Research Article

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Growth performance of Nellore Sheep and Aseel Poultry under Duplex Model Housing system in Scarce Rainfall Zone of Andhra Pradesh

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ABSTRACT

Small ruminants plays an important role in rainfed agriculture. Rearing of ram lambs for fattening is a common practice in scarce rainfall zone of Andhra Pradesh. The usual method of rearing is extensive system and provision of night shelter with mud floor. Elevated floor system has many advantages to eliminate the existing problem of ammonia accumulation in the shed and suitable for intensive feeding which also reduces the cost on labour. Rearing of poultry and ram lambs under one shelter with a concept of two-layer livestock system was developed at KVK, Yagantipalle. The present study was conducted to assess the growth performance of ram lambs and Aseel poultry under different systems. Higher body weight gain of Ram lambs and poultry was observed under two-layer system compared to traditional system.

INTRODUCTION

Rainfed agriculture extends over 87.5 m ha (55%) of net sown area in different agro-climatic zones of our country, spread over in 177 districts and contributes over 40 % to our food basket, supports 40% of human and 60% of livestock population. Due to ever increasing population and decline in per capita availability of land in the country, practically there is no scope for horizontal expansion of land for agriculture. Only vertical expansion is possible by increasing livestock intensity or by integrating livestock components requiring lesser space and time and ensuring reasonable returns to farm families (Sahadeva Reddy *et al.*, 2021). Rearing of ram lambs for fattening is a common practice in scarce rainfall zone of Andhra Pradesh.Farmers provide shelter made of roof with thatched material or galvanized sheets and ram lambs stay on the floor throughout the night with mix of excreta and urine. It was observed that there was accumulation of ammonia in the shed causing bronchopneumonia in the lambs. To overcome these problems in small ruminants in traditional housing system, a new duplex model housing system was explored to evaluate the growth performance by integrating with sheep and poultry components.

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METHODOLOGY

Duplex model (two-tier) house was constructed during June 2023 with 18 X 12 feet at Balapanur village of Panyam mandal by accommodating ram lambs on wooden slatted floor (upper housing) and Aseel poultry on the ground floor of the house. The elevated floor was constructed at 5feet height from the floor. The height of the total shed was 12feet. Entire shed was fenced with one inch mesh to protect the poultry and ram lambs from predators. Feeders and drinkers were placed in the shed. A total of forty male Nellore brown lambs of 3 months age weighing around 12 kg body weight and 60 Aseel birds of five weeks age were divided into two groups at the rate of 20 ram lambs + 30 Aseel birds for evaluation of growth rates for a period of 120 days in sheep and 150 days in poultry in Duplex model house (T1) and traditional free-range system (T2). The lambs were fed with black gram crop residues and concentrate mixture @200grams per day as per ICAR 2013 standards. The experiment was conducted for a period of 120 days until the lambs reached the age of 7-8 months. A pre-experimental period of 10 days was given to the animals to acclimatize themselves to the local environment. The birds were fed with ground sorghum and maize @50grams per day along with scavenging for 4-6hours. Deworming and medication were done to the ram lambs and poultry as per recommendation and requirement. Data on body weight at an interval of 40 days and 50 days in ram lambs and poultry, respectively were collected and growth performance was recorded.

Table 1. Body weights and average daily weight gain (gm) of Nellore brown lambs and Aseel birds under different types of systems.

Treatments	Initial	I	II	III	Mean
		Ram lambs -Body weights (kg)			
Duplex house	14.28±0.29*	17.08±0.33	20.05±0.32	22.83±0.25*	
Traditional practice	15.05±0.46	17.15±0.51	19.10±0.48	20.88±0.51*	
		Ram lambs-Average Daily weight Gain (g)			
Duplex house	--	93.33±4.75	99.17±4.76	92.51±5.61	95.12±1.75*
Traditional practice	--	71.23±3.75	65.13±4.51	59.17±3.31	87.22±1.85*
		Aseel birds- Body weights (g)			
Duplex house	469.9±18.02	1012.5±29.62	1522.73±37.19	1910.2±48.03	
Traditional practice	428.8±16.05	722.5±20.02	1064.7±24.87	1372.4±28.03	
		Aseel birds- Average Daily weight Gain (g)			
Duplex house	--	18.09±1.06	17.01±0.84	12.92±0.89	15.77±0.53*
Traditional practice	--	10.15±0.47	11.41±0.60	10.26±0.71	10.49±0.25*

RESULTS AND DISCUSSION

The mean initial body weight of Nellore lambs before the experiment was 14.28±0.29 and 15.05±0.46 kg and at 120 days 22.83±0.25 and 20.88±0.51 kg in duplex house and traditional method, respectively. The average daily weight gain of Nellore brown lambs after 120 days was 95.12±1.75 and 87.22±1.85 g in duplex house and traditional method, respectively. The mean initial body weight of Aseel birds before the experiment was 469.9±18.02 and 428.8±16.05 g and at 150 days recorded 1910.2±48.03g and 1372.4±28.03g in duplex house and traditional method, respectively. The average daily weight gain of Aseel birds after 150 days was 15.77±0.53and 10.49±0.25 g in duplex house and traditional method, respectively.The higher body weights in the present study were recorded in lambs housed in elevated slatted floor which might be due to amelioration of thermal stress and better ventilation resulted in improved feed efficiency leading to beneficial effect on lambs in terms of higher body weight gains. It allows manure, urine and debris to drop through the slatted floor, thus eliminating a major source of disease and parasitic infestation. Slatted floor is easy to clean and maintain, and the waste that falls through it is easily collected and used as manure. It allows ventilation to circulate through the slats. Lower mean maximum temperature (°C) and lower average maximum relative humidity (%) values were observed in elevated slatted floor house compared to mud floor with galvanized sheets (Kasala et al., 2023).

CONCLUSION

Growth rate of ram lambs and Aseel poultry under Duplex model house in rainfed areas indicated that higher body weight and average daily gain was recorded in two-layer livestock system compared to the farmer practice of free-range system. This system provides ambient environment to livestock and poultry in rainfed areas. It is evident that elevated sheep houses offer many advantages in tropical and subtropical areas.

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