

FOOT & MOUTH DISEASE (FMD)

Quick guide for plant industries
and mixed farming enterprises



Plant Health
AUSTRALIA

Table of Contents

Key Points	3
Assessing your biosecurity risk	4
Risk assessment matrix	4
Biosecurity plan mapping	5
Knowing when and how to look for general and clinical signs of FMD in livestock	7
Symptoms in cattle	8
Symptoms in sheep and goats	9
Symptoms in pigs	9
Reference Guides	10
Make informed decisions	11
Reporting	12
Useful FMD resources	13
National	13
Regional	14
Foot and Mouth Disease Preparation	15

In May 2022, an outbreak of foot-and-mouth disease (FMD) was reported in Indonesia. Spread of this outbreak into Bali was confirmed in July 2022.

Indonesia is currently responding to widespread detections of both FMD and lumpy skin disease (LSD). The emergence and rapid spread of FMD in Indonesia has led to the implementation of heightened alert and screening activities in Australia and an increased need to update Farm Biosecurity Plans.

It is critical that all people working with livestock in Australia know what the symptoms of FMD looks like, and that they check their animals regularly.

If you suspect any signs of FMD speak to your local veterinarian, government veterinary officer or the **Emergency Animal Disease Hotline on 1800 675 888** immediately.



**EMERGENCY ANIMAL
DISEASE HOTLINE
1800 675 888**

FMD is a highly contagious animal disease that affects all cloven-hoofed animals including cattle, sheep, goats, deer, pigs, alpacas, llamas and camels. Cloven-hoofed animals are those with a split toe. Fortunately, FMD is not a human health risk and does not affect horses, dogs or cats.

FMD is exotic to Australia and is one of our greatest biosecurity risks. Australia is currently free of FMD, so an incursion would have severe consequences for Australia's animal health and trade. An uncontrolled outbreak could lead to immediate closure of our meat export markets for more than a year. Control costs have been estimated at more than \$80 billion over 10 years. An FMD outbreak is not just a threat to the Australian livestock sector. It will impact other agricultural industries, particularly through supply chain demand.

There is a wealth of credible and detailed FMD information currently available to Australian primary industries. The aim of this quick guide is to synthesise some of the essential baseline information on the clinical signs, symptoms, and epidemiology of FMD. In addition, the guide highlights key areas that are useful for plant industries and mixed farming enterprises to focus on when reviewing and updating their biosecurity plans to minimise exposure to the potential impacts arising from an FMD incursion and subsequent response.

Key points

- FMD is most likely to enter Australia through illegal imports of meat and dairy products infected with the virus and the subsequent illegal feeding of these products (swill) to pigs.
- FMD is highly contagious. The virus is present in large amounts in the blisters, saliva, urine, manure, milk and breath of infected animals.
- It spreads rapidly between animals and can be contagious for up to 4 days before clinical signs appear. The virus is excreted in breath, saliva, mucus, milk and faeces.
- The virus spreads between animals by:
 - direct contact with an infected animal
 - air-borne particles from infected animals
 - movement of infected animals
 - movement of contaminated animal products (such as wool or manure), vehicles, equipment and people.
- Although many affected animals may survive FMD, they take a long time to recover and often do not regain their full productivity. Surviving animals may also become carriers of the virus.
- Australia's FMD policy is to stamp out the disease by removing infected and high-risk animals. This would be animals within an agreed radius of an affected herd. There are agreed methods in place to ensure that animals are treated and euthanised humanely.
- Anyone keeping or working with cattle, sheep, goats or pigs should be aware of these signs of FMD.
- Australia's major livestock industries would be directly affected from export market closures and the disruption to production associated with the disease and response activities.
- Most countries would ban our livestock and livestock products as soon as foot-and-mouth disease is found. It is unlikely these restrictions would be lifted until Australia could prove that the disease had been eradicated.
- FMD is a notifiable exotic disease and any suspected or confirmed cases must be reported to your local Vet, Government Veterinary Officer or the Emergency Animal Disease Hotline 1800 675 888 (24 hours, 7 days a week).
- Be alert to cyber or email campaigns using the outbreak of FMD or other biosecurity incursions to obtain personal information.
- Emails claiming to be from a department, and relating to FMD, have been reported by farmers, industry and members of the community.
- These criminal scams often use news and current events to dupe people out of their personal information, a process known as "phishing". They send fraudulent emails or text messages pretending to be from large

This quick guide has been developed on the AFITE (Assess, Find, Identify, Thresholds, Enact) strategy shown below.

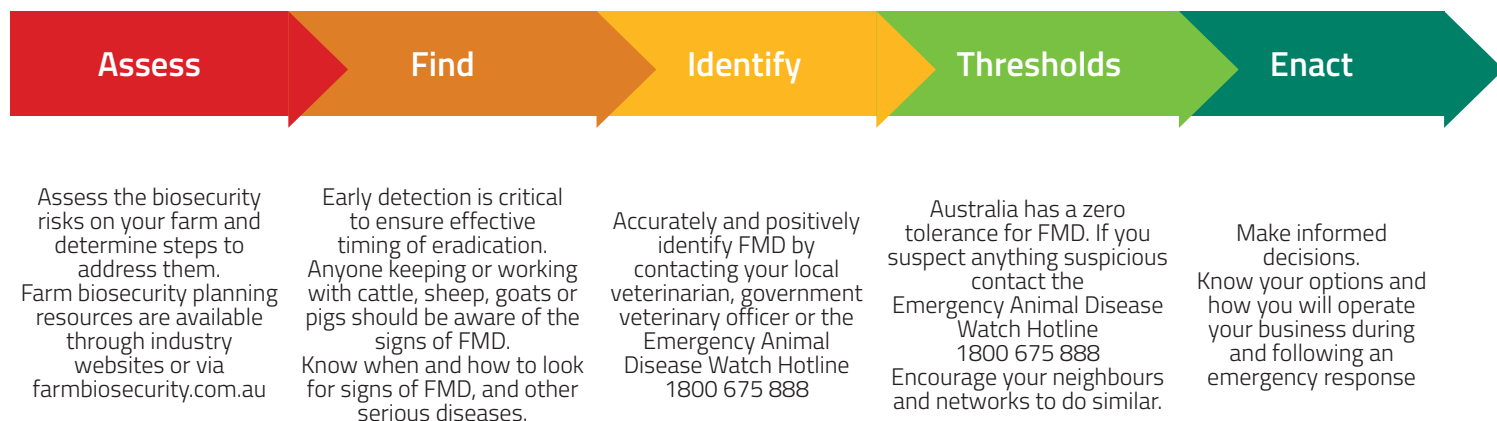


Figure 1. The AFITE strategy

Assessing your biosecurity risk

1. Assess your biosecurity risk by reviewing and updating your biosecurity plan.
2. Farm biosecurity planning resources are available through industry websites or via farmbiosecurity.com.au or grainsbiosecurity.com.au
3. A key component of a farm biosecurity plan is assessing the risk of various activities to your enterprise. By evaluating biosecurity risks to your property and undertaking risk mitigation activities you are undertaking a large part of your general biosecurity obligation or general biosecurity duty. For instance a vehicle entering your property that has only been on bitumen roads and is not entering the cropping areas of your property poses a low level of risk and requires minimum risk mitigation. However a vehicle which has been driven through other properties in known weed or pest infestation areas is a much higher risk and may require significant risk mitigation activity such as a complete wash down or not being allowed onto the productive areas of your property.
4. Utilise the risk assessment matrix (Figure 2) which can be helpful in prioritising which biosecurity practices to implement first or the level of risk mitigation appropriate.

		Likelihood of Occurrence		
		Unlikely Could happen some times	Likely Could happen most times	Very likely Could happen every time
Impact/damage/loss on property and surrounding area if occurs.	Minor May have little impact/loss	Low risk 1	Medium risk 2	Medium risk 2
	Moderate Will have some impact/loss	High risk 3	Medium risk 2	High risk 3
	Major Will have a lot of impact/loss	Medium risk 2	High risk 3	High risk 3

Figure 2. Risk assessment matrix

5. Create a biosecurity plan map of your property / properties using Google Earth. Some useful guides on how to do this are available via the following resource links:

- [Back Paddock Company - Create Satellite Image, Draw Maps,](#)
- [Creating a Premises Map for a Biosecurity Plan 1,](#)
- [Creating a premises map for a biosecurity plan 2 and](#)
- [Creating a biosecurity plan map of your swine facilities using Google Earth.](#)



Figure 3. Google Earth imagery available for use in biosecurity plan mapping.

6. A property map is an important part of a farm biosecurity plan, it gives a visual representation of where your property can be entered and where the productive areas are on your property. It allows you to identify zones on your property that might require different levels of activity. Your property map can also be given to visitors so they can adhere to your requirements. Consider the features listed below to include on a property map for your planned biosecurity practices:

BIOSECURITY PROPERTY MAP may include:	Y/N	BIOSECURITY PROPERTY MAP may include:	Y/N
Where entry can be gained to property		Stockyards	
House, office, parking areas		Stock quarantine area	
Where roadways are situated		Drought or fodder feeding points	
Sheds, dams, silos, machinery parking areas and any other significant structure		Watering points	
Where production areas are			
Any old or existing hazards (eg. old or existing dumps)			
Any significant weed or pest infestations			
Water ways			
Location of designated clean down/wash down facilities			
Location of power poles and other utility fixtures			

Figure 4. Example of features, hazards or risks to consider when developing biosecurity plan maps.

7. Have a dedicated property map to give to utility providers or harvest and spray contractors, outlining the location of power poles, silos and stockyards and suggested routes for the workers to take to gain access. You should consider where the poles/utility fixtures are located and any associated risks. For example, poles located within a cropped paddock may be more prone to associated vehicle and machinery biosecurity risks, as opposed to poles near the sheds. Printed copies of this specific map where you can use a marker to draw the route you wish contractors or workers to take can be useful. You may also be able to take a photo of this and email it to them prior to their visit, along with your biosecurity expectations.
8. The most significant risk of entry of FMD into Australia is through illegal entry of meat and dairy products infected with the FMD virus and subsequent illegal feeding of these products (known as swill) to pigs.
9. Keep livestock away from silos, grain storage areas, chaser bins and farm machinery.
10. Vehicle and equipment movements are inevitable, but there are steps that you can take to reduce the risks they pose. Ensure that you keep good records of vehicle, machinery, people and materials / goods on your farm and especially any interactions with livestock. The [Farm Biosecurity Plan for Grain Producers](#) has good templates for Vehicle registers, consultant checklist and agreements. Cleaning machinery and vehicles before they enter production areas will substantially reduce the risk of introducing new pests.
11. In high-risk settings there are three easy steps to ensure your wash down is effective:
 - Wash down:**
Wash 'high risk' incoming vehicles and machinery using a high-pressure water hose to remove any rubbish, plant debris and mud. Pay careful attention to any crevices where mud or plant debris may get trapped including tricky areas like chassis rails, tyre treads and under wheel arches.
 - Decontaminate:**
Apply a decontaminant solution to all surfaces that have come in contact with mud and dirt. This includes tools, footwear and floor mats. Include foot pedals and other places that have come into contact with footwear. Most decontaminants should stay on the vehicle for 10 minutes but always read chemical labels carefully before use.
 - Rinse:**
Use high pressure water to rinse off the decontaminant. Move the vehicle or machinery off the wash pad to a dry surface. Clean the wash pad down so it is ready for the next vehicle.
12. Australian states and territories have different biosecurity requirements regarding the movement of used agricultural machinery based on their biosecurity legislation and pests, diseases and weeds of concern. The aim of biosecurity import requirements is to minimise the likelihood of pests, diseases and weed seeds being spread across Australia affecting agricultural production and the environment.
13. Biosecurity movement restrictions play a vital role in protecting Australia's agricultural industries, environment and community from serious pests and diseases. For current machinery biosecurity information, declarations and permits please visit your state / territory department of agriculture website.

Queensland - <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/moving-plant-soil/qld>

New South Wales - <https://www.dpi.nsw.gov.au/biosecurity/plant/restrictions-on-moving-plants,-plant-products,-soil-and-equipment>

Victoria - <https://agriculture.vic.gov.au/biosecurity/moving-plants-and-plant-products/plant-quarantine-manual/hosts-commodities/machinery>

South Australia - https://www.pir.sa.gov.au/_data/assets/pdf_file/0007/224980/Machinery_Declaration.pdf

Western Australia - <https://www.agric.wa.gov.au/importing-animals/importing-used-machinery>

Northern Territory - <https://nt.gov.au/industry/agriculture/food-crops-plants-and-quarantine/plants-and-quarantine/plant-import-permits>

Tasmania - <https://nre.tas.gov.au/biosecurity-tasmania/biosecurity/travellers-guide-to-tasmanian-biosecurity-what-you-can-and-cant-bring-into-tasmania/guide-to-importing>

14. Increased biosecurity measures and standards may need to be implemented by all relevant animal industries across Australia when an FMD outbreak is declared, even on properties where infection has not been confirmed.

Knowing when and how to look for general and clinical signs of FMD in livestock

1. Familiarise yourself with the symptoms or clinical signs of FMD in livestock and as well as feral animals such as goats and pigs as the disease may appear in the feral animal population.
2. You are unlikely to see critical signs of FMD from a distance so ensure livestock handling yards are clean, safe and easy to use for inspecting stock.
3. FMD is a highly contagious animal disease that spreads rapidly between susceptible animals.
4. Virus is excreted in the breath, saliva, mucus, milk and faeces of infected animals. Animals can transmit the disease for up to four days before signs of the disease appear. Animals can become infected through inhalation, ingestion and direct contact.
5. The disease spreads most commonly through the movement of infected animals. In sheep the symptoms can be absent or very mild, and undetected infected sheep can be an important source of infection.
6. Foot lesions cause lameness and mouth lesions can impair animals from normal eating and drinking. Adults usually begin eating again after a few days.
7. FMD generally does not cause mortality in adult animals, but it can kill young animals due to heart damage, and cause serious production losses.
8. The following symptoms can be early signs of foot-and-mouth disease:
 - animals appearing listless or depressed
 - lameness
 - reluctance to stand or move around
 - drooling or excessive salivation (especially in cattle)
 - reduced appetite
 - fluid-filled blisters ('vesicles'), which break to become open sores
 - between the claws /toes of cattle, sheep and pigs
 - on the snouts of pigs
 - on the teats of cattle
 - in the mouths of all species (including on the tongue and hard palate)
 - reduced production, such as decreased milk yield and weight loss
 - death in younger animals.
9. Clinical disease commences with fever followed by the appearance of vesicles (fluid-filled blisters) between the toes and on the heels, on mammary glands and particularly on the lips, tongue and palate. Over time, these may join to form large ulcers which usually heal over a period of approximately 10 days.

CONTENT WARNING:
The following pages contain graphic images that may be distressing.
Discretion is advised.

Symptoms in cattle



Figure 5. Bovine, oval lesions
Image: FAO-EUFMD



Figure 6. Bovine, 2 day old oral lesions
Image: FAO-EUFMD



Figure 7. Bovine, large lesion on the tongue.
Image: FAO-EUFMD



Figure 8. Bovine, Four day old lesion on dental pad.
Image: FAO-EUFMD



Figure 9. Bovine, vesicles on teat.
Image: FAO-EUFMD



Figure 10. Bovine, interdigital lesion.
Image: FAO-EUFMD

Symptoms in sheep and goats



Figure 11. Sheep Blister on tongue. Image: FAO-EUFMD



Figure 12. Goat with blister in mouth. Image: FAO-EUFMD



Figure 13. Foot, 2-3 day old lesion. Image: FAO-EUFMD



Figure 14. Sheep and goats, 2-3 day old mouth lesion. Image: FAO-EUFMD

Symptoms in pigs



Figure 15. Pig with blisters on snout. Image: FAO-EUFMD



Figure 16. Lesions on the snout. Image: FAO-EUFMD



Figure 17. Foot lesion on pig. Image: FAO-EUFMD

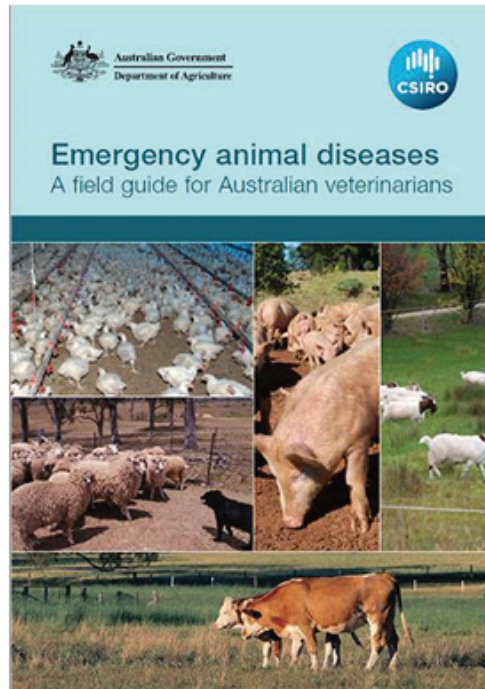


Figure 18. Foot lesion on Pig. Image: FAO-EUFMD

Reference Guides

Emergency animal diseases - a field guide for Australian veterinarians

Refer to the [Emergency animal diseases - a field guide for Australian veterinarians](#) for further information on the clinical signs of FMD and other important emergency animal diseases that are rare or do not exist in Australia.



The European Commission for the Control of Foot-and-Mouth Disease

The European Commission for the Control of Foot-and-Mouth Disease, (EuFMD), has developed an extensive knowledge bank of online training courses, information guides and specialised image library.

This library is a database of images of foot and mouth disease lesions.

ATTENTION: Please be aware that this library contains close up images of lesions.

You can download any of these images to use in your own presentations. If you do use any images, please acknowledge EuFMD when you do so.

To access the library visit [flickr.com/photos/eufmd/albums/72157710414844077](https://www.flickr.com/photos/eufmd/albums/72157710414844077)



Positively identify FMD by reporting sick livestock

1. FMD is a nationally notifiable disease which means IT MUST BE REPORTED to a veterinarian or your state/territory agriculture department. To do this, immediately call the **Emergency Animal Disease Watch Hotline 1800 675 888**. They will provide you with advice on what you need to do, and what will happen next (e.g. the collection of samples).
2. Diseases can spread quickly over large distances so it's essential that you report what you find as soon as possible. Even a suspicion of disease or observation of unusual clinical signs in your animals should be reported.
3. Our best chance of being able to contain and eradicate this disease will rely on early detection and reporting.
4. Early detection can minimise the spread of diseases and help protect the health of our animals and the integrity of our valuable animal industries.
5. Knowledgeable, expert staff will respond to your report. They will advise you on what action you need to take.

Australia has a ZERO tolerance to Foot and Mouth Disease. Our best chance of being able to contain and eradicate the disease will rely on early detection and reporting.

Make informed decisions and act decisively

1. Compile a list of and join networks of credible and trusted sources of information. A list of useful resources including documents, webinars, podcasts and websites is provided at the back of this quick guide.
2. Keep informed of new developments by checking in regularly.
3. Start enacting your biosecurity plan now with a focus on record keeping, good farm hygiene practices and controlling the movement of livestock, people, and equipment onto your property.
4. If you have a Property Identification Code ensure your details are up-to-date, and any recent livestock movements or transfers have been submitted to the National Livestock Identification Scheme database.
5. Good record keeping can assist in faster containment and control of the disease. It's vital to keep records of purchases, sales and movement of livestock including those on agistment.
6. Clean and prepare stockyards for safe, efficient, and effective animal inspection.
7. Put together a [Vehicle Biosecurity Kit](#), including a portable footbath to carry in your vehicle at all times.
8. Use Biosecurity farm gate signs at entry and exit points with clear instructions. This may include prompting sign-in processes or restricting access to certain parts of your property. Order your gate signs [here](#) or through industry biosecurity programs such as [grainsbiosecurity.com.au](#)
9. Make sure you document all vehicle movements onto your property, including hay and fodder deliveries, fertiliser and chemical deliveries, agronomists and consultants and spray and harvest contractors.
10. Ensure that you keep good records of vehicle, machinery, people and material /goods interactions with livestock. These are likely to be useful in ensuring business continuity during and immediately following an emergency response.
11. Keep a register of visitors, workers, and contractor movements, including itinerant or seasonal workers (backpackers, grey nomads, shearers etc.) who may have a higher frequency of moving between farms and states/territories.
12. Feeding meat including animal products to pigs is illegal throughout Australia. This practice is known as swill feeding and is a high-risk pathway for FMD to infect Australian livestock.
13. Understand the signs of the disease in different types of livestock and feral animals such as goats and pigs. At first suspicion of sickness or a disease that concerns you, contact your local vet or notify your state or territory Agriculture Department on the **Emergency Animal Disease Hotline 1800 675 888**.
14. Ensure those working with livestock on your property or controlling feral animals are aware of the signs and how to inform you if they have any suspicions.
15. Continually update your biosecurity plan and prioritise your actions. For more information on creating a biosecurity plan for your farm, including a plan template, visit [farmbiosecurity.com.au](#) or [grainsbiosecurity.com.au](#).
16. To learn more about FMD disease, and any changes to this advice, please visit [farmbiosecurity.com.au](#).

Do you need to talk to someone?

Don't go it alone, please reach out if you need help.

Lifeline: 13 11 14 or lifeline.org.au

Kids Helpline: 1800 55 1800 or kidshelpline.com.au

Beyond Blue: 1300 224 636 or beyondblue.org.au

Headspace: 1800 650890 or headspace.org.au

Reporting

1. If your livestock are showing signs of foot-and-mouth disease, contact your local veterinarian, government veterinary officer or call the **Emergency Animal Disease Watch Hotline 1800 675 888** (free call within Australia) immediately.
2. The earlier diseases are reported to a vet, the faster they can be diagnosed and controlled, minimising the impact on individual farmers and industry. To report unusual disease signs, abnormal behaviour or unexpected deaths in your livestock remember to contact:
 - your local veterinarian
 - your nearest District or Government Veterinary Officer, click on the links in the map below,
 - the **Emergency Animal Disease Watch Hotline 1800 675 888**.

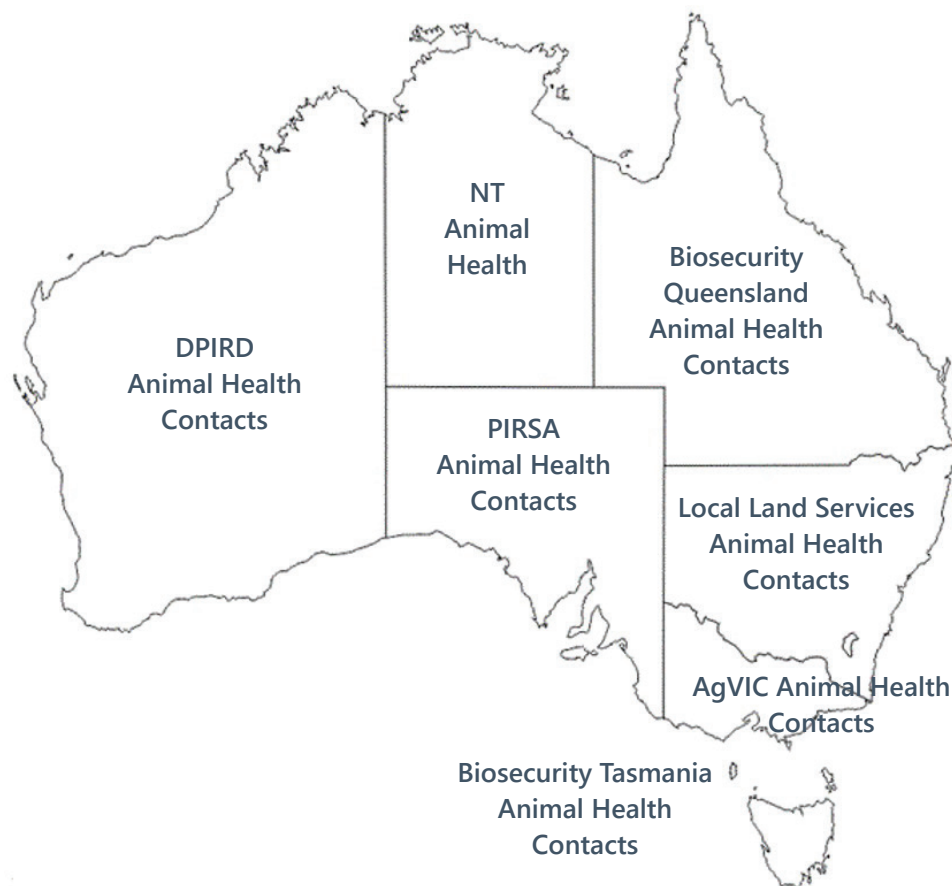


Figure 19. Website links to your nearest District or Government Veterinary Officer

Useful FMD resources

National

Animal Health Australia

animalhealthAustralia.com.au/foot-and-mouth-disease/

Australian Veterinary Association

ava.com.au/policy-advocacy/disaster-response/emergency-animal-diseases/foot-and-mouth/

Australian Wool Innovation

wool.com/sheep/welfare/foot-and-mouth-disease-FMD-facts-and-resources/

Australian Government - Department of Agriculture, Fisheries and Forestry

agriculture.gov.au/biosecurity-trade/pests-diseases-weeds/animal/FMD

National Farmers Federation

nff.org.au/key-issue/key-resources-for-foot-mouth-disease/

Meat & Livestock Australia

mla.com.au/research-and-development/animal-health-welfare-and-biosecurity/fmd-and-lsd/

MLA's Five things to know about FMD and LSD

mla.com.au/news-and-events/industry-news/five-things-to-know-about-FMD-and-lsd/

MLA - Industry Webinars on FMD and LSD

youtube.com/watch?v=Dlxtgr62GD8

youtube.com/watch?v=mSXDZiteYMY

youtube.com/watch?v=UDGnU-EDHHA

Graingrowers Ltd's FMD Biosecurity Update Webinar

vimeo.com/729450338

Plant Health Australia's Biosecurity plan for mixed producers key and webinar

planthealthaustralia.com.au/biosecurity-plan-for-mixed-producers-key-amid-fmd-threat/

Farm Biosecurity Toolkit

Farm Biosecurity has a number of materials to help you implement biosecurity measures on your farm.

farmbiosecurity.com.au/toolkit/

Biosecurity Essentials

Quick and simple measures built into everyday practice will help protect your farm and your future.

farmbiosecurity.com.au/

Ag Watchers Podcast

Interview with Australia's Chief Vet. Listen to this episode of the AgWatchers Podcast '#128 The Facts on FMD from the Chief Vet' as they go through the facts about FMD (and LSD/Varroa mite) with Mark Schipp.

Regional

Department of Primary Industries and Regional Development, Western Australia

agric.wa.gov.au/livestock-biosecurity/foot-and-mouth-disease-recognise-and-report-signs?nopaging=1

The Department of Primary Industries and Regions South Australia

pir.sa.gov.au/biosecurity/animal_health/cattle/foot_and_mouth_disease

Agriculture Victoria

agriculture.vic.gov.au/biosecurity/animal-diseases/general-livestock-diseases/foot-and-mouth-disease

New South Wales Department of Primary Industries

dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/viral-diseases/FMD

lfs.nsw.gov.au/biosecurity/foot-and-mouth-disease-and-lumpy-skin-disease

Department of Agriculture and Fisheries Queensland

business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/pests-diseases-disorders/foot-mouth

daf.engagementhub.com.au/animal-disease-preparedness

Northern Territory Government

nt.gov.au/industry/agriculture/livestock/animal-health-and-diseases/foot-and-mouth-disease-in-animals

Biosecurity Tasmania

nre.tas.gov.au/biosecurity-tasmania/animal-biosecurity/animal-health/cattle/foot-and-mouth-disease

Foot and Mouth Disease Preparation – Quick Guide



Assess the biosecurity risks on your farm and determine steps to address them.

Farm biosecurity planning resources are available through industry websites or via farmbiosecurity.com.au

After you have ranked your priorities, think about which ones you can achieve in the short and long term.

As a guide, short-term activities can:

- be planned and implemented within 12 months
- be financially feasible in the short-term
- fit in with the time commitments of your enterprise.

Early detection is critical to ensure effective timing of eradication.

Anyone keeping or working with cattle, sheep, goats or pigs should be aware of the signs of FMD.

Know when and how to look for signs of FMD, and other serious diseases.

Accurately and positively identify FMD by contacting your local veterinarian, government veterinary officer or the

Emergency Animal Disease Watch hotline 1800 675 888.

Australia has a zero tolerance for FMD.

If you suspect anything suspicious contact the

Emergency Animal Disease Watch hotline 1800 675 888.

Encourage your neighbours and networks to do similar

Make informed decisions.

Know your options and how you will operate your business during and following an emergency response.








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-  [planthealthaustralia](https://www.linkedin.com/company/planthealthaustralia)
-  [planthealthaustralia](https://twitter.com/planthealthaustralia)
-  [planthealthaustralia](https://www.instagram.com/planthealthaustralia)