

Secure Sheep and Wool Supply Plan for Continuity of Business

Danelle Bickett-Weddle, DVM, MPH, PhD, DACVPM
Preventalytics

16 January 2025

Search
About Us | Questions?

SSWS
SECURE SHEEP
AND WOOL SUPPLY

SSWS PLAN | PRODUCERS | VETERINARIANS | PACKERS/PROCESSORS | REGULATORY OFFICIALS | TRAINING MATERIALS

Get Your PIN
LEARN MORE

SSWS Plan for Continuity of Business

If foot and mouth disease (FMD) is found in United States livestock, Regulatory Officials will limit the movement of animals and animal products to try and control the spread of this very contagious animal disease.

Foot and mouth disease (FMD) is not a public health or food safety concern. Meat and milk are safe to eat and drink.

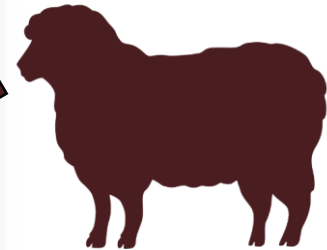
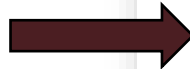
The Secure Sheep and Wool Supply (SSWS) Plan for Continuity of Business provides opportunities to voluntarily prepare before an FMD outbreak. This will better position premises with sheep that have no evidence of infection to:

- Limit exposure of their animals through enhanced biosecurity,
- Move animals to processing or another premises under a movement permit issued by Regulatory Officials, and
- Maintain business continuity for the sheep industry, including producers, haulers, packers and wool processors during an FMD outbreak.

Read the SSWS Plan!
[SSWS Booklet](#)
[SSWS Plan and Wool Handline](#)
1-page Handouts
[SSWS English](#)
[SSWS Spanish](#)
[Wool English](#)

Watch!
SSWS Overview Video
[English \(9 mins\)](#)
[Spanish \(11 mins\)](#)
[SSWS Webinar \(71 mins\)](#)

Learn about FMD!
FMD Video (8 mins)
[English | Spanish](#)
1-page FMD Handout
[English | Spanish](#)
[More disease information](#)



Foot and Mouth Disease (FMD)

- Affects animals with cloven-hooves
- Most contagious livestock disease
- No treatment



NOT a public health or
food safety concern



Sheep



Cattle

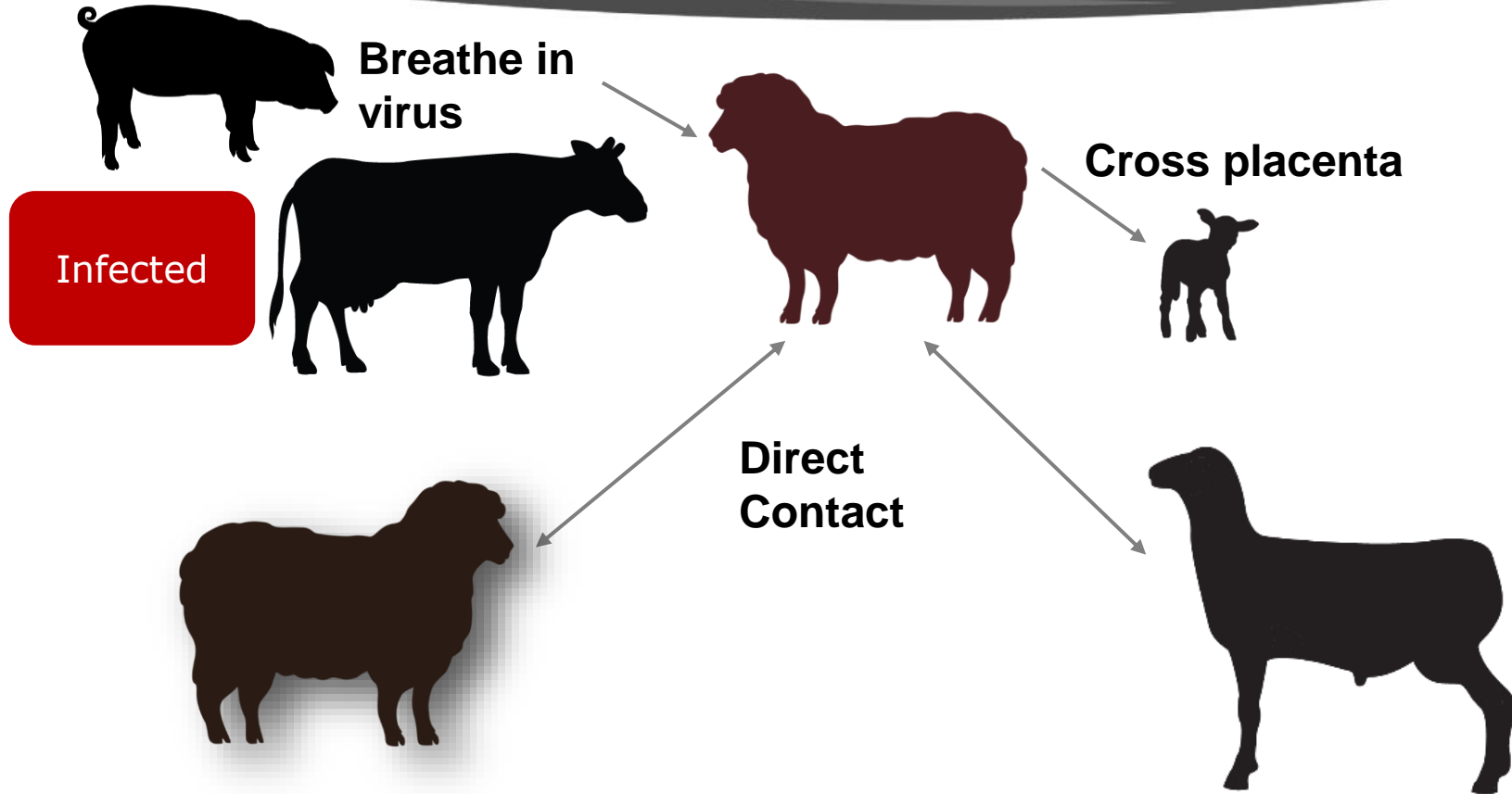


Pigs

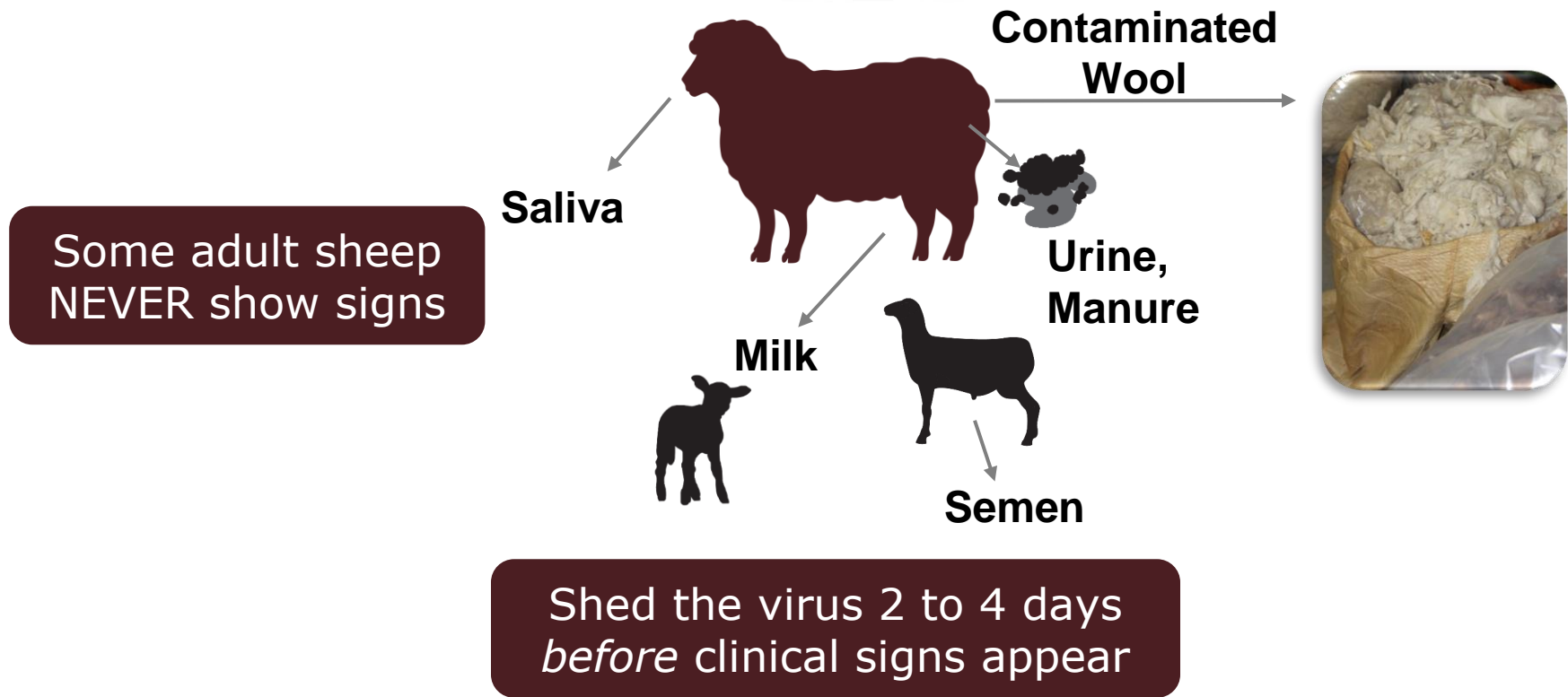


Goats

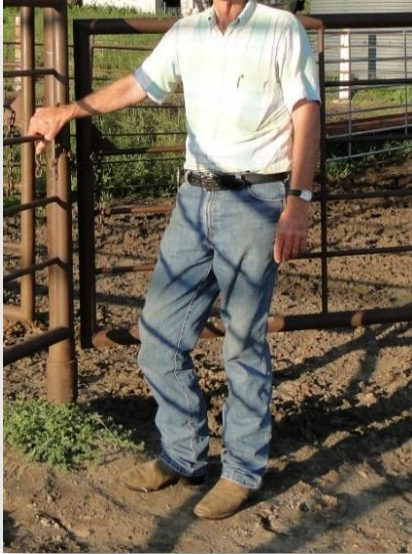
How do sheep get FMD?



Spread of FMD Virus



Spread of FMD Virus



Clothing, Footwear

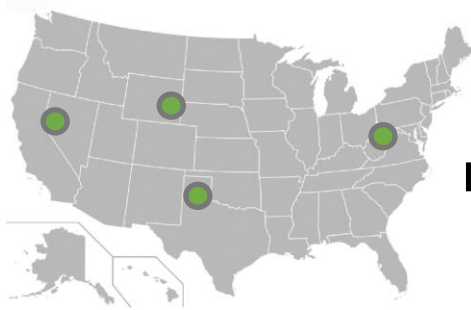


Vehicles



Equipment

**National
Movement
Standstill**

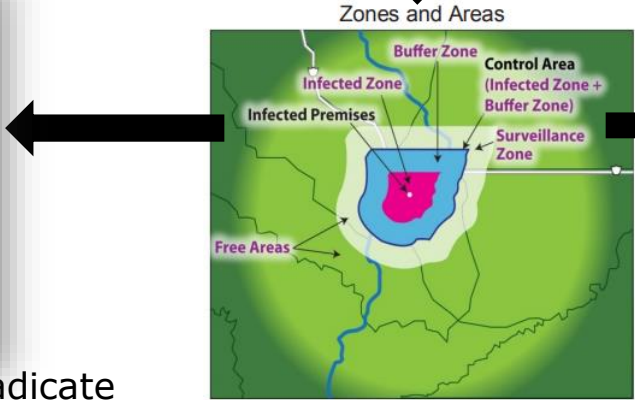
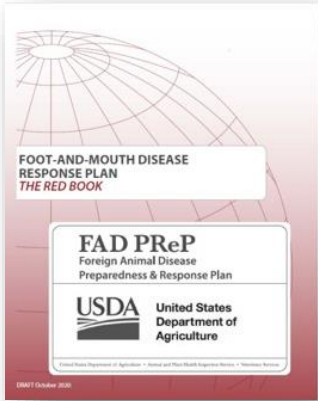


**Standstill lifted
for those
outside the
Control Area**

**Control
Areas
designated**

**Farm infected
with FMD**

**Farm in Control
Area, NOT infected
with FMD**



Goal: Control, contain, eradicate
FMD as quickly as possible

Goal: Prevent exposure,
business continuity

Secure Food Supply Plans for Continuity of Business

securemilk.org

securepork.org

securebeef.org

securesheepwool.org

Secure Milk Supply (SMS) Plan for Continuity of Business



Introduction

The Secure Milk Supply (SMS) Plan provides a workable continuity of business (COB) plan for dairy premises with an exposure of foot and mouth disease (FMD) infection to a regulatory Control Area to ensure any milk to processing that is available to Responsible Regulatory Officials (RROs), state, tribal, and federal officials, as appropriate. Officials must balance the risks of allowing movement of milk with the goal of not allowing movement and thus the resources for safe disposal of raw milk. FMD is a highly contagious disease agent that infects cattle and other cloven-hooved livestock, such as swine, sheep, goats, and deer. FMD is not a public health or food safety concern. FMD has been eradicated from the U.S. since 1929 and is present in many other countries and causes severe production losses in animals.

The SMS Plan is the result of a multi-year collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SMS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of each outbreak.

Milk Movement at the Beginning of an FMD Outbreak
In an FMD outbreak, Responsible Regulatory Officials have the authority and responsibility to establish Control Areas around FMD-infected premises and to manage animal and animal products (such as milk) movement within, into, and out of the Control Area. Decisions on raw milk movement should be based on factors unique to each outbreak and Control Area. Processing of milk from a Control Area always must include pasteurization. There may be additional restrictions of milk to be moved outside of the Control Area or into another state for processing. The following recommendations provide the flexibility for Responsible Regulatory Officials to manage milk movement during an FMD outbreak according to their collective judgment and the circumstances surrounding the outbreak.

Dairy premises in any FMD Control Area that are designated as Infected, Suspect, or Critical Premises will not be allowed to move milk until a permit is issued by Responsible Regulatory Officials.
Dairy premises in any FMD Control Area that are NOT designated as Infected, Suspect, or Critical Premises will be determined by Responsible Regulatory Officials that they either:

1. Continue moving milk to processing with an official additional suspension (such as FMD, increased processing biosecurity, and/or some form of bio-containment by their state) depending on the characteristics of the outbreak.
2. Stop movement of milk, because a Modified Premises (which requires having a valid National Identification Number (NIC)) and be inspected to ensure adequate biosecurity and surveillance and obtain a permit to process milk to processing. In the event a permit is required, guidance is included in this SMS Plan.

Secure Pork Supply (SPS) Plan for Continuity of Business



Introduction

Foot and mouth disease (FMD), classical swine fever (CSF), and African swine fever (ASF) are highly contagious foreign animal diseases (FADs). FMD virus infects pigs and other cloven-hooved livestock, including cattle, sheep, goats, and deer. CSF virus and ASF virus only infect pigs. FMD and CSF were eradicated from the United States many years ago and ASF has never infected pigs in this country. These diseases are present in many other countries and cause severe animal production losses. However, FMD, CSF, and ASF are not a public health or food safety concern. FMD has been eradicated from the U.S. since 1929 and is present in many other countries and causes severe production losses in animals.

The SPS Plan is the result of a multi-year collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SPS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of each outbreak.

Purpose of the SPS Plan
The goal of the Secure Pork Plan is to ensure the continuity of the pork industry with an outbreak of FMD, CSF, ASF, or any other FAD in the United States. The plan provides guidance on how to manage animal and animal products (such as pork) movement within, into, and out of the Control Area. Decisions on raw pork movement should be based on factors unique to each outbreak and Control Area. Processing of pork from a Control Area always must include pasteurization. There may be additional restrictions of pork to be moved outside of the Control Area or into another state for processing. The following recommendations provide the flexibility for Responsible Regulatory Officials to manage pork movement during an FMD outbreak according to their collective judgment and the circumstances surrounding the outbreak.

Dairy premises in any FMD Control Area that are designated as Infected, Suspect, or Critical Premises will not be allowed to move milk until a permit is issued by Responsible Regulatory Officials.
Dairy premises in any FMD Control Area that are NOT designated as Infected, Suspect, or Critical Premises will be determined by Responsible Regulatory Officials that they either:

1. Continue moving milk to processing with an official additional suspension (such as FMD, increased processing biosecurity, and/or some form of bio-containment by their state) depending on the characteristics of the outbreak.
2. Stop movement of milk, because a Modified Premises (which requires having a valid National Identification Number (NIC)) and be inspected to ensure adequate biosecurity and surveillance and obtain a permit to process milk to processing. In the event a permit is required, guidance is included in this SMS Plan.

Response Guidance Documents
There are several guidance documents for Responsible Regulatory Officials to use in an FAD outbreak and the SPS Plan aligns with them:

- Strategic guidance for responding to FMD, CSF, ASF in the United States can be found at www.aphis.usda.gov/animal_health/emergency_response/

Secure Beef Supply (SBS) Plan for Continuity of Business



Introduction

Foot and mouth disease (FMD) is a highly contagious foreign animal disease that affects cattle and other cloven-hooved livestock, such as swine, sheep, goats, and deer. FMD is not a public health or food safety concern. The United States eradicated FMD in 1929 but it is present in many other countries and causes severe animal production losses. However, FMD, CSF, and ASF are not a public health or food safety concern. FMD has been eradicated from the U.S. since 1929 and is present in many other countries and causes severe animal production losses in animals.

The SBS Plan is the result of a multi-year collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SBS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of the outbreak.

Purpose of the Secure Beef Supply Plan
The Secure Beef Supply (SBS) Plan provides the guidance for a workable business continuity plan for beef premises with an exposure of FMD infection located in a regulatory Control Area and animal industries that are able to move those animals with an outbreak of infection and located within a Control Area to slaughter and processing facilities and between production phases. Officials must balance the risks of allowing movement of animals to slaughter and processing facilities and between production phases against the impact of not allowing movement of animals to slaughter and processing facilities and between production phases against the impact of not allowing movement.

Participation in the SBS Plan is voluntary. Having the SBS Plan guidance available and implemented, however, provides a pre-arranged FMD outbreak coordination and communication between all stakeholders. The intent is to speed up a successful FMD response and eventually enable the resumption of movement permits after the outbreak of the outbreak is understood. This will support COB for cattle producers, processors, packers, processors, and allied industries who choose to participate.

The SBS Plan is the result of a multi-year collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SBS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of the outbreak.

FMD Response Guidance Documents
There are several guidance documents for Responsible Regulatory Officials to use in an FMD outbreak. The goals of the SBS Plan align with these guidance documents:

- Strategic guidance for responding to FMD in the United States can be found at www.aphis.usda.gov/animal_health/emergency_response/

Secure Sheep and Wool Supply (SSWS) Plan for Continuity of Business



Introduction

Foot and mouth disease (FMD) is a highly contagious foreign animal disease that affects sheep and other cloven-hooved livestock, such as swine, cattle, goats, and deer. FMD is not a public health or food safety concern. The United States eradicated FMD in 1929 but it is present in many other countries and causes severe animal production losses. However, FMD, CSF, and ASF are not a public health or food safety concern. FMD has been eradicated from the U.S. since 1929 and is present in many other countries and causes severe animal production losses in animals.

The SSWS Plan is the result of a collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SSWS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of the outbreak.

Purpose of the Secure Sheep and Wool Supply Plan
The Secure Sheep and Wool Supply (SSWS) Plan provides the guidance for a workable business continuity plan for sheep premises with an exposure of FMD infection and allied industries located in a regulatory Control Area that is available to Responsible Regulatory Officials. Continuity of business (COB) for the sheep industry around the ability to move animals with an outbreak of infection and located within a Control Area to slaughter and processing facilities and between production phases. Officials must balance the risks of allowing movement of animals to slaughter and processing facilities and between production phases against the impact of not allowing movement.

Participation in the SSWS Plan is voluntary. Having the SSWS Plan guidance available and implemented, however, provides a pre-arranged FMD outbreak coordination and communication between all stakeholders. The intent is to speed up a successful FMD response and eventually enable the resumption of movement permits after the outbreak of the outbreak is understood. This will support COB for sheep producers, processors, packers, processors, and allied industries who choose to participate.

The SSWS Plan is the result of a collaborative effort by industry, state, tribal, and academic representatives. Funding for the development was provided by USDA, Animal and Plant Health Inspection Service (APHIS). The SSWS Plan provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of the outbreak.

FMD Response Guidance Documents
There are several guidance documents for Responsible Regulatory Officials to use in an FMD outbreak. The goals of the SSWS Plan align with these guidance documents:

- Strategic guidance for responding to FMD in the U.S. can be found in the following www.aphis.usda.gov/animal_health/emergency_response/ documents.

SSWS 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 disease monitoring (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://seuresheepwool.org/Assets/SSWS_Wool-Handling-During-FMD-Outbreak.pdf.

Secure Sheep and Wool Supply Plan www.seuresheepwool.org



Enhanced Biosecurity Self-Assessment Checklist

7. Animal Product Movement

Wool Shearing and Handling

- Shearing Equipment
- Shearing Clothing and Footwear
- Wool Handling Equipment
- Wool Handling and Storage
- Wool Disposal

Self-Assessment Checklist for Biosecurity for FMD Preventive Sheep on Pasture/Rangeland

Each self-assessment checklist item has three possible components: **In place**, **In progress**, or **Not in place**. Each component is essential to prevent virus entry and spread on the operation.

- **In place:** All items are addressed in the biosecurity plan on the operation as evidenced by visual inspection and applicable documentation.
- **In progress:** Some, but not all, of the items of being implemented on the operation as evidenced by documentation, as applicable.
- **Not in place:** The items have not been addressed or implemented on the operation.

1. Biosecurity Manager and Written Biosecurity Plan

A Biosecurity Manager is identified for the operation and is responsible for the enhanced biosecurity plan with the assistance of the Biosecurity Manager. The Biosecurity Manager has the written biosecurity plan and communicates biosecurity training of, or communicating biosecurity training to, the operation. The Biosecurity Manager has the written biosecurity plan and communicates biosecurity training to the operation and takes corrective action as needed.

- In place In progress Not in place
- An operation-specific, written, enhanced biosecurity plan is reviewed at least annually and the biosecurity plan (expands, adds a new aspect of the scope of the operation and includes biosecurity biosecurity plan includes a map of the operation (Point(s), cleaning and disinfection (C&D) station location. The map indicates vehicle movement, removal pathways. The Biosecurity Manager ensures that all individuals entering the operation frequently (weekly or more often) have access to a copy of the biosecurity plan. The Biosecurity Manager is capable of implementing the written plan if FMD is diagnosed in the U.S.

2. Training

The Biosecurity Manager and essential personnel are trained at least annually about the biosecurity measures necessary to keep FMD out of the flock; training is documented. The Biosecurity Manager informs individuals entering the operation of biosecurity measures they are to follow in a language they understand. Individuals are aware of the biosecurity concepts and procedures that apply to their specific areas of responsibility. Effective training ensures that individuals are aware of the concepts and procedures that apply to their specific areas of responsibility. The biosecurity plan describes training required before entering this operation.

- In place In progress Not in place

7. Animal Product Movement

Semen, Embryos

Semen and embryos collected after FMD has been diagnosed in the United States come from sources with documented, enhanced biosecurity practices and no current or previous evidence of FMD infection. Semen and embryos are transported in containers whose exteriors can be cleaned and effectively disinfected to minimize the risk of virus contamination.

- In place In progress Not in place
- Does not apply (explanation included in the biosecurity plan)

Feeding Dairy Products

Lambs on the operation are fed either colostrum/milk originating from the operation where they are housed or colostrum/milk replacer manufactured according to World Organization for Animal Health (OIE) recommendations for inactivation of FMD virus for animal consumption (see the biosecurity manual).

- In place In progress Not in place
- Does not apply (explanation included in the biosecurity plan)

Wool Shearing and Handling

Shearing Equipment

All shearing equipment such as clippers and shearing machines, slings, combs/cutters, and blades are either new or have been disinfected according to the written biosecurity guidelines prior to crossing the LOS. Blade washes/coolants/cleaners/conditioners either are previously unopened products or have only been used on animals within the LOS. Shearing trailers are cleaned and disinfected according to written biosecurity guidelines.

- In place In progress Not in place
- Does not apply (explanation included in the biosecurity plan)

Shearing Clothing and Footwear

All shearers' clothing and footwear such as moccasins, shearing singlets, and shearing trousers are free of visible contamination and have been cleaned and disinfected according to the written biosecurity guidelines prior to crossing the LOS.

- In place In progress Not in place
- Does not apply (explanation included in the biosecurity plan)

Wool Handling Equipment

All wool handling equipment such as cotton or paper twine, burlap or plastic wool bags, nylon bales,



Shearer Biosecurity

- Clean, free of visible contamination
- New handling equipment when possible
 - Farm dedicated/provided
- Shared items = disinfected



Wool Handling

Wool Handling During a Foot and Mouth Disease (FMD) Outbreak



Virus Survival

How long can FMD virus survive in wool?

- FMD virus (FMDV) is more stable at lower temperatures, in organic matter such as manure or dirt, and when protected from sunlight.
- Reported survival times are approximately two months at 39°F (4°C). Survival time decreases with higher temperatures.
- There are no USDA-approved tests for detection of FMDV in wool (as of March 2021).

Storage

How can FMD virus be killed in wool?

- Clean the wool and equipment to remove contamination.
- Bale/bag wool in waterproof plastic and clean the outside of each bale/bag.
- Store bales/bags in a biosecure area for at least the time and temperatures listed. Keep accurate records of bale/bag identification, storage times and temperatures:
 - 39.2°F (4°C) for four months, or
 - 64.4°F (18°C) for four weeks, or
 - 98.6°F (37°C) for eight days.

Traceability

Why is traceability of wool bales/bags so important?

- Bales/bags should be uniquely identified and the wool not sorted or re-baled.
- Accurate, complete records of wool movements are critical to manage an FMD outbreak.
- It is possible that FMDV-infected sheep could be shorn and their wool stored or moved before the flock is diagnosed.

Disposal

If wool cannot be moved in an outbreak, what are some disposal options?

- Burial or composting small amounts.
- Burning/incineration requires high temperatures and may not be publicly acceptable.
- All options must meet local and state environmental regulations.

The Secure Sheep and Wool Supply Plan is funded by the American Sheep Industry Association.



- Virus survival
- Storage time/temps to inactivate FMD virus
- Wool bale/bag traceability
- Disposal options



SSWS: Wool Handling

Secure Sheep and Wool Supply Plan: Wool Handling During a Foot and Mouth Disease (FMD) Outbreak



Introduction

In the event of a foot and mouth disease (FMD) outbreak, it is possible that infected sheep could be shorn and their wool stored before the sheep are diagnosed with FMD¹. Wool from an infected flock, and perhaps all wool from a Control Area will be considered to be contaminated with FMD virus. It must be assumed that, in some cases, wool from infected yet undetected flocks will enter the supply chain. Depending on environmental conditions, wool harvested from FMD infected animals can harbor the virus for weeks². It is critical that any wool harvested during, or just before, a U.S. FMD outbreak, be handled in a biosecure manner so it does not contribute to disease spread. This document provides guidance only. In an actual outbreak, decisions will be made by the Responsible Regulatory Officials based on the unique characteristics of the outbreak.

FMD Virus Survivability in Wool

Wool is considered to be highly biodegradable, at least partially due to its structural protein, keratin, which readily breaks down – especially in warm, humid, and aerobic conditions³. However, clean, dry wool or wool kept in anaerobic conditions is extremely durable and has been unearthed thousands of years later⁴.

FMD virus (FMDV) has greater stability at lower temperatures, in the presence of organic matter, and when protected from sunlight⁵. Reported survival times of FMDV on wool was approximately two months at 4°C [39.2°F] (with significantly decreased survival at 18°C [64.4°F]). FMDV can be inactivated in acid conditions (below 6.0 pH) or alkaline conditions (above 9.0 pH)⁶.

It is important to note that there are no USDA approved tests for detection of FMDV in wool⁷.

Inactivating FMD Virus in Wool and Wool Handling Equipment

Wool and wool handling equipment can serve as a fomite to spread FMDV unless proper procedures are followed. The World Organization for Animal Health (OIE) sets the international sanitary standards for trade in animal products to avoid transmitting pathogens between countries. Guidance is provided in the 2019 OIE Terrestrial Animal Health Code, Article 8.8.32: *Procedures for the inactivation of FMDV in wool and hair*.

"For the inactivation of FMDV present in wool and hair for industrial use, one of the following procedures should be used:

1. industrial washing, which consists of the immersion of the wool in a series of baths of water, soap and sodium hydroxide (soda) or potassium hydroxide (potash);
2. chemical depilation by means of slaked lime or sodium sulphide;
3. fumigation with formaldehyde in a hermetically sealed chamber for at least 24 hours;
4. industrial scouring which consists of the immersion of wool in a water-soluble detergent held at 60–70°C [140–158°F];
5. storage of wool at 4°C [39.2°F] for four months, 18°C [64.4°F] for four weeks, or 37°C [98.6°F] for eight days.⁸

Preparing Wool for Storage to Inactivate FMD Virus

Step five (5) in the list above may be most applicable to sheep operations in a Control Area who wish to request a movement permit to transport wool off-site for further processing. As previously stated, it is possible that FMD infected sheep could be shorn and their wool stored before the sheep are diagnosed.

March 2020

1

- FMD virus killed by
 - Warm temperatures
 - Long term storage
 - 39.2°F (4°C) for four months or
 - 64.4°F (18°C) for four weeks or
 - 98.6°F (37°C) for eight days



SSWS PLAN	PRODUCERS	VETERINARIANS	PACKERS/PROCESSORS	REGULATORY OFFICIALS	TRAINING MATERIALS
-----------	-----------	---------------	---------------------------	----------------------	--------------------

Packers/Processors

Packers

Wool Processors

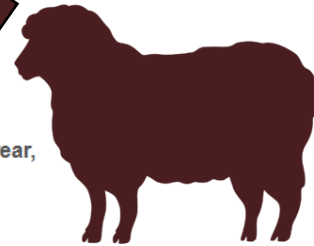
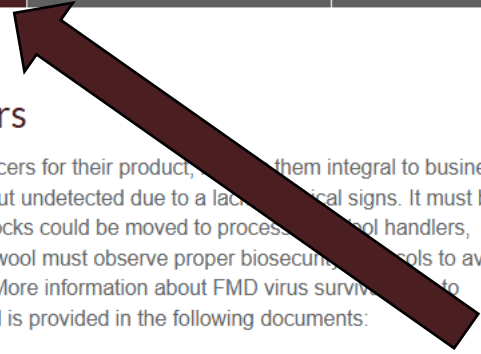
Product Movement

Wool Handlers and Processors

Wool handlers and processors rely on sheep producers for their product, making them integral to business continuity. Sheep may be infected with FMD virus but undetected due to a lack of clinical signs. It must be assumed that wool from infected and undetected flocks could be moved to processors, wool handlers, processors, and others who have contact with raw wool must observe proper biosecurity protocols to avoid transmitting the FMD virus to susceptible animals. More information about FMD virus survival and how to inactivate it, wool bale/bag traceability, and disposal is provided in the following documents:

- [SSWS Wool Handling during an FMD Outbreak](#) (4 pages)
- [SSWS Wool Handling Handout](#) (1 page)

FMD is not a public health concern, but can be carried on raw wool, a person's clothing, footwear, and personal items.





Questions?



SCAN ME

Danelle Bickett-Weddle
dbw@preventalytics.com



"Statue of Biosecurity"