CHAPTER 1 INTRODUCTION

1.1 Background

Milk is one of the livestock products which are the source of animal protein that is important for the human body because it has the rich nutrients that are completed and balanced. People's need of balanced nutrition mainly from milk from year to year will be more in line with the increasing awareness level community nutrition and the increase the population growth especially for Indonesia society.

National milk production in 2003 is up to 553,400 tons with milk needs of 800,000 tons, it means can be supplied just by 45% of milk production in the country. At the end of 2004-2007, the production of national milk in a row was 549,900 tons, 536,000 tons, 616,500 tons, and 636,900 tons. Production was only fulfilled 25-30% needs of milk national document (Director General Animal Husbandry, 2008). While the number of national raw milk at the end of 2007 based on data from the Directorate General Ranch in 2009 was 574,683 tons/year while high milk consumption per capita in the same year was 3.13 kg/year. Milk demands on the year reached 1,511,228 tons/year that is far in the production of national raw milk with the count of Indonesian citizens as much as 224.196 million. Dependency to import product can reduce foreign exchange reserves of when this condition to continue to take place without any serious measures.

Milk contains nutrient high-value, that are needed for the life of the people from all levels to keep age growth, health, and the intelligence thinking. The

needs of milk is very important so that it can be said that in order to build a nation that healthy and smart, providing milk for the community is the thing that must be fulfilled. Milk availability circulated in the market and now, big parts are the import products while national raw milk products from Milk Processing Industry are very small in number. Reliance of milk acceptance from social science development agribusiness dairy cows in Indonesia is to slow (Rusdiana and Sejati, 2009).

Dairy cows farmers can have many profits and milk which has a high market value, but there are still many farmers who are doing careless breeding and affecting to the results obtained which economically is less favorable (Rinitasari, 2013). High amount of milk demands consumed by Indonesian society dairy made the important roles to the farmers, and therefore the best way to maintain dairy cows farming with the proper procedures should outweigh the right to produce milk production quality to be consumed, as well as break the chain of import milk demands.

Milk is one of the sources of animal proteins. Milk is also a good media for bacteria's growth, so it's potential as a spreading media of pathogenic bacteria. Bacteria can cause damage therefore milk does not deserve to be consumed. Damage prevention for the existence of pathogenic bacteria needs to be done so that can increase the endurance and guarantee the safety milk to be worthy consumed (Kusumawati, 2012).

According to Prawesthirini *et al*., (2011), community who are aware of health needs the animal protein which is one of them came from milk. Milk that came from the healthy udder gland and containing little germs are important for

public health. Milk quality can be examined by a good and the proper procedure. The milk examination must be done regularly and systematically. Milk which contains of many germs can be interpreted that the milk did not get good sanitation.

Health and hygiene of dairy cows influence the numbers of bacteria in dairy cows milk, cleaning personnel or the organizer, and the hygiene of facilities and equipments that is used. They are basically is intended to prevent the milk contamination (Chandra, 2007).

Ngadiani and Suryanita (2006) explained that the good farm and environment sanitation, starting from equipments, health milker, until cleanliness to have a high quality of dairy cows milk that fulfilled standards health. It is important to note that environmental farm sanitation cleanliness, sanitation employees, hygiene and sanitation of equipments and the dairy cows itself.

According to Santoso *et al*., (2012), to prevent the milk contamination, then required standard procedures of milking, and post-harvest milk handling. Procedures include of preparations for cows that will be milked, a farm condition, the current milker condition, and equipment and storage process. Dairy cows's milk contamination comes from the dirty cows body, cleanless milker hands, the cleanless housing and dust or other factors that may contaminating the milk.

Qualified milk comes from milk which is obtained from good and the proper milking procedures and gets improved sanitation. Milk that can be consumed are milk qualified in standards that the order was set by SNI 7388-2009 with conditions maximum total bacterial contamination of $1x10^6$ CFU/ml. In

order to get milk which is proper and safe to be consumed needs microbiological examination one of them is by the method of *Total Plate Count* (TPC).

1.2 Problem formulation

Based on the bakcground that has been put forward on, it had taken a problem formulation: How is the numbers of total bacteria in raw milk that comes from the KUD Karangploso working area?

1.3 Theoretical Approach

Milk production level is influenced by the lactation period, the estrus period and pregnancy, and age, while environmental factors which can influence are the livestock feed, the milking frequency, environment temperature and season, and animal disease (Mariyono, 1994).

Setiawan (2014) said that the animal disease had a bad influence and very damaging to the dairy cows, diseases such as mastitis, ketosis, milk fever, and disturbance digestive system affected production of milk and may even cause death. In order to avoid this, then we must do prevention.

Milk is organic substance, where milk is very easily broken down. Milk damage including of induced by microorganisms, and milk is also one of the media that are good for the bacteria development that can be potential media for the spreads of bacterial pathogens as long as the treatment does not care about the cleanliness. Milk contamination had taken place since the milking process, can

come from various sources such as cows skin, water, soil, the dust, human, equipments, and the air. Milk that went out of the cows can be contaminated, the contamination can occur from everywhere from cows's udder, cows's body, hair of the cows, the dust in the air, equipments, and people who do the milking (Dwidjoseputro, 1989).

Milk is very easy to be contaminated by bacteria. These bacteria cause damage in milk so that it does not deserves to be consumed. The bacteria which are contaminating milk according to SNI 7388-2009 including *Salmonella sp*., *Escherichia coli*, *Coliform* bacteria, and *Staphylococcus aureus*.

To learn more about total bacterial in raw milk from KUD Karangploso Malang needs laboratory tests. Counting of total bacterial numbers in raw milk can be done with TPC (*Total Plate Count*) method. From the test will be found a result that can be compared to SNI (Standard Nasional Indonesia) and can be known the description of total bacteria numbers in raw milk that comes from the KUD Karangploso Malang.

1.4 The aim of the Research

Based on the formulation problems and theoretical approach that has been explained, this research has a goal to know the numbers of total bacteria in raw milk that comes from the KUD Karangploso Malang compared to SNI 7388-2009.

1.5 Outcome of The Research

Result of this research is expected to provide additional knowledge and information for the students, farmers and the public about the microbiological condition in raw milk at KUD Karangploso Malang, so both consumers and producers who consume food especially milk can pay more attention to maintain the food safety.

1.6 Hypothesis

Hypothesis which submitted in this research are:

1. Total numbers of bacteria in raw milk at KUD Karangploso compared to the SNI 7388-2009 is still below 1 x 10^6 CFU/ml.
2. There are different total numbers of bacteria due to the housing sanitation of each different farmer.