GROWTH PERFORMANCE OF FRIESWAL CALVES UNDER DIFFERENT FLOORS

DANVEER S. YADAV[1], N. K. NAYAK[2], S. NANAVATI[3], S. S.TOMAR[4], and M. SHRIVASTVA[5]
Department of Livestock Production and Management
College of Veterinary Science and Animal Husbandry,
M.P.P.C.V.V. Mhow – 453446 (M.P), India

ABSTRACT

The data on Thirty Frieswal calves (15 male and 15 female) maintained at Military dairy farm, Mhow District Indore (M.P). were utilized to study the growth performance frieswal calves under three floor types ,namely Concrete floor, Concrete floor with straw beddings and Earthen (Kachha) floor with 10 calves (5male + 5 female) in each group. In general Average Daily Gain(ADG) showed increasing trend with advancement of age and the respective average daily gains during 13th week of age were 416.11±28.65, 498.11±25.39 and 481.11±25.29 gram. At 9th and 10th week of age i.e. just after closing of milk feeding ADG was decreased however, in subsequent weeks, calves regained their weight gain. Analysis of variance for heart girth and height at wither indicated that upto 3rd fortnight interval there was no significant difference among floor types. However, subsequently from fourth fortnight interval there was a significant (P<0.05) effect of floor types on heart girth. From fourth fortnight onward the gains in heart girth were significantly higher for calves on straw bed and earthen floor than the calves on concrete floor. The difference between straw bed and earthen floor types was not significant. At first fortnight the average height at withers for calves maintained on concrete, straw bed and earthen floor types were more or less same.

Kewwords : Frieswal calves, floor types, growth performance.

Herd's future performance and prospect depends largely on today's calf care and management. Out of total 221 million cattle of India[4], the number of young sock including males and females (62.96 million) was more than number of breedable cows (60.93 million). Calves in general and crossbred calves in particular are highly susceptible to neglect, inclement weathers, malnutrition and poor housing systems. Feeding and housing management are two main factors that directly affect the calf health and their survivability.

Management of housing or suitable calf environment is a factor of prime importance in reducing calf mortality and cost of rearing, thereby, enhancing the calf production. Calves mortality is maximum during first 3 months of life, particularly within a month after calving ,Thus, there is a need for research to generate information on housing for animals under farmer's conditions as well as in mini-dairies to cater the need of better health and

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[1] Assistant Professor
[2] Assistant Professor
[3] Professor & Sectional Head, Deptt of LPM & Corresponding Author
[4] Professor & Head AGB
[5] PG Scholar, Deptt of LPM, Vety. College, Mhow (M.P.)

future productivity vis-à-vis welfare of calf in house. Efficient management of floor in calf house gives chances to cover up maximum aspects of calf welfare with comfort and shelter for better social interactions with physical, physiological and ethological need in accordance. Study of calf behavior under different floor types is necessary to evaluate calf welfare as well as performance.

MATERIALS AND METHODS

The present study was carried in the herd of Frieswal cattle calves maintained at Military dairy farm, Mhow District Indore (M.P). Thirty Frieswal calves (15 male and 15 female) included in the experiment after 3 days of their birth (after colostrum feeding). They were distributed to 3 groups (3 floor types) Concrete floor, Concrete floor with straw beddings and Earthen (Kachha) floor with 10 calves (5male + 5 female) in each group. During the experimental periods up to 91 days of age, calves were housed in experimental stalls with concrete roof and in open yard in front, Calves were fed colostrum, whole milk, calf starter and fresh green berseem as per standard feeding schedule followed in military dairy farm. Behavioral activity of calves were recorded for all groups without disturbing the day to day management activities. Instantaneous point sample[10] of ongoing activities of each calf was recorded every minute visually for 24 hrs as per schedule.

Average daily gain (g/day) was calculated on weekly basis throughout the experiment as well as pooled values before and after weaning of milk feeding. Body measurements viz. height at withers (cm) and heart girth (cm) were also recorded at fortnight interval.The data were subjected to analysis of variance employing Completely Randomized Design (CRD)[7].

RESULTS AND DISCUSSION

Growth performance

Weekly average daily gain (ADG):- The effect of floor type on weekly average daily gain (ADG) of calves has been presented in Table 1 indicated that there were no significant differences in ADG up to 5th week of age among the different floor types. From 6th week onward significant difference was observed in ADG for different floor types At 9th and 10th week of age i.e. just after closing of milk feeding , ADG was decreased however, in subsequent weeks, calves regained their weight. Present study substantiates the earlier investigations in Friesian crossed calves[5] and in crossbred calves[1] under organized farm management.

Floor types did not affects daily weight gain upto 5th week of age. But from 6th week onward calves on straw bed performed significantly (P<0.05) better than those on concrete floor which is in accordance[8] and 8% more growth in calves reared on straw beddings in loose housing system than those without beddings[3].

Heart girth and Height at wither (cm):

The results presented in table 2 and 3 indicated that upto 3rd fortnight interval there was no significant difference among floor types in heart girth as well as height at wither. However, subsequently from fourth fortnight interval there was a significant (P<0.05) effect of floor types on heart girth. With advancement of age as expected there was gradual increase in height at withers in all the three groups as the animals were in growing phase. However, the increase in height was comparatively higher for calves on straw bed than the calves on other two floor types. The straw bed housed calves attained significantly more height at

4th to 6th fortnight as compared to other two groups of calves. However, at 5th week the difference for height at withers between straw bed and earthen floor types was not significant. Higher average heart girth and height at wither for calves on straw bed indicates that during winter season calves are at comfort and ease on straw bed floorings and thus have improved physiological status resulting into better growth and body measurements. Much lower estimates of body length and withers height in kenkatha caves reared on earthen floor was reported[9]. All the dimensional characteristics of body showed gradual increase from 1st to 10th month age which was logical and expected. attained mean values of 92.30±0.75, at the age of 10th month.

Table: 1. Weekly Average Daily Gain (g/day) in calves

Interval (week)	FLOOR TYPE		
	Concrete	Straw bed	Earthen
1st	301.55±27.18[a]	306.30 ±23.18[a]	293.55 ±23.18[a]
2nd	306.42±33.67[a]	325.12 ±28.74[a]	301.11 ±28.86[a]
3rd	331.55 ±36.31[a]	372.11 ±32.19[a]	352.01 ±32.51[a]
4th	382.12±35.74[a]	417.65 ±31.41[a]	401.85 ±32.11[a]
5th	403.74±31.75[a]	430.45 ±27.95[a]	395.55 ±28.11[a]
6th	401.45±34.51[a]	472.85 ±29.12[b]	404.25 ±30.33[a]
7th	404.25±36.65[a]	462.65 ±32.29[b]	431.95 ±32.12[ab]
8th	400.55±28.35[a]	487.05 ±25.02[b]	421.65 ±24.95[a]
9th	402.11±36.01[a]	463.35 ±31.36[b]	402.95 ±31.55[a]
10th	365.74±34.65[a]	434.95 ±30.65[b]	411.09 ±30.65[b]
11th	375.35±39.55[a]	458.12 ±43.55[b]	416.65 ±44.55[ab]
12th	407.31± 33.65[a]	473.65 ±30.45[b]	423.75 ±30.39[a]
13th	416.11±28.65[a]	498.11 ±25.39[b]	481.11 ±25.29[b]

Means having different superscripts in a row differ significantly from each other

Table: 2. Fortnightly Heart girth (cm) of calves on different floors

Interval (Fortnight)	FLOOR TYPE		
	Concrete	Straw bed	Earthen
1st	74.6[a]±.67	74.4[a]±0.34	74.4[a]±0.48
2nd	76.6[a]±0.74	78.4[a]±0.44	77.4[a]±0.56
3rd	78.4[a]±0.65	80.6[a]±0.56	80.2[a]±0.85
4th	83.6[a]±0.65	87.6[b]±0.23	86.6[b]±0.87
5th	86.4±[a] 0.86	92.4[b]±1.01	90.9[b]±0.43
6th	89.8[a]±0.56	98.6[b]±0.32	95.1[b]±0.46

Means having different superscripts in a row differ significantly from each other

Table: 3. Fortnightly Height at wither (cm) of calves on different floors

Interval (Fortnight)	FLOOR TYPE		
	Concrete	Straw bed	Earthen
1st	64.6^a±0.86	64.6^a±0.46	64.4^a±0.78
2nd	67.3^a±0.95	69.7^a±.56	68.1^a±0.69
3rd	69.6^a±0.67	72.8^a±0.19	70.6^a±0.28
4th	75.3^a±0.25	80.3^b±0.11	76.3^a±0.21
5th	80.4^a±0.31	86.6^b±0.12	84.5^b±0.24
6th	88.6^a±0.45	94.8^b±0.67	90.4^a±0.98

Means having different superscripts in a row differ significantly from each other

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