International Journal of Veterinary Sciences and Animal Husbandry 2024; 9(6): 138-140

ISSN: 2456-2912
VET 2024; 9(6): 138-140

www.veterinarypaper.com
Received: 16-08-2024
Accepted: 22-09-2024

AA Lande
PG Student, Division of AHDS, COA, Pune, Maharashtra, India

PS Sakhare
Research Guide and Associate Professor, (Vet. Sci.), Division of AHDS, COA, Pune, Maharashtra, India

SH Mane
Assistant Professor, Division of AHDS, COA, Pune, Maharashtra, India

SB Adangale
Assistant Professor, Division of AHDS, COA, Karad, Pune Maharashtra, India

Corresponding Author:
A A Lande
P G Student, Division of AHDS, COA, Pune, Maharashtra, India

Supplementation of fortified feed additives on growth performance of indigenous heifers

AA Lande, PS Sakhare, SH Mane, and SB Adangale

Abstract
By keeping in view the beneficial effect of Probiotics, Live yeast, amino acids fortified with herbs in rumen manipulation to increase animal production as indicated earlier, the experiment entitled 'Effect of supplementation of fortified feed additives on growth performance of Indigenous Heifers' is proposed. Twelve indigenous heifers ranging from 16 months to 23 months were selected for conducting the experiment. These were distributed into two treatment groups i.e. six heifers in each group on the basis of their age and weight. First group is considered as T_0: Basal diet as per NRC of Cattle (Control) and another group is considered as T_1: Basal diet + Fortified Feed Additives. In case of body weight records difference observed was statistically non-significant in the treatments. The final body length of T_0 group 117.00±5.63 cm was less than T_1 group122.16±5.37 cm. The difference observed was non-significant in the treatments. The body heights of experimental animals were none significantly differed. The mean chest girths are142.1±3.68 cm and 146.0±3.73 cm and average increased in chest girths is 13.0 cm and 18.8 cm in treatments T_0 and T_1 respectively. The difference observed was statistically non-significant in the treatments.

Keywords: Indigenous, basal diet, experimental animals

Introduction
Animal Husbandry plays an important role in the Indian economy. The livestock sector in India contributes 4.11% to GDP and 25.6% to total Agriculture GDP. There is a decline of 6% in the total indigenous cattle population over previous census. However, the pace of decline of indigenous cattle population during 2012-2019 is much lesser as compared to 2007-12 which was about 9% (Livestock census, 2019). Feed additives are useful for dairy producers for improving the nutrition of dairy animals and increased profits when used correctly. Feed additives fortified with probiotics have been used as additives in milk replacer, and have been shown to increase growth performance and decrease scour occurrence in dairy calves. In recent years, there is much more has been shown in the use of fortified feed additives like probiotics containing *Lactobacillus sporogenes*, *Lactobacillus acidophilus* as feed supplements to improve the cattle health and feed efficiency. By keeping in view the beneficial effect of Probiotics, Live yeast, amino acids fortified with herbs in rumen manipulation to increase animal production as indicated earlier, the experiment entitled 'Supplementation of fortified feed additives on growth performance of Indigenous Heifers' is proposed.

Materials and Methods
Twelve indigenous heifers ranging from 16 months to 23 months were selected for conducting the experiment from Indigenous Cattle Research cum Training Center, Division of Animal Husbandry and Dairy Science, College of Agriculture, Pune. And these were distributed into two treatment groups i.e. six heifers in each group on the basis of their age and weight. First group is considered as T_0: Basal diet as per NRC of Cattle (Control) and another group is considered as T_1: Basal diet + Fortified Feed Additives. Feed has been formulated as per following table.

Particulars	Treatments	
	T_0 (%)	T_1 (%)
Soybean straw	44	44
Green maize	22	22
Concentrate mixture: heifer ration	34	34
Total	100	100
Additives	(gm)	(gm)
Live yeast culture	Nil	3
Lactobacillus sporogenes/acidophilus	Nil	1
Jeera (*Cuminumcyminum*)	Nil	25
Ginger (*Zingiberofficinale*)	Nil	6
Amino acids	Nil	2
Total	Nil	37

The following observations were recorded during investigation

A. Body Weight Gain: Fortnight weight of the heifers were recorded on standard weighing balance.

B. Body Measurements

1. Body Length – Measure from shoulder to pin bone point with the help of measuring tape.
2. Body Height – Measure from wither point to ground level.
3. Chest Girth – Measure from wither to wither with the help of measuring tape.
4. The data has been analyzed by using Student't' test given by Panse and Sukatme (1985).

Results and Discussion

Growth performance of indigenous heifers on supplementation of fortified feed additives was evaluated in terms of Body weight gain, Body length, chest girth and Body height changes.

Body weight

Table 1: Effect of fortified feed additives supplementation on average body weight

Fortnight	Treatments		't' Cal	't' Tab (at 5%)
	T_0	T_1		
Initial	186.20±13.52	186.23±13.92	0.48	2.17
1	193.60±13.21	194.50±13.04		
2	199.60±13.63	203.40±13.13		
3	206.50±13.15	211.70±13.21		
4	214.50±13.65	220.40±13.39		
5	221.80±13.14	228.60±13.51		
Final	228.40±13.06	236.50±13.78		
Mean±S.E.	207.22±13.33	211.60±13.42		
Gain in Average Body weight	42.20	50.27		

It was observed that, the initial body weight was 186.20±13.52 and 186.23±13.92 in treatments T_0 and T_1 respectively, and the final body weight was 228.40±13.06 and 236.50±13.78intreatments T_0 and T_1 respectively, also the average body weight gained were 42.20 and 50.27 kgintreatments T_0 and T_1respectively. The difference observed was statistically non-significant in the treatments.

Body Measurements

Body length

Table 2: Effect of fortified feed additives supplementation on average body length (cm).

Fortnight	Treatments		't' Cal	't' Tab (at 5%)
	T_0	T_1		
Initial	102.66±5.09	105.00±5.61	0.83	2.17
1	105.16±5.04	107.33±5.60		
2	108.66±5.18	109.83±5.83		
3	110.83±5.36	112.50±5.26		
4	112.83±5.28	115.16±5.51		
5	114.83±5.56	117.50±5.90		
Final	117.00±5.63	122.16±5.37		
Mean± S.E.	110.28±5.30	112.78±5.58		
Gain in Average Body length	14.34	17.16		

From table 2, it was observed that the mean body lengths were 110.28±5.30cm and112.78±5.58 cm, also the average body lengths were increased to 14.34 cm and 17.16 cm of indigenous heifers in treatments T_0 and T_1 respectively but it was statistically non-significant. The final body length of T_0 group 117.00±5.63cm was less than T_1 group122.16±5.37 cm. The difference observed was non-significant in the treatments.

Body Height

Table 3: Effect of fortified feed additives supplementation on average body height (cm).

Fortnight	Treatments		't' Cal	't' Tab (at 5%)
	T_0	T_1		
Initial	111.16±1.49	112.33±1.32	1.78	2.17
1	111.83±1.62	112.33±1.31		
2	112.33±1.48	113.00±1.32		
3	112.66±1.37	114.16±1.50		
4	113.66±1.41	115.83±1.64		
5	114.00±1.53	117.33±1.68		
Final	114.66±1.37	119.00±1.69		
Mean±S.E.	112.90±1.46	114.85±1.49		
Gain in Average Body height	3.50	6.67		

From table 3, it was observed that the initial body heights are 111.16±1.49 cm and 112.33±1.32 cm and the final body heights were114.66±1.37 cm and119.00±1.69 cm and the average increased in body heights are 3.50 cm and 6.67 cm in

the treatments T_0 and T_1 respectively. The body heights of experimental animals were none significantly differed.

Chest Girth

Table 4: Effect of fortified feed additives supplementation on average chest girth (cm).

Fortnight	Treatments		't' Cal	't' Tab (at 5%)
	T_0	T_1		
Initial	135.8±3.55	137.5±3.61	1.27	2.17
1	137.6±3.62	139.8±3.83		
2	140.0±3.72	142.6±3.98		
3	142.1±3.83	145.5±3.73		
4	144.1±3.94	148.6±3.88		
5	146.5±3.98	152.3±3.64		
Final	148.8±3.15	156.3±3.47		
Mean±S.E.	142.1±3.68	146.0±3.73		
Gain in Average Chest girth	13.0	18.8		

From table 4, it was observed that initial chest girth was 135.8±3.55 cm and 137.5±3.61 cm which was increased to final at 148.8±3.15 cm and 156.3±3.47 cm in both treatments respectively. The mean chest girths are142.1±3.68cm and 146.0±3.73cm and average increased in chest girths is 13.0 cm and 18.8 cm in treatments T_0 and T_1 respectively. The difference observed was statistically non-significant in the treatments.

References

1. Akif M, Mustafa K, Karsli. The effects of live yeast culture use in suckling calves on performance and health. Van Vet J. 2020;31(1):231-236.
2. Abe F, Ishibashi N, Shimamura S. Effect of administration of bifidobacteria and lactic acid bacteria to newborn calves and piglets. J Dairy Sci. 1995;78:2838-2846.
3. Cruywagen CW, Jorden INA, Venter L. Effect of *Lactobacillus acidophilus* supplementation at milk replacer on preweaning performance of calves. J Dairy Sci. 1996;79:483-486.
4. Chandra R, Mehla RK, Sirohi SK, Rahman H. Effect of probiotic supplementation on growth of crossbred calves. Indian J Anim Sci. 2009;79(12):54-57.
5. Das KC, Karma DN, Pathak NN. Effect of supplementing lactic acid bacteria on the performance of crossbred female cattle calves. Indian J Anim Sci. 2002;72:89-93.
6. Eckles CH, Williams HH. Yeast as a supplementary feed for lactating cows. J Dairy Sci. 1925;8:89-94.
7. Morrill JL, Morrill JM, Feyerherm AM. Plasma protein and probiotic as ingredients in milk replacer. J Dairy Sci. 1995;78:902-907.

How to Cite This Article
Lande AA, Sakhare PS, Mane SH, Adangale SB: Supplementation of fortified feed additives on growth performance of indigenous heifers. International Journal of Veterinary Sciences and Animal Husbandry. 2024; 9(6): xx-xx.