Protecting the Flock from Highly Contagious Diseases – Resources in the Secure Sheep and Wool Supply Plan

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Secure Sheep and Wool Supply Plan

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SSWS
SECURE SHEEP AND WOOL SUPPLY

Overview

- Foot and mouth disease (FMD)
 - Highly contagious disease of cloven-hooved livestock and wildlife
- U.S. response plans
- Secure Sheep and Wool Supply (SSWS) Plan for Continuity of Business (COB)
 - Resources available to prepare



FMD: The MOST Contagious Disease of Animals FMD is the major animal disease preventing world trade of animals and animal products Adults: Mortality low, morbidity high Young animals: High mortality associated with some strains Korea '10 FMD is the major animal disease preventing world trade of animals and animals products Adults: Mortality low, morbidity high

Global Prevalence of FMD

World Organization for Animal Health (OIE) has 181 member countries

- 66 countries free of FMD*
- 96 countries are endemic and have <u>never</u> been free of FMD*
- North America free since 1954 (Mexico)
 - 1952 (Canada)
 - 1929 (United States)
 - All outbreaks controlled by stop movement and stamping out

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



Species Differences

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Sheep/Goats	Swine	Cattle
Maintenance Host	Amplifying Host	Host that Shows the Most
Silent spreaders	Produce 106 to 109 infective virus doses/day; shed in bodily fluids, excretions	Often first species to show signs
Can carry/shed the virus for up to 4 months for goats and	Rare, possibly carry virus up	Can carry virus up to 6 months
12 months for sheep	to 28 days	Some animals may remain infected for up to 3.5 years

NOT a public health or food safety concern



Animal-to-Animal Transmission

- Aerosol
 - Proper temp, humidity
- Direct contact
 - Vesicular fluid contacting mucous membranes
- Fomites
 - · Boots, hands, clothing
- Oral
 - Ingestion of milk, saliva, feces, urine







Clinical Signs: Sheep and Goats

- MILD, if any signs
 - Fever, lameness, oral lesions
- Decreased milk production
- Death of lambs, kids due to cardiac infection, heart failure
- Reproductive signs most commonly seen
 - Abortion
 - Rams reluctant to mate



Tongue

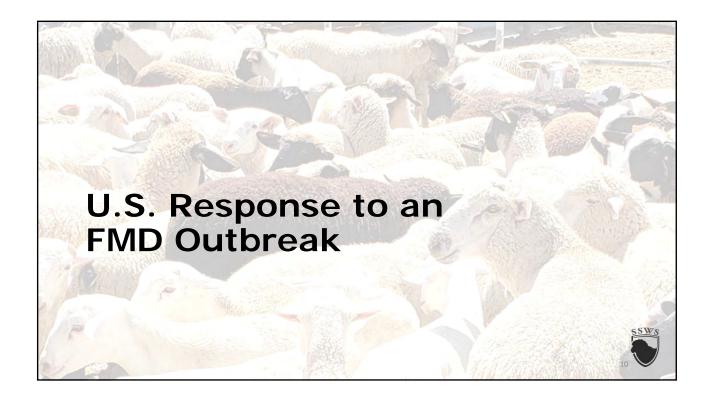


Public Health

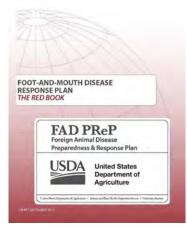
- FMD is NOT a public health threat or food safety concern
- Infections very rare in humans
- Properly cooked meat and milk products safe to eat and drink

NOT a public health or food safety concern





USDA FMD Response Plan



www.aphis.usda.gov

- Capabilities needed, critical activities
- Infected, Contact, Suspect Premises
- Detect, control, and contain FMD in livestock as quickly as possible
- Eradicate FMD
- Provide approaches to facilitate continuity of business for non-infected animals and products



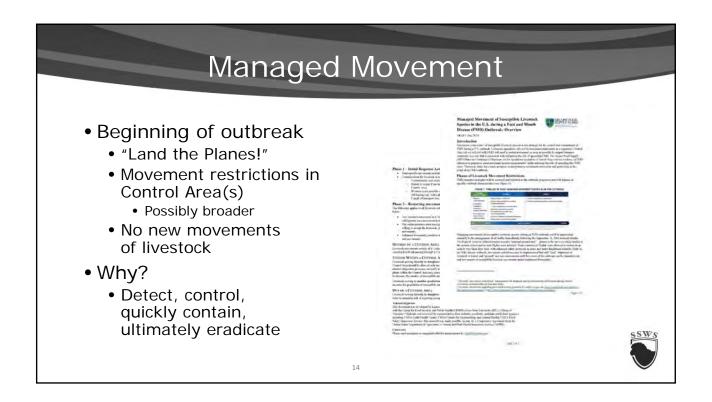
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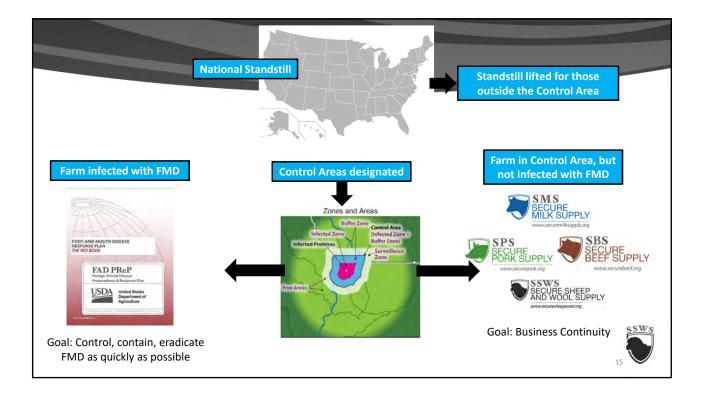
Tools for Control of FMD

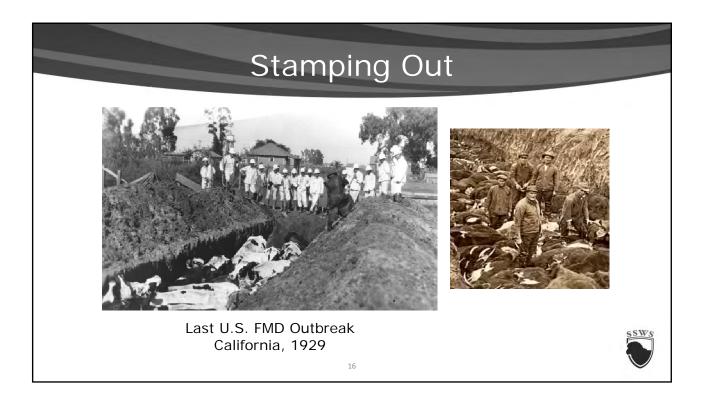
- Stop Movement
 - "National Movement Standstill"
- Stamping Out
- Biosecurity
- Trace back/Trace forward
 - 2 incubation periods prior to outbreak
 - OIE incubation period for FMD is 14 days
- Rapid Diagnostics
 - For clinical animals; lacking for non-clinical
- Vaccination
 - · Vaccinate to kill/Vaccinate to live











Foot and Mouth Disease Diagnosed!

- Establish 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 <u>affected</u>, not <u>infected</u> premises





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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 Movement from Premises with No Evidence of Infection

- Secure Milk Supply (2009-2017)
 - Foot and Mouth Disease (FMD)
 - · Movement of milk
- Secure Pork Supply* (2010-2017)
 - FMD, Classical Swine Fever (CSF), African Swine Fever (ASF)
 - · Movement of animals
- Secure Beef Supply (2014-2019)
 - FMD
 - · Movement of animals
- Secure Sheep & Wool Supply** (2019-2020)

 - · Movement of animals, wool

Funded by USDA APHIS

- *Some funding also provided by National Pork Board
- **Solely funded by American Sheep Industry Assoc



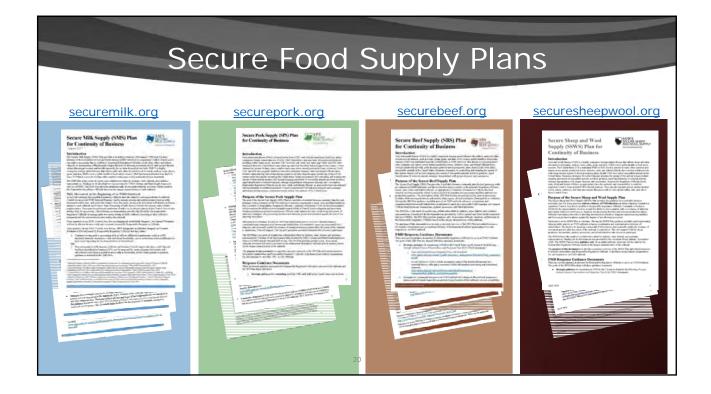


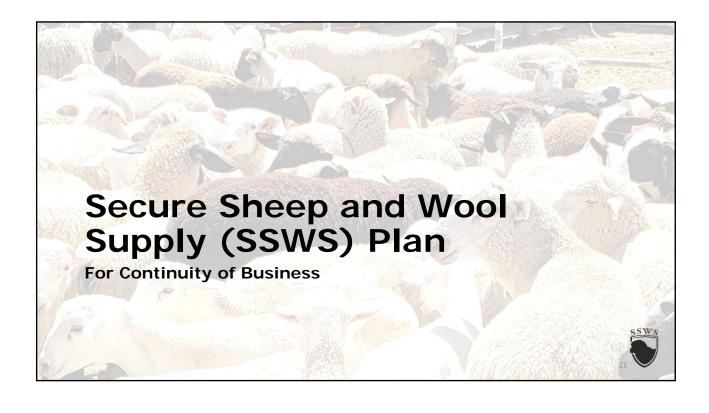


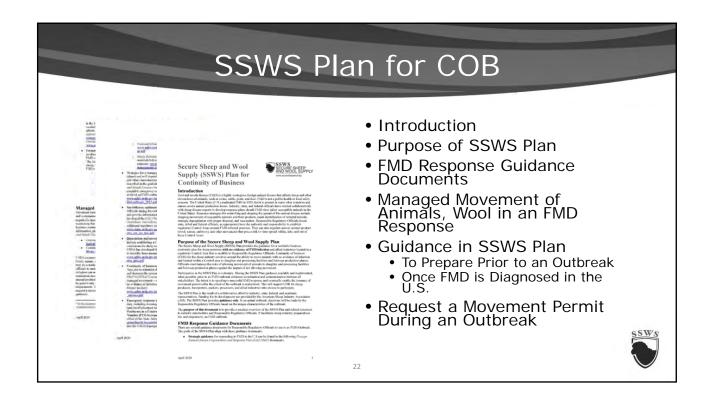












Permit Guidance

Permitting Guidance* for Movement of Sheep/Semen/Embryos		Condition Met?
1.	Traceability information is available (PIN, GPS Coordinates, and information on type and number of animals/quantity of semen/embryos to be moved)	Yes
2.	Biosecurity measures listed in the Biosecurity Checklist are in place and acceptable to Responsible Regulatory Officials	Yes
3.	Trace-back/forward information is acceptable; premises is NOT Infected, Contact, Suspect	Yes
4.	Destination premises and state are willing to accept the sheep/semen/embryos	Yes
5.	No evidence of infection based on surveillance	Yes

Permit guidance to move sheep/semen/embryos if all above responses are "Yes"

Consider Issuing MOVEMENT PERMIT

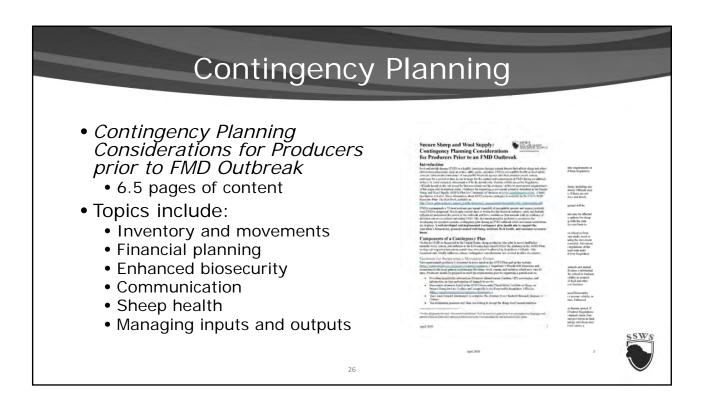
*For information on issuing permits for wool movement out of a Control Area, as well as FMD virus survivability in wool, inactivation recommendations, and traceability refer to the SSWS Wool Handling during an FMD Outbreak document available at: https://securesheepwool.org/Assets/SSWS Wool-Handling-During-FMD-Outbreak.pdf.

Secure Sheep and Wool Supply Plan www.securesheepwool.org



Secure Sheep and Wool Supply Plan: Wool Handling Durings Foot and Month Disease (FMD) Outbreak Foot and Month Disease (FMD) Outbreak Foot and Month Disease (FMD) Outbreak Foot and State of Disease (FMD







✓Get PremID or PIN

- Office of State Animal Health Official
 - 911 address
 - · Latitude, longitude
- Already have one?
 Make sure info is up to date

Puerto Ricc: https://www.agricultura.pr/ [2*]
U.S. Virgin Islands: Contact the Director of Veterinary Services, Virgin Islands Department of Agriculture at (340) 778-0997

www.aphis.usda.gov/aphis/ourfocus/animalhealth/traceability/state-pin



Preventing Potential Spread

- **Producers** responsible for keeping their herd free of infection (*prevent exposure*)
- Responsible Regulatory Officials responsible for protecting animal health (prevent spread)
 - Determine requirements to receive a movement permit

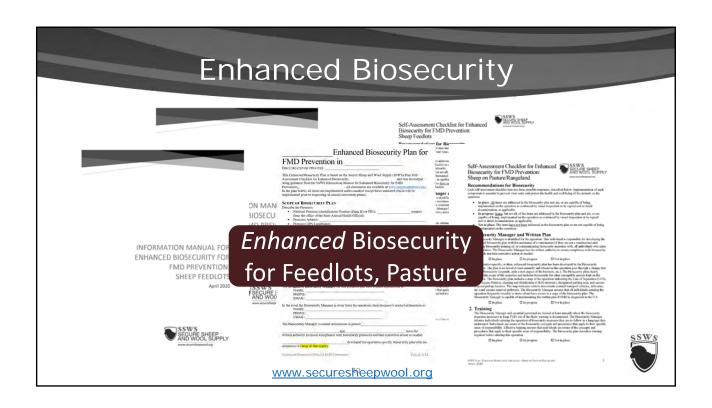
Routine biosecurity is not enough

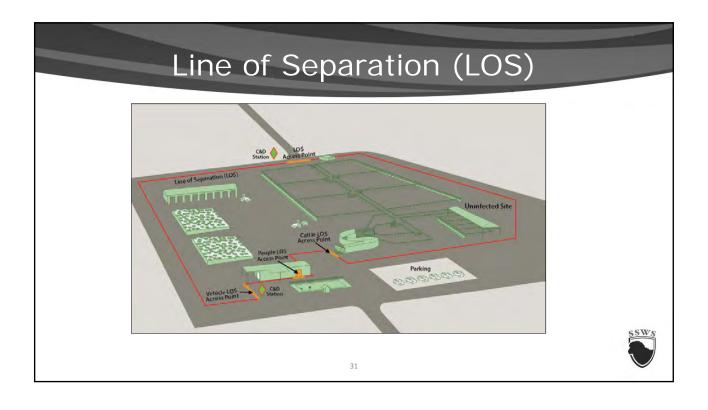


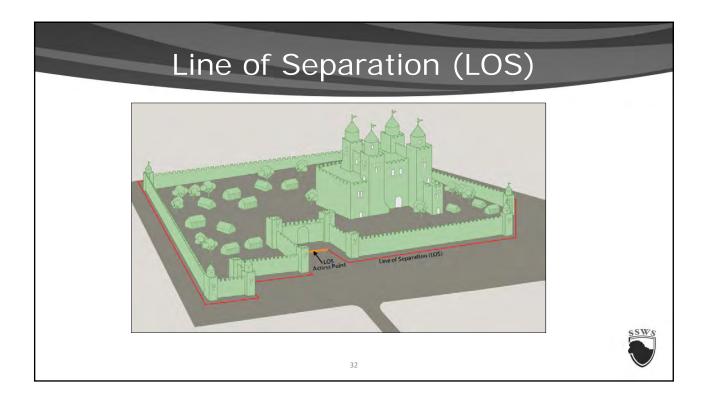
Enhanced Biosecurity

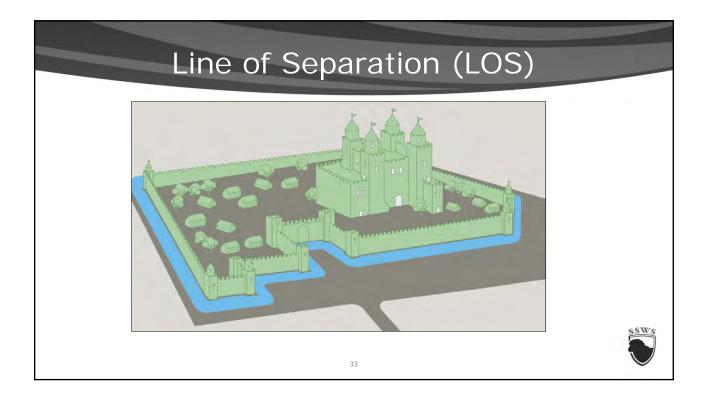
- Producer's responsibility to keep their animals from becoming infected
- Operation-specific enhanced biosecurity plan
- Biosecurity Manager
 - · Develop, monitor plan
- Line of Separation (LOS)
 - Nothing should cross LOS that can introduce virus
 - Outdoor housed animals more difficult to protect from infection, but LOS concept can help

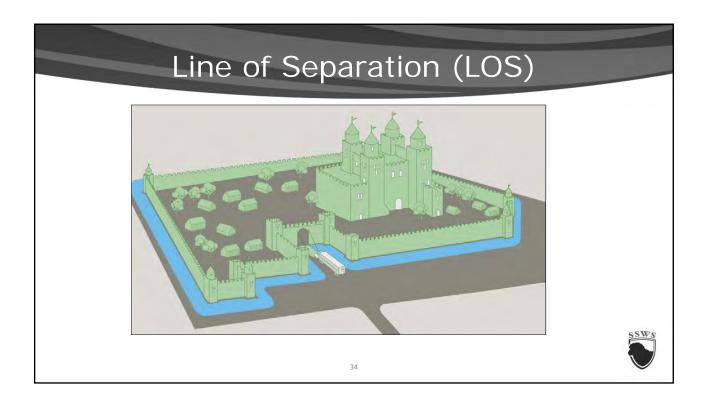












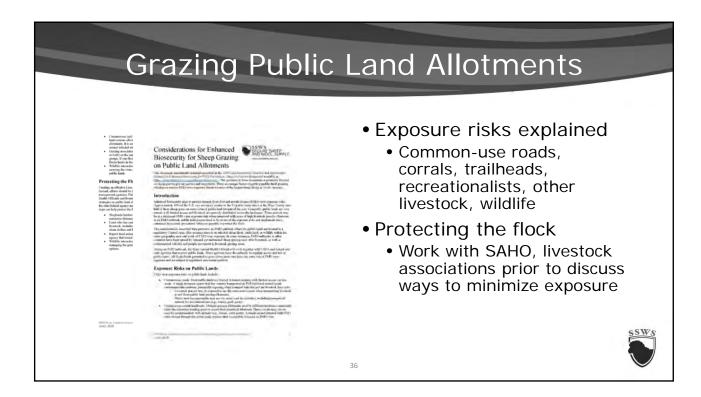




- · Complicated for grazing

 - Risk of exposure ≠ Zero
 - Management in peace time brings challenges in outbreak of highly contagious diseases





Factors to Consider

- Factors to Consider regarding Surveillance, Biosecurity, Movement Permitting of Sheep in an FMD Outbreak
 - Unique aspects of sheep, FMD infection, husbandry

Factors to Consider Regarding
Surveillance, Biosecurity and
Movement Permitting of Sheep in a
Foot and Mouth Disease Coutbreak

Introduction

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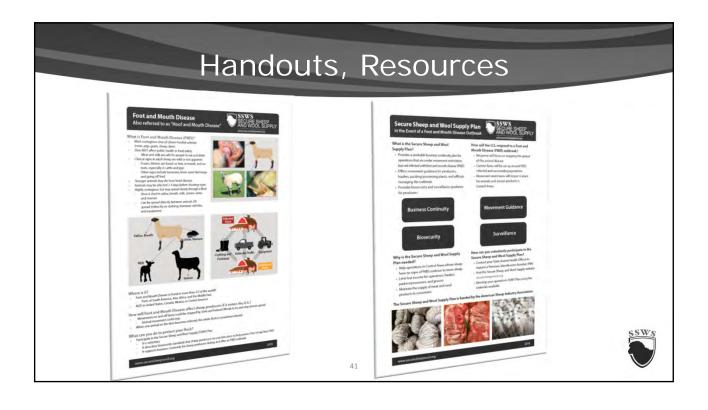


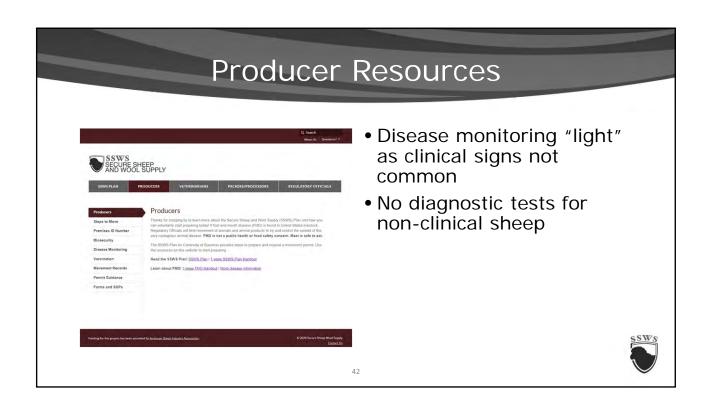
Accomplishment

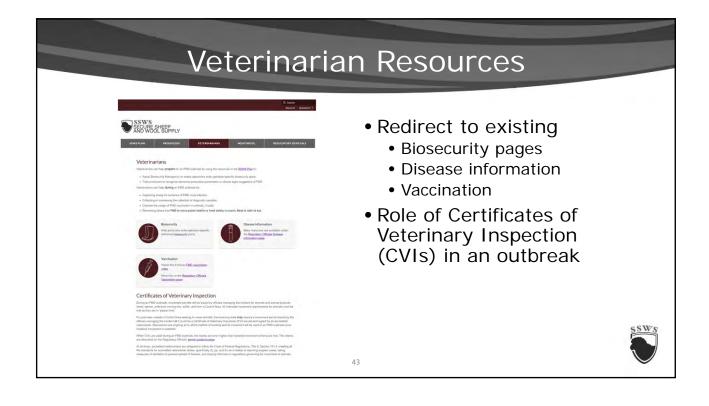
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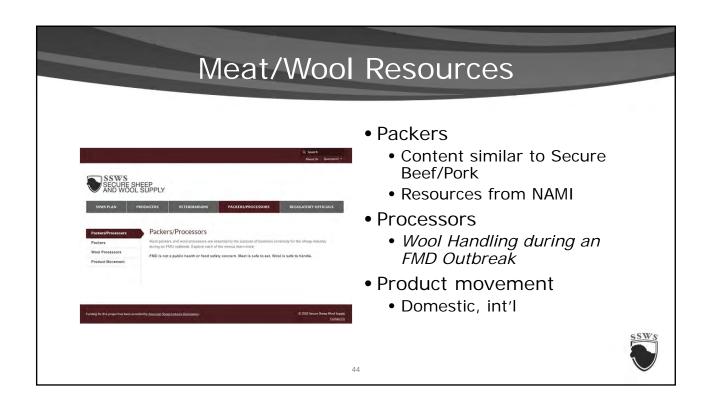


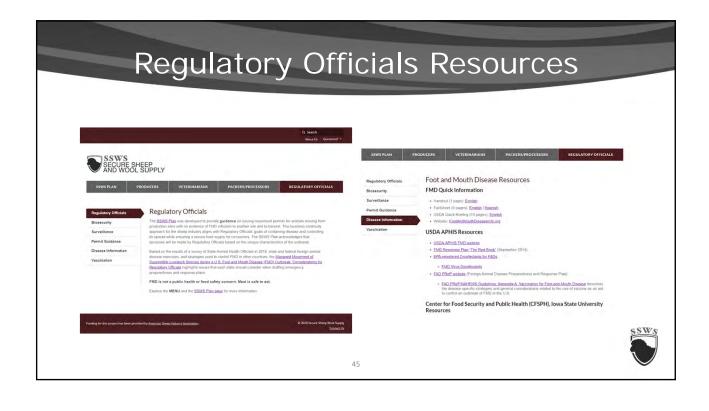


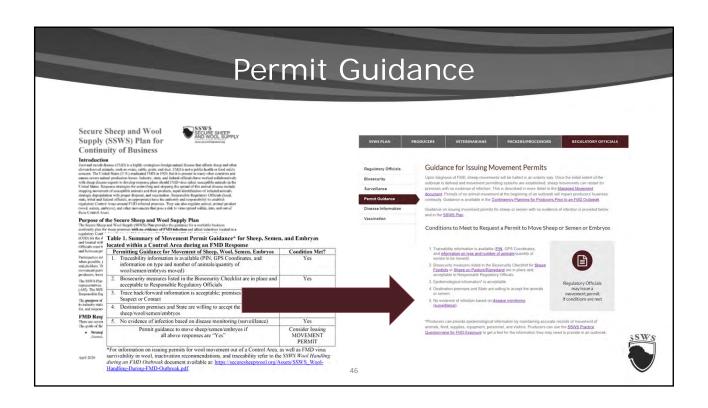


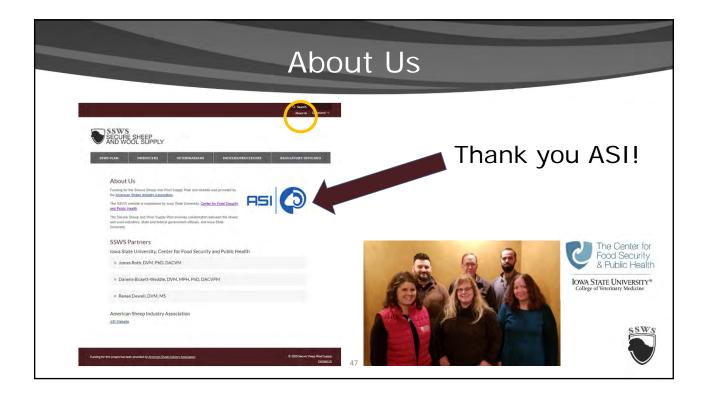


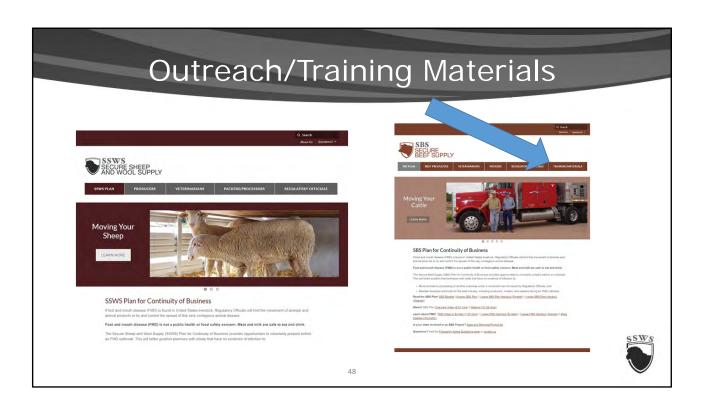


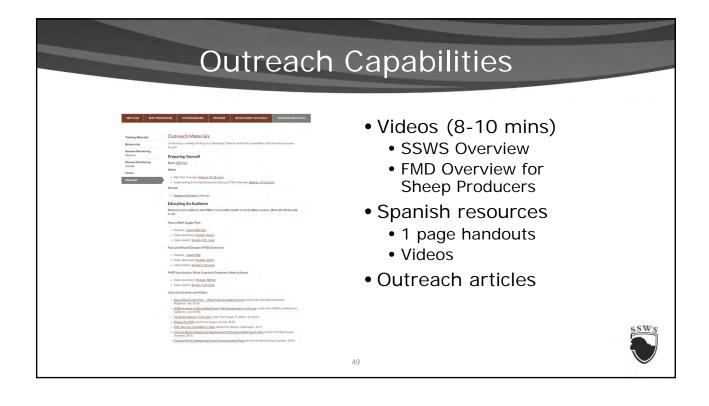




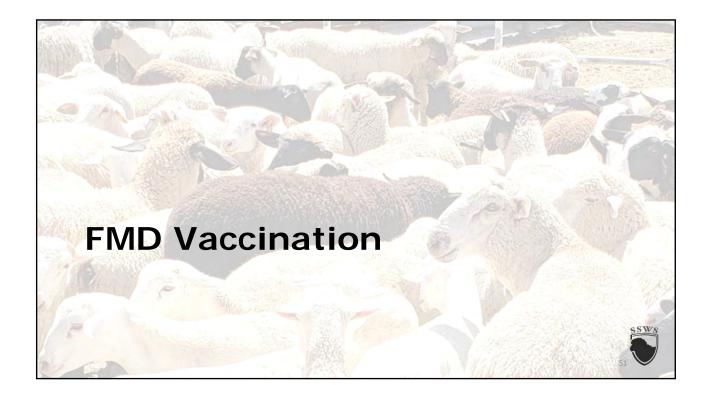












FMD Vaccination

- Killed virus vaccine
- 6 of 7 serotypes active in world
 - Not cross protective
 - Approximately 65 Subtypes
 - Cross-protection varies between strains within a serotype
 - 23 strains are recommended for FMD vaccine banks
 - It is essential to isolate virus and identify the serotype to select the correct vaccine
- Most used vaccine WORLDWIDE



FMD Vaccination in Outbreak

- Strategic use
 - Still rely on biosecurity, movement controls, ring vaccination around infected premises
- Vaccination oversight
 - · Federal, State government
 - Accredited veterinarians
- Eligible animal species
 - Cattle booster every six months
 - Pigs booster at two weeks; every 5 months
 - · Sheep not commonly vaccinated
 - Trace through animals' death



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North American FMD Vaccine Bank

- Vaccine antigen concentrate (VAC) currently in bank is intended to be shared by U.S., Canada, and Mexico
- VAC can produce 2.5 million doses*
 - 250,000 doses in 4-7 days
 - Rest comes in batches up to 21 days
 - *Insufficient to vaccinate one densely populated livestock county in Iowa
- Additional vaccine production can take as long as 14 weeks
 - Created from a master seed, not currently stored as VAC

Source: USDA Foot-and-Mouth Disease Vaccination Policy in the United States, September 2014; Darrel Styles, USDA personal communication



FMD Vaccination Challenges

- Moderate to Large regional outbreak
 - Overwhelm supply
- \$150 million/year for 5 years to reach desired capacity
 - FMD Vaccine Surge Capacity document describes details

Video 8:35 mins



On Beef, Milk, Pork websites
• Created by WIFSS

http://www.cfsph.iastate.edu/pdf/fmd-vaccine-surge-capacity-for-emergency-use-in-the-US



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Questions?

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