Sjournals
Scientific Journals
Scientific Journal of Biological Sciences (2013) 2(6) 118-121
ISSN 2322-1968

Contents lists available at Sjournals
Scientific Journal of
Biological Sciences
Journal homepage: www.Sjournals.com

Original article

Post weaning growth performance of Hyla F_1 rabbits under the guinea savannah zone of Nigeria

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ARTICLE INFO

Article history:
Received 09 May 2013
Accepted 28 May 2013
Available online 28 June 2013

Keywords:
Hyla
Post weaning
Growth
Guinea savanna
Rabbits

ABSTRACT

Data in 144 successfully weaned Hyla rabbit kits consisting of 70 Hyla purebred and 74 crossbred Hyla rabbits were evaluated for postweaning growth performance at different ages (8, 10 and 12 weeks). Breed and sex effect differ significantly (P<0.05) at different ages studied. Crossbred male Hyla rabbits had the highest weight of 1314.57 g and 1771.52 g at 8 and 10 weeks, while the highest value (2232.88 g) at 12 weeks was observed in crossbred female Hyla rabbits. It is therefore concluded that crossbred Hyla rabbit would be suitable meat production in the guinea savannah zone of Nigeria.

1. Introduction

Rabbits provide an excellent source of animal protein for human consumption and may play a significant role in solving a part of meat shortage in Nigeria. Growth, the increase in live body mass or cell multiplication, is controlled genetically and environmentally. Body weight at weaning of doe rabbits is one of the important traits that influence rabbit production. There are many factors that have influence on bodyweight as breed, feeding and management (Maertens,1992), disease, temperature and season of year (Tawfeek, 1996). The effects of elevated ambient temperature on growth performance are the product of a decrease in anabolic activity and the increase in tissue catabolism. This decrease in anabolism is essentially caused by a decrease in voluntary feed intake of essential nutrients. In Kaduna state, high ambient temperature is the major constraint on animal productivity. This effect is aggravated when heat stress is accompanied by high ambient humidity (Abdel-Hafez, 2002). Exposure of rabbits to elevated temperatures results in a decrease of bodyweight which is reflected by impaired reproduction (Shelton, 2000). Therefore, this research was designed to determine the effect of environment on post weaning growth of Hyla rabbits.

2. Materials and methods

The study was carried out at the Rabbitry of National Animal Production Research Institute (NAPRI) Shika, Zaria, Kaduna State. The Rabbitry lies between 11^{o} 12' 42" N and 7^{o} 33' 14" E at an altitude of 691m above sea level (Ovimaps, 2012). Bodyweight was taken using a digital balance to the nearest gram at weekly intervals after weaning.

3. Results

The effects of breed and sex on post-weaning body weight recorded at different ages (8, 10 and 12 weeks) in Hyla parent rabbits are shown in Table 2. Breed and sex effects were significant ($P < 0.05$) on post-weaning body weight studied (BW_8, BW_{10} and BW_{12}) in Hyla rabbits. The result obtained from this study showed that Hyla crossbred rabbits were significantly ($P < 0.05$) heavier compared to purebred Hyla rabbits at all ages.

Table 1
Mating plan for crossing of hyla genetic rabbit lines.

	Dam line
Sire lines	**New Zealand White (Hyla.NG)**
♂ NZW (Hyla.GPC)	♀NZW x NZW ♂ (Purebred)
♂ CAW (Hyla.MAX)	♀NZWx CAW♂ (Crossbred)

NZW-New Zealand White; CAW- Californian rabbits.

Table 2
Least square means ± (SE) of post weaning growth of parent hyla rabbits by breed and sex from 8 to 12 weeks.

Genotypes	**Age of rabbits**		
	8	**10**	**12**
Male (Pure)	1297.05±37.50^{b}	1601.02±59.91^{bc}	1980.93±95.11^{bc}
Male (Cross)	1314.57±38.57^{a}	1771.52±51.45^{b}	2097.52±104.03^{b}
Female (Pure)	1247.59±42.09^{c}	1662.66±58.84^{bc}	1934.83±115.55^{c}
Female (Cross)	1288.39±54.71^{b}	1743.67±79.78^{a}	2232.88±106.52^{a}
SED	10.81	31.25	17.67

^{abc}Means within the same column having the same superscript are not significantly($P>0.05$) different Pure-Hyla.Max X Hyla.Ng (NZW X NZW); Cross- Hyla.GpcX Hyla.Ng (NZWXCAL); SED- Standard Error of Difference.

Hyla crossbred male had the highest value (1314.57 ± 38.57 g) for BW8 while the least value (1247 ± 42.09 g) were obtained in the female purebred Hyla rabbits. BW10 recorded the highest value (1771.52 ± 51.45 g) in male crossbred, while the male purebred showed the least value (1601.02 ± 59.91 g). Finally, at week 12, the female Hyla crossbred had the highest value (2232.88 ± 106.52 g), while the least value were observed in male purebred Hyla rabbits (1980.93 ± 95.11 g).

4. Discussion

The present study investigated the post weaning growth performance of Hyla F_1 rabbits under the guinea savannah zone of Nigeria. Our current findings showed that post-weaning growth performance of F_1 Hyla rabbits were intermediate compared to the reports from temperate and tropical countries. Values obtained at different ages were lower than the average body weight range for Italian hybrids. Also, the average bodyweights in this study were higher than the reports by different authors on hybrid and local rabbits at different ages in the tropical countries. For Baladi Red (BR) rabbits the means of body weight ranged from 318 to 497 g, from 590 to 921 g, from 830 to 1481g and from 1176 to 1757 g for BW 4, 8, 12 and 14 weeks of age. Yamani (1994) reported BW_5 and BW_{12} in Hyla rabbits to be 415 and 2153 g respectively. Crossbred Hyla rabbits showed superior performance compared to the purebreds at all the ages studied. This agrees with the report of some author in the literatures (Yamani 1994; Hamadou *et al*., 1990; Chrystosome *et al*., 2011). The observed differences could be due to heterosis. El-Dessoki (1991), reported that crossbred rabbits mothered by NZWXCAL crosses showed heavier weight than purebred rabbits at 4, 8 and 10 weeks of age. Sexual dimorphism can be phenotypically expressed as differences in skeletal size and/or body mass. The larger values reported for the bodyweight of males compared to females are in agreement with earlier reports on goats (Vargas *et al*., 2007) respectively. The influence of sex on the body weight in this study is likely connected with the usual between-sex hormonal action which leads to differential growth rates. Isaac *et al*. (2005) reported that sexual dimorphism in bodyweight and size is clearly widespread among many mammalian taxa, with male-biased dimorphism being the more common, but certainly not the exclusive pattern.

5. Conclusion

It is therefore concluded that crossbred Hyla rabbit would be suitable meat production in the guinea savannah zone of Nigeria.

References

Chrysostome, C.A.A.M., Gbangboche, A.B. Houangni, M.S.M., 2011. Evaluation of reproduction performance of Hyla rabbits in hot and humid region in Benin. Res. Opin. Anim. Vet. Sci., 1(10), 669-672.

El-Dessoki, A.E.M.,1991. Study of the effect of some genetic and environmental factors affecting meat yield from some foreign and local breeds of rabbits and their crosses. Master of Science Thesis, Faculty of Agriculture, Mansoura University, Egypt.

Hamouda, M., Salwa, K., El-Gaied, J., 1990. Crossing of local rabbits with the Hyla strain: growth and reproductive performance in the first generation. Options Mediterraneennes, Serie A, 8, 103-108.

Maertens, L., 1992. Rabbit nutrition and feeding: A review of some recent developments. J. Appl. Rabbit Resour., 15, 889-913.

Shelton, M., 2000. Reproductive performance of sheep exposed to hot environments. In: Malik, R.C., Razzaque, M.A., Al-Nasser, A.Y. (Eds.), Sheep Production in Hot and Arid Zones. Published by the Kuwait Institute for Scientific Research, pp. 155–162.

Tawfeek, M.I., 1996. Effect of feeding system and supplemented diet with Kemzyme on growth, blood constituents, carcass traits and reproductive performance in rabbits, under intensive production conditions, Egyptian J. Rabbit Sci., 6 (1), 2137.

Vargas, S., Larbi, A.,Sanchez, M., 2007. Analysis of size and conformation of native Creole goat breeds and crossbreds used in smallholder agro-silvopastoral systems in Puebla, Mexico. Trop. Anim. Health Prod., 39, 279–286.

Yamani, K.A., 1994. Rabbits meat production situation in Egypt. Processing of the 1st International Conference., Cairo, Egypt, 57-64.