

BIBLIOGRAPHY

BUGTONG, GILDA O. APRIL 2012. Carcass Yield from New Zealand White Rabbit Fed with Different Forages. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

The study was conducted at Meat Laboratory under Animal Science Department, Benguet State University, La Trinidad, Benguet from January 2012. This aimed to determine the effect of the different forages as feed for rabbits in terms of slaughter and carcass length of rabbit; to determine the lean and bone percentage; and to determine which of the treatments produce the highest carcass yield. Fifty days old rabbits were used in the study. Two rabbits from each treatment were slaughtered to represent two replications. The source of rabbits were the previous growth study which utilized the the following treatments; T₁ (Kikuyu grass + Sweet potato vine) T₂ (Perennial peanut + Sweet potato vine) and (Kikuyu grass + Perennial peanut + Sweet potato vine).

Statistical analysis indicates that there were no significant differences between the three treatments in terms of slaughter weight, carcass length, viscera weight, dressing percentage, viscera percentage, lean and bone percentage, and bone to lean ratio.

Based on the result of this study, rabbit raisers can use forages as feed or in combination to commercial feeds. The standardized feeding of pure forages is only good for long term feeding. It is recommended that rabbits be fed for a minimum of eight to ten weeks and above to attain good quality of the carcass.



INTRODUCTION

Rabbit meats are not the most consumable because of its higher price and also it is not known in our country. Rabbit production is seldom and there is no meat available in the market. But rabbit meat or “lapan” is a very nutritious food suitable for patients under special diets, low sodium diets, weight diet reduction, and for the aged. Rabbit meat is a good source of protein that is excellent source of essential amino acids which are contained in the amount needed by the body. In addition, rabbit meat has high quality that is often considered a white meat and delicacy in taste.

The farmers could probably produce rabbit meat with low production costs, but in fact have been raising rabbits with high feed costs. Their practice has been to feed the rabbits low quality forages, natural or improved grasses, and commercial concentrates in large amounts to solve the problem the rabbit should be improved by replacing the grass with foliages higher protein content that can be found easily in the area (Lukefahr and Cheeke, 1990).

This study was the carcass yield of rabbit fed with kikuyu grass and perennial peanut. The result of the study can contribute or provide additional knowledge to the reader and most especially to the raisers. This can also serve as a basis for another or further study.

Generally, this study was conducted to determine the carcass yield of rabbit fed with different forages. Specifically it aimed to: determine the effect of the different forages as feed supplement on rabbit in terms of slaughter and carcass length of rabbit, determine the lean and bone percentage; and determine which of the treatment produce high carcass yield.



This study was conducted at the Meat Processing Laboratory under the Department of Animal Science, College of Agriculture, Benguet State University, La Trinidad, Benguet on January 2012



REVIEW OF LITERATURE

Mears and Humphreys (1974) stated that kikuyu grass species has several attributes as a tropical pasture, since then a vast amount of information has been produced regarding to its agronomic characteristics, nutritional value, management and animal production potential. Kikuyu is a highly digestible, high protein, low fiber, palatable grass which responds readily to nitrogen, stands heavy grazing, holds soil against erosion and is an excellent lawn grass. Kikuyu grass is essentially a high-quality grass for dairying and cattle finishing in high-altitude areas of the tropical and subtropical world; a useful lawn grass and soil fertilizer against erosion.

Gerpacio and Castillo (1979) The Nutrient requirement composition of Kikuyu grass analyzed by the University of the Philippines College of Agriculture as follows: Crude protein (3.61%), Crude fiber (3.51%), Ether extract (0.37%), Ash (2.11%), Nitrogen free-extract (5.79%).

According to Bowman *et.al*, (1998) the nutritive value of Perennial peanut (*Arachis pinto*) has crude protein of 13-25% dry matter digestibility of 60-70%.

Hammond *et al.* (1992) they found out that perennial peanut forage is a suitable protein and energy supplement feed for cattle, especially for those on low protein grass hay. Thus, (cattle, sheep, goats and rabbits) perennial peanut is very nutritious and well liked. The nutritional quality of perennial peanut appears to be as good as alfalfa.

Devendra (1988) reported that the foliage are sources of dietary protein and can provide variety in the diet for improved growth performance and reduced feed costs.

New Zealand is the most popular breed for commercial meat production, although hybrids are gradually replacing purebreds. Weight of a full-grown New Zealand white is



4-5 kilogram with production of about 2 kilogram of meat at 8-10 weeks of age (Pond and Pond, 2000).

In meat technology, meat is commonly defined as the flesh from the domesticated animals. The composition of lean meat may be approximated as water 75 %, protein 18%, soluble non- protein substance including mineral components 4%, and fat 3% (Norman, 1977).

Rabbit meat is white, fine grained, delicately flavoured, nutritious and appetizing. The age of the larger roaster rabbits is six months and more. The meat from the rabbits require simmering or longer and slower in covered pan. The size of the carcass is the fine quality of the meat (Templeton, 1968). The major used of domestic rabbits is for meat production. Medium and heavy weight breeds are best suited for meat production and the breed of New Zealand white is suited for this purpose.

The rabbits are marketed when they reached fryer weight, which live weight is 3 to 6 pounds (1.36-2.7 kg). Live weights of 4 to 4.75 pounds (1.8-2.1 kg) produced the best carcass with a dressing percent ranging from 50-59 % (Gillespie, 1997).

Rabbit meat also called “lapan”, is the primarily white meat that is very fine in texture and has low fiber content. Because of the low fiber content, it is easy to digest which is desirable for individuals who have difficulty chewing for their food (Warren, 2002).

Most rabbit are commercially raised for meat, fur, wool and for laboratory usage. They are excellent converters of feed to meat and naturally produce more meat per pound of female live weight than other animals. Rabbit has high-yielding carcass-over fifty percent dressing percentage (Bade and Blakely, 1994).



Nowadays, people are health conscious particularly what they eat. As much as possible, the food that they will eat should free from any toxic substance or chemical residues which hazardous to human health. Therefore, organically products, meat or vegetable is become popular (Coma, 2000).



MATERIALS AND METHODS

Experimental Materials

The materials used in the study are 3 month-old rabbits, weighing scale, bolo or knife, pail, basin, chopping board, record book, tape measure and camera.

Experimental Treatments

The source of rabbits for this study was the previous growth study which utilized from the following treatments:

T₁ – 50% Kikuyu grass + 50% Sweet potato vine

T₂ - 50% Perennial peanut + 50% Sweet potato vine

T₃ – 25% Kikuyu grass + 25% Perennial peanut + 50% Sweet potato vine

Two rabbits from each treatment were slaughtered to represent two replications.

Slaughtering of Rabbits

The rabbits were slaughtered upon reaching the age of three months. Before the animals were slaughtered, they were not offered any amount of forage. During slaughtering, the rabbit was suspended by its hind leg. With his left hand, the butchers hold the head firmly and his right hand holds a sharp knife and then broke the neck and cut behind the head to drain the blood. When the blood was drained, cuttings were continued across the back of the head down to the tip of the jaw including all of the thick fur covering the neck and jaw. After the butcher loosened the flesh at the side of the hocks with his fingers preparatory to skinning the carcass; cut the tail at its base the two front legs above the joint at least half inch high. The skin was pulled down from the



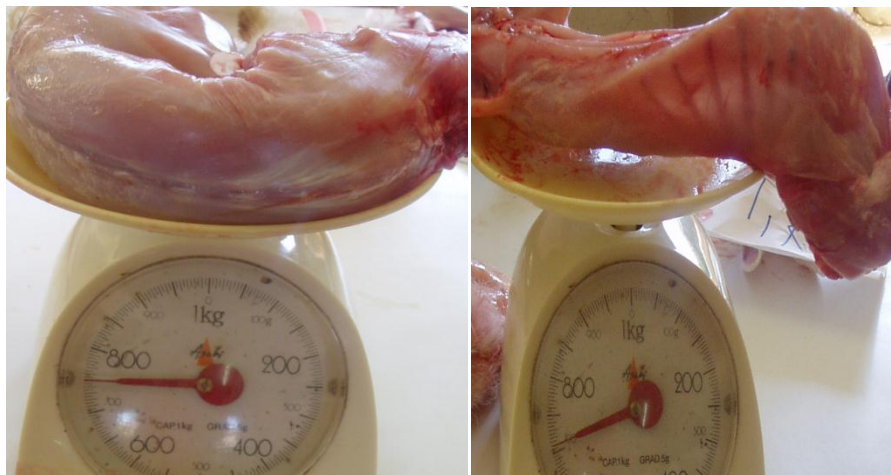
carcass until it was pulled off whole like a sock. A slit was made on the rabbit's flesh from the rectum down the breast taking care not to puncture the intestine.

Data Gathered

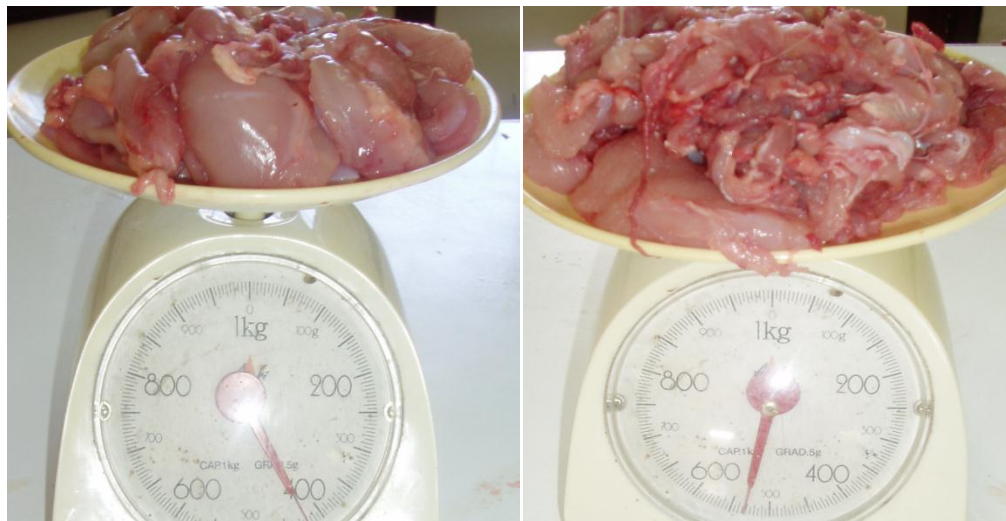
1. Slaughter weight (kg). This was the weight of the live rabbit before slaughtered (Figure 1).



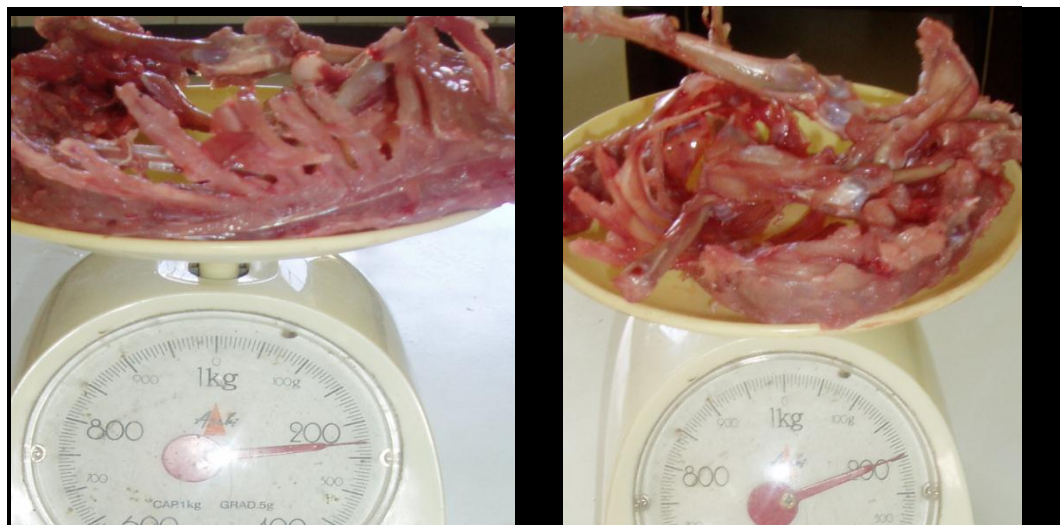
2. Carcass weight (kg). This was the weight of the rabbit carcass with the head, pelt, tail, feet, and viscera removed (Figure 2).



3. Carcass Length (cm). This was taken by measuring from the first rib to the base of the tail of the suspended carcass.
4. Dressing percentage (%). This was obtained by dividing the carcass weight by the slaughtered weight multiplied by 100.
5. Weight of Viscera (kg). This was taken by weighing all internal organs.
6. Weight of lean (kg). This is the weight of the lean of rabbit carcass (Figure 4).



7. Weight of bone (kg). This is the weight of rabbit's bone (Figure 5).



Data Analysis

The data on the carcass of rabbits were recorded and subjected to Analysis of Variance for Completely Randomized Design (CRD). Treatment means were compared by the least significant difference.



RESULTS AND DISCUSSION

Slaughter Weight and Carcass Yield

The mean slaughter weight of the experimental rabbits in the different treatments is shown in Table 1. Rabbits under T₁ (Kikuyu Grass+Sweet potato vine) 1.33 kg, T₂ (Perennial peanut+Sweet potato vine) with 1.38 kg, and T₃ (Perennial peanut+Kikuyu grass+Sweet potato vine) had a mean weight of 1.25 kg.

Gillespie (1997) stated that rabbits are marketed when they reached fryer weight, which live weight is 3 to 6 pounds (1.36-2.7 kg). The mean carcass yield as presented in table 1 shows that the rabbits given diets supplemented with perennial peanut were yielded the highest mean carcass of 0.68 kg, following the rabbits supplemented with kikuyu grass had mean carcass weight of 0.67kg, and lastly the rabbits given a combination of kikuyu and perennial had a mean of 0.61kg. Lower than reported by Alcausin (2010) which is the mean carcass yield ranged from 0.99-1.01kg.

Analysis of Variance revealed that there no significant differences in terms of slaughter weight, carcass yield of rabbit carcass.

Live weights of 4 to 4.75 pounds (1.8-2.1 kg) produced the best carcass with a dressing percent ranging from 50-59 % (Gillespie, 1997).

Table 1. Mean slaughter weight and carcass yield

TREATMENT	SLAUGHTER WEIGHT (kg)	CARCASS WEIGHT (kg)
Kikuyu grass+Sweet potato vine	1.33	0.67
Perennial peanut+Sweet potato vine	1.38	0.68
Kikuyu grass+Perennial Peanut+Sweet potato vine	1.25	0.61



Carcass Length

Table 2 shows that T₁ (Kikuyu grass +Sweet potato vine) and T₂ (Perennial peanut+Sweet potato vine) had a mean of 29.90 cm respectively, while the T₃ (Kikuyu grass Perennial peanut +Sweet potato vine) with mean of 29.30 cm.

The statistical analysis revealed that there is no significant difference among the treatment means in carcass length. This shows that using forages as feed supplement did not affect the carcass length of the rabbits.

Dressing Percentage

Table 3 shows the mean dressing percentage ranged from 48.37-50.44% which is higher than the dressing percentage reported by Alcausin (2010) ranging from 46.62-47.31%.

In addition the study of Julio, (2001) revealed that eight week-old rabbit had a mean dressing percentage ranging from 48.23-51.11%.

Dang-ay (2003) also reported that the male and female rabbit supplemented with probiotic had a mean dressing percentage ranged from 50.50-53%.

Table 2. Mean carcass length of rabbits

TREATMENT	CARCASS LENGTH (cm)
Kikuyu grass+Sweet potato vine	29.90
Perennial peanut+Sweet potato vine	29.90
Kikuyu grass+Perennial Peanut+Sweet potato vine	29.30



Table 3. Dressing percentage

TREATMENT	DRESSING PERCENTAGE
Kikuyu grass+Sweet potato vine	50.44
Perennial peanut+Sweet potato vine	49.20
Kikuyu grass+Perennial Peanut+Sweet potato vine	48.37

Percentage of Viscera

Table 4 shows the mean weight of viscera as expressed in percent carcass as affected by the different treatment that the analysis of variance shows that there were no significant differences in viscera percent of carcass rabbits. The mean percentage of viscera also shown in Table 4 that rabbit fed with kikuyu grass had a mean of 25 %, and the rabbit under the treatment of perennial peanut had 27.47 %, while rabbits fed with the combination of kikuyu grass plus perennial peanut had mean of 27.42 %.

Table 4. Percentage of viscera

TREATMENT	VISCERA PERCENTAGE
Kikuyu grass+Sweet potato vine	25.00
Perennial peanut+Sweet potato vine	27.47
Kikuyu grass+perennial Peanut+Sweet potato vine	27.42



Lean and Bone Percentage

Table 5 shows the mean percentage of lean and bone. Rabbits under T₁ (Kikuyu grass + Camote) were obtained 69.65 percent, and T₂ (Perennial peanut + Camote) had mean percent lean of 70.27 where it gained the highest percent, and T₃ (Kikuyu grass + Perennial peanut + Camote) had 68.05 percent.

The analysis of variance in terms of lean and bone percentage shown that there are no significant differences among the treatment means.

Furthermore, Alcausin (2010) reported that rabbit fed with cassava and sweet potato meal that the mean percentage lean ranging from 71.18%-75.58%. Table 5 also shown the bone percentage of rabbits ranged from 29.73 to 31.95, that the higher the slaughter weight in terms of bone had the lowest percentage.

Bone to Lean Ratio

Table 6 presented the mean of bone to lean ratio. Analysis of Variance revealed that there were no significant differences in bone to lean ratio. The mean bone to lean ratio ranged from 1:0.43-1:0.47. This means that for every kilogram of bone, 430 to 470 g of lean is deposited.

Table 5. Percentage lean and bone

TREATMENT	PERCENTAGE	
	LEAN	BONE
Kikuyu grass+Sweet potato vine	69.65	30.35
Perennial peanut+Sweet potato vine	70.27	29.73
Kikuyu grass+perennial Peanut+Sweet potato vine	68.05	31.95



Table 6. Bone to Lean Ratio

TREATMENT	BONE TO LEAN RATIO
Kikuyu grass+Sweet potato vine	1:0.44
Perennial peanut+Sweet potato vine	1:0.43
Kikuyu grass+Perennial Peanut+Sweet potato vine	1:0.47

Additionally, Alcausin (2010) reported that the mean of bone to lean ratio ranging from 1:19.26-1:20.81.



SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

This study was on the carcass yield from New Zealand white rabbit fed with different forages as feed. The measurement gathered were: slaughter weight, carcass length, carcass weight, viscera weight, lean and bone weight, lean and bone ratio. From the data gathered, the data computed were dressing and viscera percentage, lean and bone percentage that the Analysis of Variance revealed that there are no significant differences among treatment means.

The study was conducted at Meat Laboratory under Animal Science Department, Benguet State University, La Trinidad, Benguet from January 2012. Fifty days old rabbits were used in the study. Two rabbits from each treatment were slaughtered to represent two replications. The source of rabbits were the previous growth study which the treatment used were the following; T₁ (Kikuyu grass + Sweet potato vine) T₂ (Perennial peanut + Sweet potato vine) and (Kikuyu grass + Perennial peanut + Sweet potato vine).

Conclusion

As a result analysis of variance reveals that there are no significant differences in slaughter weight, carcass length, viscera weight, viscera percentage, dressing percentage, lean and bone ratio, lean and bone percentage. Therefore, the different forages used as a feed supplement does not have effect.



Recommendation

Based on the result of this study, rabbit raisers can use forages as feed or in combination to commercial feeds. The standardized feeding of pure forages is only good for long term feeding. It is recommended that rabbits be fed for a minimum of eight to ten weeks and above to attain good quality of the carcass.



LITERATURE CITED

- ALCAUSIN, J. Effect of cassava and sweet potato meal on the carcass yield of rabbits. BS. Thesis. Benguet State University, La Trinidad, Benguet. May 2010.
- BADE, D. and J. BLAKELY. 1994. The Science of Animal Husbandry. Sixth Edition. P.617.
- BOWMAN, A.M. et al. 1998. Evaluation of perennial peanut (*Arachis spp*) as forage on the new South Wales North Coast. *Tropical grasslands*, 32,252-258.
- COMA, V. 2000. Feeding Guidelines for Meat and Pig Progress: 16-17. Retrieved from Fed with Varying Levels of Okara # (soybean pulp). Undergraduate Thesis. Carcass Yield and Quality of Cobb and Hubbard Broilers.
- DANG-AY, J. 2003. Effect of Probiotic Products with Lacto Bacilli on Growth Performance and Carcass Yield of Rabbits. BS Thesis. Benguet State University, La Trinidad, Benguet.
- DEVENDRA, C. 1988. Forage Supplements: Nutritional Significance and Utilization for Draught, Meat and Milk Production in Buffaloes. *Indian Council of Agricultural Research* 2:409-423.
- LUKEFAHR S.D. and P. R. CHEEKE. 1990. Rabbit Project Planning Strategies for Developing Countries. *Livestock Research for Rural Development*. 2 <http://www.lrrd.org/lrrd2/3/cheeke1.htm>
- GERPACIO, A.L. and L. S. CASTILLO. 1979. Nutrient Composition of some Philippine Feedstuffs. Department of Animal Science, University of the Philippines, Los Banos. P. 17. Published by the extension division Department of Animal Science, College of Agriculture U.P. at Los Banos Philippines.
- GILLESPIE, J. 1997. *Modern Livestock and Poultry Production*, Fifth Edition. Pp881-882.
- HAMMOND, A. C., L. J. PADGETT, and M. J. WILLIAMS. 1992. Relative feeding value of rhizome perennial peanut hay as a supplement to bahiagrass hay for wintering beefs cows and heifers. *Prof. Anim. Sci.* 8:48-54.
- JULIO, J. G. 2001. Effect of Zeolites on the Performance of New Zealand White x Chinchilla Rabbits. Benguet State University, La Trinidad, Benguet.
- MEARS, P.T. and L.R. HUMPHREYS. 1974. Nitrogen response and stocking rate of *Pennisetum clandestinum* pastures 1. Pasture nitrogen and concentration, distribution of dry matter and botanical composition. *Journal of Agricultural Science Cambridge*, P. 83



- NORMAN, W. 1977. Elementmt of Food technology. The AVI Publishing Company Incorporated Westport Connecticut. Pp.314-315.
- POND, K. and W. POND. 2000. Introduction to Animal Science. John Wiley & Sons, Inc. All rights reserved. Printed in the United States of America. P. 559-560.
- TEMPLETON, G. S. 1968. Domestic Rabbit Production. The Interstate Printers and Publishers.USA. Pp.14,198-200.
- WARREN, D.M. 2002. Small Animal Care and Management. Second Edition. Delmar Thomson Learning Incorporated. USA. Pp. 151-152.

