

CHAPTER 3
MATERIALS AND METHODS

CHAPTER 3 MATERIALS AND METHODS

3.1. Time and Location of Research

The research has been conducted on H. Nur Rohman dairy farm, Surabaya and Teaching Farm, Gresik. There were five dairy cows in each place, during August through November 2010. Milk and feces samples were analyzed at University of Gajah Mada.

3.2. Material of Research

3.2.1. Experimental Animals

Ten Friesian Holstein dairy cows about four to seven years old, lactation period from second to sixth month as experimental animals with average production of 10 liters/head/d, divided into five groups were fed a different complete from P0 to P4.

3.2.2. Material of Research

Five types of complete feed, include P0 as controlled diet consist of conventional feed, while the P1, P2, P3, P4, were fed complete feed 1, complete feed 2, complete feed 3, and complete feed 4, respectively (Romziah, 2010) given every day at morning and afternoon. Gerber method was used to analyze the milk fat content and proximate analysis method was used to analyze the feed fat content.

Table 3.1 showed the nutrient content in complete feed (Romziah, 2010). Fat content in complete feed P1, P3 and P4 were slightly higher

compare to P0 and P2. Table 3.1 is the results of proximate analysis of research material that is P0, P1, P2, P3, and P4.

Table 3.1. Controlled feed and complete feed proximate (%)

Feed Type	Dry Weight 105°C	Ash	Protein	Fat	Non Nitrogen Extracted	Crude Fiber
P0	80,91	8,53	12,74	1,19	13,09	22,92
P1	91,82	15,02	19,28	1,75	15,87	28,69
P2	91,87	13,87	14,44	1,00	15,76	26,44
P3	91,86	12,57	21,35	1,54	15,25	22,00
P4	91,83	14,61	19,26	1,80	5,52	26,95
Tofu Waste	11,28	0,56	2,81	0,78	0,41	3,42

(Source : Romziah, 2010)

3.2.3. Equipment of Research

The equipment used were : chopper, scales, plastic bags for ferment, raffia, cutter, scissors, paper labels, litmus paper, stationery, buckets milk container, milk mixer, measuring cups, plastic milk samples, Gerber method equipment and proximate analysis equipment.

3.3. Method of Research

The experimental animals were divided into five groups of complete feed, therefore each group consisted two dairy cows. Each group received different complete feed as independent variables.

The criteria variables were the breed, ages and stage of lactation of the dairy cows. The production of milk, fat content of complete feed, feed consumption, and milk fat content were the dependent variables.

The research constitutes adaptation period and trial period. Dairy cow adaptation period for seven days, then followed by feeding trial period for about

nine days. P0 as controlled diet consist of conventional feed, while the P1, P2, P3, P4, were fed complete feed 1, complete feed 2, complete feed 3, and complete feed 4, respectively. About 15 kg dry matter of forage and 5 kg of tofu waste given to each animal divided for morning and afternoon.

Samples of milk and feces collected on morning and afternoon after milking in trial period. Milk samples labeled and stored in freezer to keep the composition, while feces samples dried under sunlight and labeled according to each group.

Collected milk and feces samples taken from Wonocolo and Teaching Farm brought to Faculty of Veterinary Medicine, Airlangga University. The proximate method to analyze feces fat and Gerber method to analyze milk fat were taken at Gajah Mada University.

3.4. Experimental Design

The experimental design of research was Completely Randomized Design (CRD), which include five variant of complete feed with two replication (5x2).

3.5. Research Variables

3.5.1. Independent Variable

The independent variable in the research is the trial of complete feed and five variation of complete feed which the P0 as the controlled feed.

3.5.2. Dependent Variable

The dependent variables on the research were production of milk, feed consumption, fat content of complete feed, and milk fat content analyzed by proximate analysis for feces and complete feed, and Gerber method for milk fat.

3.5.3. Criteria Variables

Criteria variables were Friesian Holstein dairy cows about four to seven years old, lactation period from second to sixth month with milk average production 10 liters/head/d, and farmed by same management system.

3.6. Data Analysis

The data obtained was analyzed by ANOVA method based on Completely Randomized Design and the mean differences among trials were tested by Duncan's multiple range (Duncan's Multiple Range Test) (Kusriningrum, 2008). The software used for data analysis was Statistical Program for Social Science 20 (SPSS 20).

3.7. Roadmap of Research

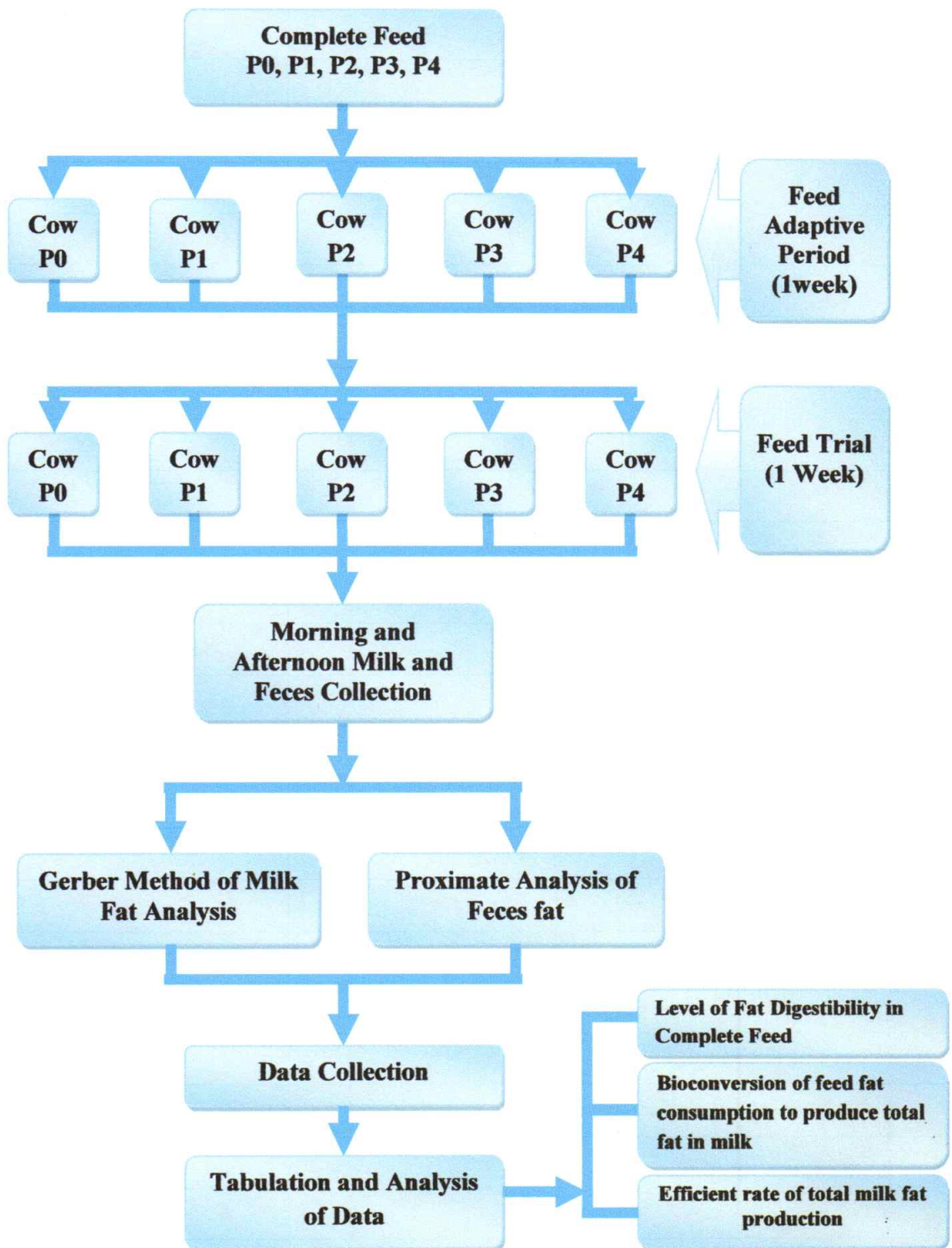


Figure 3.1. Research Framework