

## 3. Individual Premises Procedures

### 3.1 Investigation

A thorough clinical and epidemiological investigation must be performed at the time of the initial visit to the suspect premises using the Epidemiology Report Form (Part C, Section 3 of the FAD-MOP).

#### 3.1.1 Reporting

The Area FAD Program officer will be called from the suspect premises by the investigating veterinarian. The history and the clinical, epidemiological and post-mortem (where applicable) findings will be discussed (Telephone Report - FAD-MOP Part B, C.1).

#### 3.1.2 Specimen Collection

Specimens for confirmation of FMD shall be collected and submitted as described in Part C.2.8 FAD-MOP (Appendix 1). Notification within the CFIA is required (FAD-MOP C.4), which alerts key Program and Operations staff based on risk of the specimen submission.

#### 3.1.3 Shipping Specimens to NCFAD

Diagnostic specimens to confirm the index case of FMD can be shipped as UN 2900 in 602 packaging. For subsequent specimens, District Veterinarians should keep in mind that under the Canadian *Transportation of Dangerous Goods Regulations*, FMD is considered a Risk Group 4 agent. The potential impact of this erroneous Transport Canada classification of FMD is a high probability of passenger airlines refusing a Risk Group 4 specimen. In such cases, the alternative would be to send the specimen by chartered aircraft or use a freight company until a derogation from Transport Canada is obtained.

### 3.2 Premises Control Actions

#### 3.2.1 Declaration of Infected Place on Suspicion of FMD

For *confirmatory negative submissions*, the veterinary investigator must consider the risk based on clinical signs, epidemiology, necessity for movement control, and, in consultation with the Area FAD Program Officer, determine whether a declaration of infected place is warranted. Generally there will be no premises quarantine, unless the epidemiology demonstrates a direct exposure. Consultation may be taken with FAD Unit staff at the Animal Health and Production Division. If there is any concern, the premises should be declared a suspected infected place (FAD-MOP C.1). The meaning of the declaration of suspected infected place must be explained to the owner.

For *high-risk submissions*, the premises should be declared infected place pursuant to Section 22 of the Act. The declaration must be made by an inspector appointed or designated pursuant to Section 32 of the Act. All animals, animal products and by-products, and things, including animal

feed and manure, vehicles and equipment are prohibited from moving on or off the premises (total movement control) unless a licence is issued pursuant to Section 25 of the Act. Depending on the circumstances, eradication procedures may be initiated or conditions of the quarantine must be explained to the owner. (See Section 3.2.5 “Action in the vicinity of the infected place”)

If FMD is suspected at an abattoir, sales yard, animal assembly yard, transport vehicle or vehicle inspection point (border or humane transport site), the control actions will be dependent on the assessment whether the specimen is high risk or confirmatory negative. In addition, at an abattoir, immediate control measures as outlined in Chapter 9 of the *Meat Hygiene Manual of Procedures* will be followed.

If confirmatory negative, the animals may be slaughtered or licensed to destination provided that they do not come into contact with any susceptible animals and/or are held at the site for observation until preliminary results of initial samples are available. If held and the preliminary results are negative, the animals can proceed to destination under license. Due to the nature of FMD, by holding potentially exposed livestock at the site for 72 to 96 hours, additional clinical signs will develop if the suspect animal is a positive case. Products of slaughtered suspect animals will be held pending final results.

If the submission is considered high risk, the affected animals and herd mates could be immediately destroyed and disposed of by burying, burning or rendering after consulting with Headquarters in Ottawa. Exposed animals could be shipped directly to slaughter if there is an abattoir in the area without exposing additional livestock; or held at the site for observation according to circumstances.

### **3.2.2 Confidentiality of FMD Submission and Confirmation of FMD**

Samples submitted to the NC-FAD in Winnipeg are subject to a number of tests (see Appendix 1). Under the *Privacy Act*, information regarding the suspect premises may not be divulged publicly. Results of the DAS-ELISA are usually available about 3 to 4 hours after receipt of the specimen at NC-FAD.

Negative results for confirmatory negative submissions will be released automatically by the Laboratory Sample Tracking System (LSTS) (see FAD-MOP C.4). The investigating veterinarian and Area FAD Program officer will determine the appropriate time to release suspect FMD infected place status. The FAD unit at Headquarters may be consulted in this decision.

For all high-risk specimens and positive DAS-ELISA results to confirmatory negative submissions, the test results are made available as per the protocol in FAD-MOP C.4.4 and C.4.5. This protocol requires key CFIA officials including the local investigating veterinarian to review all of the available historical, clinical, epidemiological, and laboratory evidence, prior to making a decision as to whether the situation should be interpreted as:

- negative, with no need for any additional investigation;
- inconclusive, with need for additional investigation; or
- positive, with no need for additional sampling.

### **3.2.3 Declaration of Infected Place on Confirmation of FMD**

If the premises were not already declared an infected place (i.e. positive diagnosis on a confirmatory negative specimen), it must immediately be declared infected under Section 22 of the Act, and the owner advised of the conditions associated with the declaration of an infected place and the pending eradication procedures. It is critical to accurately complete the

epidemiology report (Part C, Section 3 of FAD-MOP) as soon as possible, so the time of FMDV infection and subsequent spread within the premises and the dissemination of FMD from the place can be evaluated. Epidemiological analysis will identify and trace places that had direct or indirect contact with the confirmed infected place and schedule inspection of at-risk places to coincide with expected clinical signs.

If FMD is confirmed at an abattoir, transport vehicle or border inspection point, all susceptible animals will be killed without delay and carcasses, offal and animal waste will be destroyed under official supervision to eliminate the virus. Buildings or vehicles and equipment must be cleaned and disinfected under supervision of the CFIA and no animals reintroduced for slaughter until the situation as assessed.

If the confirmation is at a special premises, such as a laboratory, a semen production facilities, a zoo, a wildlife park, or a fenced area where animals are kept for scientific purposes or for conservation of rare breeds, total slaughter may be derogated and restricted to confirmed FMD-infected animals pending a risk assessment. The Policy and Procedure Committee will consider results of the risk assessment, particularly with respect to exposure and possible vaccination.

### **3.2.4 Restrictions at the Declared Infected Place**

The objective is to prevent any further spread from a positive FMD infected place. Upon declaration of infected place status (quarantine), the veterinary inspector will:

- conduct a census of all susceptible animals, the number in each category, those dead, infected or liable to be infected or contaminated
- inventory all stocks of milk, meat, carcasses, hides and skins, wool, semen, embryos, ova, slurry, manure as well as animal feed and bedding
- impose a no movement restriction on all ruminant species (cattle, sheep, goats, etc.) swine and other susceptible animals to or from the premises with such animals to be isolated in buildings where at all possible
- require the establishment to carry out appropriate disinfection at entrances and exits of buildings and security at the entrance of the premises itself
- assign an inspector (if available) to ensure bio-security at the gate of the infected premises, as outlined in Part C, Section 11.5 of the FAD-MOP
- order dogs, cats and other non-susceptible potential mechanical vectors to be confined
- include poultry and horses in the quarantine, but these may move under license to slaughter at a federally inspected abattoir or to premises where there are no susceptible animals
- advise owners of adjacent premises to keep susceptible animals away from the perimeter of the declared infected place
- order vehicles and equipment must to be cleaned and disinfected prior to leaving the declared infected place
- advise people to wear clean clothes and not to visit other premises where there are susceptible animals and recommend the wearing of clean clothes upon leaving an infected premises.
- prevent effluent should be prevented from draining onto roads, pastures or watercourses
- implement vermin control, feral animal control or wildlife control measures if warranted

- trace milk and/or milk products of susceptible animals collected during the period of probable introduction to confirmed diagnosis and either destroy or treat in such a way to ensure FMD virus destruction (see Appendix 3)
- similarly trace semen, ova and embryos collected from susceptible species during period of probable introduction to confirmed diagnosis and destroy under official supervision
- ensure that untreated animal products such as milk or by-products produced or stored on the premises will be destroyed and disposed of on the premises by burial or spreading on open fields or by soil injection or treated in a manner that inactivates the disease agent and or moved under licence for disposal off the premises providing that suitable sanitary precautions are taken by the driver of the vehicle and that the vehicle is cleaned and disinfected.

The UK and Australia require the spraying of the surfaces of roads, yards and private roads leading to contaminated buildings. In Canada, road disinfection is feasible at a temperature above the freezing point. The potential to generate aerosols, proximity of other susceptible livestock and the benefits of surface cleaning and disinfection must be balanced in each decision. Care must be taken to prevent the generation and dispersal of infective dusts and aerosols. Salvage of animal products and by-products must be extremely cautious with regard to subsequent cross contamination. Generally these should be destroyed.

Conspicuous signage indicating the presence of FMD may be posted at the farm entrance(s) along with the bio-security provisions including facilities for cleaning and decontamination of eradication staff and footwear of residents not in contact with livestock. The CFIA will provide signs “FOOT-AND-MOUTH DISEASE KEEP OUT” in block letters at least 10 cm high.

Section 104(1) of the *Health of Animals Regulations* gives the necessary authority to order the disinfection of vehicles, clothes, footwear and things worn or carried by any person entering or leaving a premises affected or suspected of being affected with a communicable disease. Such fomites must be clean, either never having been in contact with milk, manure, urine, saliva or any discharge from livestock or cleaned with detergent to remove any visible contamination followed by disinfection. Footwear should remain on the premises, due to the difficulty of adequate cleaning, particularly the treads of boots.

### **3.2.5 Actions in the Vicinity of the Infected Place**

Prior to the Ministerial declaration made under Section 27 of the Act to define a Control Area, a general provision exists under Section 23 of the *Health of Animals Act*, to individually declare infected places (quarantine), all premises up to 5 km of the limits of a premises where the disease has been confirmed. This infected place declaration is an *interim measure* until Control Area legislation is enacted and movement control zones defined. For FMD, the inner Infected Zone will be a minimum of 3 km, following international guidelines. Because of the heavy resource demand in delivering individual declaration of infected premises as an interim measure, such declaration in the geographic proximity of the premises where FMD is suspected should be selected on the basis of possible FMD contamination. This priority system is based on location, construction or layout, and particularly on potential for contact with animals.

Control Area legislation will better control the movement of animals to prevent the spread of the disease since movement restrictions can be applied to roads and public places as well as individual premises.

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## 3.3 Tracing on Positive FMD Infected Places

Tracing investigations to determine the possible source of the infection include both trace out and trace-in during the *critical period*. Tracing should include livestock; animal products encompassing meat, offal, milk, wool, hides, semen, embryos; vehicles such as milk tankers, livestock conveyances, feed trucks, cars; materials (i.e. hay, straw, crops, grains); and human traffic, particularly animal service industry such as veterinarians, artificial inseminators, sales and feed representatives, tradesmen, visitors.

The epidemiology questionnaire for tracing documentation is provided in Part C, Module C.3 of the FAD-MOP, and Part C, Module C.6 should be followed. The Director of Field Operations makes decisions concerning the disposition of traced premises (i.e. pre-emptive slaughter, quarantine and monitor, cleaning and disinfection, and release). The Policy and Procedures Committee should be consulted for borderline cases for consistency of traced premises disposition nationally.

### 3.3.1 Critical Period

For regulatory purposes, 14 days (OIE Code) preceding the onset of clinical signs in non-vaccinated herds is considered epidemiologically significant. In sheep and goats, the period is 21 days. A field adjustment will be made if animals on the infected premises have old lesions suggestive of earlier infection particularly in the index case where the date of introduction may be difficult to establish. As a general rule, early in an outbreak, where there is concern that the investigation could be missing old lesions of the initial case, use 2 incubation periods or 28 days. As the outbreak intensifies with greater virus production, clinical signs in a naive population will be apparent far earlier than 14 days and no tracing will be required prior to the determined introduction of FMD. Field determination of critical period must be made with consideration for the species present and their propensity for clinical expression (see Section 1.6.1).

### 3.3.2 Trace out Investigations

The term *pre-emptive slaughter* is used to refer to the slaughtering of animals exposed to FMD *prior to the expression of clinical signs*. When clinical signs are present, the case definition for FMD is applied.

The contiguous culling policy in the UK outbreak of 2001 was a geographic application of pre-emptive slaughter. That policy was found to be ineffective in changing the course of the outbreak (Honhold et al, 2004). Pre-emptive slaughter at contiguous premises is not part of the CFIA FMD strategy.

Pre-emptive slaughter will be applied to susceptible animals *known* to be exposed to FMD virus due to the highly contagious nature of FMD. Highest risk animals are those with recent direct contact such as other animals in the herd; those on contiguous premises with fence line contact; animals moved off positive FMD infected places within 72 hours of confirmation of disease or animals handled by veterinarians, inseminators or livestock dealers after they had handled an infected animal later confirmed infected with FMD.

All direct movements within the critical period must be investigated and epidemiologically evaluated considering the stage in the course of the FMD outbreak. Quarantine (declared infected places), intensive monitoring including regular real time PCR sampling may be considered under exceptional circumstances rather than pre-emptive slaughter where warranted by risk assessment. Pre-emptive slaughter decisions should be made considering the epidemiology of the outbreak and the probability of infection. In a fast moving outbreak or early in an outbreak (e.g. Isle of

Wight in 1981, Netherlands in 2001), the risk assessment should be conservative and pre-emptive slaughter more widely applied.

With no direct contact, livestock density considerations along with climatic conditions may make aerosols a sufficient concern to warrant pre-emptively slaughter of swine concentrations or ruminant feedlots. Modelling in Australia suggests that “under favourable conditions (stable atmosphere, wind speed of 3 m/s), over a 24-hour period, 1000 infected cattle in a feedlot would emit enough airborne virus to have a high probability of infecting stock up to 3.4 km downwind and put an area of 0.5 sq km at risk. With 5000 infected cattle the distance increases to 15.2 km and the area to 6.2 sq km. For 10 000 infected cattle the values are 37.2 km downwind and some 26 sq km at risk. Just 1000 infected pigs in a large piggery, over a 12-hour period would generate a virus plume sufficient to put stock over an area in excess of 200 sq km at risk. A 100 sow piggery, if infected, would pose a high risk of infecting livestock 10 km down wind. In a fast moving outbreak or early in outbreak, risk assessment should be conservative and pre-emptive slaughter of swine concentrations or feedlots applied. Swine located downwind from cattle will make them a lesser slaughter priority than cattle.

However, there are strain differences in the propensity to be aerosolized and in conditions of low relative humidity, more typical of western Canada, FMD virus spread by aerosols is not likely to be effective. In feedlots, a risk determination must be made to evaluate the degree of livestock mixing, the extent of contiguous pens, the presence of breaks in the livestock continuum and the management practices which might preclude the necessity of immediate depopulation. Herds identified to have had a direct contact should be slaughtered along with pen mates and contiguous pens. The relative risks shall be determined on a case-by-case basis depending on how recently the introduction of the direct contact has occurred, how feedlot are managed, including frequency and expertise of clinical monitoring (i.e. twice a day by staff or daily by trained veterinarian, alternate days, etc.). For swine concentrations under climatic conditions not suitable to generate plumes, it must be considered that pigs always need direct contact for infection, that is the respiratory route of infection is not efficient. But, the consequences of not detecting such direct contact are high. A risk assessment on bio-security is critical. Valuable swine genetic premises potentially exposed by aerosol only may possibly be safely quarantined and monitored.

Where FMD is traced out to special premises, similar to when FMD is confirmed at such facilities (see Section 3.4.3), total pre-emptive slaughter may be derogated pending a risk assessment and review by the Policy and Procedures Committee particularly with respect to the potential use of vaccination.

Epidemiologically linked premises (i.e. same owner, company) where there is no known confirmed animal movement (direct contact) will undergo a risk assessment as to the potential for transmission by indirect (fomite) contact. Under the *Health of Animals Act*, fomites are legally defined as *things*. Where the movement of fomites is such that transmission is considered probable, pre-emptive slaughter will be initiated without delay with validation sampling. If conditions to prevent the spread of FMD virus have been in place for at least two incubation periods, the premises may be declared a suspect infected place and monitored as below. Monitoring conditions would need to include management practices such as complete separation of housing with separate air space; stable management, feeding, manure removal are carried out by different personnel and all machinery, equipment, and installations used are completely separate.

Trace out premises without laboratory confirmation and clinical signs are to be declared infected places. They will be epidemiologically evaluated for immediate eradication or monitoring every

three days for the presence of clinical signs of FMD or real-time RT-PCR. The conditions of the infected place declaration are outlined in Section 3.2.4 of this document.

Procedures will follow the principles established above. Key considerations are species, density and proximity. Monitoring of sheep must always be done by real-time PCR or virus isolation or serologically due to poor clinical expression of the disease.

### 3.3.3 Trace-in Investigations

All susceptible livestock at potential source premises (trace-in) will be inspected for clinical signs and declared infected places. A veterinary inspector may declare a positive FMD infected place on the basis of clinical signs and known epidemiological link to a laboratory confirmed premises (case definition). Eradication activities described below are started as soon as possible.

If clinical signs are absent, the suspect premises is declared a suspect infected place and monitored at least every three days by real time PCR and for the presence of clinical signs of FMD. The nature of the monitoring should be dependent on the perceived risk. The infected place status of trace-in premises will be maintained for a minimum of 14 days (21 days for sheep and goats) after the movement of animals, products or material occurred. The conditions of the infected place declaration are those outlined in Paragraph 3.2.4 of this document.

### 3.3.4 Tracings to Special Premises

When animals were moved from an infected premises and have potentially contaminated holding yards, loading facilities, etc. en route, such facilities must be cleaned and disinfected as if FMD had been confirmed at those locations. Vehicles and equipment used to transport such animals must also be cleaned and disinfected (see Section 3.7). Dwell time for the disinfectant must be respected.

When tracing investigations, confirm the movement of animals from the infected premises at abattoirs, artificial insemination units (AI), embryo collection (EC) or embryo transfer (ET) centres, sales yards or zoos, the guidelines in Part C, Section 15 of the FAD-MOP will be followed and a risk assessment performed to determine whether immediate eradication or intensive monitoring is indicated (see Section 4.6). For AI, EC or ET declared suspect infected places where FMD is considered low risk, collection of embryos from the bovine species, appropriately washed according to the International Embryo Transfer Society protocol, may be allowed for domestic applications following a risk assessment. For international trade purposes, this procedure would be subject to the position of the respective importing country.

## 3.4 Eradication Activities at Positive FMD Infected Places

Positive FMD infected places include those where laboratory confirmation is made or those that meet the case definition (see Section 2.4). When laboratory confirmed, the term *confirmed positive* FMD infected place can be used to distinguish from those *declared positive* FMD infected places on the basis of the case definition.

### 3.4.1 Evaluation

Upon the decision to depopulate, evaluation will proceed as outlined in Part C, Section 8 of the FAD-MOP.

### 3.4.2 Slaughter of Susceptible Species

Slaughter of all susceptible species is undertaken using an approved method, as outlined in Part C, Section 9 of the FAD-MOP. When livestock numbers exceed slaughter capacity, slaughter priority will be as follows:

- all clinical swine (at farm of origin)
- other clinically affected animal species (at farm of origin)
- all known direct contact swine
- all known direct contact susceptible animal species
- susceptible contact fractious/exotic game farm animals
- high-risk swine in infected zone (indirect contact)
- other high-risk enterprises in infected zone (indirect contact)

Rationale for the above order is that swine are known amplifiers. It is critical that slaughter decisions be made without delay, with clinical and pre-clinical contact stock being destroyed within 24 hours.

### 3.4.3 Disposal of Susceptible Carcasses, Products and By-products

The disposal of carcasses and manure should be done with consideration for the environment, which is under provincial jurisdiction in Canada. The method of disposal may differ from one site to the other depending upon local conditions. The method to be used is the one that will minimize both the risk of spreading the disease and the impact to the environment. A disposal decision tree is available that considers these two important parameters and work is ongoing between CFIA and provincial environmental authorities to determine optimal local practices. Until this work is completed, the disposal of carcasses, animal products or any other contaminated materials will follow the FAD-MOP, C.9 and the following guidelines.

#### Disposal on the Premises

Animal carcasses, animal products, manure, and feed, as well as materials and equipment not suitable for disinfection, will be buried or burned on the premises, as outlined in Part C, Section 9, Modules 6 and 7 of the FAD-MOP. Burial is the preferred method of disposal. Air forced burning either in a pit or container may be the second method of choice. When deemed necessary, treatment of animal products or by-products may be ordered pursuant to Section 48 (2) of the Act. The home freezer should be inspected for possibly contaminated meat or meat product and such product treated or destroyed. Large quantities of milk may be transported to a burial site. Milk should be disinfected, generally by acidification prior to final burial (see Appendix 3).

Manure must be evaluated if it is ordered destroyed. Manure that cannot be burned or buried can be brought to the solid state by the addition of feed. It may be composted away from livestock buildings, sprayed with disinfectant and covered with heavy impervious plastic. The UK has specified composting for 42 days before spreading on fields or ploughing under. If the manure is composted, the declaration of infected place is retained until after the compost period. Discharge of liquid manure must be directed downwards at an angle of not less than 45 degrees from horizontal, and not more than one metre above ground level.

Crops and grains harvested from fields treated with effluent from a known infected premises within 14 days preceding the first clinical signs of FMD will be disposed of onsite by burial.



Otherwise removal is permitted following C&D of the premises. Crops and grains stored in open piles should have the top 10 centimetres removed and disposed on site and the remainder sprayed with disinfectant or citric/acetic acid and fed to non-susceptible species. The order to apply a treatment is done pursuant to Section 48 (2) of the Act.

### **Disposal Off the Premises**

When disposal on the premises is not possible, carcasses may be moved off site by bio-secure transport (see below) under permit to a rendering plant or to a landfill site or available crown land or Department of National Defence (DND) land for burial or burning. Appropriate authorizations must be obtained to comply with any other provincial or municipal regulations as pre-determined in the local *Foreign Animal Disease Emergency Support Plan* (FADES).

All trucks hauling carcasses off the infected premises must be leak proof, covered and follow a specified route. Carcasses must be sprayed with disinfectant prior to removal. Each truckload should be accompanied by a CFIA employee to its destination. C&D equipment must be available at the disposal site or the rendering plant and the vehicle must be thoroughly cleaned and disinfected as soon as possible after unloading. *Transport of Dangerous Goods Regulations* must be followed.

Rendering plants should be inspected and approved for disposal prior to receiving carcasses for rendering. A CFIA employee must verify the rendering process. Equipment used to render infected carcasses must be thoroughly cleaned and disinfected as soon as possible after use. Rendered product is not permitted to be used as livestock feed and will be disposed safely by burial, incineration or composting.

### **3.4.4 Removal of Non-susceptible Animals, Eggs and Poultry**

Non-susceptible animals, eggs and poultry, which may function as mechanical vectors, require a license for removal. License conditions are as follows. After a preliminary disinfection under CFIA supervision, licences may be issued to remove poultry, rabbit or other non-susceptible species from the positive FMD infected places. Mobile slaughter units may enter the premises under CFIA authority provided that they do not own or come into contact with susceptible animals and they comply with any additional bio-security conditions specified. Slaughterers must wear protective clothing and rubber boots and carry out a thorough disinfection before entering and leaving the premises. Poultry carcasses must be plucked and the head and neck depلمed. Other carcasses (i.e. rabbit) must be completely skinned. Feathers and skins must be destroyed by burning or effectively disinfected on the FMD positive infected place.

Removal of live non-susceptible animals must be carried out under license, at least one week after preliminary disinfection. Vehicles and crates must be disinfected before leaving the premises. Persons must wear protective clothing and clean and disinfect upon entering and leaving the premises and have no contact with susceptible animals. Any such non-susceptible animals must move directly to slaughter at an abattoir within the Control Area and which does not contain any susceptible animals. Feathers and skins must be destroyed by burning or effectively disinfected before leaving the abattoir.

Before being released from a known infected premises, dogs and cats should be dipped, sprayed or sponged with Virkon or a 2% acetic acid solution and rinsed. Protocols were developed for the safe keeping of horses during the UK outbreak in 2001.

### 3.4.5 Removal of Crops

No hay or straw can be removed from an FMD positive infected place. Licenses may be granted for corn for human consumption after preliminary disinfection of the premises if the corn was not directly contaminated (manure). Exposed corn may be fumigated with formaldehyde gas. All vehicles are to be cleaned and disinfected before and after use under CFIA supervision. Expenses incurred, including disinfection, are not payable by the CFIA. Similar consideration will be given to other crops.

Root and potato crops for human consumption (stated on license) are moved under license after completion of preliminary disinfection and evidence of non-contact with affected livestock. If crops are in silos, these and the surrounding ground must be sprayed with 5% formalin or 0.2% citric acid or Virkon. Exposed layers should be sprayed and destroyed. All vehicles, tools must be cleaned and disinfected before and after use. Transport vehicles must not drive through contaminated ground. All work must be done under CFIA inspection. Expenses incurred, including disinfection, are not payable by the CFIA.

## 3.5 Vector Control

Arthropods (insects, ticks, and mites), rodents, and birds are rarely potential mechanical vectors of spread of FMD virus. However, rodent control should immediately be implemented upon diagnosis of FMD using approved rodenticides and licensed exterminators. Birds should be discouraged at infected premises during depopulation activities using scare tactics, as outlined in the FAD-MOP C.10.

Control of arthropods may be undertaken by licensed exterminators using approved products and established protocols when:

- large amounts of virus are being shed and are available to potential mechanical vectors;
- a high population density of potential vector species is present; and
- large populations of susceptible hosts are present within the flight range of potential vectors.

## 3.6 Wildlife Control

If wildlife is considered to be a risk factor in the dissemination or persistence of FMD, the means of reducing contact between infected livestock, wildlife and susceptible livestock should be instigated in collaboration with appropriate wildlife authorities as soon as possible. The Canadian Wildlife Directors' Committee will be asked to take the lead and the CFIA is the supporting Agency. Any attempt to control FMD in wildlife must be balanced against its likely dispersal.

The role of wildlife in FMD transmission is not considered by many to be significant. Feral animals, particularly feral pigs, will require a separate risk assessment because of their carcass scavenging nature, their propensity for ingesting FMD-contaminated animal products, and their ability to generate high concentration of aerosolized virus. Limited targeted depopulation may be necessary.

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## 3.7 Decontamination

### 3.7.1 Principles

Cleaning and disinfection (C&D) should be according to internationally accepted standards. As much as possible, OIE standards should be followed as adapted by Area Emergency Response Team's Cleaning and Disinfection supervisors. It would be preferable to use disinfectants with a label claim to be effective against FMD or similar virus; however, in the absence of Canadian approvals, those endorsed by the UK's Department for Environment, Food and Rural Affairs or those recommended by AUSVETPLAN may be used (see Appendix 2). C&D procedures are outlined in Part C, Section 11 of the FAD-MOP.

The following general principles should be applied:

- C&D carried out under official supervision according to official instructions;
- Activity of disinfectants checked before use and during application;
- Consider nature of premises, vehicles and objects to be treated in the choice of disinfectant;
- Use de-greasing agents and disinfectants under conditions where efficacy is not impaired (manufacturer's directions).

Independently of disinfectant used, do the following:

- Thorough soaking of bedding, litter, fecal matter;
- Washing and cleaning by brushing and scrubbing of ground, floors, ramps and walls after removal or dismantling of equipment or installations which would impair effective C&D;
- Followed by application of disinfectant for the appropriate contact time.

Avoid:

- Re-contamination of previously cleaned areas particularly with high pressure hoses, and
- Washing and disinfecting equipment that should be destroyed.

### 3.7.2 Premises

All C&D carried out under CFIA authority including premises, vehicles or equipment must be documented (see FAD-MOP C.11.6). During depopulation on positive FMD infected places, minimize dispersion of FMD virus through bio-security of entrances to the premises, protective clothing and decontamination facilities for C&D personnel (see FAD-MOP C.11.5). Ventilation and other electrical systems must be turned off.

Preliminary C&D at the time of depopulation includes the removal of any tissue or blood spilled during slaughter and disposal of carcasses, followed by spraying all areas where animals were present with disinfectant in sufficient quantity to meet the contact time specified by the manufacturer. The virus is protected by animal protein such as milk and feces. Thus, use of degreasing/detergent agents is important to remove virus and expose any residual virus to disinfectant. In situations with a high volume of proteinaceous material, degreasing and application of detergent may have to be repeated until clean. Final C&D may take place directly after the preliminary disinfection or delayed until more easily scheduled. Decontamination on premises should be repeated only if considered necessary on a case-by-case basis following inspection not as a routine measure.

Disinfection of bedding, manure and slurry may be accomplished by stacking the materials and spraying with disinfectant, then leaving for 42 days (see Section 1.4.2). This period may be modified if heavily contaminated or disinfectant is added to alter pH to destroy FMD virus. The UK did not disinfect fields where animals had been kept, but left them vacant for two weeks.

### **3.7.3 Carcasses**

Carcasses should be sprayed with disinfectant immediately after slaughter and before being moved to the disposal site on the positive FMD infected places for burial. In the UK, if disposal was delayed, additional precautions such as bagging the feet and the head of the animals to prevent exposure of the lesions were undertaken. Such additional measures should be determined on a case-by-case basis.

### **3.7.4 Equipment**

All exposed, non-disposable articles and equipment intended for C&D must be dismantled following the manufacturer's recommendations. Particular attention must be paid to electric motors and coils because moisture may be detrimental to such equipment. In such cases fumigation may be applied. If fumigation is required, it should only be performed by professionals who are experienced in the use of such gases.

### **3.7.5 Milking Equipment and Pipelines**

Special care must be taken to clean and disinfect milking equipment and pipelines, as milk may be infectious early in the course of the disease. The pipeline milking system will be disassembled, thoroughly cleaned, rinsed, and reassembled as for normal cleaning operations. A hot detergent solution at 70°C to 80°C pumped through it for ½ hour, followed by a 2% acetic acid solution for another ½ hour or equivalent is recommended. It should be ensured that all porous parts, that cannot be disinfected, must be removed and destroyed. Air lines and other parts not reached by the normal pump-through cleaning should be disassembled and cleaned and disinfected with an effective disinfectant.

The milking parlour and milk house will be cleaned and disinfected in the same fashion as the buildings housing livestock using a non corrosive disinfectant such as 2% acetic acid or fumigated with paraformaldehyde, respecting health and safety concerns.

## **3.8 Re-stocking and Release of Infected Place Declaration**

It is the convention to leave positive FMD infected places vacant for a period of time. Following approval of C&D, positive FMD infected places will remain vacant for a minimum of 21 days to ensure that any residual virus has been eliminated. In the event that part of the premises has not been cleaned and disinfected (i.e. derelict or un-cleanable buildings, burial sites, unsafe from a Health & Safety perspective), such premises may be partially approved if these areas are fenced in a manner to prevent access by people, animals or equipment. If a full C&D is not possible due to such conditions, restocking may take place 12 months after preliminary C&D.

Before the end of the outbreak, restocking can take place provided FMD has not been confirmed within 10 km of the premises within the previous 14 days.

The producer should provide a re-stocking plan, including details of species, numbers and locations of animals to be used as sentinels. This plan will be checked against the original plan where infected animals were housed. Animals should be introduced to all areas where animals

were previously housed but not necessarily all at the same time. However, no animals may leave until all locations have been restocked and test negative on serology. Density of animals should be sufficient to ensure adequate exposure to all livestock areas. Any FMD-susceptible species can be used to repopulate, not necessarily the species slaughtered out. Approval of the plan is made by the veterinarian responsible for sentinels and premises release (see FAD-MOP C.12).

The UK does not permit restocking of poultry or other non-susceptible species for a 21-day period after C & D. Such measures cannot be justified scientifically. Provided vehicles conveying such livestock are appropriately cleaned and disinfected so as not to re-introduce virus or pick up any residual virus, non-susceptible species may be restocked at any time.

### **3.8.1 Approved Sources of Livestock**

Introduced livestock must be derived from areas not subject to movement restrictions and tested negative before introduction. Serological testing of source sheep, goat/camel flocks should be at 95/5 confidence, and each animal moved must be individually tested with negative results before a license is issued to permit movement to the premises. Individual test results are valid only for 14 days before movement. A 24-hour pre-movement clinical inspection is also required.

### **3.8.2 Release of Infected Place Declaration with Restocking**

Sentinel animals will be ground-fed on the high risk sites of the premises for the sentinel period and be inspected by a veterinary diagnostician weekly (cattle, sheep, goats, and camelids) or twice a week for the first two weeks, then weekly (pigs). Producers are required to report any illness or deaths immediately. Discretion may be exercised by the veterinarian responsible for sentinels and premises release, whether the report requires immediate inspection or during the next scheduled one. Submission of samples is as suspect premises (see FAD-MOP C.2). Sentinel animals are maintained 28 days, after which the sentinels are subject to a final clinical exam and sera are drawn to test for sero-conversion. If sera are negative, the infected place declaration may be released and full restocking can take place.

### **3.8.3 Approval of C&D without Restocking**

Premises not intending to restock may be released from declared infected place status four months after the final C&D.