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EFFECT OF CATTLE CALF MANAGEMENT ON THEIR BODY WEIGHT, HEIGHT, LENGTH, WITHERS AND HEART GIRTH

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ABSTRACT

Cattle farmers are always questioned about their calves to weight gain; therefore, the present study was conducted to evaluate the effect of raring management on the body weight gain of calves. For this purpose, a total of five calves were purchased from the local market and divided into five groups: A, B, C, D, and E. The calves were then raised for 30 days, with a feeding plan 'twice a day with concentrate feed offered (8 a.m. and 6 p.m.) and green fodder (Barseem) was offered (12 p.m. and 8 p.m.), and water was given ad libitum, to all groups. Results showed that a significant difference was recorded for weight gain and body measurement from starting until 30 days. Initially, the body weight of the calf was 41kg. maximum weight gain was noted when the calf began consuming feed in the second week compared to the calf in the other three weeks. In the 2nd week, weight gain was observed by increasing 2kg. The minimum weight was obtained last week with 0.5 kg. Final wither height was recorded with non-significant variation (1cm). Final body length was recorded with a significant variation (9cm), and final heart girth was recorded (3cm). It is concluded that with the proper management of cattle calves, there is quick and pleasant impact on their weight gain, withers, height, body length, and heart girth.

Keywords: Management, cattle calves, weight gain

INTRODUCTION

Feeding pattern is very important for the growth of the calf. According to research, the best method for feeding beef animals is the feed lot system or stall feed method. Animals that graze on the natural grassland are not able to produce such a good quality of meat, so calves must be fed on a feed lot system or stall feed method to get better meat production (Souza, et al., 2006). While grazing in natural grassland, animals must face many problems, such as competitors, harsh environmental conditions, and a lot of energy lost in search of their food. However, animals in the feed lot system get their feed in a proper way, they cannot utilize their energy to get or search for food without having any competitors. The additives and concentrates are added to a feed, which increases the nutritional factors of the feed, which helps in better growth and so can provide much better-quality meat. The most common cause of calf mortality is neonatal calf diarrhea (Soomro, et al., 2023). This diarrhea usually occurs within 7 to 14 days after birth. To control the pathogenic agents of neonatal diarrhea, we can also separate sick animals from the healthy ones to protect them (Belewu, et al., 2010; Oelker, et al., 2009). Bio-security rules must also be kept in mind during calf raring or management, therefore E. coli and Salmonella vaccines to be applied. It is important to segregate sick animals as quickly as possible to protect the environment and other animals from contamination and disease (Thornton, 2020; Souza, et al., 2006). In order to protect the calves, different vaccines, such as Clostridium prefengies types B and C, may also be given to the calves to produce immunity.

MATERIALS AND METHODS

Site of experiment

The current study was carried out on the experimental farm of the Department of Livestock Management, Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agriculture University, Tandojam.

Management of animal farm

A female calf of non-descriptive breed with a body weight of 41 kg was selected. The calf was kept in Shade B with four other calves with the same protocols. The feed was provided two times a day: the calf concentrate is offered at 8 a.m. and 6 p.m., and green fodder (Barseem) is offered at 12 p.m. and 8 p.m. for 30 days of experimentation. The shade is cleaned twice a day, water is given to the calf ad libitum, and the water tank is cleaned and replaced with fresh water twice a day.

Concentrate composition

The concentrate (Calf Starter) is prepared at the farm by us and is prepared by combining the following ingredients: wheat straw, cotton seed cake, pressed maize, wheat bran, a mineral mixture (DCP, NaCl, and sodium bicarbonate), and molasses.

Table-1. Feed formulation (Percent Composition)

Ingredient	Quantity
Crushed/ Pressed	50
Maize grain	20
Cotton seed	15
Cake wheat	12
Bran molasses	3
Mineral mixture	100
Total	50

Nutritive value of calf starter TDN= 705, CP=20%

Parameters

Initial body weight and body confirmation

Initial body weight was observed during the first day of research and continues weekly with the help of a weighing balance machine. Whereas the body confirmation was measured from the first day to the last of the research by reducing the 41 kg body weight as suggested by Somo et al. (2023).

Parasitic control

To control parasitic organism including lice, ticks ivermectin injection was injected 1ml sub cut 1% ratio.

Deworming

For deworming of calves to decrease the risk of tape and round worms Triclebendazol and Oxfendazol were drenched before starting the study experiment.

RESULTS AND DISCUSSION

Body weight changes (kg)

The data showed that the initial body weight of the calf was 41kg. Maximum weight gain (2 kg) in the second week and minimum weight (0.5 kg) were observed in the last week (week 4). The weight changes from the first day to the end of the calf experiment are presented in Table-2. The results of our investigation support the study conducted by Wildeus, et al. (2007), the author suggested that weekly body weight was observed in those calves who were fed green fodder and concentration as compared with those who were fed rice bran only. A similar statement was repeated by (Khannal & Uperti, 2008; Soomro, et al., 2023), that calves raised on green fodder Berseem recorded higher weight gain as compared with those raised only on concentrated rations without green fodder.

Table-2. Weight changes (kg) of calf at different weeks of experiment

Parameter	Weight changes	Weight Gain
Initial	41 kg	0
Week 1	42 kg	1000g
Week 2	44 kg	2000g
Week 3	45 kg	1000g
Week 4	45.5 kg	500g

In this study, average weight gain per week was observed at 1.125 kilo gram mentioned in the Table-3. The results of our study agree with the results of (Zanetti, 2020), who stated that calves weight gain was recorded to be higher on concentration and green fodder barseem as compared with only concentration ration. A similar statement was made by Thornton (2009) that green fodder is highly effective on weight gain as well as on body growth in new-born or young calves specially raised for meat purposes. The results of (Kaleri, et al., (2017; Adedo, et al., 2013) agree with the findings of the attempted study, which reported the highest weight gain in calves raised on concentrate and green fodder grass on a daily basis. The variation among the results might be due to breed differences and management conditions on the farm, as well as the environmental conditions in which calves were managed.

Table-3. Weight gain (kg) of calf in experiment

Parameter	Weight gain
Initial weight	41 kg
Final weight	45.4 kg
Total weight Gain	4.5 kg
Average weight gain in week	1.125kg

Withers height changes (cm)

The data showed that initial withers height was recorded at 35 cm and final withers height was observed at 36 cm, and there was no variation recorded during the end of the study. Details are in Table 4. A similar study carried out by (Abedo, et al., 2013) depicted those calves raised on green fodder with a concentration ratio had high growing efficiency as well as a lower height as compared to those fed only a concentration ratio for feeding purposes. The results of (Soomro, et al., 2023) are not in agreement for wither changes. The variation among results might be due to changes in the management system, feeding practices, environment in which calves were raised, and breed differences.

Table-4. Wither height of calf throughout the experiment

Parameter	Wither change
Initial height	35 cm
Final height	36cm
Total change	1.0 cm
Average change in week	0.25 cm

Body length changes (cm)

The data showed that the initial body length was recorded at 31 cm and the final body length was recorded at 40 cm. Details are in Table-5. The data showed that initial body length was recorded at 35 cm and body length

height was observed at 36 cm, and there was no variation recorded during the end of the study. Details are in Table 5. A similar study carried out by (Abedo, et al., 2013) depicted those calves raised on green fodder with concentration rations had high growing efficiency as well as body length as compared to those fed only concentration rations for feeding purposes. The results of (Soomro, et al., 2023) are not in agreement for body length. The variation among results might be due to changes in the management system, feeding practices, environment in which calves were raised, and breed differences.

Table:5 body length change of calf throughout the experiment

Parameters	Body length changes
Initial body length Final	31 Cm
Body length Total length	40 Cm
Change	9 Cm
Average change In Week	2. 25 Cm

Heart girth changes (cm)

The data showed that the initial heart girth was recorded at 30 cm and the final heart girth was recorded at 33 cm. Details are given in Table 6. The data showed that the initial heart girth was recorded at 30 cm and the final heart girth was recorded at 33 cm. Details are in Table 5. The data showed that initial body length was recorded at 35 cm and heart girth was observed at 36 cm, and there was no variation recorded during the end of the study. Details are in Table 5. A similar study carried out by (Abedo, et al., 2013) depicted those calves raised on green fodder with concentration rations had high growing efficiency as well as heart girth as compared to those fed only concentration rations for feeding purposes. The results of (Soomro, et al., 2023) are not in agreement for heart girth. The variation among results might be due to changes in the management system, feeding practices, environment in which calves were raised, and breed differences.

CONCLUSION

Red Cotton Bug (*Dysdercus cingulatus*) is one the devastating cotton pests, while controlled by various chemical insecticides, that is concerning to the environmentalists and public health workers. Yet botanicals are also the good option to reduce the use of synthetic insecticides, and the highest mortality could be achieved by using Datura (62.9%) and the least effective botanical was Tooh with 51.8% mortality. The least time to kill the insects was taken by Neem with LT50 and LT90 66.8 and (186.8) hours, respectively. The lowest dose 13.9% was utilized by Datura to kill 50% of tested insect (LC50) and LC90 was recorded 43.1%. It is therefore recommended to use Datura to control Red Cotton Bug and conduct some in-depth studies considering mixture of Datura, Tooh, Chilies and Neem with multiple ratios to produce most effective organic pesticides for various insects.

AUTHORS CONTRIBUTIONS

All authors contributed equally.

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