

Eradication and Management of Foot and Mouth Disease (FMD) in Cattle in Maros Regency, South Sulawesi Province, Indonesia

**Sitti Nurani Sirajuddin¹, Ilham Rasyid¹, Lellah Rahim², Zulkifli Maulana³, Nurhapsah⁴,
Nurul Magfirah Ashar⁵**

¹Department of Socio Economics, Faculty of Animal Science, Hasanuddin University

²Department of Animal Production, Faculty of Animal Science, Hasanuddin University

³Faculty of Agriculture, Bosowa University

⁴Agribusiness Study Program, Faculty of Agriculture, Animal Husbandry, and Fisheries,
Universitas Muhammadiyah Parepare

⁵Veterinary Medicine Study Program, Faculty of Medicine, Hasanuddin University

Corresponding author : sitti.nurani@unhas.ac.id

Abstract

This research aimed to determine the activities carried out to prevent and control foot and mouth disease in Maros Regency, South Sulawesi Province. The research was carried out from September to October in Maros City. Data comes from primary and secondary data. The data analysis used was descriptive statistics. The research results show that vaccination activities are one of the effective steps taken by the government in eradicating and controlling the spread of Foot and Mouth Disease (FMD).

Key words: prevention, disease control, cattle

Introduction

Foot and mouth disease (FMD) is also known as Foot and Mouth Disease (FMD). This type of disease is caused by the type A virus from the Picornaviridae family, the Aphthovirus genus, namely *Aphthae epizooticae*. The incubation period for the disease is 1-14 days, namely the time from when the animal is infected with the disease until symptoms of the disease appear. This virus can survive for a long time in the environment and survives in bones, glands, milk and dairy products. This morbidity rate can reach 100% and the mortality rate is high in young livestock in Indonesia, PMK (FMD) was first introduced in 1887 and in 1990 Indonesia was declared free from PMK (Adjid, 2020).

Foot and Mouth Disease (FMD) can attack quickly in animals such as cows, goats, buffalo, sheep and others with several symptoms. The spread of the FMD virus can occur quickly through the air or wind from one place to another over quite long distances, transmission can also occur if the virus is still in the air for 14 days. The spread rate is very fast, making it possible for the FMD virus to spread quickly throughout Indonesia and of course have an impact on the economy. These losses are of course felt by breeders and the government in optimizing a country's income and economy. Efforts and actions continue to be made to find solutions or effective ways to deal with the FMD virus (Okti, 2023).

Transmission of FMD disease in an area occurs very quickly with a high morbidity

rate of almost 100% (Sudarsono, 2022). Indonesian society was shocked by the reappearance of foot and mouth disease (FMD) in cloven-hoofed animals in Indonesia in May 2022. In fact, FMD only infects cloven-hoofed animals (cattle, buffalo, goats, sheep, pigs and deer) and is caused by Aphthovirus from the Picornaviridae family (Adjid 2020; Harada et al. 2015).

The beginning of the outbreak of FMD in Indonesia is thought to be the impact of the policy of importing meat and live livestock from countries that do not yet have FMD-free status, such as India. Farm animals infected with FMD can be identified by looking at clinical symptoms, namely the formation of vesicles/blisters and erosion in the mouth, tongue, gums, nostrils, nipples and on the skin around the nails (Hamdu, 2019). The spread of FMD disease in livestock causes significant losses not only in terms of livestock health but also from an economic perspective for farmers and breeders. Decreased production and hampered sales of animals and their derivative products are examples of economic losses experienced by many farmer-breeders (Tawaf, 2017; Husain et al,2017).

Efforts to strengthen food security are carried out as a form of national development effort. Therefore, problems related to the FMD outbreak are an important case that needs to be handled seriously and quickly. Through good handling, it is hoped that we will be able to handle the spread of the virus, as well as overcome the problem of food security which has been disrupted due to the impact of the spread of Foot and Mouth Disease (FMD). The government cannot move alone to resolve the FMD outbreak, but needs all parties' support to speed things up. handling and preventing the spread of FMD outbreaks that infect livestock (Sudarsono, 2022).

Maros Regency is one of the districts in South Sulawesi which is a priority for developing beef cattle farming. Maros Regency is one of the centers for beef cattle development besides Bone, Bulukumba, Gowa, Pinrang, Sidrap, Sinjai and Wajo Regencies. Maros is a district that has a large livestock population and is one of the areas where foot and mouth disease (FMD) spreads to livestock such as cattle. The diagnosis of FMD in livestock can be determined by observing clinical symptoms such as the formation of vesicles/blisters and erosion in the mouth, tongue, gums, nostrils, nipples and on the skin around the nails. The spread of Foot and Mouth Disease (FMD) in livestock causes significant losses for farmers. The spread of FMD disease in susceptible livestock occurs in several areas of Maros District quickly and widely.

FMD is a type of disease that is infectious and acute and its transmission is very high in animals with even or split hooves and the main agent that causes FMD is the *virus genus Aphthovirus*. It is recorded that Indonesia first discovered PMK in 1887 in the Malang area, East Java. Indonesia has been declared a FMD-free country by the OIE since 1990 and has an obligation to maintain its status as a FMD-free country without vaccination. In the last few months, starting from April 2022, FMD disease has begun to spread again widely and infect livestock, especially cattle. Transmission of FMD disease in this area occurs very quickly with a high morbidity rate of almost 100% (Sarsana and Merdana., 2022).

The government of the Maros Regency Agriculture and Food Security Service is making various efforts to overcome the spread of FMD disease in livestock. One of the efforts made

by the government is to vaccinate livestock that have not been affected by FMD disease and carry out treatment such as treatment for livestock that have been affected and livestock that have signs of being affected by FMD disease. Vaccination is carried out in several areas of Maros Regency that are affected by FMD disease as well as areas that have not been affected. So, it is necessary to know the prevention and control of FMD disease in Maros Regency, South Sulawesi Province, Indonesia.

Research methods

The research was conducted in Maros Regency from September to October 2023. Data was collected using primary data and secondary data. Data analysis is descriptive analysis

Results and Discussion

Socialization of Foot and Mouth Disease (FMD)

The outbreak of FMD cases is a problem for farmers and the community in Maros Regency because it causes a decline in population due to livestock dying or livestock being forcibly slaughtered due to illness. This case also caused a decrease in meat production and quality. The limited treatment available means that this disease can continue to spread and spread. Apart from that, breeders' knowledge of FMD is still not optimal, requiring socialization and technical guidance so that breeders better understand and can apply techniques for preventing and treating FMD based on appropriate control patterns.

This socialization regarding Foot and Mouth Disease (FMD) was carried out in Maros Regency, one of which is in Lau District, there are 2 villages, namely Bonto Marannu Village and Marannu Village as an effort to provide understanding to breeders regarding the importance of implementing technical prevention and management of FMD disease based on appropriate control patterns. Socialization and education regarding FMD disease is an activity that aims to provide information about FMD disease and its prevention, the target of which is the community. This activity is carried out through outreach activities coupled with mass vaccination activities and through direct outreach to the community.

Socialization activities need to be carried out because the cattle population is quite high in Maros Regency, this can be seen in Table 1

Table 1. Beef Cattle Population in Maros Regency.

NO	Year	Beef Cattle Population
1	2018	83.902
2	2019	80.540
3	2020	88.936
4	2021	75.085
5	2022	77.369

Source: BPS Maros Regency, 2023

Based on Table 1, the population of beef cattle in Maros Regency, South Sulawesi Province, there has been a fluctuation in the number of beef cattle from 2018 of 83,902 head with a decrease until 2019 of 80,540 head, in 2020 there was another increase in the number of beef cattle population of 88,936 head, in 2021 The population of beef cattle has decreased by 75,085 heads and will increase in 2022 to 77,369 beef cattle (BPS Maros Regency, 2022). With a fairly high population, foot and mouth disease can occur in Maros Regency.

Prevention and Handling of Farm Animals Infected with FMD

Vaccination is the main reference in eradicating and treating FMD disease in livestock. Vaccination in Maros Regency has been intensively carried out by the vaccinator team in stages in several areas. The continuation of vaccination as a control against FMD aims to form herd immunity to prevent FMD disease from attacking other livestock. In carrying out PMK(FMD) vaccinations, vaccinators are divided into several teams whose task is to carry out vaccinations in several sub-districts such as Bantimurung, Bontoa, Camba, Cenrana, Lau, Mallawa, Mandai, Maros Baru, Marusu, Moncongloe, Simbang, Tanralili, Tompobulu and Turikale sub-districts.

In preventing FMD, the vaccinator team goes directly to breeders, but before vaccinating, the vaccinator team first sends a letter of assignment to the sub-district, Babinsa, police station and village office to be accompanied and obtain permission to vaccinate in that area. Vaccination is carried out on healthy cattle and treatment is carried out on cattle that are sick or have symptoms of FMD. However, there are still some breeders who refuse to have their livestock vaccinated due to several reasons, such as the breeders' distrust of the extension workers and the vaccinator team. After vaccinating livestock, the vaccinator team, when collecting data, asks the farmer for a Population Identification Number (NIK). This is done to collect data on the number of livestock vaccinated and to make it easier to carry out the second vaccine (Booster).

The FMD vaccine is given to livestock by injection intramuscular (IM) in the neck area at a dose of 2 ml/head, while in 3-month-old calves it is given at a dose of 1 ml/head. The type of vaccine given is oil-based with a name *Afthopor*, where 1 bottle contains 200 ml so that 1 bottle can be given to 100 cattle/bottle. Before vaccinating, the livestock are first put in a clamp cage to make it easier for the vaccinator to inject the livestock. After the injection, disinfectant is given to the area being injected with the aim that no ectoparasites will land in that area.

Apart from vaccination, in handling livestock affected by FMD, farmers carry out cage isolation on livestock affected by FMD, administer antipyretics and analgesics, administer vitamins and ATP supplements, administer antibiotics (*Long Action*), injured hooves are given wound spray, other strengtheners can be given, medication and vitamins need to be repeated until the livestock recovers, efforts are made to ensure that sick livestock can eat, even if their appetite decreases. FMD transmission can occur through direct contact with infected animals or through food, drink or equipment contaminated with the virus. Animals affected by FMD are characterized by increased body temperature, lethargy/weakness, reluctance to stand, limping, *hypersaliva*, and reduced appetite.

Therefore, the number of livestock infected with Foot and Mouth Disease in Maros Regency is as follows.

Table 1. Data on livestock infected with foot and mouth disease

Location (district)	Number of infected cattle FMD (tail)	Year
Moncongloe	17	2022
Tanralili	48	2022
Marusu	272	2022
Turikale	8	2022
Lau	20	2022

Source:

Table 2 shows that foot and mouth disease in cattle in Maros Regency is so large that the first vaccination is carried out from the beginning of September to October in several districts in Maros Regency, including Tanralili District, 122 tail, Tompo Bulu District, 73 tail, Lau District, 491 tail, Camba district 133 tail, Cenrana district 124 tail, There were 18 tail in Simbang District, 94 tail in Bantimurung District, 161 tail in Turikale District, 402 tail in Mandai District, 50 tail in Marusu District, 87 tail in Maros Baru District, and 530 tail in Bontoa District by Department of Agriculture and Livestock, Maros Regency

Some of the actions that have been taken by the government and farmer-breeders in handling and controlling FMD disease include:

1. Isolation and quarantine of livestock

Livestock known to be suffering from clinical symptoms of FMD must be isolated as an effort to minimize the spread of FMD disease transmission between livestock. Some regions even implement policies lockdown and closing livestock trade traffic both from within and from outside the region as a form of anticipation and preventive action, identifying the transmission and spread of FMD which can be predicted from potential risk factors including importing livestock, namely cattle from outside the region, purchasing cattle at animal markets from an area, livestock breeders and visitors who visit sick livestock pens, poor biosecurity and transportation.

2. Symptomatic treatment

Responsive handling of livestock affected by FMD is carried out by farmers using symptomatic drugs. Examples of symptomatic treatment carried out by farmer-breeders include the use of antiseptics in the mouth area, traditional treatment through making herbal concoctions from herbal plants, sufficient fluids for dehydration caused by difficulty drinking and due to fever, and other supportive treatment.

3. Vaccination

The vaccination program is the main reference in eradicating and treating FMD disease. Vaccination was intensively carried out in June by the Maros Regency, FMD task force in stages in several areas. The continuation of the vaccination program as control of FMD disease aims to achieve the hope of its formation herd *immunity*. The Maros Regency Task Force has

a vital role in the success of this vaccination program. Giving vaccines to cattle is an effective step in eradicating FMD. The vaccine is made through the stages of isolation and duplication of the gene that codes for the formation of the viral protein shell the gene will then be inserted into a bacterial plasmid *E.Coli* and so on *E.Coli* will form proteins which will later be engineered to work against the FMD virus.

Conclusion

The three forms of treatment carried out by the FMD task force on cattle are livestock isolation and quarantine, symptomatic treatment, and vaccination. The implementation of vaccination by the FMD task force is by injecting vaccine drugs, antibiotics and vitamins into the bodies of cattle. Vaccination is carried out throughout the Maros Regency area with the aim of eradicating and preventing the spread of FMD in Maros Regency

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