



## **Distribution of Holstein Friesian Dairy Cattle Populations in KUD Gemah Ripah Sukabumi, West Java for Milk Production of during Lactation, Daily Milk Production, and Fat Levels**

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### **Abstract**

Dairy cows are a type of livestock that have been developed by contributing products in the form of milk as a provider of animal protein. The more dairy cow population, the higher the milk production produced. This study aims to determine the population of dairy farming in Gemah Ripah Sukabumi KUD, West Java, and to determine the amount of milk production during the lactation period, daily milk production, and fat content. The research method used was a survey by taking primary and secondary data in 2018 and then analyzed with simple statistics to determine the mean, standard deviation, and coefficient of diversity. The results showed that the population of dairy cows was widespread in the Sukabumi area. Namely in the Barokah group in the Sukalarang sub-district, the Cikole group in the Sukaraja sub-district, the Cintaresmi group in the Sukalarang sub-district, the Priangan group in the Sukalarang sub-district, the rukun tani II in the sub-district of Sukalarang, the rukun tani III in Sukalja, sulanjana I in Sukalarang sub-district. Sukalarang sub-district, sulanjana II sub-group sukalarang sub-district, sukalarang talisaid sub-district, Darma Sancang group, Sukaraja group consisting of calves, young dairy cows, dairy cows, and bulls with average total milk production (362.7) 3627 liters/lactation, average fat content is 3.44%. The conclusion showed that the population of dairy cows that was in Gemah Ripah Cooperative Sukabumi District has a total of 776 heads. Consisting of calves, heifers, cow lactation, and males as well as having an average total milk production during the lactation period with 105 heads, which is 362.5 liters/lactation, the average daily milk production of 10.8 liters/head/day, with a fat content of 3.44%.

**Keywords:** dairy cattle populations, Sukabumi, milk production, dairy milk production, fat content

## A. Introduction

The population of dairy cows in Indonesia continues to decline every year to 5 percent. Many people consider that efforts to raise dairy cows do not have a beneficial impact on the products produced, but rather become a detrimental problem. The population of dairy cows in Indonesia is often found in relatively cold areas in the region. According to the Badan Pusat Statistik Central Statistics (2017), the population of female dairy cows is 37.610 heads. Based on productivity groups is about 26.47% of the existing dairy cow population that is not yet productive. 68.40% in production / lactation, 4.79% dry, 0.34% no longer in production. Judging from the location of the spread of existing FH cows, there are still many concentrated in mountainous areas or areas with cold conditions. Milk consumption in Indonesia is still in poor condition because there are still many people who are not accustomed to drinking milk.

In contrast, milk has good nutritional content as a provider of dietary animal protein sources for the body (Martindah & Saptati, 2014). The demand for cow's milk from the community is quite high compared to the previous year. The conditions mean that understanding milk as a good drink for the body begins to be implanted in the community.

Sukabumi is a city or district where people or their communities work as farmers or ranchers. The largest dairy farming centers are in the provinces of West Java, including Bandung Regency, Kuningan Regency, Cianjur Regency, and Sukabumi Regency. As makers and implementers of farmers in raising dairy cows, it is necessary to take wise and even rationalist steps that only maintain productive and non-productive cows. The populations of dairy cows are becoming more extreme related to other pressures. The current condition of many dairy farmers, carry out artificial mating programs where dairy cows with artificial insemination use directly imported dairy cows with the provision of obtaining good offspring (Krisnamurti et al., 2019). Thus the dairy cow population becomes large, and its productivity is very high. This activity makes the populations of dairy farms spread in several areas in Sukabumi. Therefore, it is essential in assessing aspects of the distribution of dairy cow populations to estimate total milk production, daily milk production, and fat content of dairy cows that influence community demand and the selling price value of milk.

## B. Methodology

This study uses primary and secondary data with a survey method (Margono, 2005) conducted directly on the management of KUD Gemah Ripah Sukabumi with dairy cattle populations taken in 2018. The data obtained are then sorted and selected to be used as data to be observed. The observed variables were total milk production, average milk production per tail, and fat content obtained. Data were analyzed with simple statistics in the form of averages, standard deviations, and coefficient of diversity with Microsoft Excel, then calculated using the following formulas:

- a. Average

$$\bar{X} = \frac{1}{n} \sum_{i=0}^n \bar{X}_i$$

- b. Standard Deviation

$$S = \sqrt{\frac{\sum_{i=1}^n (X_1 + X_2 + X_3 + \dots + X_{95} - \bar{X})^2}{n - 1}}$$

- c. Coefficient of Variation

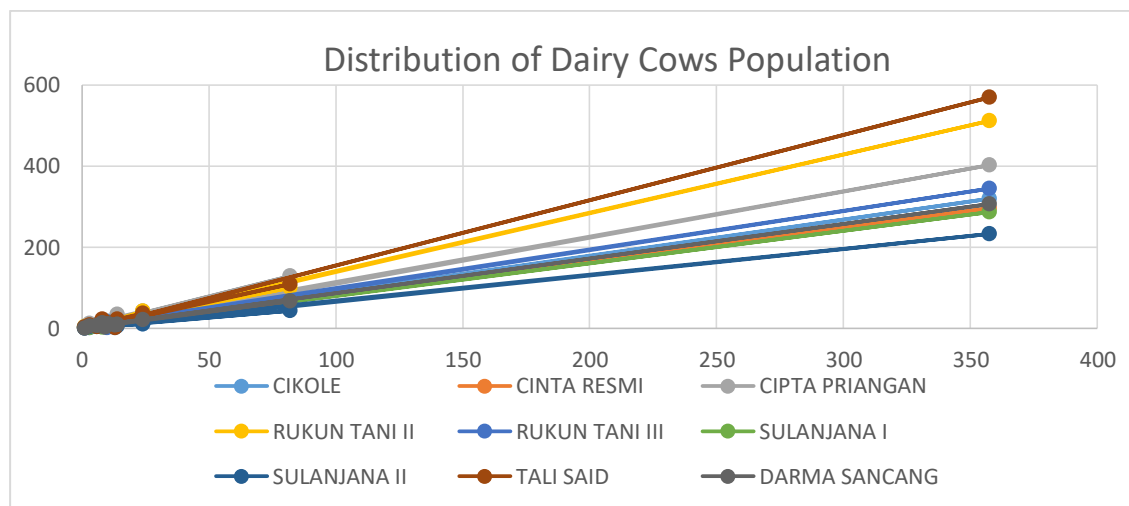
$$KKG = \frac{S}{\bar{X}} \times 100\%$$

The study was conducted in October 2019 that used primary and secondary data. The data were taken by Margono (2015) that Village Unit Cooperative Gemah Ripah Sukabumi District, Making a map of the population of Friesien with livestock populations from January-December 2018. Chair and secretary of the Holstein (FH) cattle is carried out in the order of

work making thematic maps. The work series of the thematic map-making process are as follows: a). Data collection uses the entire method to collect secondary data, b). FH cattle population data are grouped according to each district area, and c). Data on dairy cattle population arranged according to age and sex

### C. Result and Discussion

Dairy cows are one of the livestock producing products in the form of milk taken to meet the nutritional needs of the community (Zain, 2013). The period in dairy cattle that gives a direct impact because it produces milk is the lactation parent (Supriyantono et al., 2019). The populations of dairy cows consisting of calves, heifers, lactation cows, and bulls in several herds in the Sukabumi Regency can be seen in the following Figure 1.



**Figure. 1. Distribution of dairy cattle populations in Sukabumi, West Java**

Based on the chart above, the FH cattle population in KUD Gemah Ripah, Sukabumi District, tends to be distributed among groups of dairy cattle with a reasonably high population. When viewed in the graph of the communities of dairy cattle in the Sukabumi area, the ownership of the number of livestock is complete, from calves, young dairy cows, lactation mothers, and males. Dairy cows are cattle that can produce milk to meet the protein nutrition of Indonesian people (Christi et al., 2019). According to the Badan Pusat Statistik (2018), the amount of milk consumption in Indonesia is still in the lower category compared to other countries. Therefore, dairy farmers in each region in West Java Sukabumi Regency need to know and evaluate the amount. In the Sukabumi area, the largest population of dairy cattle is widely distributed in the Sukalarang sub-district, with a total of 84 livestock group members with 534 livestock ownership consisting of calves, virgin, lactation mothers, and males. While in Sukaraja, there are 44 members with 242 animals. If we add up the number of dairy cows in Sukabumi, there are 776 cows with the highest lactation period of dairy cows. Milk production produced by dairy cows in Sukabumi, West Java, has a significant impact as a milk-producing center area (Christi et al., 2020). According to Martindah & Saptati (2014) that the population of dairy cows is spread over various sub-districts in the Sukabumi Regency. With a large number of dairy cattle, it is essential to know the amount of milk production and its quality in lactating cows. Amrulloh (2018) reports that milk production in Indonesia is still below the standard; this needs to be improved from various aspects, including seeds, feed, and management. To find out the amount of milk production per lactation, daily milk production, and overall fat content from various regions in Sukabumi are presented in the following table 1.

**Table. Total Milk Production, Average daily milk production, and fat content**

No	Performance Production	n	Average	Standard Deviation	Coefficiency Of Variation
1.	Total Milk production (lactation) liter	105	362.5	104.73	0.028
2.	Daily Milk Production (daily) liter/heads/daily	105	10.8	1.87	0.017
3.	Fat Content (%)	105	3.44	0.18	0.005

The Table above shows that the number of cows obtained from various lactations 1, 2, 3, with the average amount of milk production during the lactation period of 362.5 liters (3626.5 liters) for each district in the Sukabumi region. According to Tasripin et al. (2020), the amount of milk production during the lactation period can reach around 5000-6000 liters/lactation. If seen in the Table, the average milk production in Sukabumi is still in the low category, and this is influenced by various factors such as genetic, physiological status of livestock, feed that is usually given, and even maintenance management. Also, environmental factors greatly influence the level of productivity of a lactating dairy cow due to the climate of the Indonesian country with different areas of origin of FH cattle. The value of diversity in milk production during the lactation period (0.028) indicates that the lactation dairy cows produced in each region show the production performance produced is relatively the same because many factors give the same reason, one of which is the aspect of maintenance. According to Indrijni & Tasripin (2012) that the level of production in each district in West Java produces the amount of milk production during lactation, which ranges from more than 3500 liters/lactation.

Indicators for knowing a production performance produced by dairy cattle are not only a display of milk production during lactation but can also be measured from daily milk production (liters/head / daily). The Table shows that the average amount of daily milk production in the West Java Sukabumi region is 10.8 liters/head / daily with a diversity value (0.017), which is almost the same. The average amount of milk production is still classified in shallow conditions. Many factors cause daily milk production performance, including the amount of feed given, type of feed, milking intervals, and even the physiological status of livestock. Anang et al. (2010) explained that high daily milk production with an amount of more than 13 liters/head / daily. Besides, it was revealed by Vergi et al. (2016) that milking intervals significantly affect the amount of daily milk production produced from each cow. Therefore, it is essential to pay attention to all aspects related to the performance of daily milk production produced because daily milk production will directly affect the total milk production during the lactation period in dairy cows.

Cow's milk is a liquid that comes from cows that have nutrients and is beneficial for the human body. Nutrients contained in milk are generally proteins, fats, vitamins, and minerals. Indicators of the nutritional value of milk are significant to know this because as an attraction in the process of selling milk. The higher the content of milk fat, the greater the selling price of the milk, but vice versa, if it is low in fat, the value will be lower too. According to Susanti & Nurdin (2012) that milk quality is excellent when viewed as physically yellowish white. Yellowish white illustrates that milk has a fat content. In the Table, the average fat content in milk in the Sukabumi region is 3.44% with diversity (0.005); this shows a relatively similar value. According to the Thai Agricultural Standard (2008), the fat content in milk ranges from 3-4% in good quality. Factors that influence cow's milk fat content include feed given to livestock and milking time.

Forage with high quality illustrates the high crude fiber content as well. Crude fiber is needed by microbes in the rumen for survival to create the final product in the form of flying fatty acids, one of which is acetic acid. The production of acetic acid is significant to be used as a material for precursors in the formation of milk fat synthesis. Vergi et al. (2016) that in the evening, milking is higher than in the morning milking. It is because the milking time interval from morning to evening is shorter than the milking time interval from afternoon to morning. In the process of milk, formation occurs at night (Mutamimah et al., 2013). Therefore, the content of milk fat produced can be done by engineering the management system, either feed or maintenance management.

#### D. Conclusion

This research concludes that the populations of dairy cows scattered in the area of Sukabumi Regency have a total of 776 heads. Consisting of calves, heifers, lactation, and males as well as having an average total milk production during the lactation period with 105 heads, which is 362.5 liters/lactation, the average daily milk production of 10.8 liters/head/day, with a fat content of 3.44%.

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