



Effect of Feeding Frequency on Growth and Performance of Calf

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Abstract

Calves function as the dairy cattle's reserve force. Dairy cow longevity and lifelong productivity are greatly influenced by the first few months of life. Calves need to be managed in a way that minimizes their exposure to stress and disease and allows them to reach their genetic potential in terms of nutrition, environment, and healthcare. It is challenging to pinpoint where problems affecting health, welfare, and performance may arise during the rearing process in Pakistan due to the lack of documentation of farm management techniques. The objective of this study is to investigate the feeding method suitable for a calf to gain maximum weight in certain time. Three times a day feeding was used as the method of feeding. Green fodder, wheat straw, and concentrates were given to the calf. Concentrates were given in the evening, and they have positive effects on health and growth of calf when they are given with daily feed. The calf was reared for 25 days and on the last day it had gained 10kg of weight. Calf was fed with large quantity of green fodder and wheat straw, but concentrates were given in limited quantity (bananas, watermelon, wheat bran, and cereal grains). However, it was concluded that three times a day feeding is better for health and growth of a calf.

Keywords: Calves; Calf; Pakistan

Introduction

There are more than 15 million young calves in Pakistan presently. Traditional techniques are used to raise calves. Extensive researches have been conducted over last 25 years to determine the rearing methods essential for growth and social development of calves. Calves play a vital role in the development of dairy and livestock sectors. Calves reared with influential methods lead to best milk producers and productive bulls [1].

Calves are reared for both meat production and heifer replacement. Dairy producers are under pressure from the market and the economy to increase farm production, which can be done by using more intense management techniques. More and more farmers now view improved calf rearing as one way to increase farm productivity. The calf deserves clean, dry and warm environment for its better growth and development. Simple shedding is very important to protect calf from extreme sun, wind and rain at its early

age. It is essential to clean and dry the calf pens before disinfecting them to protect them from infections and risk of diseases. Due to poor rearing methods and feeding managements the mortality rate of calves in Pakistan is more than 30% [2].

To identify the main problems throughout the rearing stage on commercial farms, information on current calf management procedures is necessary. This information will help guide future study. Understanding the driving forces behind specific farming methods may help identify the solutions needed to increase producers' adoption of new guidelines. A survey of calf rearing on dairy farms in Pakistan was finished in order to fill the knowledge vacuum. The main goals were to outline typical feeding and management strategies and spot any potential weak spots that can cause poor calf performance and health. In particular, the management of nutrition and sickness as well as the specifications and condition of the used house were assessed [3].

The first steps that need to be addressed include providing pregnant cows with adequate food and housing. Special emphasis is given to the act of calving and the processes that go along with it, followed by the feeding of colostrum and milk, the accessibility of clean water, and the housing of calves. A calf is housed separately for the first week of life and then in a group pen to prevent illnesses, particularly those of the digestive system. The vitality of calves is positively impacted by proper hygiene of all surfaces, mattresses, and equipment, as well as by enough light and clean air, which helps to avoid the development of the most frequent diseases [4].

However, there are limited information and research studies available on rearing of calf, feeding and housing management. This research conducted on calf rearing to find best rearing method essential for growth and development of calf.

Objectives

- Effect of three time feeding frequency on the health and growth of a calf.
- Effect of three times a day feeding with concentrates on the weight, length, height, and HG.

Review of Literature

Calves are crucial to the growth of any dairy industry since raising healthy calves with the right diet and health management techniques will lead to a more productive herd [5]. Calves are typically ignored in Pakistan due to their high feeding expenditures and low sale prices when they are weaning [6]. In both husbandry and research, the control of calf nutrition and feeding is the most neglected field [7]. Poor colostrum and feeding practices are to blame for the region's higher death losses in buffalo calves (52 percent) ([4,7,8]. Most often, colostrum deprivation in calves is caused by human consumption or the tradition of sharing colostrum with friends to produce desserts [9]. Because a cow's nutrition and health status have an impact on the health of the calf at delivery, calf management begins in the third trimester of pregnancy. Due to their lower immunity, calves are more vulnerable to sickness after birth than adult [4].

To maintain a healthy and productive dairy herd, it is necessary to control all elements of calf raising, including husbandry, nutrition, and health. The only supply of immunoglobulin for passive immunity, especially in ruminants where there is no interchange of im-

munological components in utero, is feeding colostrum right away after calving [10-12].

The meat industry in Pakistan now operates on an informal basis, from raising animals to selling meat. Animals from rural areas are purchased by animal dealers, who then sell them to animal markets in metropolitan areas. These animals are bought by butchers at animal markets, who then slaughter them in slaughterhouses [13].

Red meat production currently uses an antiquated and inefficient system. Most animals that are killed in an emergency or near the end of their life are turned into beef. It is common practice to kill newborn calves and buffaloes when they are just one or two weeks old. A very small number of calves are raised to weigh between 60 and 80 kg, although on very poor and unbalanced diets [15]. The current price ceiling, which is set too low to recover the production cost, could be attributed to a lack of commercial, on-farm animal feeding. Traditional and unclean slaughtering methods are significant obstacles that many who value health and hygiene find unacceptable [3].

Materials and Methods

Feed

Being outside of its mother's womb, a new born calf must encounter environmental and feeding obstacles right away. One of the key areas of current animal sciences research is early calf nutrition, which is now being assessed for the calf's growth parameters in accordance with breed standards as well as the effect of early nutrition on the animal's productivity, reproductive potential, or fertility, and longevity for the remainder of its life. The feed given to the calf include green fodder, wheat straw and concentrates. Calf is fed with concentrates in the evening which include bananas, watermelon, wheat bran and cereal grains. Limited concentrates are given to the calf on daily basis while green fodder and wheat straw are given in large quantity. Calf is fed with 6 bananas, 1kg watermelon, 1kg wheat bran and ½ kg cereal grains.

Feeding frequency

3 times a day feeding is considered as method of feeding for the calf. Green fodder and wheat straw is given three times a day while concentrates are given only in the evening with a certain amount. Green fodder and wheat straw are given in large quantities three

times a day (morning, evening and night). In the dairy sector, it is crucial to optimize feeding schedules early in life to maximize development and productivity over the long term. In this study, the effects of feeding frequency and diet on calf growth and health were examined.

Result

Day	Body Weight	Height (inches)	Length (inches)	HG (inches)
1 st	104.5	41	58	48
7 th	106	41.4	58	48.5
14 th	110.5	42	59	49.8
25 th	114.5	43	60	51

Table 1

Calf was reared for 25 days to see the effect of feed and feeding frequency on its health and growth. initial weight was taken at first day which was 104.5kg. After that weight was taken at 7th, 14th, and 25th day, which was 106kg, 110.5kg, and 114.5 kg respectively. The total weight gain on 25th day was 10kg.

Discussions

The current study documented the calf rearing procedures used in Sindh Agriculture University Tando Jam’s smallholder agricultural systems. It shows the effects of feed and feeding frequency on the growth and development of calf. The present status shows a very fruitful positive and response according to feed provided and use. The calf is kept in a dry, clean and warm house so as it also effects the growth and performance of calf.

The present study also demonstrates that the rearing of calves in the herds leads to chronic stress which effect the growth of the calves. It is better to rear calves separately in a confined house. When many calves are kept in a single house they start fighting while feeding and drinking which leads to the stress and stress borne abnormalities. Age was employed as the only factor in weaning because it is the simplest unit of measurement. However, according to controlled study, calves should be consuming between 3.5 and 4 kilograms of feed before being completely weaned. Given that the calves are not yet fully acclimated to the post-weaning diet, weaning before they are ingesting this amount of concentrate has

been linked to increased stress and subpar performance. Weaned calves’ performance and health may thus be at danger from weaning only based on age.

The feeding of feed with concentrates allows calves to benefit from the increased fat content and ME content compared to milk replacer, but there is a risk of disease transmission and inconsistency in raw milk and feed components. The amount of feed given to calves has been the subject of extensive research, and it has been found that feeding calves more feed and concentrate at once is associated with better calf performance, health, and welfare. Peak concentrate amount varied from 4 to 5.5 kg per day among farms, and the calves’ performance may have been greatly impacted by the variance in calorie intake. The proper feeding time and good management in the calf rearing leads to high weight gain and better performance.

Appendix A

- Ensure each calf receives 4kg to 5.5kg of top-quality feed every day. Remember the 3 Qs for concentrate feeding (quality, quantity, quickly).
- Remember that feeding three times a day encourages faster rumen development, reduces rearing costs, ensuring fewer health problems and better postweaning performance.
- Provide continual access to clean water and high-quality concentrates from day 1. Also provide a palatable roughage source, such as clean straw.
- Give individual attention to each calf and make time to check at least twice daily for signs of ill-thrift or sickness.
- Develop a disease action plan that includes good hygiene, isolation of sick calves, fluid replacement and TLC (tender loving care). Drugs should only be used a last resort, to complement a well-managed system.
- Ensure good record keeping because this will help pinpoint problems in your system.
- Minimise stresses by following set routines each day, reducing overcrowding and ‘keeping your troubles’ out of the calf shed.

Summary

Calf was reared for 25 days. Every day it is fed with green fodder with straw and concentrates. Concentrates are given in the evening of all 25 days but in limited quantity. Three times a day feeding with concentrates (bananas, watermelon, wheat bran and cereal grains) in the evening shows best results.

Conclusion

It can be concluded that weight on 1st day is 104.5kg, 7th day is 106kg, 14th day is 110.5kg, and the weight on 25th day is 114.5kg and the net weight gain of calf in 25 days is 10kg which is very good achievement.

It is concluded that 3 times a day feeding with different concentrates in the evening leads to high weight gain and increase growth rate and performance.

Suggestions

- Three times a day feeding is best for calves.
- Keep calf without any stress.
- Keep water clean.
- Clean the shedding house daily.
- Keep the drinker clean Inspection of animal daily if found any disorder call a veterinarian.

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