"RESPONSE OF BREEDER RABBITS TO VARYING LEVELS OF PELLET IN A MIXED FEEDING REGIME"

B.O. ASUQUO

Department of Animal Science, University of Calabar, Nigeria.

Received 26 March, 1995; Accepted 5 October 1995

ABSTRACT

The response of breeder rabbits to five levels of rabbit pellets (100, 80, 60, 40 and 20%) in a mixed feeding regime with *Ipomea batatas* vines was examined. Thirty sexually mature New Zealand White rabbits, 5 bucks and 25 does, were used with the aim of determining the most economic and optimum level under the humid environment. Average litter sizes at birth and weaning and litter weaning weight were not significantly ($P > 0.05$) different between diets containing 100 and 80% pellet but these differed significantly ($P < 0.05$) from others. Average litter weight gains (0-35 days) for the various pellet levels were 2102.91g (100%), 2105.27 (80%), 1802.47g (60%), 1285.01g (40%) and 1202.77g (20%). Mortalities were not significantly different ($P > 0.05$) among the diets. From the economic stand point therefore, diet with 80% pellet could be considered optimum, based on results on litter sizes, litter weight at weaning and mortality.

Key words:- pellet levels, breeder rabbits, mixed feeding.

INTRODUCTION

The beneficial effect of feeding rabbits on mixed concentrate forage rations has been reported by several workers (Ramchurn, 1978; Pote *et al.* 1980; Haris *et al.* 1984; Cheeke, 1984; Aduku *et al.*, 1986 and Dematerova *et al.*, 1991). Cheeke (1984) suggested 50g mash per day as optimum for weaner rabbits with green forage. Increased feed and nutrient levels than for growing rabbits have been advocated for breeding rabbits as a means of increasing litter size, adequate maintenance of pregnancy and subsequent milk let down by does (Olentine and Ensminger, 1980; Lebas, 1983). Ngodigha and Mepba (1992) noted that though concentrate feed would improve productivity of rabbits, some level of economy

in concentrate use is necessary in view of the soaring cost of concentrate feeds. Optimizing the concentrate level for breeding rabbits could, while improving reproductive efficiency, minimize production cost for improved profit margin. Little information is available in literature on optimum pellet combination level with tropical forages for breeding rabbits. The objective of this study was to determine the most economic level of pellet in combination with forage for breeding rabbits under the humid environment.

MATERIALS AND METHOD

Thirty sexually mature New Zealand White rabbits (5 bucks and 25 does) raised at the Cross River Agricultural Development Project rabbit skill plot, were randomly bred for the study. Bucks were chosen such that inbreeding was avoided. Nutritional treatments consisted of the following percent rabbit pellet levels 100 (S100P); 80(S80P); 60(S60P); 40(S40P); 20(S20P), supplemented daily with *Ipomea batatas* vines free-choice. Pellet levels were determined based on the average quantity free choice intake (100%) by all the does during the first week stabilization period. Calculated composition of the pellet, which was fed a few hours earlier than the forage each day, was 17.5% CP and 2985 kcal G.E./Kg. Five does randomly picked were assigned per treatment and managed individually in cages. Water and mineral lick were supplied *ad libitum*.

Random mating of does to the bucks was done between 8.00-11.00 a.m. and two weeks post partum. Kittens were weaned at 35 days of age and the study lasted 14 months. Parameters monitored were litter sizes taken 24 hours after kindling and weights at birth and weaning.

Data on 75 litters averaging fifteen per treatment were analysed using ANOVA technique and significant means separated

using Duncan Multiple Range Test (Montgomery, 1976).

RESULTS AND DISCUSSION

Table 1 shows the performance of breeding does on varying pellet levels. Average size of litter at birth showed significant ($P < 0.05$) pellet level effect. No significant ($P > 0.05$) difference was observed between the average litter size of does on diets S100P and S80P; values of which were statistically ($P < 0.05$) higher than for other levels. Diet S100P promoted the highest litter birth weight, and no significant ($P > 0.05$) difference was observed between diets S80P and S60P in this trait. Differences observed for litter size and weight at birth were due to the differences in pellet levels. Increased pellet intake induced the shedding of more ova during ovulation thereby increasing litter size at birth (Olentine and Ensminger, 1980; Aduku and Olukosi, 1990). The observation has a strong basis on the fact that flushing of litter-bearing animals before breeding would enhance the number of young per litter. Also the linear relationship

noted between pellet levels and litter weight could be argued on increased nutrient supply that enhanced better embryonic development pre-partum. Diets S100P and S80P, similarly promoted the highest average litter size and weight at weaning with no statistical ($P > 0.05$) difference between their values. Generally, for all parameters studied, performance of does declined from S60P to S20P. Increased pellet levels in the diets enhanced the quantity of milk let down for proper nursing of the kittens. It could further be argued that kittens on diets S100P and S80P had some extra pellets to share with their dams in addition to the milk after about 2 weeks of age. Average pre-weaning litter weight gains, based on litter weights at birth and weaning, were 2102.91g (S100P); 2105.27g (S80P); 1802.47g (S60P); 1285.01g (S40P) and 1202.77g (S20P). Percent mortality rate was lowest on diet S80P Table 1).

Results from the study support the general view that a mixed feeding regime of concentrate-forage with the right proportion of concentrate will maximize litter traits in

TABLE 1: PERFORMANCE OF BREEDER RABBITS ON THE VARIOUS PELLET LEVELS

Parameters	Treatments				
	S100P	S80P	S60P	S40P	S20P
Average litter size at birth	6.25 ^a ±0.37	5.96 ^a ±0.22	5.42 ^b ±0.31	4.65 ^c ±0.25	4.45 ^c ±0.32
Average litter birth weight (g)	312.50 ^a ±12.35	276.48 ^b ±13.02	263.91 ^b ±10.78	209.25 ^c ±11.09	171.72 ^d ±13.12
Average litter size at weaning	5.23 ^a ±1.27	5.15 ^a ±0.98	4.62 ^b ±1.34	3.76 ^c ±1.56	3.38 ^d ±1.18
Average litter weight at weaning (g)	2415.41 ^a ±25.75	2381.75 ^a ±19.88	2066.38 ^b ±15.77	1492.26 ^c ±20.31	1374.49 ^d ±11.55
Percent mortality rate (Pre-weaning)	16.32	13.59	14.76	19.14	24.05
Average quantity of daily pellet intake (g)	98.12	78.54	58.87	39.25	19.62

a,b,c,d. Means across parameters with different superscripts are significantly different ($P < 0.05$).

RESPONSE OF BREEDING RABBITS TO PELLET FEEDING

breeding rabbits. Diets S100P and S80P gave similar results in all traits except average litter birth weight. Average daily pellet intake on the two diets, S100P and S80P, were 98.12 and 78.54g respectively. It could be concluded that diet S80P or 78.54g pellet combination daily with *Ipomea batatas* vines would be optimum and economical for breeding rabbits under the humid environment.

ACKNOWLEDGMENT

The author acknowledges with thanks the sponsorship of the study by CRADP management. My gratitude also goes to Mr. M.E. Effiwatt and ADP field staff who assisted during the course of the experiment.

REFERENCES

- ADUKU, A.O., OKON, P.N. NJOKU, P.C., AGANGA, A.A., DIM M.I. (1986). Evaluation of Cowpea (*Vigna unguiculata*) and Peanut (*Arachia hyposea*) haulms as feedstuffs for weaning rabbits in tropical environment (Nigeria.). J. Applied Rabbit Research. 9(4): 178-180.
- ADUKU, A.O. and OLUKOSI, J.O. (1990). *Rabbit management in the Tropics: Production, processing, utilisation, marketing, economics, research and future prospects*. Living books series. Abuja. pp.20
- CHEEKE, P.R. (1984) Rabbit Nutrition and feeding: Recent advances and future perspectives. J. Applied Rabbit Research. 7(1): 31-37
- DEMATEROVA, M., PERIERA, C.L. and DABE, A.C. (1991). Rabbit Production under tropical conditions in Mozambique. World Animal Review 69: 36-43.
- HARIS, D.J., CHEEKE, P.R. and PATTON, N.M. (1984). Effect on fryer rabbit performance of supplementing a pelleted diet with alfalfa or grass hay. J. Applied Rabbit Research 7(4): 148-150.
- LEBAS, F. (1983) Small scale rabbit production: Feeding and Management System. World Anim. Rev. 46:11-17.
- MONTGOMERY, D.C. (1976). Design and Analysis of Experiments. John Wiley and sons. New York. pp. 48.
- NGODIGHA, E.M. and MEPBA, H.D. (1992). Effect of graded levels of Cassava peel meal on the performance of growing rabbits. Delta Agric. 1: 31-33.
- OLENTINE, C.C. and ENSMINGER, M.E. (1980). Feed and Nutrition Complete. 1st ed. Ensminger Publishing Co. USA. pp. 976-995.
- POTE, L.M., CHEEKE, P.R. and PATTON N.M. (1980). Utilization of diet high in alfalfa meal by weaning rabbits. J. Applied Rabbit Research. 3(4): 5-10.
- RAMCHURN, R. (1978). New feed resources for Rabbits in Mauritius. In Proc. Workshop on Rabbits Husbandry in Africa. Stockholm, Sweden I. F.S. p. 129-135.