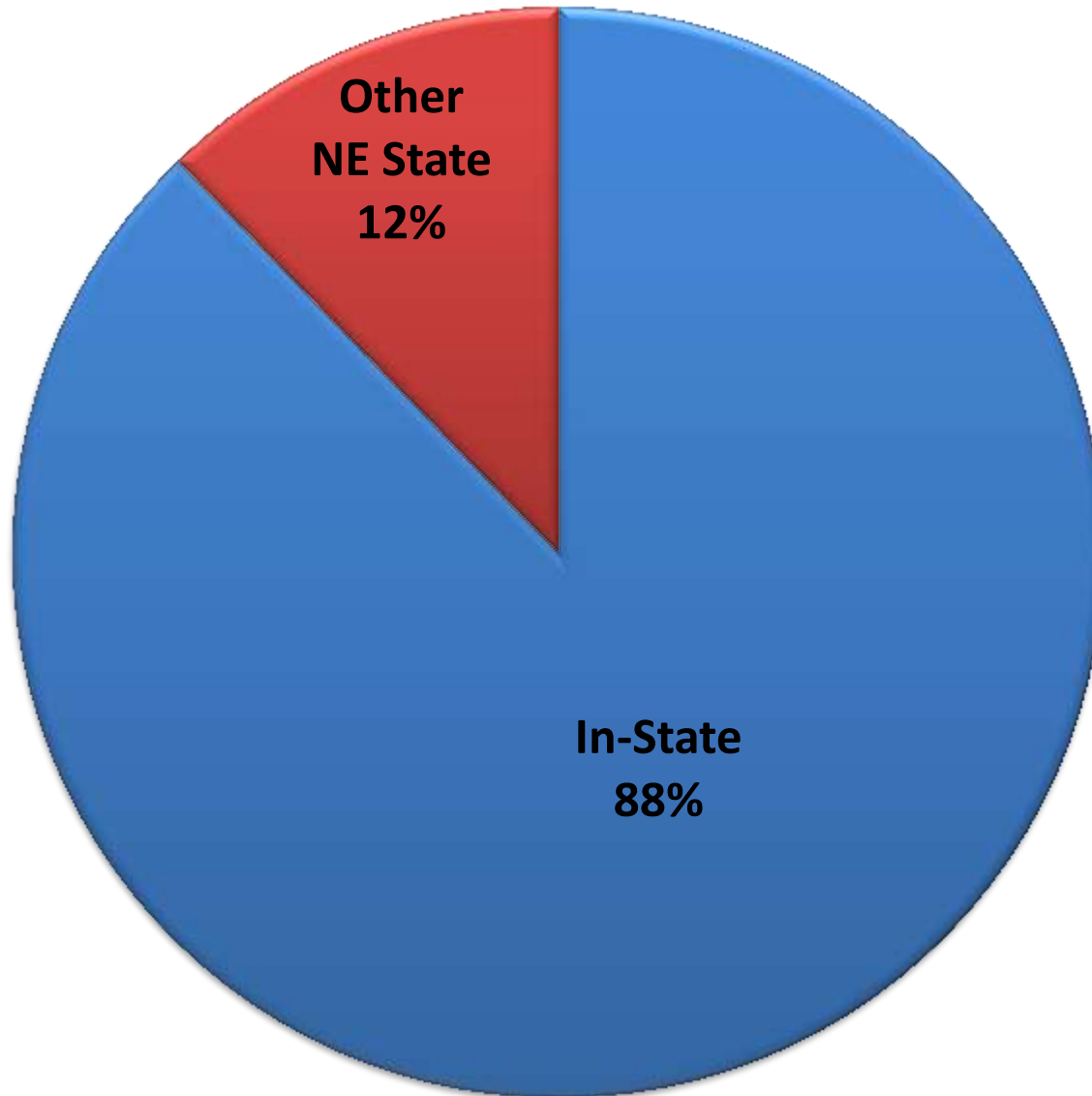


1/2010 Intake = 52 million pounds⁶

Demand for Milk from ME Dairy Farms

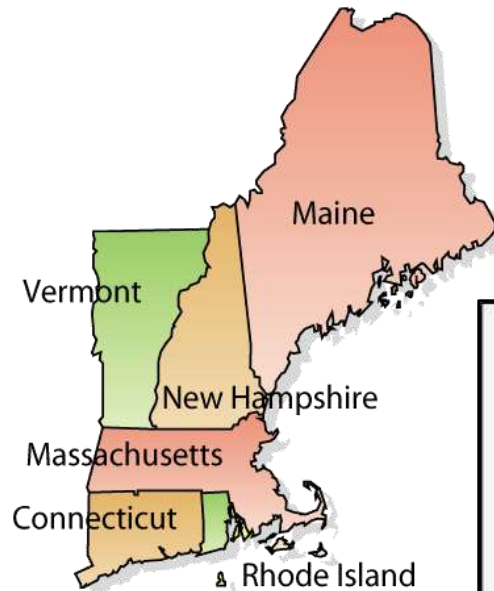
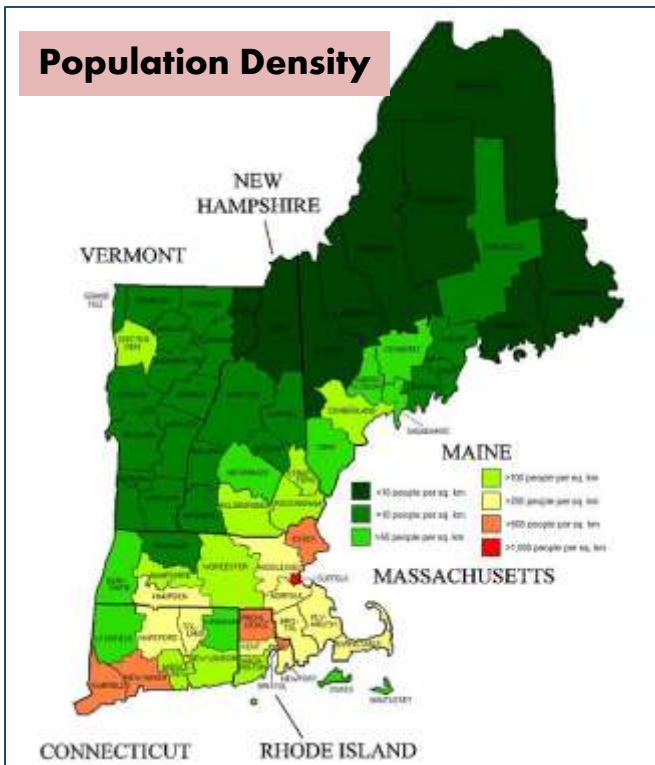


Supply for ME Dairy Plants



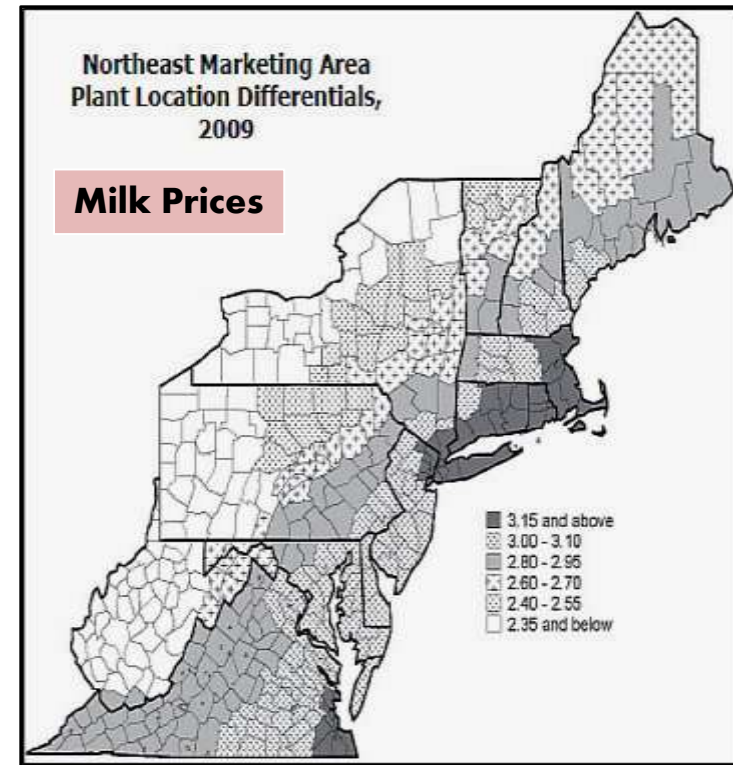
New England

Population Density

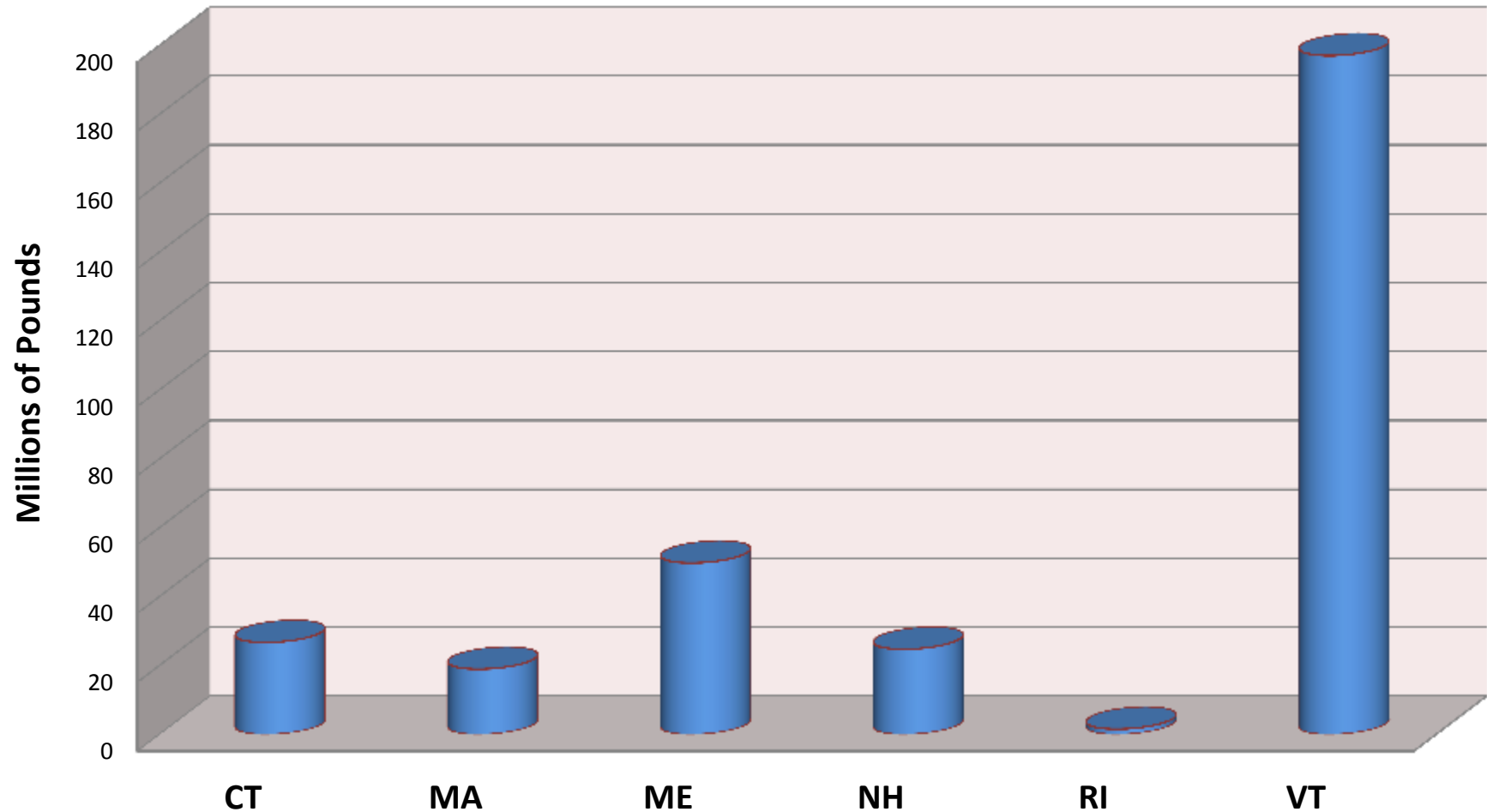


Northeast Marketing Area Plant Location Differentials, 2009

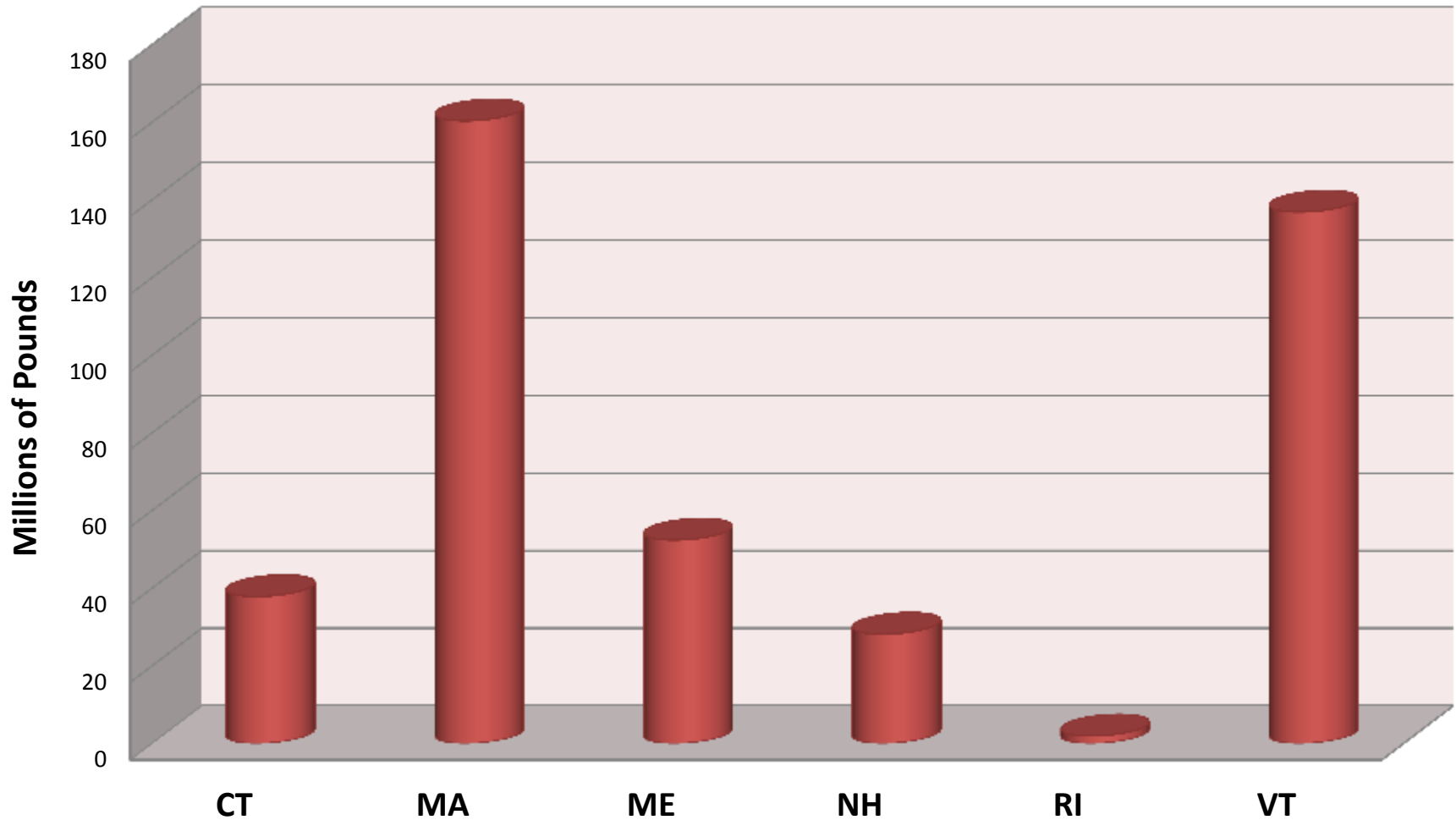
Milk Prices



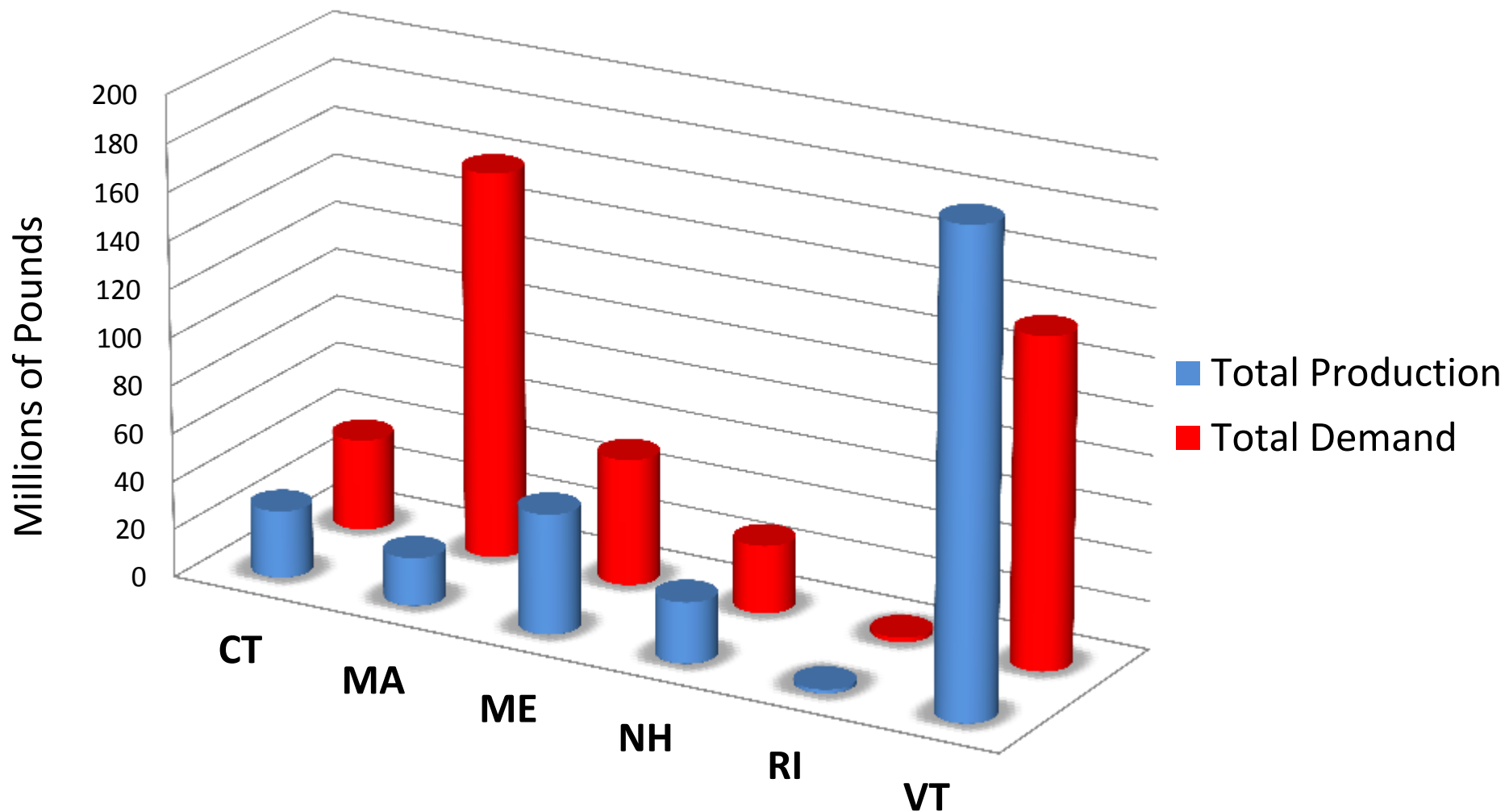
Milk Shipped from NE Dairy Farms



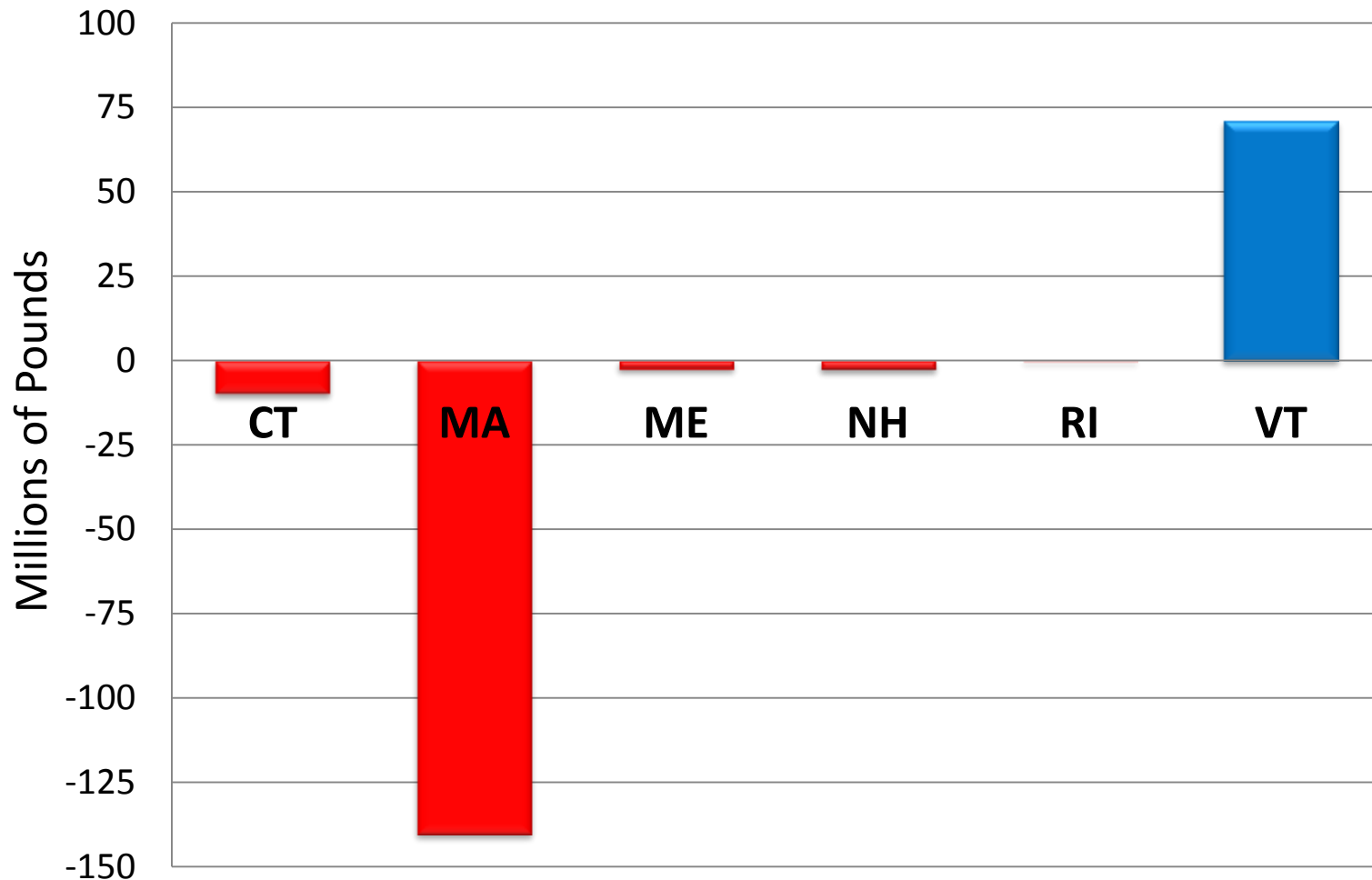
Milk Shipped to NE Dairy Plants



Regional Milk Markets: Farm Output and Plant Intake in NE States



Net Markets for Interstate Milk Movement: Farm Supply Minus Plant Demand in NE States



Lessons of State-by-State Comparison (1)

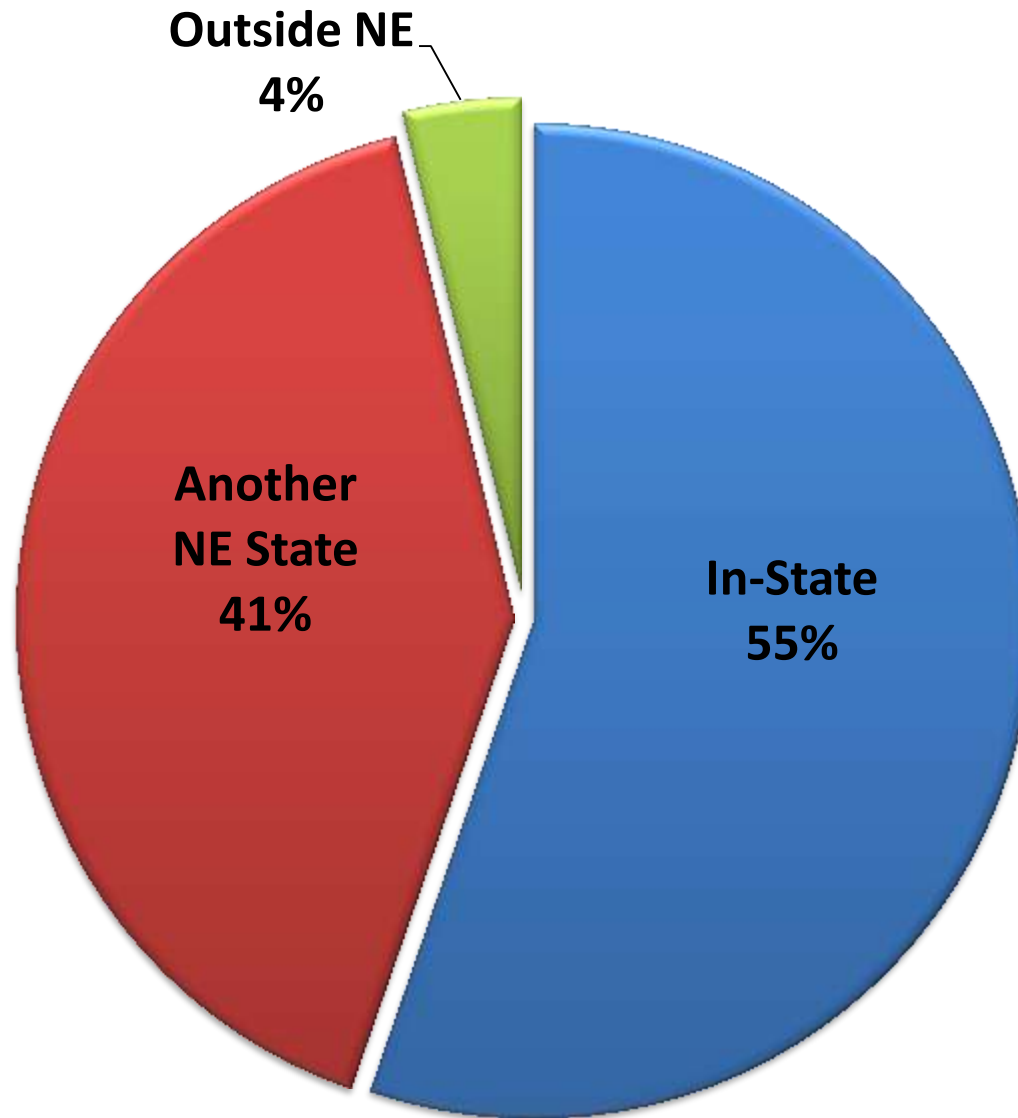
- **The six states vary greatly in the amount of milk that is produced and processed in-state.**
- **They also vary greatly in their reliance on routine inter-state milk movement.**
 - Some states (especially MA) are milk importers; other states (especially VT) are milk exporters.

Lessons of State-by-State Comparison (2)

Vulnerability to infection and risks for continuity of operations vary with the role of each state in an interdependent, regional production and marketing system.

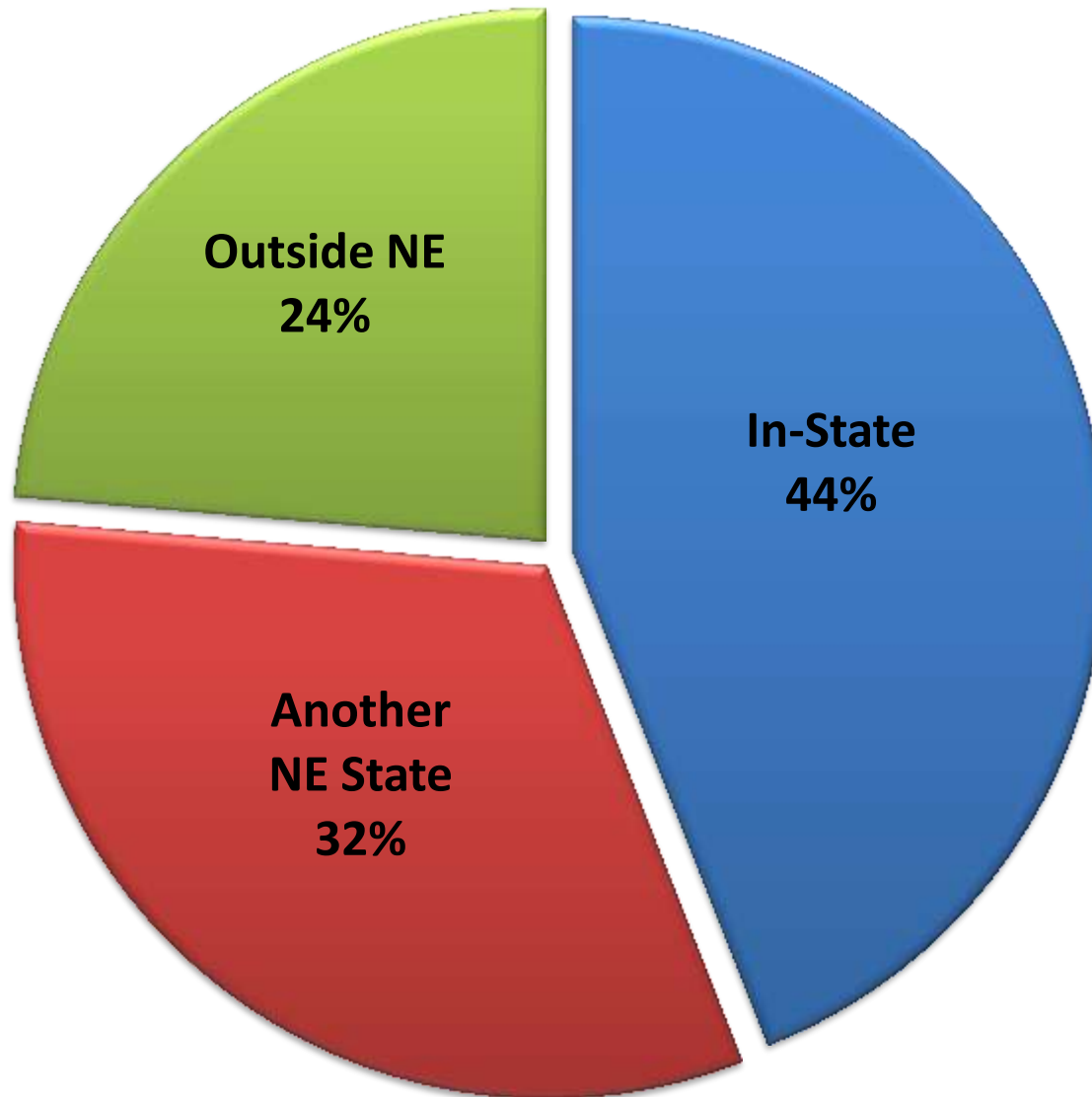
In all New England states, both markets for farm sales and supplies for processors depend on interstate commerce.

Destination of Milk Produced on New England Farms



1/2010 Total = 332 million pounds

Source of Milk Supply for New England Dairy Plants



1/2010 Total = 418 million pounds¹⁷

Lessons of Focus on Inter-Regional Milk Movement (1)

**With important exceptions,
the region is less dependent on
inter-regional than
interstate transport
of raw milk.**

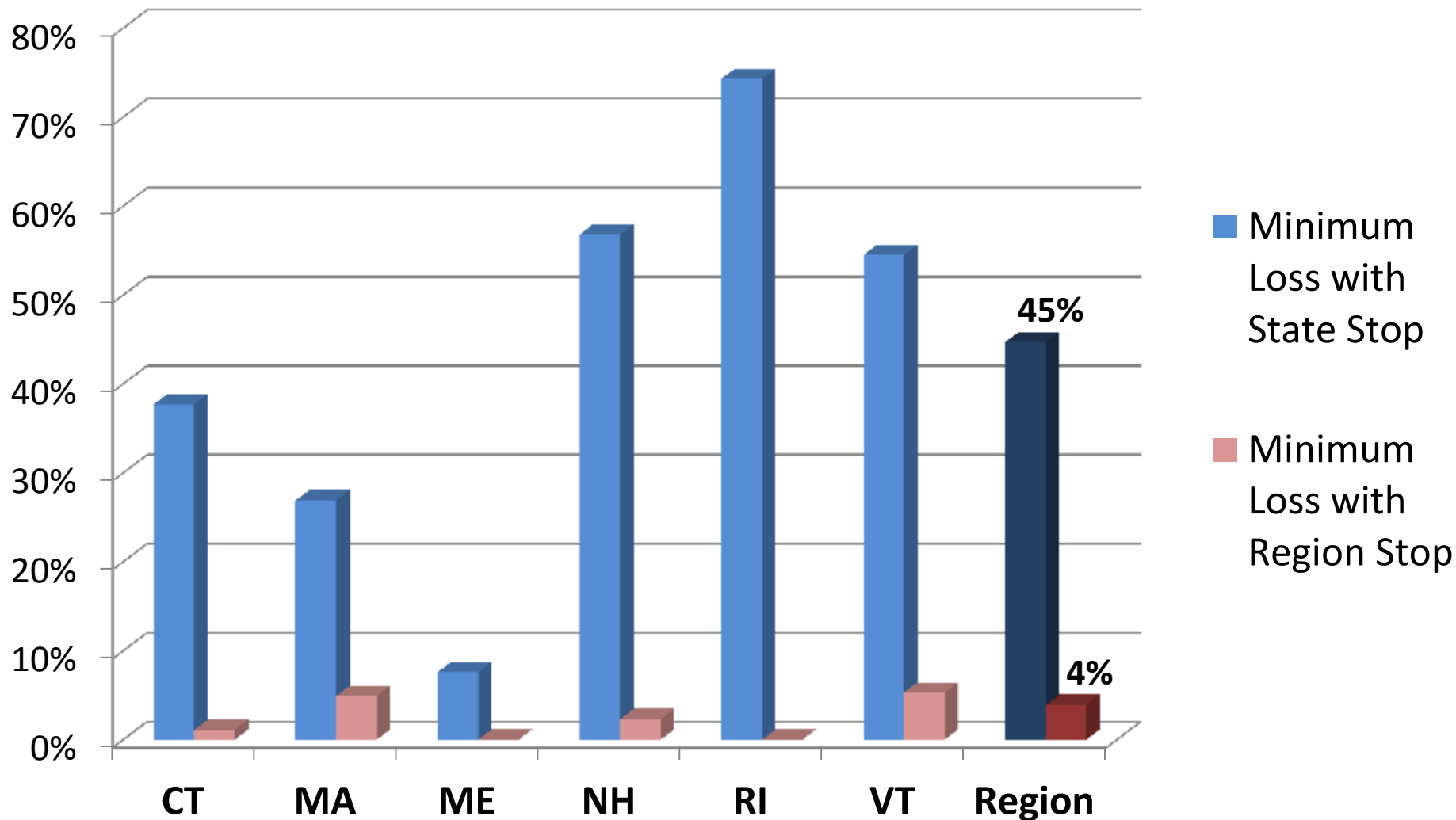
Lessons of Focus on Inter-Regional Milk Movement (2)

- **Regional raw milk exports constitute a small share of the total market for milk production in New England.**
 - 13 of 333 million pounds total in January 2010.
 - Out-of-region plants increased the demand for New England milk by only 4% (peaking at just 5% in VT).
- **Regional raw milk imports are a significant but still relatively small share of the total supply for milk processing in New England.**
 - 99 of 418 million pounds in January 2010.
 - Out-of-region farms supplied 24% of all the milk processed in New England plants (peaking at 34% of the supply for CT, 31% for VT and 27% for MA).
- **For both supply and demand of raw milk, New York is by far the most important trade partner for New England.**

Vulnerability of Farms Due to Restrictions on Milk Movement

Farm Vulnerability		Minimum Loss If State Borders Closed			Minimum Loss If Region Border Closed		
Place	Total Production	Pounds Per Month	Pounds Per Day	Share of Production	Pounds per Month	Pounds Per Day	Share of Production
CT	27,874,584	10,508,901	338,997	37.7%	316,803	10,219	1.1%
MA	19,962,869	5,375,046	173,389	26.9%	986,975	31,838	4.9%
ME	49,792,758	3,806,496	122,790	7.6%	0	0	0.0%
NH	25,339,431	14,394,721	464,346	56.8%	587,219	18,943	2.3%
RI	1,565,845	1,163,636	37,537	74.3%	0	0	0.0%
VT	207,988,465	113,395,540	3,657,921	54.5%	11,100,084	358,067	5.3%
Region	332,523,952	148,644,340	4,794,979	44.7%	12,991,081	419,067	3.9%

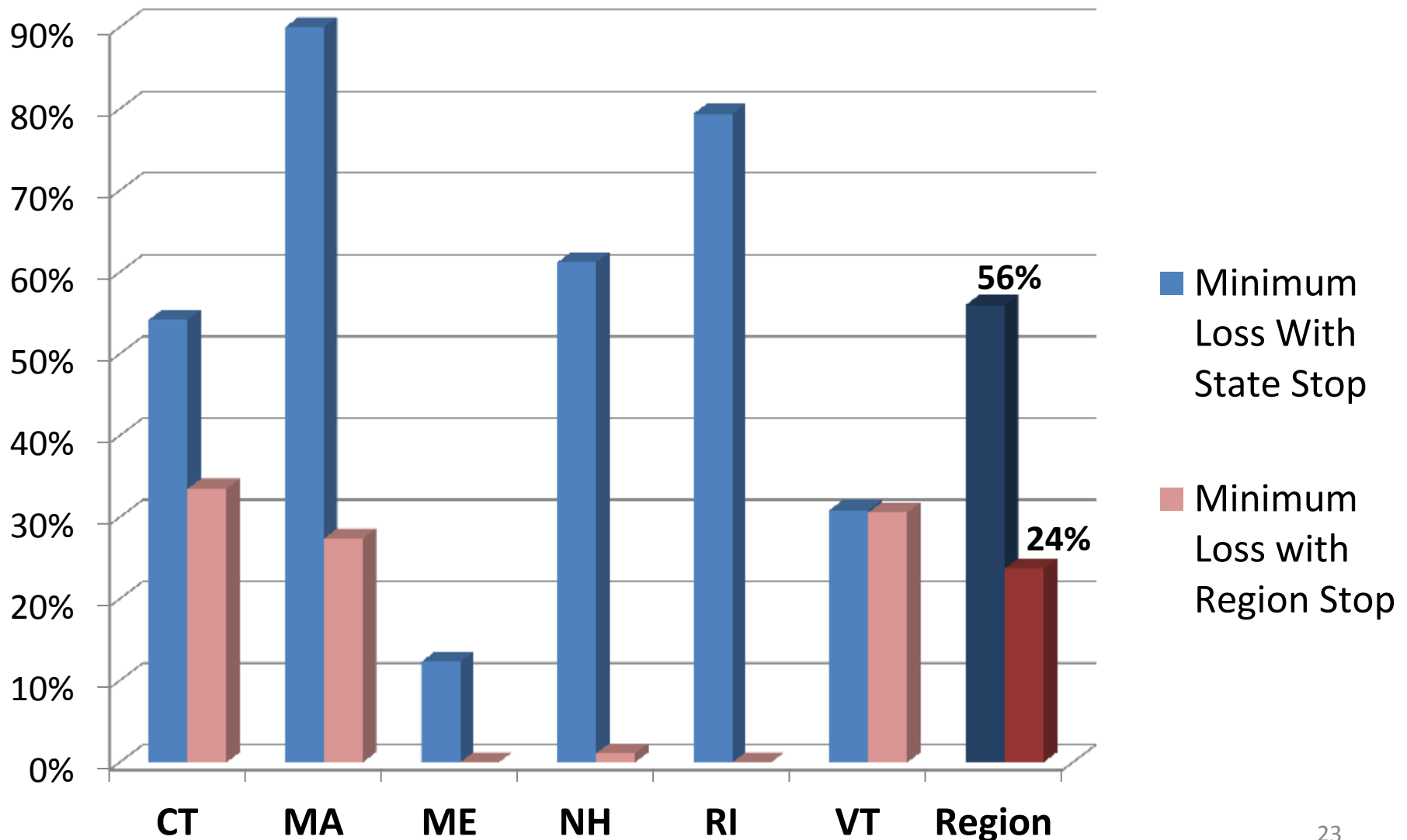
Farm Sales Loss If Milk Movements Are Stopped at State vs. Region Levels



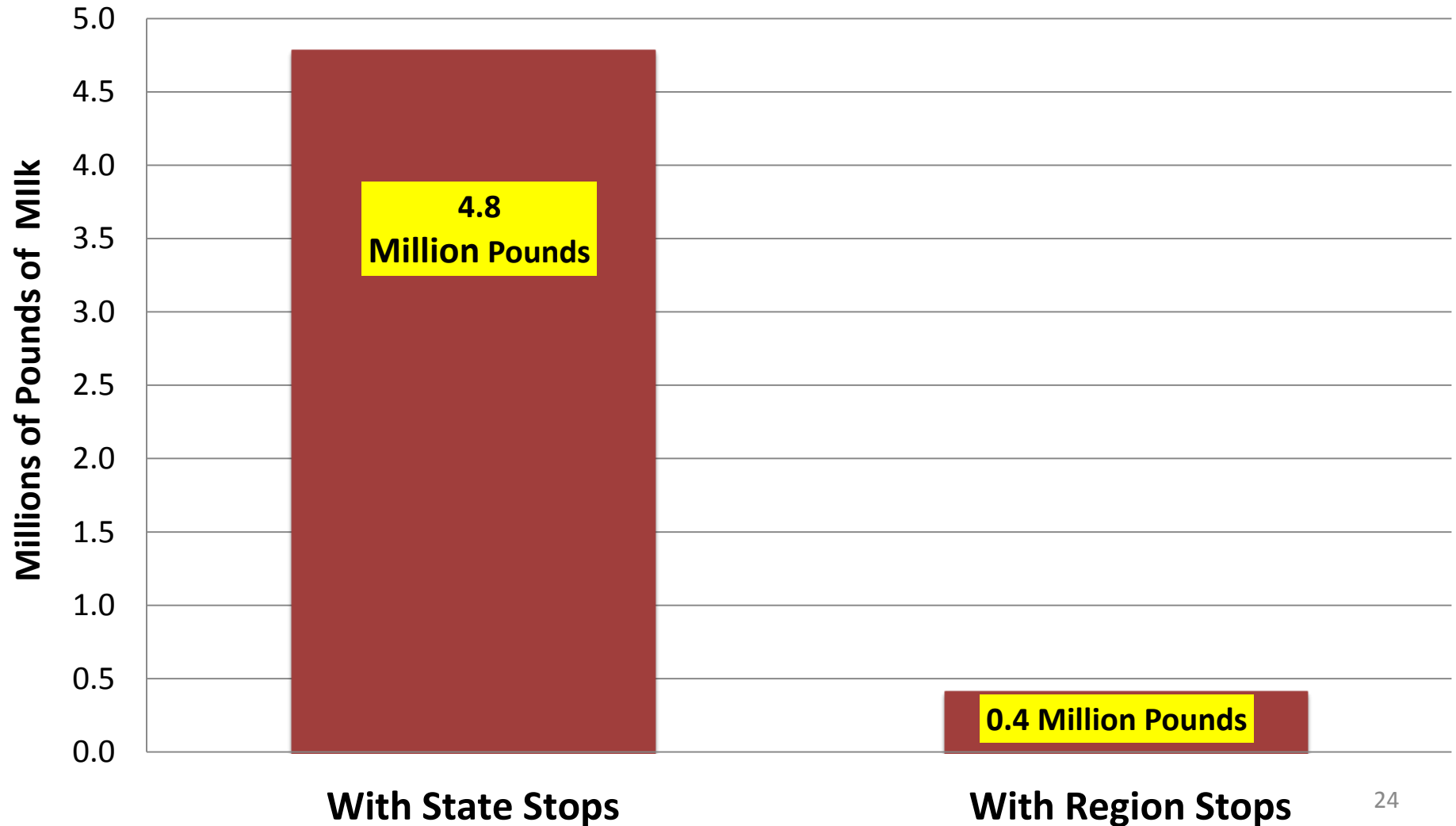
Vulnerability of Dairy Plants Due to Restrictions on Milk Movement

<u>Plant</u> Vulnerability (1/2010)		Minimum Loss If State Borders Closed			Minimum Loss If Region Border Closed		
Place	Total Intake	Pounds Per Month	Pounds Per Day	Share of Intake	Pounds per Month	Pounds Per Day	Share of Intake
CT	37,885,320	20,519,637	661,924	54.2%	12,674,489	408,854	33.5%
MA	160,395,926	145,808,103	4,703,487	90.9%	43,993,096	1,419,132	27.4%
ME	52,411,125	6,424,863	207,254	12.3%	0	0	0.0%
NH	28,185,877	17,241,167	556,167	61.2%	309,542	9,985	1.1%
RI	1,950,965	1,548,756	49,960	79.4%	0	0	0.0%
VT	136,901,096	42,308,171	1,364,780	30.9%	41,869,171	1,350,618	30.6%
Region	417,730,309	233,850,697	7,543,571	56.0%	98,846,298	3,188,590	23.7%

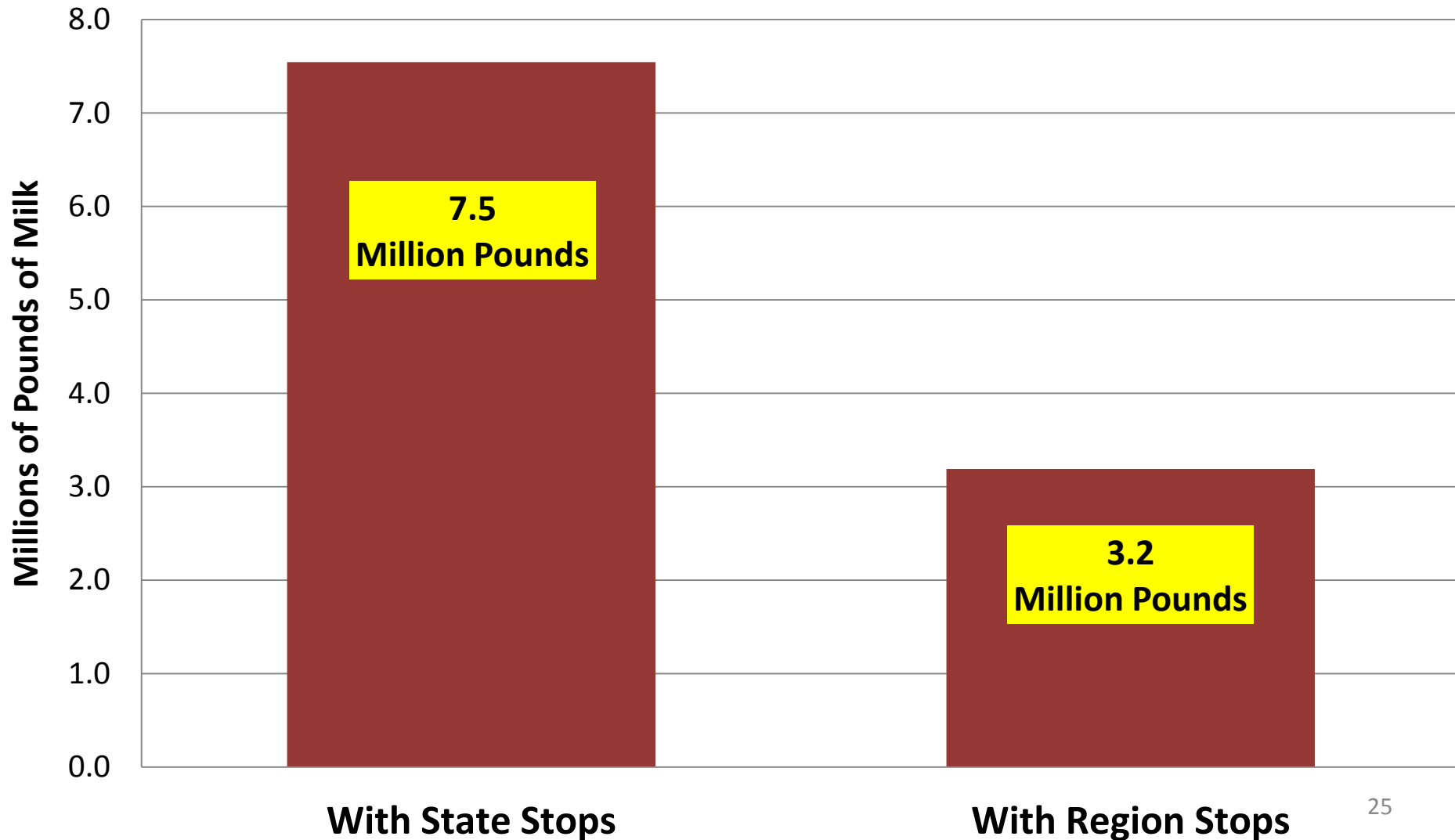
Dairy Plant Supply Loss If Milk Movements Are Stopped at State vs. Region Levels



Minimum Market Loss and Waste Generated Per Day on New England Dairy Farms With State vs. Regional Stops of Milk Movement



Minimum Supply Loss Per Day for New England Dairy Plants With State vs. Regional Stops of Milk Movement



Lessons of Comparing State and Regional Border Controls in FAD Response (1)

- Effects of restrictions on milk movement, as in an FMD response, would be severe for all stakeholders but also vary greatly among states and sectors of the dairy industry in New England.
- If milk movement were stopped at state borders rather than allowed to move within the region, environmental challenges and market-share losses would be particularly heavy for New England dairy farms.
- Stopping milk movement at the region level would be more immediately challenging for New England dairy processors (especially in CT, VT, and MA) than farmers, but they are interdependent.

Lessons of Comparing State and Regional Border Controls in FAD Response (2)

**Continuity of business for all stakeholders
would be much less vulnerable
if milk movement restrictions were applied
at the border of the region
than the border of each state.**

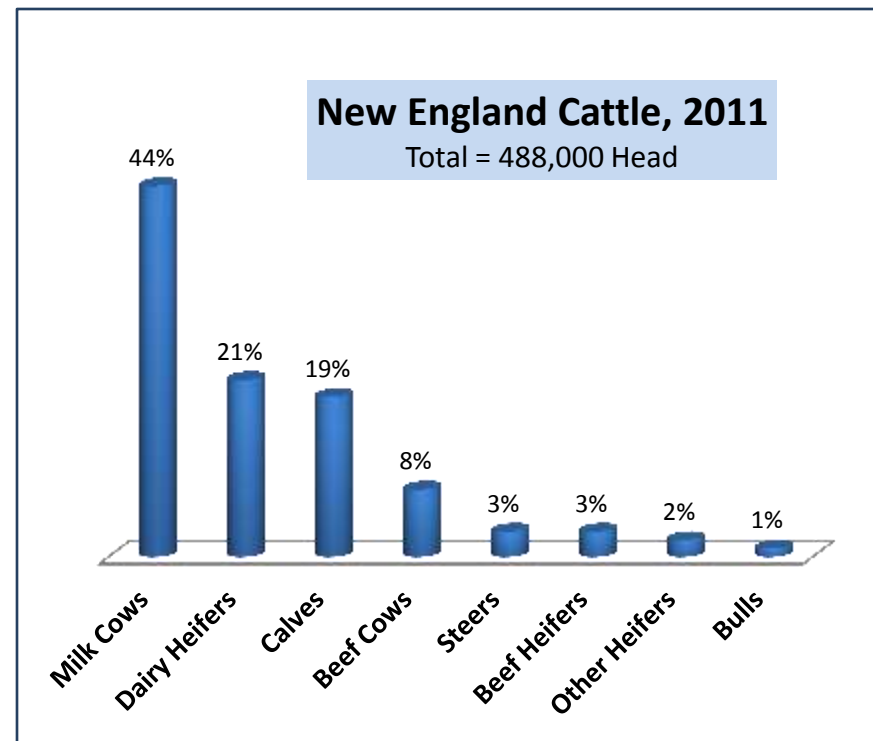
Planning for Dairy Continuity in the Context of FMD response

Vulnerability to FMD and Dairy Continuity is far more than a matter of moving milk.

- International trade and regulatory environments.
- National markets and interstate commerce.
- Regionally, FMD-susceptible animals are hugely concentrated on but hardly limited to milking parlors on commercial operations.

FMD-Susceptible Animals in New England

- **Cows** currently milked for regulated markets:
215,000 head on 1,700 farms (of 2,500 farms with milk cows)
- **Cloven-hoofed Livestock** (all ages, both male and female):
593,000 head, including:
 - 488,00 cattle,
 - 27,000 swine
 - 51,000 sheep
 - 27,000 goats
- **Wildlife:**
660,000 white-tailed deer



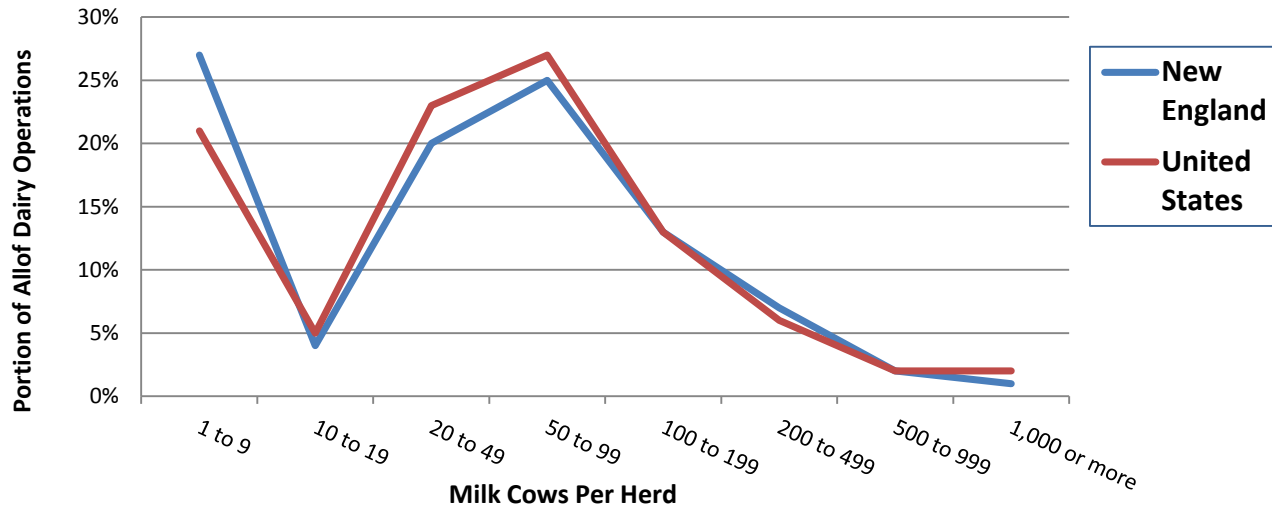
Planning for Dairy Continuity in the Context of FMD response

Other authorities and priorities will be higher.

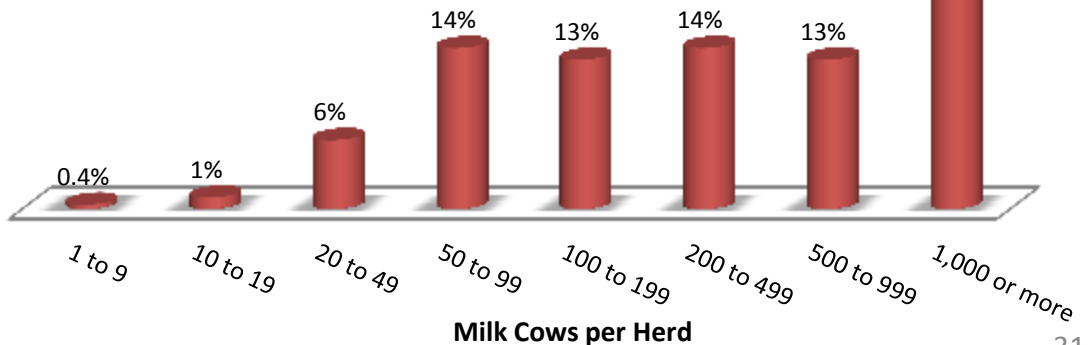
- Nearly all strategies for moving milk entail assessing risks and allocating resources that are subject to incident command and more comprehensive, competing priorities.

Populations and Futures: Cattle & Farmers

Number of Dairy Operations by Herd Size
in New England and in the U.S., 2007



Number of Milk Cows in the U.S.
by Herd Size, 2007



Federal FMD Response Plans

- **Assembled on-line as FAD PReP**
(*Foreign Animal Disease Preparedness and Response Plan*)

fadprep.lmi.org

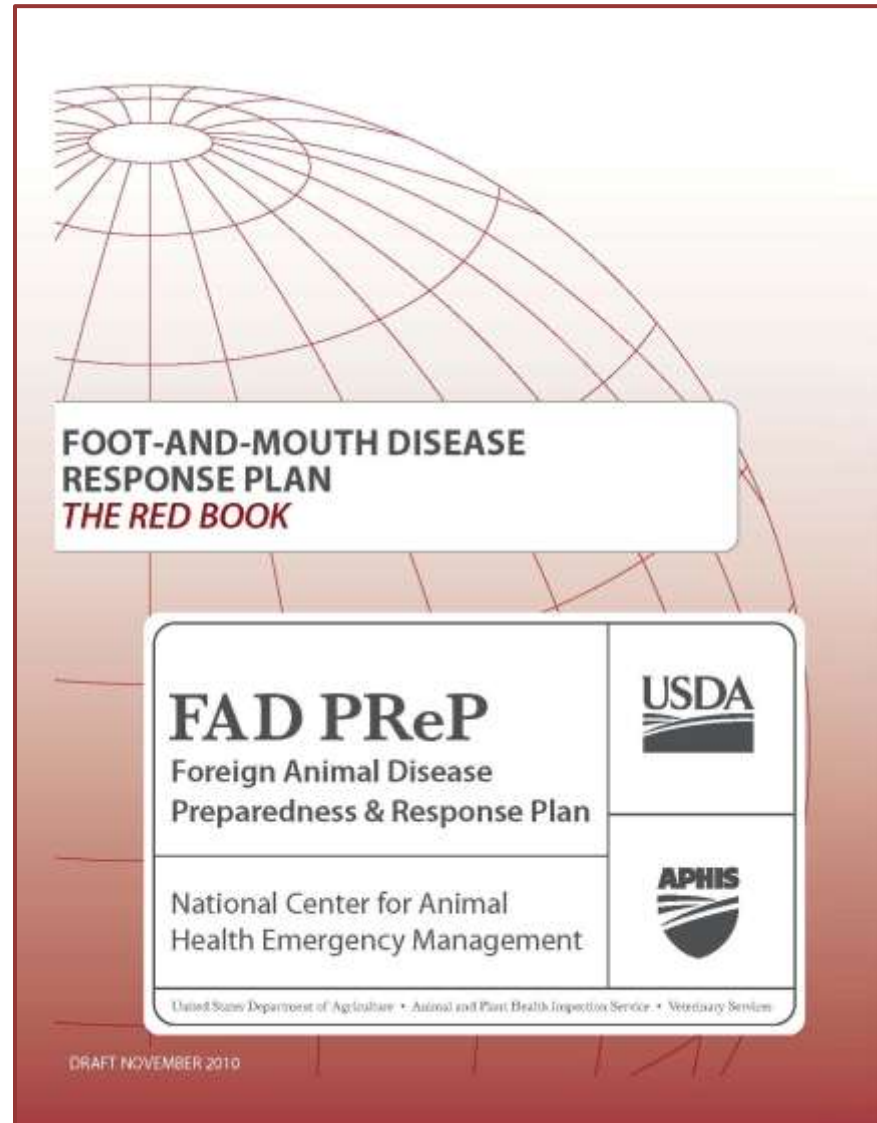
- **Strengths:**
 - Up-to-date, especially for HPAI and FMD getting there.
 - Components easily accessed and navigated.
 - Clear, practical options for meeting performance standards (more than ideals and less than mandates).

Suggested Uses of FAD PReP

- **Anticipate federal response (What “they” will do).**
- **Learn federal expectations of state and local stakeholders (What we’ll have to do).**
- **Find definitive, approved references, components, or models for state and local plans.**

The Red Book

fadprep.lmi.org



Aims of FMD Response

“At the start of any FMD outbreak, the desired outcome is to reestablish FMD-free status.” (5.4)

Goals (5.1.1):

1. *Detect, control, and contain FMD in animals as quickly as possible.*
2. *Eradicate FMD using strategies that seek to stabilize animal agriculture, the food supply, and the economy.*
3. *Provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products.*

Strategic Principles (5.1.2.1):

1. *Prevent contact between FMD virus and susceptible animals.*
2. *Stop the production of FMD virus in infected or exposed animals.*
3. *Increase the disease resistance of susceptible animals to the FMD virus or reduce the shedding of FMD virus in infected or exposed animals.*

More Strategy Options

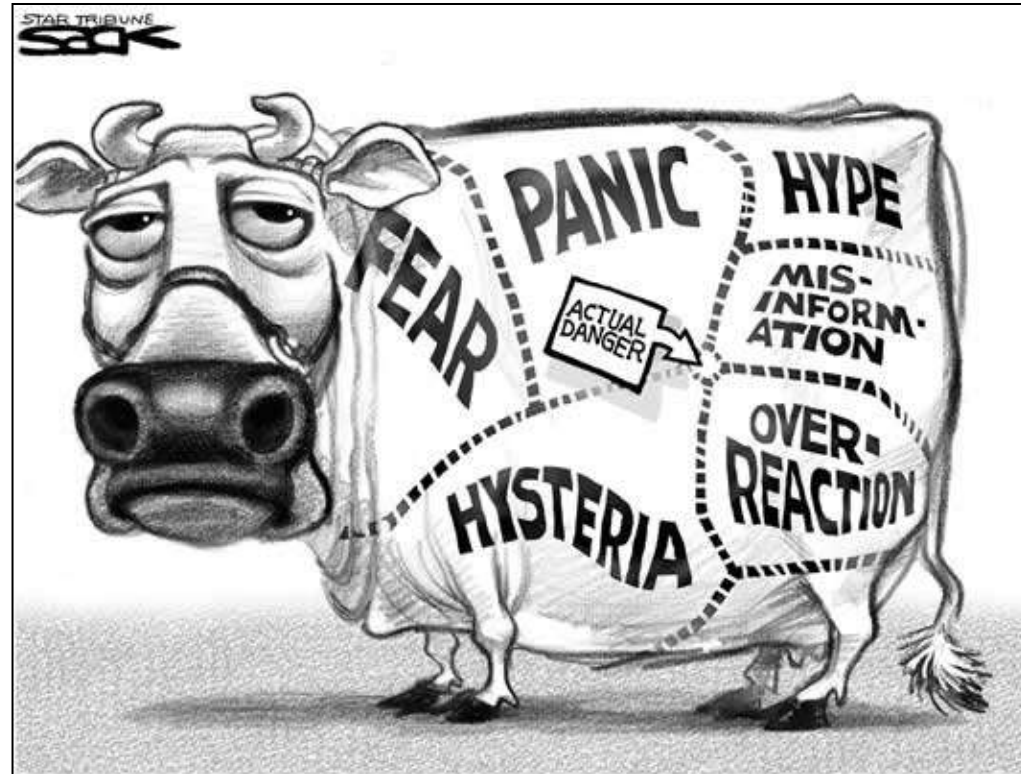
“Possible Strategies” (5.1.2):

- ***Stamping-out policy.***
Slaughter of all clinically affected and in-contact susceptible animals.
- ***Stamping-out policy modified with emergency vaccination to slaughter.***
Slaughter of all clinically affected and in-contact susceptible animals and vaccination of at-risk animals, with subsequent slaughter of vaccinated animals.
- ***Stamping-out policy modified with emergency vaccination to live.***
Slaughter of all clinically affected and in-contact susceptible animals and vaccination of at-risk animals, without subsequent slaughter of vaccinated animals.
- ***Vaccination to live policy without stamping-out.***
Vaccination used without slaughter of infected animals or subsequent slaughter of vaccinated animals.

Recommendation for Using Federal Plans

- **Review plans in FAD PReP for compatibility with state FAD and FMD response plans.**
 - If acceptable, use *The Red Book* for operations in state FMD plan (akin *Pasteurized Milk Ordinance*, “PMO”).
 - Prepare for transfer of select response authorities.
- **Concentrate state planning on:**
 - Preparation for first 48 hours, prior to federalizing response (e.g., lines of authority, roles in ICS, and responsibility for staffing state response).
 - Likely key state roles in incident response (e.g., surveillance, local logistics, and business continuity).

Anticipate Public Concern



Risk Communication Resources

➤ **Foot-and-Mouth Disease Message Map**

- **Message Map Briefing Book**

Full set of 148 message maps for 32 hazards from Multi-State Partnership for Security in Agriculture (MSPSA, 2006)

➤ **Recommendations from the U.S. Dairy Industry, on-line, e.g.:**

- **Dairy Response Center** (Dairy Management Inc, , 2011)

- **Crisis Preparedness Toolkit** (DMI, 2009).

- **Issues Management Message Manual** (National Dairy Council, 2010).

➤ **Aids in risk communication, using and developing message maps:**

- **Best Practices in Effective Risk Communication, plus on-line training and messaging template** (National Center for Food Protection and Defense, University of Minnesota, 2008-2010).

- **Effective Risk and Crisis Communication during Water Security Emergencies: Summary Report of EPA Sponsored Message Mapping Workshops** (U.S. Environmental Protection Agency, 2007).

Example: FMD Message Map

MESSAGE MAP

SCENARIO: FOOT-AND-MOUTH-DISEASE (FMD)

STAKEHOLDER: MEDIA EVENT/STATE OFFICIAL

QUESTION: WHAT CAN YOU TELL US ABOUT THE SITUATION?

KEY MESSAGE 1 →	KEY MESSAGE 2 →	KEY MESSAGE 3
The disease is currently being contained and investigated by state response teams.	State and Federal agricultural officials are taking protective measures.	FMD is not considered a public health threat.
↓	↓	↓
Support Point 1.1	Support Point 2.1	Support Point 3.1
State animal health officials have quarantined the area and submitted samples for diagnosis.	State animal health officials are conducting surveillance.	Disease in humans is extremely rare and requires close contact with infected animals.
Support Point 1.2	Support Point 2.2	Support Point 3.2
Tracking and trace-backs have been initiated to determine the source and extent of disease spread.	We are notifying veterinarians in the state to raise awareness.	Only affects cloven-hoofed animals, including cattle, swine, sheep, goat and deer.
Support Point 1.3	Support Point 2.3	Support Point 3.3
The emergency operations center is staffed and an incident management team has been deployed to the site.	Working with industry to raise awareness and encourage vigilance.	There have been no reported cases due to consumption of infected meat or meat products.

Secure Milk Supply (SMS) Plan

- **Aim: National performance standards for safely moving milk from farm to processor during an FMD outbreak.**
 - Leadership from ISU, UMN, UC Davis, and USDA-APHIS plus National Steering Committee and Work Groups.
 - In first year, agreement in principles and draft plans.
- **Model: Preparedness and Response Plans for HPAI**
 - Secure Egg Supply (SES)
 - Egg Movement Control (EMC) Plan
 - Federal and State Transport (FAST) Egg Plans

Regional Precedent

Dairy Summit and COBP in RI, 2009



CONTINUITY OF BUSINESS PLAN FOR NEW ENGLAND DAIRIES DURING FMD RESPONSE

Prepared by Richard P. Horwitz
for the Division of Agriculture
Rhode Island Department of Environmental Management
2009

Background of This Draft

Introduction

- Summary
- Purpose
- Strategy

Protocols

- Activation
- Farm Biosecurity
- Cleaning and Disinfecting Vehicles
- Farm Surveillance and Testing
- Milk Collection
- Plant Biosecurity
- Processing of Dairy Products

Appendix 1: Notification Messages

- Notification for Producers
- Notification for Haulers
- Notification for Processors

Appendix 2: Disinfectants

Appendix 3: Processing Dairy Products

Appendix 4: Testing Raw Milk for FMDV

Appendix 5: Filters for Tanker Truck Vents

Appendix 6: Rhode Island Dairies and Their Markets

Bibliography

Analogy: HPAI is to Eggs as FMD is to Milk

Special Report

A federal and state transport plan for movement of eggs and egg products from commercial egg production premises in a high-pathogenicity avian influenza control area

Darrell W. Trampel, DVM, PhD, DACVP; Jonathan T. Zack, DVM; Timothy L. Clouse, MA;
Danelle A. Bickett-Weddle, DVM, MPH, PhD, DACVPM; Gayle B. Brown, DVM, PhD; Venkatshesh S. Rao, MBA;
H. Scott Hurd, DVM, PhD; Glenn I. Garriss, PhD; James A. Roth, DVM, PhD, DACVM

“Vet Med Today: Special Report”

JAVMA 235:12 (December 15, 2009), pp. 1412-19

Secure Egg Supply (SES) Plan

fadprep.lmi.org



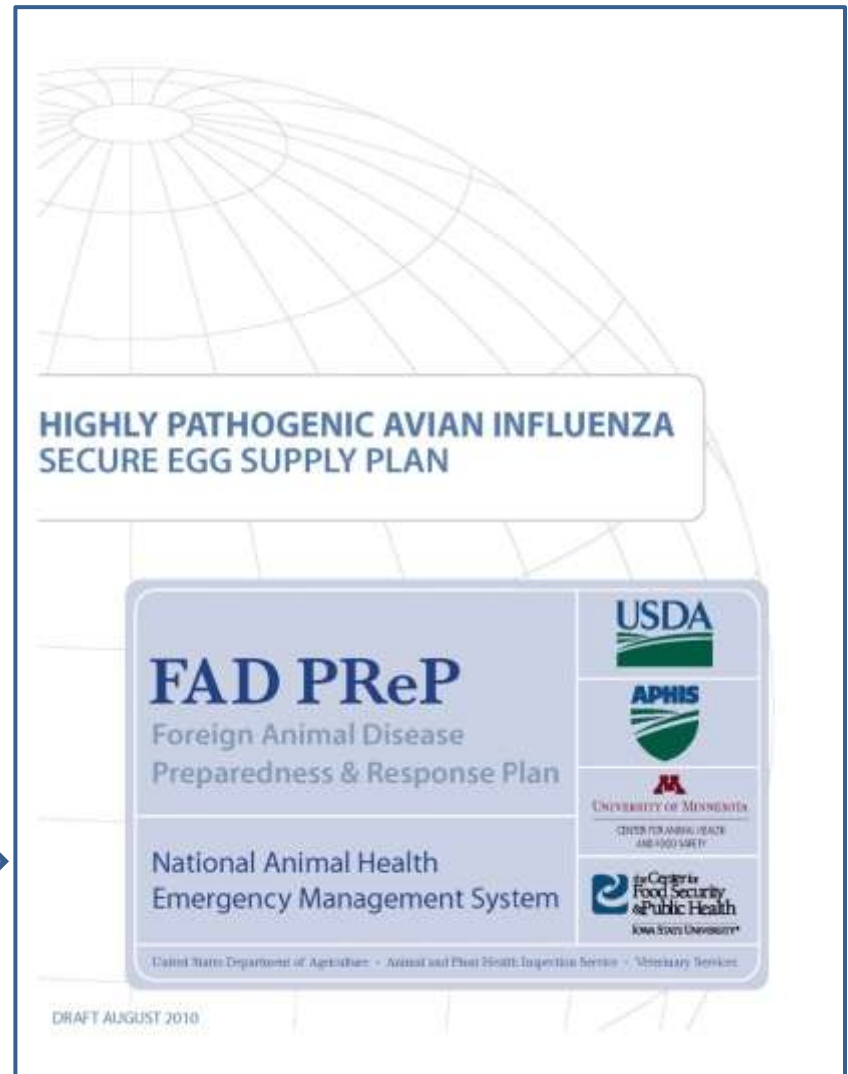
Continuity
of Business



Continuity of Business

To access the **Secure Milk Supply Information** Click [here](#).

To access the **Secure Egg Supply Information** Click [here](#).



Shared Assumptions

- The goal is to return to disease-free status.
- Continuity of business should be considered in selecting strategies for emergency readiness and response.
- With proper steps (risk assessment, surveillance, biosecurity, oversight, etc.), safe* movement of products may be permitted from uninfected farms to market, even during an FAD outbreak.

*with low or negligible risk of endangering health of uninfected animals.

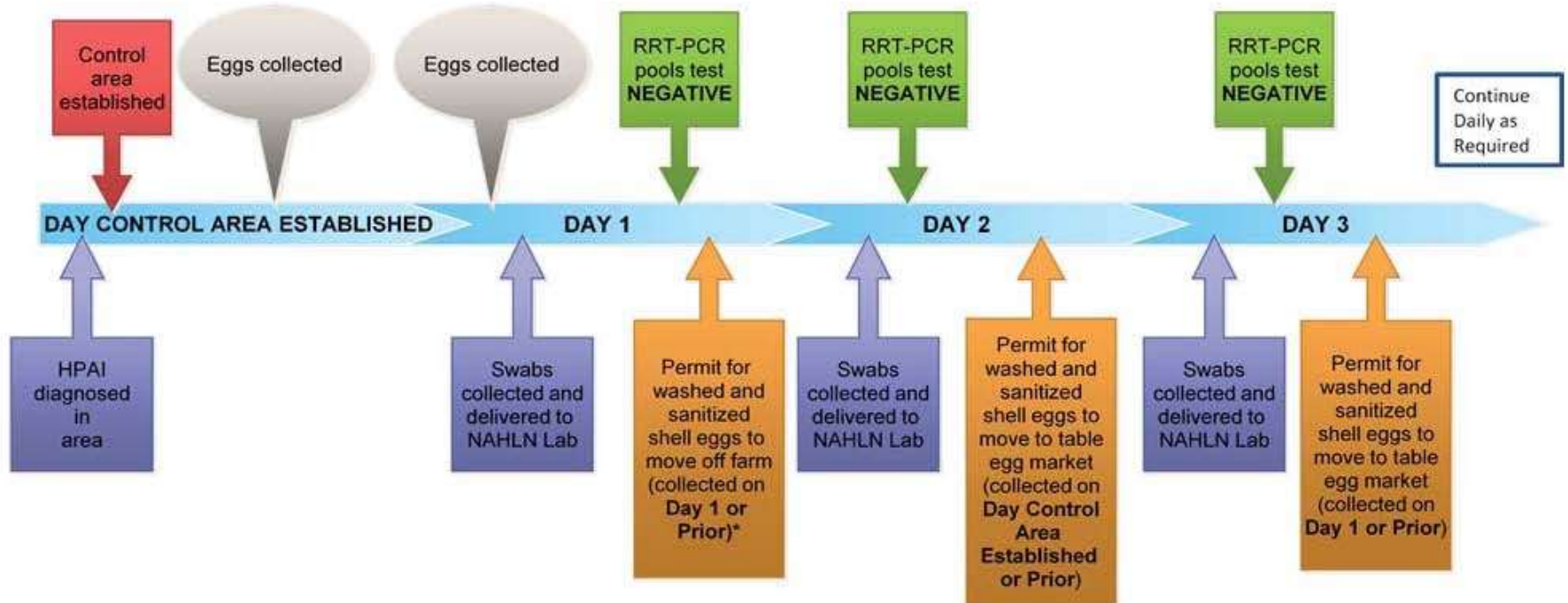
Design for FAST Egg - Preparation

1. Secure stakeholder participation.
2. Determine the sources and level of risk of disease transmission attending each site/step in production, handling, and transport of each commodity.
("Pro-active Risk Assessment")
3. Survey producers and processors about their measures to reduce risks of disease transmission.
4. Verify survey results (self-reports) with regular audits.
5. Maintain a secure database of normal production parameters and biosecurity status for each premises.

Design for FAST Egg - Response

1. Establish that each eligible premises of origin is free of disease. (“production parameters are in normal range” +/- rRT-PCR)
2. Verify that traceability information is available.
3. Verify that biosecurity enhancements are in-place to reduce residual risks of transmitting infection.
4. Conduct an epidemiological assessment of the premises, and find low or negligible risk of disease transmission.
(acceptable “epi questionnaire” report +/- rRT-PCR)
5. Issue a permit to move product.

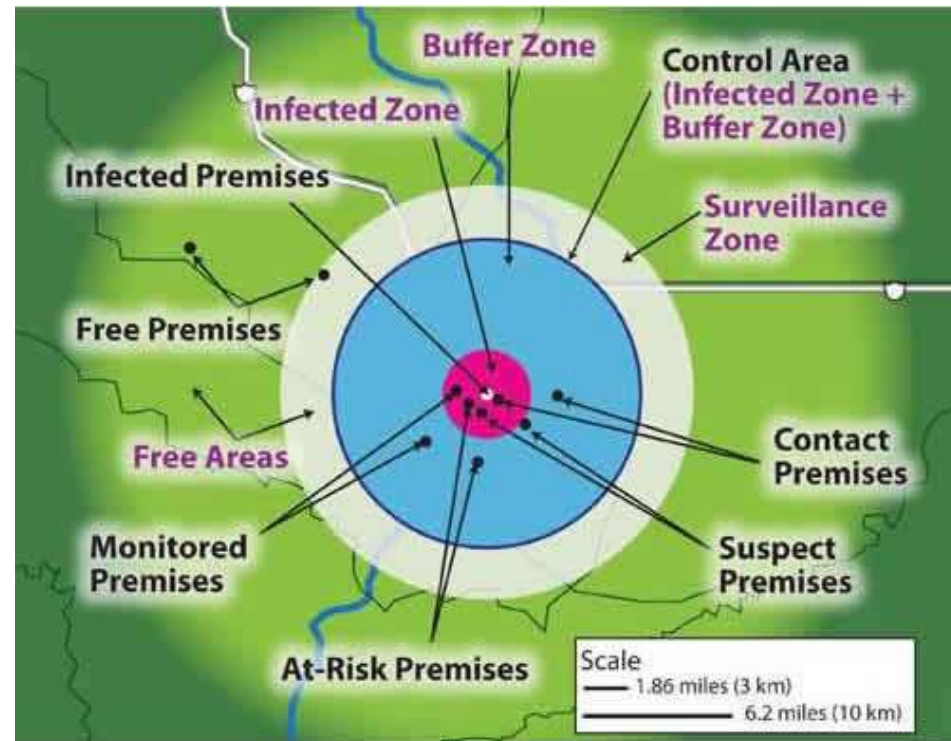
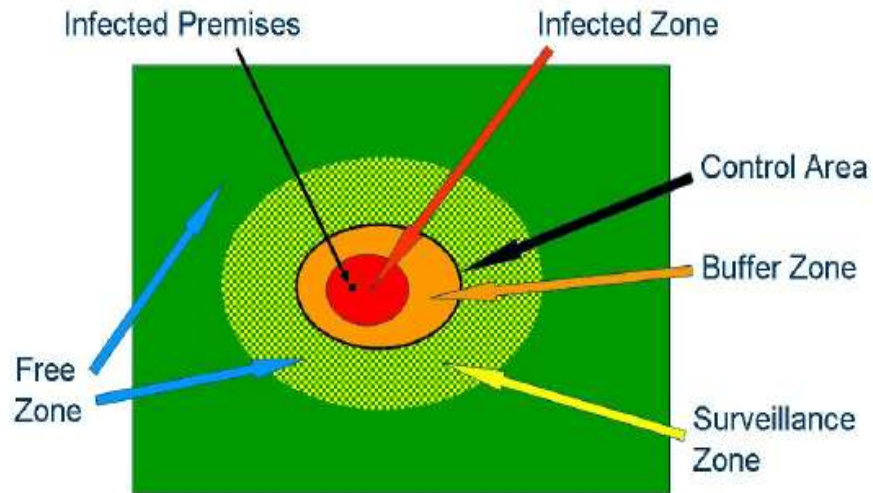
SES Timeline for Risk-based Permitting



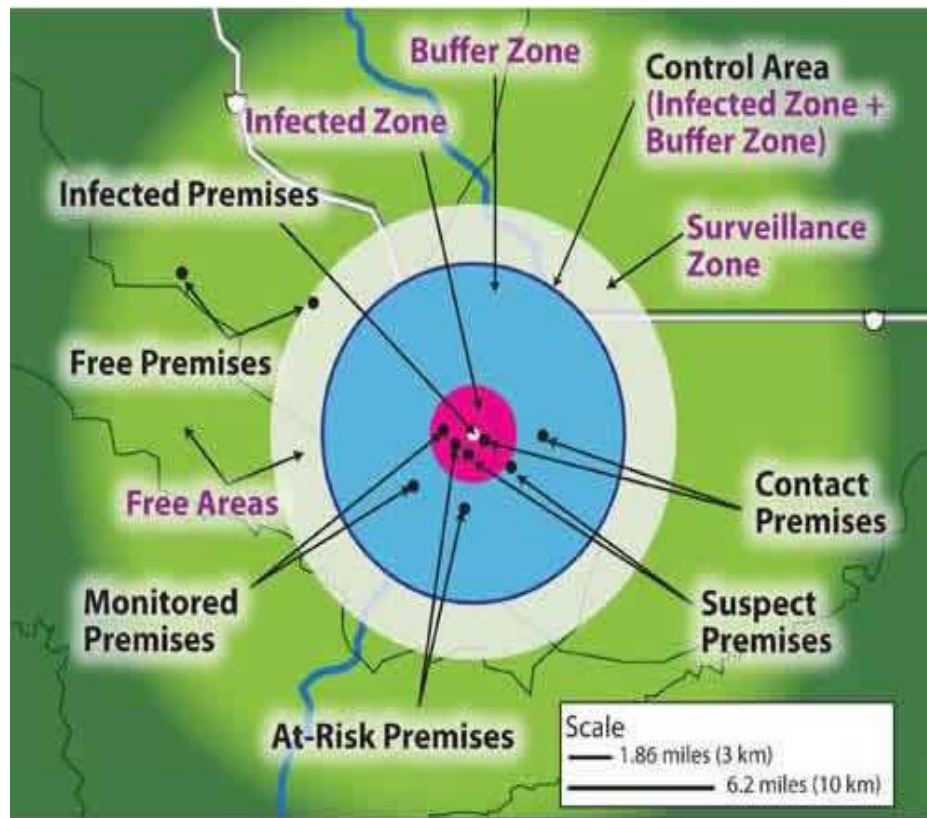
*Permit for moving washed and sanitized eggs off farm can be issued daily for eggs collected on that day or prior as long as RRT-PCR results from that same day remain negative.

Cases, Zones, and Premises: Classified by Risk

Zones of Response



Question for Risk-Based Permitting



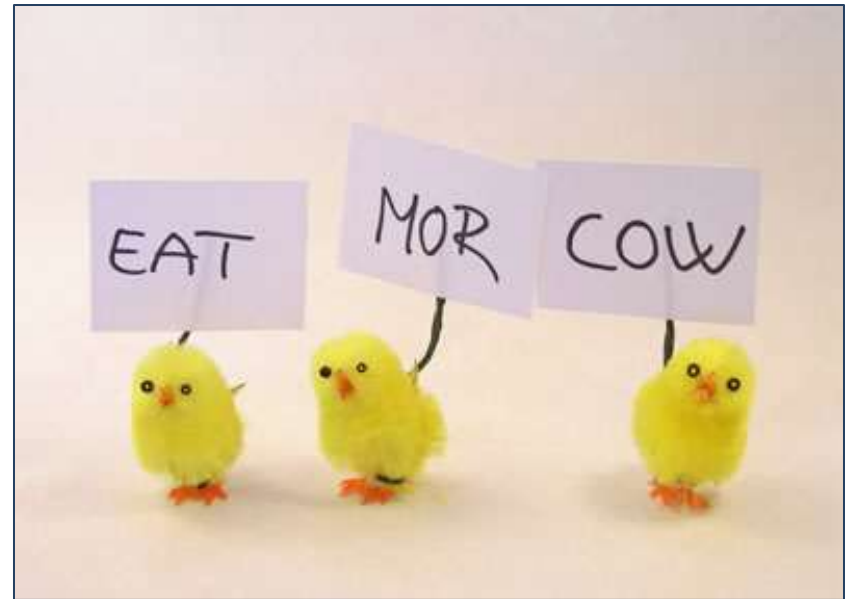
Presumably, no premises in an *Infected Zone* can be permitted to move milk, and *Contact Premises* or *Suspect Premises* are too risky, but what about *Free Premises*?

- Might all *Free Premises* in a *Free Zone* be eligible for permits?
Under what conditions?
- Under what conditions might *Free Premises* in a *Buffer Zone* become eligible for permits?

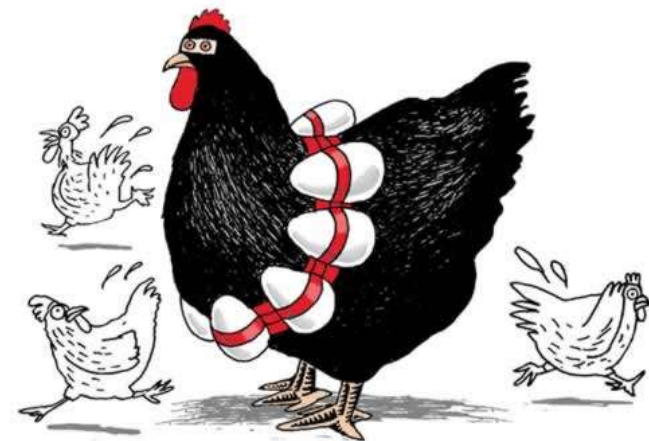
Some Lessons of SES Planning

- Plans to move ag products in a disease outbreak depend on overall readiness to respond to FAD.
- Preparation, especially regular outreach, risk assessment, and surveillance, are essential for FAD response. Industry participation is key.
- Baseline as well as enhanced biosecurity in production, hauling, and processing (e.g., farms, trucks, plants) must be in-place and verified before products can be permitted to move.

But Cows Ain't Chickens



FMD Ain't HPAI



Some Important Differences

- FMD is a much larger socio-economic hazard and much smaller (negligible) health hazard for humans than HPAI.
- Depopulation is a much more challenging strategy for FAD control among cattle than poultry, and “waste” (unused milk and cattle carcass) disposal is particularly daunting.
- Dairy farms are generally more numerous, more widely dispersed, and less biosecure than poultry farms, and they would be much more difficult to re-establish.

Initial SMS Assumptions

- Dairy premises with animals that are not known to be infected (based on visual inspection or not currently under investigation for FMD) need to continue to move raw milk to processing.
- Biosecurity protocols will be rapidly implemented and verified to control worst-case scenarios (respond as if there are undetected infected premises).
- Milk will be picked up only under permit from one dairy premises at a time and transported directly to an in-state processing plant.
- Other contingencies (e.g., co-mingled loads, interstate transport) will be handled in future plans.

Can we agree on some goals?

1. **Develop more coordinated state FMD response plans (e.g., by embracing *The Red Book* with state-specific supplements on response organization and support of dairy continuity of business planning).**
2. **Support national SMS and FAST Milk planning.**
3. **In the meantime, advance regional readiness to move milk safely during an FMD outbreak (e.g., develop a single permitting procedure for in-state as well in-region, interstate transport).**

Suggested Strategic Issues to Discuss

1. Regional administration of a Milk Movement Plan

- Additional authority needed or desirable?
- Liaison with other states, such as New York?

2. Permitting procedure

- Substantive information. What criteria should state officials use to authorize the issuing of permits (e.g., what data on health status and biosecurity of each premises)?

3. Outreach

- How best to pursue the advice and consent of farmers, co-ops, haulers, and processors.

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