



alert



FAO ALERTS COUNTRIES IN THE MIDDLE EAST AND WEST EURASIA TO ENHANCE PREPAREDNESS FOR FOOT-AND-MOUTH DISEASE

10 February 2023

Key facts:

- 1. Foot-and-mouth disease (FMD)** is a highly contagious viral disease affecting cattle, sheep, goats, pigs and other cloven-hoofed animals. Although not a threat to human health, FMD severely impacts food security, livelihoods, national and international markets.
- 2.** There are **seven FMD virus serotypes** (A, O, C, SAT1, SAT2, SAT3 and Asia1). Immunity from infection or vaccination is serotype-specific and will not provide protection against the other serotypes.
- 3. Clinical signs:** Affected animals develop fever and blisters/sores on their feet, in the mouth, nose, snout, and teats. Depression, loss of appetite, weight loss, lameness and drop in milk production are observed. Some animals may be subclinically infected, particularly small ruminants. Younger animals may die due to sudden heart failure.
- 4. Transmission** is via the respiratory or oral route. Infected animals shed virus in all secretions (saliva, urine, feces, milk). FMD commonly spreads by animal movements, but can also be spread by contaminated clothing, footwear, equipment, vehicles. The virus can survive in the environment and animal products.
- 5. Diagnosis:** The first outbreak in an area should be confirmed by the laboratory. Laboratory diagnosis is also required to determine the causative serotype. Appropriate samples include vesicular fluid or epithelium, blood or serum.
- 6. Prevention:** It is essential that vaccines are specific to the circulating strains(s). Because FMD is so contagious, additional measures are needed, including strong surveillance, movement controls and biosecurity.

Foot-and-mouth disease (FMD) is one of the most contagious animal diseases and therefore considered of the highest importance for monitoring and control. FMD does not cause disease in humans. However, its economic impact is severe. The losses caused by FMD include reduction in production parameters such as decreases in milk production and weight gain, reproductive inefficiencies and death in young animals. In addition, infected draught animals are unable to work thus if animals are used to cultivate lands it may also affect grain production. The costs of prevention and control with restrictions in both local and international trade are high, thereby affecting food security and livelihoods along the value chains.

Since December 2022, an unexpected increase in FMD outbreaks was detected in Iraq. Samples were sent to the FMD (SAP) Institute in Türkiye and on 3 February 2023 it was [reported](#) that the causative virus belongs to the SAT2 serotype, namely topotype XIV and most closely related to SAT2 strains from Ethiopia. The route of incursion of this virus to Iraq remains under investigation. As of 3 February, nine outbreaks have been [reported](#) affecting cattle, buffalo and sheep.

Jordan has been responding to FMD outbreaks caused by serotype O since December 2021 and a wave of outbreaks observed in December 2022 was [initially attributed](#) to this serotype. On 5 February 2023, it was reported in the [media](#) that serotype SAT2 had been detected in Jordan. Serotype SAT2 usually circulates in Africa. It was largely contained to the south of the Sahara until 2012 when there was a large outbreak in Egypt and Libya. There have been previous incursions of SAT2 into the Middle East in 1990 (Yemen), 2000 (Saudi Arabia) and 2012 (Bahrain and Gaza strip) which were contained and eliminated, possibly due to rapid response.

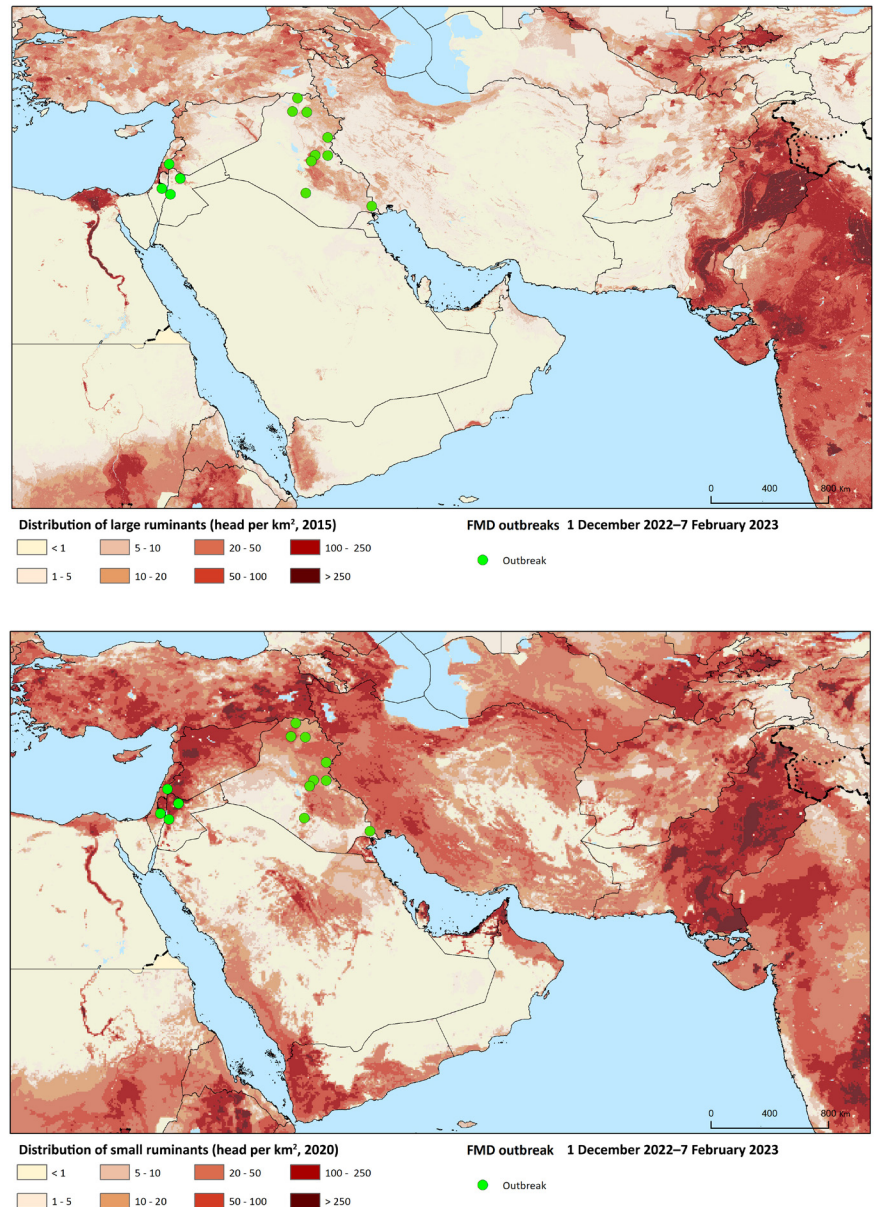
Both Iraq and Jordan are in [FMD virus pool 3](#), in which serotypes O, A and Asia 1 usually circulate. There are more than 170 million susceptible animals in Iraq, Jordan and neighbouring countries¹, which have never been vaccinated against SAT2. FMD could spread like wildfire through this population. Enhanced biosecurity and vaccination are urgently needed. Analysis to identify available vaccines matched to the SAT2 outbreak strain has started.

¹ Source: Gridded Livestock of the World v4 (GLW4) - 2015 (<https://data.apps.fao.org/catalog//iso/15f8c56c-5499-45d5-bd89-59ef6c026704>)

Useful Links

- ▶ Introduction to Foot-and-Mouth Disease (online course)
<https://elearning.fao.org/course/view.php?id=902>
- ▶ What you need to know about foot-and-mouth disease in an endemic country (video 2022)
<https://www.youtube.com/watch?v=6uuUcA60q5U>
- ▶ Foot-and-mouth disease vaccination and post-vaccination monitoring (FAO and WOAHA 2016)
<https://www.fao.org/3/i5975e/i5975E.pdf>
- ▶ Foot-and-mouth disease Quarterly Reports (EuFMD and WRLFMD)
<https://www.wrlfmd.org/ref-lab-reports>
- ▶ Progressive Control Pathway for FMD Guidelines (FAO and WOAHA 2018)
<https://www.fao.org/3/CA1331EN/ca1331en.pdf>
- ▶ EuFMD Emergency Toolbox
<https://trello.com/b/RNA1zSan/eufmd-emergency-toolbox>
- ▶ Carcass management guidelines. Effective disposal of animal carcasses and contaminated materials on small to medium-sized farms (FAO Guidelines 2020)
<https://www.fao.org/3/cb2464en/CB2464EN.pdf>

Figure 1. FMD Outbreaks reported in the Middle East and West Eurasia between 1 December 2022-7 February 2023., with large ruminant (a) and small ruminant (b) density layers adjusted at FAOSTAT 2015 (GLW4*)



Source: United Nations Geospatial. 2020. Map of the World. United Nations. Cited 09 February 2023. www.un.org/geospatial/file/3420/download?token=TUP4yDmF modified with GLW4 data.

Disclaimer: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Devastating epidemics periodically occur in this pool, with FMD spreading rapidly across national and regional borders. Analysis of historical virus sequences suggests that usually FMD spreads from South Central Asia westwards along what has been called the 'Ruminant Street', and therefore there is serious concern that SAT2 will rapidly spread to other countries. There is high livestock density in the region, particularly of small ruminants. Foot-and-mouth disease spreads in this area through different mechanisms including formal and informal trade in animals and animal products, livestock migration routes (transhumance), common grazing, and through fomites such as people's clothing, footwear and vehicles. The virus survives particularly well during colder weather, as can be expected during the next couple of months.

The most important immediate risks for SAT2 virus spread are associated with animal movements:

- Intensified trade and movement of livestock for slaughter is expected in the spring associated with religious festivals.
- Migration of ruminants to summer pastures in spring
- International and national trading of animals, especially with mixing of animals at live animal markets, holding areas and during transport

As previously noted, the livestock populations in most countries of the Middle East and all countries of West Eurasia have no immunity against SAT2 FMD virus. Until suitable SAT2 vaccines are available, only rapid and effective biosecurity measures can limit the spread of the SAT2 virus. Therefore, FAO is advising the countries to increase awareness, strengthen biosecurity and improve preparedness at national, subnational and community levels to safeguard livestock and livelihoods.

FAO RECOMMENDATIONS

- Countries should assess pathways that have resulted in the introduction and spread of FMD in the past, and plan interventions to minimize the introduction and spread of the virus. This may include preparing for the procurement and emergency deployment of vaccine that protects against the SAT2 serotype.
- Inspections at international borders, within national administrative borders and on traffic routes based on risk analysis, should be enhanced to minimize the risk of the introduction of potentially infected animals and contaminated animal products. Penalties for non-compliance may be increased.
- Countries should verify:
 - o an FMD contingency plan exists, with SOPs for surveillance and outbreak control.
 - o that laboratories have the capacity to rapidly confirm suspect cases, including determination of the causative serotype.
- Through awareness campaigns, farmers and communities should be advised of the increased threat of FMD and measures they can take to protect their livestock. Biosecurity measures should be strengthened on-farm and in livestock trade:
 - o Sick animals should be examined by an animal health professional and should be separated from other livestock. They should never be moved long distance or sold.
 - o Movement and mixing of animals should be minimized.
 - o The introduction of livestock from unknown sources should be avoided. Any new stock should be inspected before introduction to make sure they appear healthy and a 7-14 day quarantine period should be observed before allowing contact with the rest of the herd/flock (in case they are incubating FMD).
 - o Clean footwear and clothing should be worn when handling livestock, and visitors should not be permitted to have contact with livestock.
 - o Mixing of different consignments should be avoided during transport and at markets. Markets should be thoroughly cleaned and emptied between sales (rest days). A livestock standstill should be considered, especially if there is suspicion of FMD.

Contacts

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- Steps to enhance early detection must be taken so that appropriate prevention and control measures can be implemented:
 - o Farmers and private veterinarians should be informed to promptly report any suspicious clinical signs to the veterinary services. Such reporting should be facilitated by the veterinary services as much as possible (e.g. through a dedicated telephone number or website).
 - o Monitoring and early warning systems should be implemented based on reports of increased mortalities (particularly of young stock), observations at slaughterhouses or panic sales, using information from farmers, traders, paravets, inspectors and relevant social media sites.

Through its Animal Production and Health Division and technical cooperation operations with institutional partners, FAO remains **fully committed to assist and support** Member Nations to enhance their preparedness and emergency management capabilities.