

# Active Observational Surveillance (AOS) for Foot and Mouth Disease (FMD): An Overview

June 2017



## Purpose

This document describes Active Observational Surveillance (AOS), which is one potential surveillance option for dairy premises within a Control Area with the goal of the earliest possible detection of foot and mouth disease (FMD).

## Introduction

The Secure Milk Supply (SMS) Plan recommends surveillance of all susceptible animals on a premises within a regulatory Control Area to demonstrate a lack of evidence of FMD infection in order to be designated as a Monitored Premises. Additional surveillance is recommended for issuing movement permits for animals and some animal products within or outside of a Control Area. The surveillance options required by Responsible Regulatory Officials in an outbreak will be determined by current capabilities and characteristics of the outbreak. These options are described in:

- *Surveillance Guidance to Support the Secure Milk Supply (SMS) Continuity of Business Plan during an FMD Outbreak*, June 2017 available at: [http://securemilksupply.org/Assets/SMS\\_FMDv-Surveillance-Guidance.pdf](http://securemilksupply.org/Assets/SMS_FMDv-Surveillance-Guidance.pdf).
- *Milk Movement from Control Areas in an FMD Outbreak*, October 11, 2016 available at: [http://securemilksupply.org/Assets/SMS-Milk-Movement-FMD-Control-Areas\\_FINAL.pdf](http://securemilksupply.org/Assets/SMS-Milk-Movement-FMD-Control-Areas_FINAL.pdf).

## Active Observational Surveillance (AOS) of Cattle for FMD

AOS is a systematic method for routinely monitoring livestock (cattle, pigs) for potential signs of early FMD infection during an outbreak. AOS is possible for cattle in all production phases (housed in pens, dry lots, barns, or on pasture). AOS during an FMD outbreak does not replace the need for diagnostic testing or periodic inspections by Responsible Regulatory Officials (local, state, tribal, and federal officials, as appropriate) or their designees (Accredited Veterinarians). Rather, AOS conducted daily by trained on-farm observers (called Cattle Health Monitors) employed by the dairy operation could supplement this process.

The Secure Milk Supply Plan includes AOS materials for training Cattle Health Monitors including how to recognize abnormal production parameters and clinical signs that may indicate early FMD virus infection. There are also materials that visually depict FMD lesions in cattle and forms to complete that describe the operation's communication plan, expected production parameters, and daily observations. These forms can be used alone or used as the framework to include the same information into an existing on-farm record-keeping system.

AOS includes:

- **Daily visual observation** of cattle by trained Cattle Health Monitors who are familiar with the health status of the livestock on the operation and able to recognize abnormal findings (clinical signs and/or changes in production parameters) that may be an early indicator of FMD virus infection;
- **Daily documentation** of normal, or abnormal findings that could be the result of an early FMD infection in the herd, (referred to as AOS records) by Cattle Health Monitors;
- **Prompt reporting** of abnormal findings to Responsible Regulatory Officials with a follow up examination of animals by them or their designee (Accredited Veterinarian). The Responsible Regulatory Officials may decide to conduct laboratory testing on any suspicious cases.

## **The USDA Surveillance Design and Analysis (SDA) unit provides the following guidance on Active Observational Surveillance:**

Active observational surveillance (AOS) is a purposeful effort to detect evidence of disease through observation of clinical signs following these criteria:

- Observations are ongoing, frequent (e.g., once or twice a day in confinement facilities or once every 2 to 3 days in large grazing operations), and follow a pre-planned schedule
- Observer is specifically tasked with monitoring for evidence of disease, toxicity, or other causes of mortality and decreased production
- The group of animals undergoing AOS is clearly defined
- A set of guidelines exist describing expected production parameters and corresponding investigation triggers
- A communication plan is created for a response to the investigation triggers, including when to contact regulatory animal health officials or their designees
- Observer is aware of and understands the production parameters, investigation triggers, and communication plan

Observation of clinical signs or other changes consistent with the disease of interest during AOS serves as the screening “test.” Confirmatory testing is laboratory-based.

Utility of AOS is highest for diseases that show overt clinical signs such as highly pathogenic avian influenza or foot-and-mouth disease (FMD). Vesicular diseases such as FMD in a naïve population are particularly amenable for AOS in many U.S. animal populations. Most confinement livestock, poultry, and aquaculture operations have standard management practices compatible with the above criteria and, in fact, already conduct AOS.

## **Role of Cattle Health Monitors**

One or more individuals should be designated as the Cattle Health Monitor(s) responsible for overseeing AOS on the dairy operation. The designated individual(s) should have a history of consistent daily involvement with cattle on the dairy operation so that they are familiar with the health status of the livestock they are assigned to monitor. The Cattle Health Monitors are likely to be the same people who are responsible for monitoring animal health daily in the absence of an FMD outbreak for any health problems which may require diagnosis and treatment. Milking crew, feeding crew, calf crew, and herd managers are some examples of personnel likely skilled at noticing abnormal clinical signs or production parameters.

- On smaller operations, the Cattle Health Monitor for all animals on the premises will likely be the owner of the dairy.
- On larger operations, several individuals may be responsible for recording daily observations for different groups of animals (e.g., calves, dry cows, or lactating cows) on the same premises.

## **Recognizing Early Signs of FMD**

The classical signs of FMD in cattle include painful vesicles and blisters in the mouth, on the feet, muzzle/nostrils, and on the teats which break open and form ulcers. The goal is for Cattle Health Monitors to perform daily observations during an FMD outbreak and recognize some **early signs**, which may look like other diseases that occur on a dairy operation. Abnormal production parameters or clinical signs associated with early stages of FMD infection may include:

- Drooling
- Fever (103 – 106°F; 39.4 – 41.1°C)
- Reluctance or inability to eat (decreased feed consumption)
- Lameness
- Reluctance to move
- Redness and/or blanching of coronary bands
- Nasal discharge
- Depression
- Decreased milk production
- Sudden death in young calves due to myocarditis

Some of these clinical signs are expected to occur with a certain frequency in a dairy operation due to a variety of causes other than FMD (nasal discharge caused by bovine respiratory disease, lameness caused by footrot or digital dermatitis, reluctance to eat caused by digestive upset, etc.). In an FMD outbreak, these other conditions may be seen and treated more often than normal which may actually be an early sign that cattle are affected with FMD. The Cattle Health Monitor(s) must be capable of deciding when the clinical signs occur more than expected or production parameters are below their normal range and promptly report their observations.

Cattle Health Monitors should **NOT** wait for the occurrence of vesicles/blisters or ulcers before reporting them as this means that FMD virus may have been present in the herd for a few days. This could result in the spread of FMD virus within the operation and between premises. However, if a vesicle/blister or ulcer is seen, it is urgent to report it promptly. The **Foot and Mouth Disease Pocket Guide: Cattle** and the **Foot and Mouth Disease in Cattle: Progression of Lesions** poster provide visual examples of the progression of vesicles/blisters and ulcers.

## Conducting Daily Observations

The Cattle Health Monitor should follow the guidelines below for proper implementation of AOS:

- Monitor animals and document AOS observations at least once daily.
- Animals are best observed when they are active. Suggested observation times include
  - At milking (lactating cows) or while walking to the milk parlor;
  - At feeding;
  - When treating sick cows;
  - At breeding;
  - When pushing up feed;
  - During herd checks;
  - During heat checks; and
  - When moving animals between pens.
- The best observation will occur upon close interaction with the animals when individual animal observation is possible. In addition, observation in uncrowded areas will result in better monitoring.
- The Cattle Health Monitor should be prepared to restrain the animal in a safe and humane manner for further examination as necessary.
- Be familiar with the AOS recordkeeping guidelines and properly document observations.

## Keeping AOS Records

Prior to, or on the first day of an FMD outbreak, the Cattle Health Monitor(s) should complete the “Operation-Specific Expected Production Parameters and Investigation Triggers” document. This involves reviewing herd records for the previous 14 days and defining the expected range for specific parameters for the herd or group. The Cattle Health Monitor should also define the “investigation trigger” for each value – either a change in percent (%) or pounds (lbs.) – that may indicate cattle health is affected or something changed on the operation;

either needs further investigation. This establishes the operation-specific “normal” so that when cattle are monitored for FMD, “abnormal” can be identified early.

Daily documentation of normal, or abnormal findings that could be the result of an early FMD infection in the herd, (referred to as AOS records) by Cattle Health Monitors is an important component of AOS. Findings include clinical signs (e.g., fever, lameness, death loss in calves) or the lack there of, more cattle being treated for various conditions, and production parameters (e.g., no changes, decreased milk production, decreased feed consumption). All AOS records must be available upon request for inspection by Responsible Regulatory Officials managing the FMD outbreak.

A Cattle Health Monitor will be expected to document observations daily for each group of animals on the dairy, either using the forms provided or as a component of an existing on-farm recordkeeping system. The information listed below will need to be readily accessible as a component of the AOS records.

- Appropriate group description to include the barn, pen, or lot names or numbers. The description listed should be easily identified by other Cattle Health Monitors, managers, veterinarians, workers, etc. on the premises.
- Daily, the records for EACH GROUP need to indicate ONE of the following options:
  1. No early clinical signs or abnormal production parameters associated with FMD were observed for this group;
  2. \*Early clinical signs and/or abnormal production parameters associated with FMD were observed for this group.  
\*If observed, the Cattle Health Monitor should be prepared to provide details of the clinical signs that were observed, especially if vesicles/blisters or ulcers are found.
- Initialed (digital or handwritten) by the Cattle Health Monitor responsible for that group of animals on that day.
- A series of daily observation forms that meet the above criteria are available on the SMS website at [www.securemilksupply.org](http://www.securemilksupply.org)
  - Herd/Group Daily Observation Form
  - Abnormal Findings Explanation Form
  - Individual Animal Examination Form

## Communicating Observations

Prompt reporting of suspicious clinical signs or unexplained changes in production parameters is critical. Each operation should determine a communication plan that works best for them and their management structure. Take into account communication between Cattle Health Monitors for the operation and who should notify Responsible Regulatory Officials.

Describe your operation’s communication plan in your AOS Records (example document provided).

Things to include in your AOS Communication Plan:

- Name and contact information for:
  - Cattle Health Monitors
  - Responsible Regulatory Officials (State and Federal Animal Health Officials)
  - Supervisors, herd veterinarians, and/or owners (as applicable)
- When one Cattle Health Monitor goes off duty, they must communicate with the Monitor coming on duty to brief them on the herd health situation, particularly observation of any clinical signs of concern.
- Who will communicate with the Responsible Regulatory Officials
  - Cattle Health Monitor directly
  - The Cattle Health Monitor first notifies their supervisor, herd veterinarian, or owner who then contacts the Responsible Regulatory Official

Once contacted, the Responsible Regulatory Officials or their designee (Accredited Veterinarian) may follow up with an examination of the animals and collect samples for laboratory testing on any suspicious cases.

## **Educating Cattle Health Monitors**

In the event State Animal Health Officials require documentation of Cattle Health Monitor(s) education prior to issuing a movement permit during an FMD outbreak, there are educational materials and forms, available in English and Spanish, on the SMS website: <http://securemilksupply.org/>. It is also in the dairy producers' best interest to ensure their designated Cattle Health Monitor(s) know what to look for during an FMD outbreak to identify disease early and decrease the chance of disease spread to other herds. The information can be reviewed individually online or delivered by the herd veterinarian to a group of individuals on the operation. Reviewing the information described below is expected to take about one hour.

- Handout: "FMD: What Dairy Producers Need to Know" (1 page)
- Video: "Foot and Mouth Disease: What Dairy Producers Need to Know" (9 minutes)
- Narrated PowerPoint lessons
  1. Recognizing Foot and Mouth Disease
  2. Using Active Observational Surveillance on the Dairy Premises
  3. Using AOS Records on the Dairy Premises
- Examination checklist
- Sign: See Something, Say Something
- Foot and Mouth Disease Pocket Guide: Cattle
- Foot and Mouth Disease in Cattle: Progression of Lesions

## **Comments**

Please send comments or suggested edits to [smsinfo@iastate.edu](mailto:smsinfo@iastate.edu)