



## Cattle Mortality Due to Mouth Foot and Jembrana Viruses in Gowa Regency of South Sulawesi

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**ABSTRACT:** There are several types of diseases that attack cattle. The diseases that have been attacking recently are Foot and Mouth Disease (FMD) and Jembrana Virus Disease (JVD). This research aims to determine the mortality rate of cattle affected by FMD and JVD in Gowa district of South Sulawesi. The research was carried out in 2024. The data source used was secondary data for 1 year, namely 2022, sourced from reports from the Gowa Regency Livestock Service. Data were analyzed descriptively in the form of means and percentages. The research results show that the overall cattle mortality rate is high, however in the case of FMD and JVD it is in the low category. Based on the results of this research, it is recommended that farmers implement biosecurity to avoid infectious diseases.

Keywords : Jembranavirus disease, cattle, foot and mouth disease

### INTRODUCTION

Beef is a source of animal protein which is really needed by humans, this is because it contains essential amino acids which are useful for the body. Cattle rearing by breeders is usually on a small scale, namely 1-3 heads, carried out traditionally or semi-intensively. Maintenance management is still simple by relying on existing resources and minimal technology. As a result, their productivity is low, they are susceptible to disease. Several diseases that attack cattle include FMD and JVD.

As an indigenous species of Indonesia, Bali cattle (*Bos sondaicus*) is a domesticated hybrid of Wild Banteng (*Bibos bantem*) (Tonbesi, 2008). As of right now, native Bali cattle have spread nearly across all of Indonesia; the main locations of native Bali cattle are in South Sulawesi, Timor, Bali, and Lombok Islands (Chamdi, 2004).

At the moment, Indonesia is endemic for FMD. This is a disease that affects a wide variety of cattle. It is categorized as an acute illness that is easily disseminated by viral infection. Neither is FMD a zoonotic illness nor is it spread to people. It doesn't infect people directly, but it does have an effect on delicate animals. Cattle, buffalo, goats, sheep, deer, pigs, and camels are among the animals susceptible to FMD (Surtina et al., 2022).

Cloven-hoofed animals are especially susceptible to contracting FMD. The development of vesicles or blisters, erosion in the mouth, tongue, gums, nostrils, nipples, and on the skin surrounding the nails, lameness and even nail loss, hypersalivation, increased lying down by the animals, a decrease in body weight in beef cattle, and there is a sharp decline in milk output in dairy cattle. While the mortality/death rate for mature animals is often relatively low, it can approach 50% in young animals. Morbidity is typically significant, exceeding 100%. After death, post mortem study of calves revealed alterations in the heart muscle (myocardium) in the form of white, gray, or yellowish stripes, which are commonly referred to as the heart of a tiger (Sudarsono, 2022; Doll, 2001). Belsham et al. (2003) found that FMD is important due to economic aspect.

Apart from FMD, another disease, namely JVD, is very detrimental to Balinese cattle breeders because it can cause rapid and sudden death of livestock in a relatively large area. The results of the analysis show that JVD is caused by Lentovirus from the Retroviridae family. The clinical signs of this disease are mainly enlarged lymph nodes in the shoulders, front of the knees, under the ears, and blood sweat in several parts of the body. The JVD can be transmitted directly or indirectly through supporting equipment (Firison et al., 2022). Hartaningsih et al. (1993) added that The Jembrana virus has only very slowly migrated from endemic to nearby locations.

After the provinces of East Java and Central Java, South Sulawesi ranks third in Indonesia for the production of beef cattle. The government has implemented a number of measures to prevent and control in relation to the outbreaks of FMD and JVD, including isolation, immunization, traffic control, and the forced slaughter of diseased cattle in the red zone. One of the districts in South Sulawesi impacted by FMD is Gowa Regency, where there have been 217 confirmed instances of ill buffalo cattle, 90 of which are active cases. Twelve cases of JVD were reported in 2022, and 16 cases were reported in mid-2023 (Gowa Regency Livestock Service, 2022).

Foot and mouth disease has been discussed in several research findings (Hayer et al., 2018; Jemberu et al., 2014; Mazengia et al., 2010 and Rafaei et al., 2020) and in the study of JVD (Kusumawati et al., 2015; Suharsosno et al., 1990 and Desport and Lewis, 2010), but there is no research on mortality associated with FMD and JVD in South Sulawesi. In this regard, researchers are interested in seeing the mortality rate of Bali cattle that died from FMD and JVD.

## **MATERIALS AND METHOD**

This research was conducted in 2024 located in Gowa Regency, South Sulawesi. The type of research is quantitative descriptive. The data source is secondary data from the Gowa Regency Livestock Service year 2022. The data were analyzed descriptively in the form of means and percentages regarding the development of FMD and JVD.

Based on the recommendations of Sumadi et al. (2004), the mortality rate formula is as follows:

$$\text{Mortality rate} = \frac{(\text{Number of livestock dying in a year}) \times 100}{(\text{Number of sample population})}$$

## RESULTS AND DISCUSSION

### 1. Number of beef cattle that died caused by several diseases

Based on Figure 1, the results show that the number of beef cattle that died was 16,821 head (14.53%) of the existing population with the highest death rate in September 2022, namely 1,654 head of cattle that died of 115,750 head (1.43%) and the lowest in the same year was 1,002 heads (0.87%). This shows that the cattle mortality rate in 2022 is quite high because it is > 10%. This is in accordance with the opinion of the Head of Animal Husbandry and Animal Health at the PPU Agricultural Service, Arief Murdiyatno, who said that the normal threshold for cow mortality is 3 percent (Amir, 2019).

### 2. Cow mortality rate due to FMD and JDV

If connected to the number of livestock that died due to FMD, the result was 305 heads (1.81%). This value is higher than the results of research conducted by (Rafeiet al., 2020) which said that in dairy herds, lactation is the main cause of illness development and death; 1 parity cows are more susceptible to disease development. During the 31-day follow-up period, the overall cumulative incidence was 49.8%, whereas the overall death rate of FMD was 0.8%.

The results of the study showed that the death rate for cattle due to JVD was 12 head (0.07%) of the number of cattle that died (Figure 2).

This shows that the level of cattle mortality due to FMD and JDV is relatively low. This figure is lower than that stated by Wilcox et al. (1995), that JVD is a moderate to occasionally subclinical condition that affects various kinds of cattle and buffalo. It is a severe and acute disease that affects Bali (*Bos javanicus*) cattle, with a case fatality rate of around 20%. Added by Despot and Lewis (2010) that the newest member of the lentivirus family to be identified, JDV, causes severe clinical illness in Bali cattle with a 15% death rate. Likewise, according to Nasution et al. (2018), the average mortality rate was 16.1% with a range between 0% to 66.6% in Padang, West Sumatra. Furthermore, Soesanto et al. (1990) found that Among the cattle afflicted during the trial, the death rate was 17%.

Even though the research results show that the cattle mortality rate is low, farmers must remain vigilant and are encouraged to implement biosecurity which includes sanitation, isolation and traffic control. Based on several research results conducted by Lestari et al. (2014) that the application of biosecurity to cattle breeders falls into the partial adopter category, especially that there are no foot baths, no cage clothes, the cages are not fenced so that the traffic of people, other livestock and cars is not controlled.

## CONCLUSION

Based on the research results, it was found that the death rate for cattle due to FMD and JVD in GowaRegency was relatively low.

## DECLARATION

### Ethics

I declared that this research was funded under contract number 00309/UN4.22/PT.01.03/2024 date January 30, 2024.

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#### Authors' contribution

Sitti Nurani led and fully managed the research project and was responsible for data collection and script writing; Veronica Sri Lestari to data processing and interpreting field data; Ilham Rasyid and Irma Susanti S contributed to provision of library resources, Fika Yuliza Purba and Nurliani responsible for finishing article.

#### Conflict of interest

None

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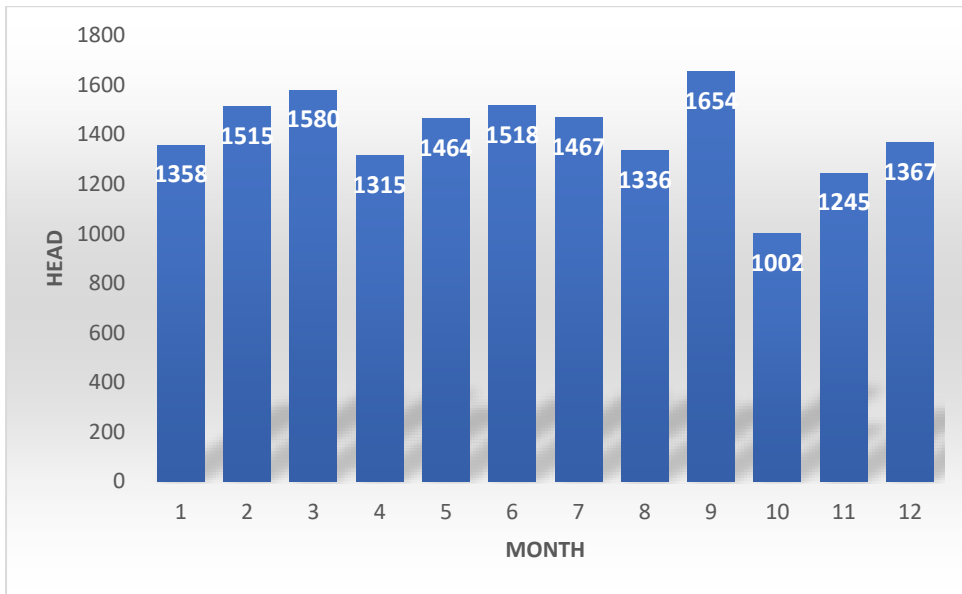


Figure 1. Number of cattle deaths in Gowa Regency (2022)

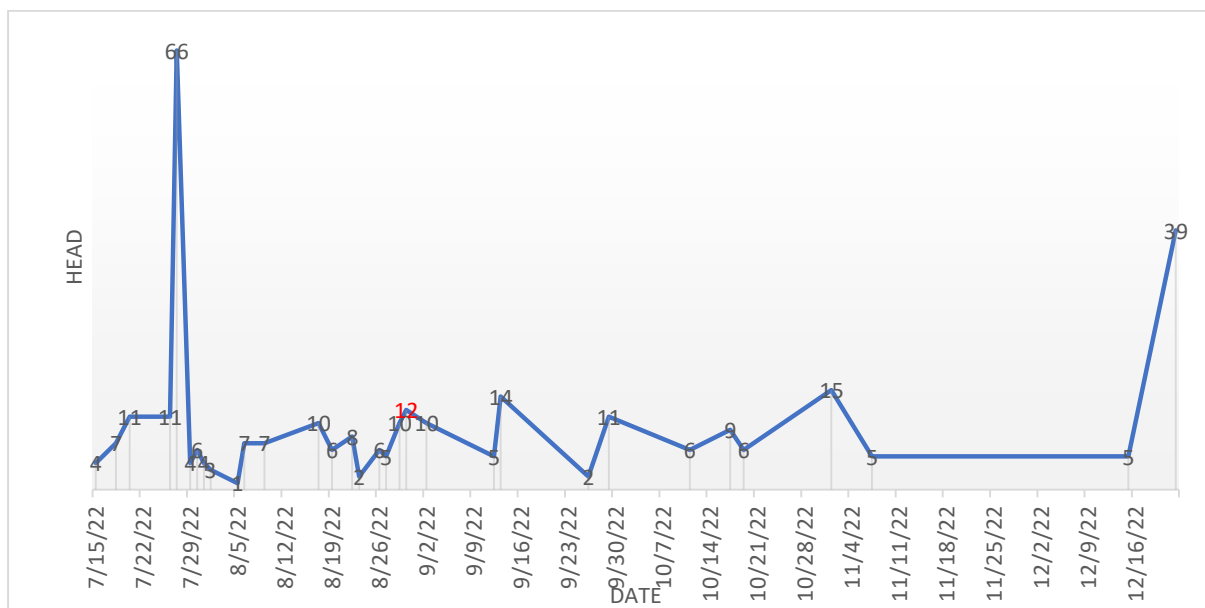


Figure 2. Number of cattle that died due to FMD and JVD