

# Analysis of Predictions Economic Losses of Dairy Cattle Exposed to Hypocalcemia Disease

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**Abstract**— This study aims to determine the prediction of economic losses of dairy cows exposed to Hypocalcemia in Lembang District, Bandung Barat Regency, West Java, Indonesia. The research method uses the survey method, data collection is carried out by purposive sampling to 50 respondents with the criteria of farmers who have dairy cows already lactation. The research data consists of primary data and secondary data. The variables analyzed were the cost of treatment and veterinary services, the selling price of sick cows, the amount of decrease in milk production and aid subsidies for the death of dairy cows experiencing Hypocalcemia. Data analysis is carried out by qualitative descriptive analysis. The results showed that the prediction of economic losses of dairy cows exposed to Hypocalcemia disease with a minimum loss prediction of 998,000 (IDR) and the highest potential loss of 15,002,000, (IDR). It can be concluded that the prediction of economic losses of dairy cows exposed to Hypocalcemia is quite high, so it is necessary to make good disease prevention efforts.

**Keywords**— Prediction of economic losses, Dairy cows, Hypocalcemia, Lembang, Bandung Barat.

## I. INTRODUCTION

Dairy cows are the largest milk producing livestock in the world. The development of dairy cows in Indonesia has been carried out for a long time but the milk production has not been able to meet domestic milk needs. According to Sudrajat et al., (2021) the largest dairy cow development is on the island of Java, one of which is in Lembang District, Bandung Barat Regency, West Java Province. Friesian Holstein (FH) cows are the cows that have the highest milk production in the world, but with different climate differences and maintenance patterns in Indonesia, milk production is less than optimal. According to Sudrajat et al. (2021) stated that FH cow's milk production in Bandung Regency ranges from 10-12 kg / head / day.

Some of the factors causing low domestic production are traditional maintenance patterns, poor feed quality, small number of livestock ownership, reproductive disorders / health problems and others (Sudrajat et al., 2022). One of the health disorders that has a considerable potential loss is the disease Hypocalcemia. The disease usually occurs around birth both before and after childbirth. This event is characterized by dairy cows lacking blood calcium suddenly or suddenly resulting in metabolic disorders in the body.

Research on the prediction of economic losses in the field of animal husbandry is still not widely carried out. Based on this, a study was conducted on the prediction of economic losses of dairy cows exposed to hypocalcemia. The purpose of this study is to determine and examine the prediction of economic losses of dairy cattle exposed to hypocalcemia in Lembang District. With this research, it is hoped that it can provide benefits for academics, breeders, the government and the general public.

## II. MATERIALS AND METHODS

### *Time and Place of Research*

This research was conducted in Lembang District, Bandung Barat Regency, West Java Province, Indonesia. The study started in November-December 2022. The consideration for choosing a research site is that Lembang District is one of the centers of dairy farming in Indonesia.

### *Materials and Tools*

The research method uses the survey method, data collection is carried out by purposive sampling with certain considerations (Sugiyono, 2009), namely the criteria for farmers who have dairy cows have lactated as many as 50 respondents and are members of the North Bandung Cattle Breeding Cooperative (KPSBU) Lembang. The research data consists of primary data and secondary data. The variables analyzed were the cost of treatment and veterinary services, the selling price of sick cows, the amount of decrease in milk production and subsidies for assistance for the death of dairy cows. The research instrument uses complete stationery, cameras, laptops, Microsoft excel software and questionnaires.

### *Data Analysis*

The collected data were analyzed by qualitative descriptive analysis.

## III. RESULTS AND DISCUSSION

### *Hypocalcemia Disease*

Hypocalcemia is a disease that occurs around birth both before and after childbirth. This event is characterized by dairy

cows lacking blood calcium suddenly or suddenly which results in metabolic disorders in the body of dairy cattle. The prevalence of this disease has a potential loss for farmers, so preventive efforts must be taken.

Efforts to prevent hypocalcemia can be done by feeding well enough in quantity (quantity) and sufficient in quality (quality), especially feed that contains a lot of calcium, phosphorus, vitamin D and others. In the transition period or lactation period, feeding must be increased because it is to meet the needs between mothers, calves and for milk production, so that with sufficient feeding, the possibility of hypocalcemia disease can be suppressed.

#### Economic Losses

Prediction of economic losses gives an idea of how much potential loss a dairy farmer will experience if a dairy cow is exposed to a disease (Hypocalcemia) or even death. The total costs due to the emergence of a disease include the following: drug and veterinary costs, labor, milk loss/decreased production, wasted milk, costs, death and extension of empty time (Liang et al., (2017). More data on the predicted economic losses of dairy cattle exposed to hypocalcemia are presented in Table 1.

TABLE 1. Prediction of economic losses of dairy cattle exposed to hypocalcemia disease

Disease	Prediction of economic losses (IDR)	
	Small-Medium	High
Hypocalcemia	998.000	15.002.000

Source : Data processed in 2022.

In Table 1, it can be seen that the prediction of economic losses with low-moderate symptoms has a potential loss of Rp. 998,000,-. In the treatment process, there is a reduction in milk production and automatically dairy farmers suffer losses. The potential loss at high symptoms reaches Rp. 15,002,000, - and milk production is very decreased and even milking is not carried out which results in farmers losing income. Incurable dairy cows will usually be slaughtered or sold to slaughterhouses (RPH) owned by other PPP/RPH. The selling price of sick cows ranges from 2-5 million rupiah depending on the condition of the cow and the weight of the carcass (Sudrajat et al., 2022).

The policy at KPSBU Lembang is that if there are dairy cows of dead members and reported to the officers, they will get assistance of 6 million rupiah. The price of ready-to-mate dairy cows in the greater Bandung area averages 22 million (IDR). So that the potential total economic loss experienced by farmers if their dairy cows die, the potential economic loss is 15,002,000 (IDR), even though they get assistance from cooperatives, farmers still suffer losses. The prediction of economic losses resulting from hypocalcemia in dairy cows is quite large. If the scale of the business is large, the potential loss will be even greater.

Disease greatly affects production performance and its impact affects the profit of a business. According to Galligan, (2006) in Khaerudin et al., (2019) states that disease affects business profits both directly and indirectly. Direct influences are mortality, decreased production and slow growth as well as

decreased reproductive performance, population decline and decrease in feed conversion, while indirect influences are low quality and reduced productive period. According to Reddy et al., (2016) stated that economic losses are related to improper management of the peripartum, which is indicated by non-optimal milk production, impaired reproductive display, increasing morbidity rates, mortality, medical expenses and involuntary culling.

#### IV. CONCLUSION

It can be concluded that the prediction of economic losses of dairy cattle exposed to hypocalcemia disease is quite high. Farmers can treat hypocalcemia if the symptoms of the disease are still low to moderate, but if the symptoms of illness are in the high/severe category, it should be immediately thought/cut because if treated it is not economical.

#### ACKNOWLEDGEMENT

The author would like to thank Universitas Mercu Buana Yogyakarta for granting permission and funding this research, leaders and all staff of KPSBU Lembang, dairy farmers, partners from Universitas Padjadjaran, partners from Universiti Pendidikan Sultan Idris Malaysia, the government and all parties who have helped during the research in Lembang, West Bandung Regency.

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