

Preliminary Outbreak Assessment

Foot and Mouth Disease in the Middle East and North Africa

13 February 2024

Disease Report

For the first time, Foot and Mouth Disease virus (FMDV) serotype SAT-2 has been reported in Algeria (WRLFMD, 2024b) (Figure 1). The 2 outbreaks were reported in December 2023 on cattle farm premises in the Sétif province in north-eastern Algeria. Algeria has no official FMD status (Figure 2) and has reported sporadic outbreaks of FMDV serotypes O and A in recent years. These outbreaks represent the first event in the Maghreb region of North Africa caused by topotype V of serotype SAT-2. The source of infection is currently unknown, SAT-2 topotype V has historically been detected in West African countries. Current vaccination campaigns in North African countries have been implemented to control recent outbreaks due to serotypes O and A, but these vaccines cannot be expected to provide coverage for serotype SAT 2 (ProMED, 2024a).

Since the last report in April 2023 ([Foot and Mouth Disease in the Middle East and Türkiye 2023](#)), outbreaks due to FMDV SAT-2 topotype XIV have continued to be reported in Iraq and Türkiye, caused by viruses which originate from East Africa (EuFMD, 2023). In Türkiye, the spread in to Anatolia (WRLFMD, 2024b) is of concern due to geographic positioning and proximity to Europe. Outbreaks of FMD in Iraq have occurred throughout the east of the country, including some outbreaks close to the borders with Iran, Syria and Türkiye.

Since March 2023, outbreaks of FMDV Serotype O have been reported in Libya, Tunisia, Türkiye, Israel and Palestine.

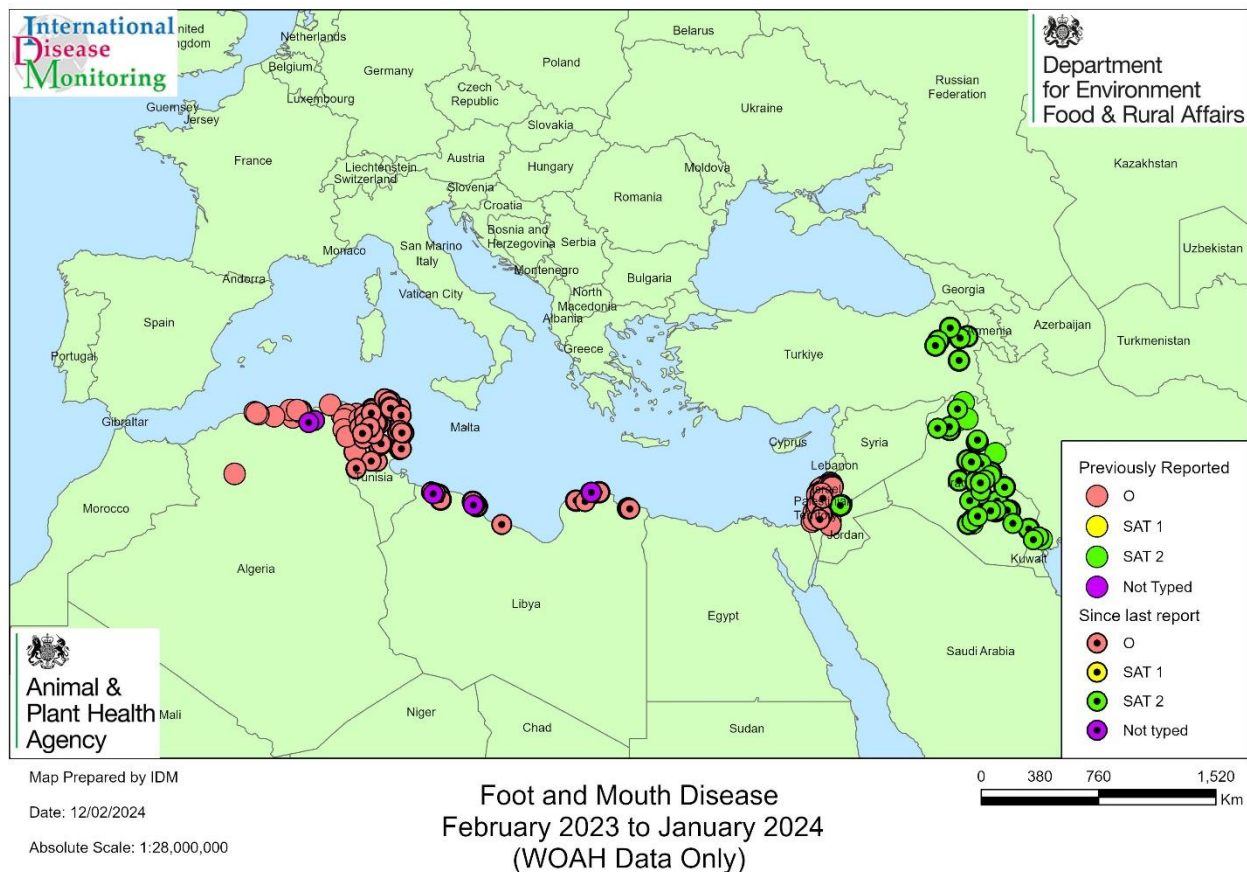


Figure 1: Map showing outbreaks of FMD in the Middle East and North Africa between February 2023 and January 2024 reported to WOA. The recent outbreaks in Algeria are still reported as a pending serotype on WOA and is shown as ‘not typed’ in this map.

Situation Assessment

Outbreaks of FMDV SAT 2 have been detected for the first time in Algeria. This is the first report of SAT-2 in the Maghreb regions since 2012, when Libya reported SAT-2 toptotype VII. SAT-2 toptotype V was last found in Ghana (1991), Togo (1990) and Ivory Coast (1990). (WRLFMD, 2024b).

Vaccination programs being applied in North African countries are focused on the serotypes O and A therefore not effective against SAT-2.

The global distribution of FMD can be divided into seven endemic Pools (Figure 2) which represent regions where specific FMD viral lineages are maintained (FAO, 2021).

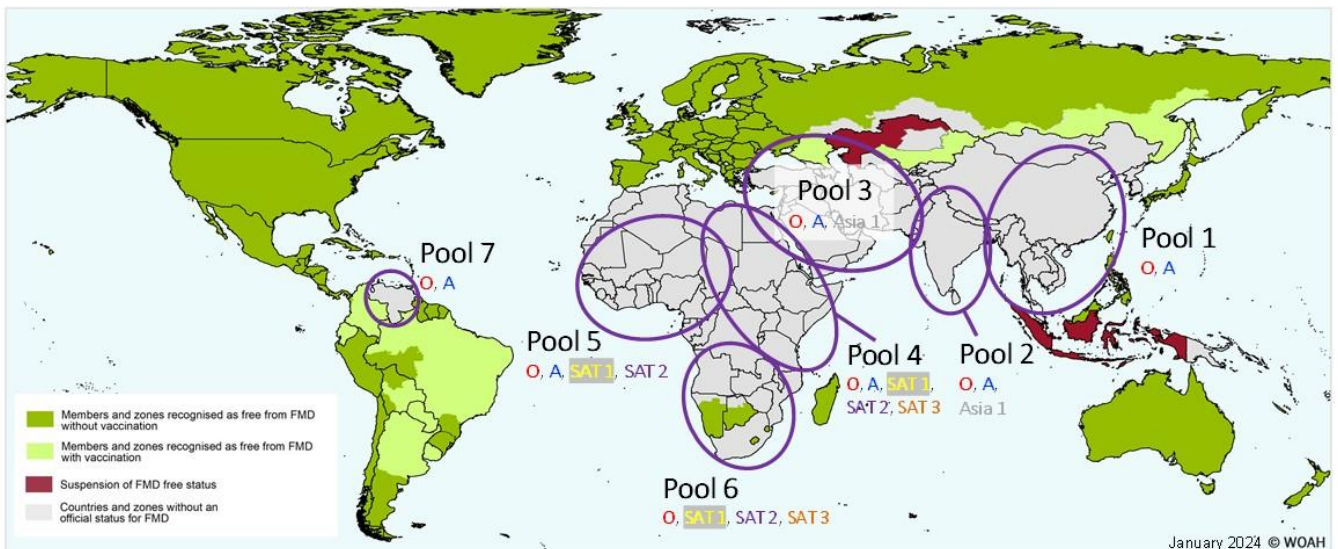


Figure 142: Map showing WOAHP FMD status and endemic Pools of foot-and-mouth disease where FMD virus serotypes circulate independently. Some countries may have zones with a WOAHP-free status with or without vaccination, for example Brazil.

Outbreaks of FMDV SAT-2 topotype VII have been previously reported in Libya in 2012 (WRLFMD, 2012) and Egypt between 2012 and 2018 (WRLFMD, 2018). Although being the same topotype, phylogenetic analysis shows different genetic lineages, suggesting separate incursions, presumably from sub-Saharan African countries (Ahmed et al., 2012).

The Middle East comprises countries in endemic Pool 3 such as Iraq, Israel, Palestine, and Türkiye where serotypes O, A, and Asia 1 are considered endemic. Previous SAT 2 outbreaks in the Middle East have affected animals in Kuwait (in 2000), Oman (in 2015), Palestine (in 2009 and 2013) and Saudi Arabia (in 2000) (WRLFMD, 2024a). Jordan has begun a SAT-2 vaccination programme in cooperation with the World Organisation for Animal Health (WOAHP) (ProMED, 2023b).

Occurrences of FMD in other endemic countries can be found on the WOAHP website and the FAO World Reference Laboratory for FMD website: ([Western and Central Asia Country Reports](#)).

Algeria

In January 2024, the WOAHP reported 2 outbreaks of FMDV in Sétif province in north-eastern Algeria that occurred in December 2023. The outbreaks occurred on farm premises in the towns of Guelta zerka and Mezloug containing 18 and 187 cattle, respectively. (WAHIS, 2024b).

These outbreaks were later confirmed as the first reported outbreaks of FMDV SAT-2 in Algeria (MAPA, 2024, ProMED, 2024a). In January 2024, the Spanish Ministry of Agriculture, Fisheries and Food (MAPA) reported that a recent genotyping report from Algerian health authorities indicated outbreaks of FMDV serotype SAT-2 topotype V.

FMDV SAT-2 has not previously been reported in Algeria, but sporadic outbreaks of FMDV serotypes O and A have been reported, most recently in August 2022 and March 2017, respectively.

Local authorities have responded with precautionary measures such as a temporary closure of livestock markets in relevant provinces. The ministry of agriculture has been reported to be mobilising veterinarian services throughout the country to carry out a vaccination process promptly (BNN, 2023).

The historic vaccination campaign which covers serotypes O and A consists of cattle vaccination twice a year and ring vaccination around outbreaks (EuFMD, 2024)

Türkiye

Since the last report in April 2023 ([Foot and Mouth Disease in the Middle East and Türkiye 2023](#)), there have been no further reports of FMDV SAT-2 on WOA. Any further outbreaks will be notified via WOA six-monthly reports and the situation is currently reported as stable (WAHIS, 2023d). The World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD) reported that recent data samples from Türkiye show spread of SAT2/XIV within Anatolia, and 30 outbreaks of this lineage have been detected in the October - December 2023 quarter. (WRLFMD, 2024b)

WRLFMD genotyped samples from January 2023 to July 2023. Of these, 17 showed FMV SAT 2 topotype XIV, and 3 showed serotype O, sublineages ME-SA/PanAsia-2^{QOM-15} and ME-SA/PanAsia-2^{ANT-10}. SAT 2/XIV has been recorded in Iran, Jordan and Oman, O/ME-SA/PanAsia-2^{ANT-10} has been previously reported in Türkiye, Iraq, and Palestine, and O/ME-SA/PanAsia-2^{QOM-15} has been historically reported in Iran (Gadir et al., 2023).

Cases of SAT 2 have appeared to be decreasing since October. Clinical surveillance continues in the Thrace region and European side of Istanbul (WRLFMD, 2024b). According to available Animal Disease Information System (ADIS) summaries, there were 343 outbreaks of Foot and Mouth Disease (FMD) in Türkiye in 2023 (ADIS, 2023). The serotypes involved in these outbreaks have not yet been reported, and no further information is available as the majority of these have yet to be reported to WOA.

Libya

In January 2024, WOA reported 7 outbreaks of FMDV Serotype O in Libya. All outbreaks occurred along the northern coast of the country affecting domestic cattle. Outbreaks consisted of 130 animals in Surt, 4 animals in Az Zawiyah, 75 animals in Misrata and 33 animals in Al Jabal al Akhdar (WAHIS, 2024c).

In 2023, 9 outbreaks of serotype O/EA-3 were reported to WOA in north-eastern Libya. The origin of infection is unknown. Outbreaks consisted of 8 cattle in Az Zawiyah, 5 cattle in An Nuqat al Khams, 1 goat, 22 cattle and 74 sheep in Al Jifarah, and 410 sheep and 20 cattle in Misratah (ProMED, 2024b, WAHIS, 2024c).

Tunisia

The WOAHA reported 12 outbreaks of FMDV serotype O in Tunisia since November 2023, affecting 35 domestic cattle, 95 sheep and 6 goats. The Governorates affected are Kasserine in the north, Nabeul in the north-east, Monastir in the east, Tozeur and Ksour in the West and Sidi Bou Zid in central Tunisia. The origin of infection is suspected to be reintroductions of unvaccinated animals into herds. Vaccination in response to the outbreak is ongoing, as well as zoning and surveillance within and outside the control zone (WAHIS, 2024a).

Tunisia is currently using vaccines for O, A and SAT 2 serotypes [PAFF meeting: 23 January 2024](#). (EuFMD, 2024).

Iraq

Since the last report (April 2023), outbreaks of FMDV SAT-2 in Iraq continue to be reported to WOAHA, affecting domestic buffaloes, cattle and sheep. The topotype has been confirmed as XIV, most closely related to strains found in Ethiopia (EuFMD, 2023). There are 16 administrative divisions reporting SAT-2 outbreaks, the distribution of outbreaks is widespread, with proximity to Iran, Syria, Kuwait and Saudi Arabia, all of which have not reported FMD SAT-2.

The latest outbreak was reported June 2023, in domestic cattle in Baghdad (WAHIS, 2023b). EuFMD provided an update on the situation in March 2023, expressing current limited resource in Iraqi labs to diagnose and differentiate endemic FMD (serotypes O, A and Asia 1) from SAT-2 (EuFMD 2023).

There have been no reports of FMDV serotype O or A since our last update.

Jordan

Since the last report, FMDV SAT-2 was reported February 2023 in domestic cattle, consisting of 2342 cases in a village in the Zarqa Governorate. Vaccination was implemented in the outbreak zone, vaccine containing inactivated SAT-2 Eritrea serotype. No new cases were detected in the infected or buffer zone, surveillance of buffer zone using non-structural protein (NSP) ELISA revealed no positive animals. (WAHIS, 2023c) The event is considered resolved with the applied outbreak control measures, including isolation, increased biosecurity, and vaccination.

There have been no further reports of FMDV serotype O since the last report in February 2023.

Israel

October 2023, samples collected from July 2022 – January 2023 outbreak in Northern districts of Israel, were identified as FMDV serotype O with a sublineage of ME-SA/PanAsia-2^{ANT-10}.

The origin of infection is currently inconclusive (WAHIS, 2023a). Vaccination of farm animals is mandatory and animals are vaccinated with multivalent inactivated vaccine of A, O and Asia 1 serotypes.

Palestine

Four samples collected from sheep and goats between December 2022 and August 2023 were received in October 2023 by WRLFMD, they were identified as serotype O with a sublineage of ME-SA/PanAsia-2^{ANT-10}. (WRLFMD, 2024b)

Conclusion

The change in epidemiological situation of FMD circulation in the Maghreb countries of North Africa is a specific risk to FMD-free countries in southern Europe due to the geographic location. Spain's ministry of Agriculture, Fisheries and Food (MAPA) has recommended increased precaution to reduce the risk of introduction and reinforcement of biosecurity controls and risk awareness (ProMED, 2024a). After the notification in Algeria, the increased risk of incursion and potential spread to Morocco will be of concern to Spain and southern European countries.

The upcoming Ramadan period in North Africa and Middle East is expected to give rise to an intensification of animal movement in the area. If effective vaccination or movement restrictions are not implemented, this may exacerbate spread of FMDV serotype SAT-2.

The emergence of a new foot and mouth disease virus serotype in an area where there is limited effective vaccination coverage is of great concern. The events highlight how this virus can make significant and unexpected jumps, often through trade and movements of people, animals and animal products, and therefore there is a need for continued vigilance.

We consider there to be no change in the risk of incursion of FMD to the UK and consider an overall **low** risk of introduction of disease from any affected region in the world, and that the situation in the Middle East and North Africa does not change this risk level at present. The risk from illegal imports is difficult to quantify but travellers from the Middle East and other third country areas who bring meat or dairy products can face prosecution and a large fine.

Ongoing conflict and geopolitical tensions in the Middle East add to the complexity of collaborative efforts, and these situations affect both disease control and surveillance capabilities in the affected areas.

We will continue to monitor the situation and remind livestock keepers of the importance of maintaining strict on-farm biosecurity, compliance with the swill feeding ban, and the reporting of all suspicions of notifiable disease promptly. Swill feeding any animal, whether pigs, poultry, ruminants, or wildlife is illegal and has the potential to cause substantial harm. We would like to emphasise to all keepers of livestock, including smallholders, and the general public to ensure that livestock are not fed catering waste, kitchen scraps or

products of animal origin, thereby observing the swill feeding ban. All keepers of livestock, whether commercial holdings or not, should remain vigilant, as with all biosecurity, these measures are only as effective as the people using them, so proper training should be provided.

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