Secure Sheep and Wool Supply: Contingency Planning Considerations for Producers Prior to an FMD Outbreak

Introduction

Foot and mouth disease (FMD) is a highly contagious foreign animal disease that affects sheep and other cloven-hooved animals, such as swine, cattle, goats, and deer. FMD is not a public health or food safety concern. Movement restrictions[1] of susceptible livestock species and their products (wool, semen, embryos) for a period of time is one strategy for the control and containment of FMD during an outbreak in the U.S. Once restarted, movement will be by permit only. Permits will be issued by Regulatory Officials based on the risk posed by that movement and the premises' ability to meet permit requirements of the origin and destination states. Guidance for requesting a movement permit is described in the Secure Sheep and Wool Supply (SSWS) Plan for Continuity of Business at www.securesheepwool.org. A brief description is below. More information about FMD response strategies is available in the USDA FMD Response Plan: The Red Book available at: http://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf.

USDA recommends a 72-hour national movement standstill of susceptible species and animal products once FMD is diagnosed. It may take several days or weeks for the livestock industry, state, and federal officials to understand the extent of the outbreak and have confidence that animals with no evidence of infection can move without spreading FMD. This document provides guidance to producers for developing an operation-specific contingency plan during an FMD outbreak when movement restrictions are in place. **A well-developed and implemented contingency plan should aim to support the operation's biosecurity, promote animal well-being, maintain flock health, and minimize economic losses.**

Components of a Contingency Plan

On the day FMD is diagnosed in the United States, sheep producers who plan to move unaffected animals, wool, semen, and embryos in the following days should follow the guidance in the SSWS Plan so they can request a movement permit once movement is allowed by Regulatory Officials. This document only briefly addresses unique contingency considerations not covered in other documents.

Guidance for Requesting a Movement Permit

Movement permit guidance is described in more detail in the SSWS Plan and on the website (https://securesheepwool.org/producers/permit-guidance/). Regulatory Officials will determine and communicate the exact permit requirements for sheep, wool, semen, and embryos which may vary by state. Producers should be prepared to meet the requirements prior to requesting a permit such as:

- Providing traceability information (Premises Identification Number, GPS coordinates, and information on type and number of animals to move)
- Biosecurity measures listed in the SSWS Biosecurity Checklist for Feedlots or Sheep on Pasture/Rangeland are in place and acceptable to the Responsible Regulatory Officials (https://securesheepwool.org/producers/biosecurity/)
- Trace back/forward information is complete; the premises is not declared Infected, Suspect, or Contact
- The destination premises and State are willing to accept the sheep/wool//semen/embryos

[1] In this document the term "movement restrictions" will be used as a general term to encompass the language and implementation differences among federal movement recommendations and individual state plans.

    - All interstate movements must also meet existing movement/state entry requirements in addition to outbreak-specific conditions listed in the SSWS Plan and from Regulatory Officials.
- No evidence of infection based on surveillance

Sheep Inventory and Potential Movements

When movement restrictions are put in place, it is essential to know the location of sheep, including any that are in transit, or due to be in the following week(s). For animals in transit, Regulatory Officials may either allow their continued movement or require the animals to return to their origin. If these are not options, arrangements for diversion to quarantine site(s) may need to be made. Effective and timely communication with the shipper(s) and/or driver(s) will be critical.

Accurate records detailing the origin and current location of sheep on pasture or rangeland will be essential as the outbreak investigation continues.

Movement of sheep to shared grazing areas and permits issued for grazing public lands may be affected by movement restrictions, depending on where the outbreak is occurring. Alternative options for sheep grazing or feeding may be needed. Individual State Animal Health Officials, working with the state and/or federal agencies that oversee the public land, may provide options on a case-by-case basis to relocate or extend the allotment expiration date for the permit holder.

Once movement is allowed to restart, prioritize which movements will be needed first (sheep to/from pasture/fields for feeding, breeding, lambing; sheep to feedlots, harvest; cull sheep; ram studs; wool or wool products; semen; embryos), recognizing it will vary by season/time of year. During the movement standstill, use that time to meet the movement permit requirements that will likely be needed. Movement permit guidance is described in the SSWS Plan and requirements will depend on the regulations of the origin and receiving states. All interstate movements must also meet existing movement/state entry requirements in addition to outbreak-specific conditions listed in the SSWS Plan and from Regulatory Officials.

Financial Planning

An FMD outbreak in the U.S. will almost certainly result in lost export markets for animals and animal products and domestic consumption of lamb and mutton may also decrease. This will cause a substantial drop in price for sheep and their products. Financial risk management planning will be critical to business continuity. Cash flow during periods of movement restrictions may be affected. Flexibility in contract arrangements may be needed for receipt of sheep, delivery to packers, and delivery of feed and other supplies to the premises. Some operations may benefit from livestock risk protection or business interruption coverage insurance.

During an outbreak, there will likely be increased expenditures associated with enhanced biosecurity measures. Ensuring FMD virus does not enter an operation, pasture, or rangeland on a person, vehicle, or equipment will take vigilance and a capital investment in equipment and personnel time. Enhanced biosecurity measures are described in the SSWS Plan and briefly below.

If sheep become infected with FMD, depopulation may be a strategy used to decrease disease spread. If animals are depopulated, indemnity may be paid as funds are available. The Code of Federal Regulations authorizes the federal government to pay 50% of fair market appraised value for the animals taken (See: Title 9, Code of Federal Regulations, Part 53.2, Determination of existence of disease; agreements with States.). States may or may not have additional provisions in their code to pay indemnity. In large or extended outbreaks, depopulation may not be a strategy and sheep may be allowed to recover. No indemnity will be paid for lost production. Indemnity will not restore a livestock business to pre-outbreak financial status.

Enhanced Biosecurity Measures

Routine biosecurity measures are not enough to prevent sheep exposure to FMD because it is very contagious. The SSWS Plan includes guidance for producers to work with their veterinarian to develop a written, operation-specific enhanced biosecurity plan that meets or exceeds the items in the *Self-Assessment Checklist for Enhanced Biosecurity for FMD Prevention: Feedlots* or *Pasture/Rangeland* available on the SSWS website: https://securesheepwool.org/producers/biosecurity/. Developing an effective plan takes time and preparation even using the enhanced biosecurity plan templates available on the SSWS website. Several sections would benefit from developing contingency planning, such as:

- Interrupted animal movement
- Cleaning and disinfecting during inclement weather
- Lack of availability of carcass and manure disposal options
- Alternate delivery options for essential inputs and seasonal events (shearing, harvest, hauling manure) that can maintain enhanced biosecurity.

Communication of Plans

Movement restrictions may cause changes in routines, business practices, and protocols. A communication plan may lessen potential confusion or misunderstandings. Consider including:

- Who should be communicated with, both internal and external to the operation.
    - Regulatory Officials will be determining movement permit requirements; include their contact information in your communication plan
- When they should be alerted of changes in routines, protocols, and expectations.
- What methods of communication will be used (call, email, text, fax, etc.).

Sheep Health Management

Maintaining sheep health and well-being during an FMD outbreak will continue to be important. It will not be "business as normal". Contingency plans should include considerations for feeding, lambing, breeding, enhanced disease monitoring[2], preventive medicine, and treatment of sick animals.

- Movement of sheep to pastures, fields, or public land for grazing may be restricted in an outbreak. Plans for alternative feeding options may be needed (more on feeding in "Managing Inputs" below).
- Lambs born on backgrounder or feedlot operations may not be allowed to leave the operation. Operations should have a plan to care for these lambs for up to several weeks while animal movement is stopped.
- Movement of semen and embryos may be restricted. Breeding programs may need to be modified until semen, embryos, and recipient permit requirements can be met.
- Have a strategy to train personnel to monitor sheep for abnormalities and clinical signs of FMD. Clinical signs of FMD may be mild or inapparent in infected adult sheep.
- Record all treatments in order to meet appropriate withdrawal times in the event sheep are harvested sooner than normal.
- In the event the flock/feedlot veterinarian is unable to visit the operation as frequently as normal, develop alternative plans for consultation and communication such as the use of digital images and videos.
    - Work with the flock/feedlot veterinarian to develop alternative treatment protocols if on-hand supplies are limited and delivery options are affected.
- Submission and shipment of diagnostic samples from necropsies or sick sheep unrelated to FMD may be delayed or suspended during this time. Alternative methods of communication with the flock/feedlot veterinarian to discuss findings and treatment options may be necessary.

[2] Disease monitoring includes measures designed to detect FMD infection as early as possible.

Managing Inputs

Be prepared to fully implement your operation-specific enhanced biosecurity plan. Limit access, establish the Line of Separation (LOS), and post signs, place barriers, etc. on your operation to avoid unwanted entry. Additional examples below.

There are unique biosecurity challenges with sheep grazing on public lands. For more information, see *Considerations for Enhanced Biosecurity for Livestock on Public Land Allotments* available at: https://securesheepwool.org/Assets/SSWS_Enhanced-Biosecurity-Considerations-Public-Lands.pdf

Deliveries and Traffic

Plan to control regular and unexpected deliveries, pickups, and other traffic in a biosecure manner. A worksheet to help determine the number and types of inputs and outputs is available at: https://securesheepwool.org/Assets/SBS_Inputs-Outputs.pdf. Plan to communicate with suppliers and delivery drivers to change delivery dates or drop-off locations if necessary. Do not hesitate to ask drivers where they and their vehicles have been so you can determine any risk they may pose to your operation. Keep records of all movements onto the operation.

Commodities and Feeding

Determine sheep feed requirements, delivery options, and grazing possibilities that will align with your enhanced biosecurity protocols. Enhanced biosecurity guidance for preventing the entry or spread of FMD is available on the SSWS website (https://securesheepwool.org/producers/biosecurity/).

For sheep well-being, avoid making any abrupt dietary changes. In an FMD outbreak, minimizing feed input costs while maintaining sheep health and well-being will be essential to business continuity. There may be a shortage of available feedlot nutritionists in an outbreak; plan ahead by discussing alternative diets based on commonly available, low-cost feedstuffs and include those step-down rations in your contingency plan. Movement restrictions may prevent taking sheep to/from grazing lands. Regardless of management style, all sheep operations should:

- Inventory forages and feedstuffs. Establish:
    - How long feed/forage supplies will last (stored on site, grass on pastures, fields, rangeland)
        - For feeder sheep/lambs, consider slowing gain to extend the feed supply and prevent overweight carcasses due to movement restrictions.
        - Provide supplemental feed to sheep on rotational grazing if movement is restricted.
    - When forage and/or feed will be needed (days, weeks).
    - If ration reformulation is necessary to conserve stockpiles of feed.
    - Alternative feedstuffs to maintain adequate body condition.
        - Access to pastures/fields (e.g., if pastures or fields are part of the same premises, consider turning feeder sheep/lambs out on pasture to reduce daily gain and conserve feedstuffs)
        - Access to dry lots (e.g., for sheep on a forage based diet, consider housing them in a dry lot "part-time" to protect forage supplies)
        - Other sources of feedstuffs if normal source or grazing land requires an interstate movement permit or is located in an area near infected premises
- Maintain accurate records regarding feedstuffs and commodities including:
    - Origin of feed delivery (address, city, state, country)
    - Date of shipment/arrival
    - Specific feedstuff
- Manage feed storage to limit wildlife access
- Plan for water storage and delivery as applicable
    - Store extra water on-site to prevent gaps in water availability.

- Identify additional water sources that could be potentially used if usual water source is impacted by movement restrictions.

Personnel

In an outbreak, only allow entry to people essential to the operation. Consider conducting some consults via phone to decrease traffic and risk of disease introduction.

- Anyone entering the operation should follow all biosecurity procedures for the operation. Communicate expectations prior to their arrival on the operation.
- Essential personnel should be trained for outbreak procedures and cross-trained to do other duties in the event some personnel are not available to come to work.
- Ensure personnel understand the chain of command and are aware of any changes in roles related to movement restrictions.
- Keep daily records of all personnel (including processing crews, shearing crews, animal transporters/truckers, feed suppliers, etc.) that enter your operation and whether they have contact with sheep or other FMD-susceptible species. Only individuals with a valid reason for having animal contact should be allowed to do so.

Managing Outputs

Livestock Markets

Sheep marketing will be impacted by movement restrictions. Sheep movement permit requests will be evaluated based on the risk posed by that movement. Traditional livestock markets will be impacted; explore alternative options to buy or sell sheep, such as direct purchases from seedstock breeders, purchasing from operations where no new sheep, goats, cattle, or pigs have been introduced since the FMD outbreak began, and direct sales to slaughter.

Wool Markets

Movement of wool and wool products may be restricted. Arrangements for long- or short-term storage on the premises during an FMD outbreak may need to be made. Plans should be in place to store the sheared wool on-site in a biosecure manner. There may be additional requirements regarding disinfection and/or tracking of wool bales. See *Secure Sheep and Wool Supply Plan: Wool Handling During a Foot and Mouth Disease (FMD) Outbreak* available at: https://securesheepwool.org/Assets/SSWS_Wool-Handling-During-FMD-Outbreak.pdf for additional details.

Slaughter

Plan to communicate with packers and processors to coordinate delivery of sheep in the event of movement restrictions. Movement permits will need to be requested from Regulatory Officials.

- Determine the steps required to ensure acceptance of sheep with no clinical signs and products from apparently healthy animals.
- Control of disease spread may involve harvesting sheep earlier OR later than normal.
  - Review current language in contracts.
  - Discuss with packers options to send lightweight or heavyweight sheep and obtain consensus.
  - Consider seeking legal counsel prior to an outbreak and potentially including contract language to address an outbreak situation.

Manure/Nutrient Management

Movement of manure off-site may require a movement permit. Contingency plans for on-site storage options will be needed for different times of the year.

- Identify capacity to store manure on-site for at least four weeks.
  - If adequate storage space is not available on-site, movement of manure or application to fields may require a permit. Consider seeking movement permits to apply manure to pastures or fields if land resources are part of the premises.

- Nutrient application plans must be in compliance with applicable state and local regulations.
- Consult with university agricultural extension for expertise in planning.

Carcass Disposal

Movement of carcasses off-site may be prohibited or require a movement permit. Landfills and rendering may not be available. Contingency plans for on-site carcass disposal will be needed and may vary with season and weather. Develop a plan for carcass disposal using normal mortality numbers and a contingency plan for a large number of mortalities unrelated to FMD infection (toxicity, etc.).

- Manage carcass disposal to discourage scavenging by domestic animals and wildlife.
  - If this is the normal method used in non-outbreak situations for animals grazing public lands or private rangeland, consider alternatives or recognize that your sheep will be at increased risk of virus introduction via the feet/fur/feathers of scavengers that may have been on the infected premises.
- Disposal options may include:
  - Composting on-site
    - Ensure adequate carbon sources are available such as wood chips, straw or dried manure solids for use in composting. If these are not available on-site, inventory and shipment options may be limited.
  - Burial on-site
    - Work with local and state regulatory authorities to determine approved burial sites for the number of mortalities expected.
  - If land is limited associated with the sheep feedlot, determine if land immediately adjacent to the premises would be available for composting/burial. Request and obtain prior written permission of the landowner and approval by Regulatory Officials for use.
  - For guidance on carcass disposal, please see "USDA FAD PReP/NAHEMS Guidelines: Disposal" available at: http://www.cfsph.iastate.edu/pdf/fad-prep-nahems-disposal-manual

Terms

Cleaning and Disinfection (C&D) Station: An area on the perimeter of the operation that is equipped with adequate water and soap to remove visible contamination, and an effective disinfectant labeled for FMD to disinfect vehicles, equipment, and items needing to cross the Line of Separation (LOS) and manages run-off to prevent entry into waterways and animal housing or traffic areas.

Contact Premises (CP): Premises with susceptible animals that may have been exposed to FMD, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from the Infected Premises (IP).

Control Area: Consists of an Infected Zone and a Buffer Zone and is at least 10 km (~6.21 miles) beyond the perimeter of the closest Infected Premises. This area may be redefined as the outbreak continues.

Enhanced biosecurity: Heightened measures for protecting sheep on the operation from exposure to FMD.

Infected Premises (IP): Premises where presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, FMD case definition, and international standards.

Line of Separation (LOS): A clearly identified boundary around or within a premises with susceptible animals to separate off-farm from on-farm movements of vehicles, people and animals.

Permit: Issued by regulatory officials for necessary movements without creating an unacceptable risk of disease spread.

Regulatory Officials: Local, state, tribal, and federal officials responsible for managing the FMD outbreak. This could include the State Animal Health Officials, Tribal Leaders, and/or the USDA APHIS VS Officials.

Suspect Premises (SP): Premises under investigation due to the presence of susceptible animals reported to have clinical signs compatible with FMD. This is intended to be a short-term premises designation.

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Additional Resources

The Secure Sheep and Wool website has additional resources available at: www.securesheepwool.org