BIBLIOGRAPHY

BANGLAY, KENNEDY P. APRIL 2012. The Carcass Yield of Rabbit as Affected by Different Dietary Weeds.Benguet State University, La Trinidad, Benguet. Adviser: Jones K. Feleciano, PhD

ABSTRACT

The study was conducted at Benguet State University Meat Laboratory on February 15, 2012 to determine the carcass yield of rabbit as affected by different dietary weeds on the slaughter weight, carcass weight, dressing percentage and on the weight of the lean, bone, viscera and to the gastrointestinal tract.

A total of six rabbit (New Zealand White) about 1.8 kilogram each, were assigned to three treatments following the Completely Randomize Design. Each treatment had two replications with one rabbit per replicate. The three treatments were as follows: T1-black nightshade, T2-hairy bitter cress, T3-wild radish.

Results showed that there were no significant differences in all the parameters used namely carcass weight, dressing percentage and on the weight of lean, bone, viscera and to the gastrointestinal tract. The rabbits had an overall mean carcass weight of 0.89 kg; carcass length of 33.57 cm; dressing percentage of 49.73%; percent viscera weight of 28.89%; percent GIT weight of 23.16% (full) and 10.63% (empty); percent lean of 74.15% and percent bone of 26.95%.

Based on the study black nightshade, hairy bitter cress and wild radish may be used as main forage feed for rabbits.

TABLES OF CONTENTS

INTRODUCTION

Any type of rabbit exhibiting the commercial body type can be slaughtered for meat. Young rabbit flesh is tender, fine grained, and a bright pearly pink color. These rabbits may be cooked in much the same way as young poultry. The mature rabbit flesh is firm and coarse grained, and the muscle fiber is slightly darker in color and less tender. The fat may be creamier in color than that of a fryer or young rabbit. The meat of larger rabbits may be tougher so the best methods of cooking are braising or stewing.

Domesticated rabbit tastes like chicken and it can be used in most ways chicken meat is used but its leaner and lesser cholesterol level than chicken. The size of the carcass, the fine quality of the meat, and the wide range in methods for preparation make it an excellent and economical meat for use in any season of the year.

Rabbit meat is one of the most preferred delicacies not only in local industries but also international but due to high cost of feeds many farmer make use cheaper material that can be found locally. Rabbit raisers keep on trying different alternative feeds and supplement to meet the requirements to produce excellent quality of carcass for their rabbit.

When animals are fed with forages, growth rate is slower, animal is older at slaughter, the carcass has less fat and meat are leaner, the meat is darker and tender. Forage fed animals is more nutritious and delicious meat than those fed with commercial feeds.

To produce good quality of meat, it is best to use edible forage as feed because this ration doesn't contain any chemical that harm our health.

Rabbit's meat can be a great way to help people to have alternative source of income either by selling them to local meat markets or by adding them into their own diet. It helps those people who needs double amount of protein for their growth and to those obese people who needs small amount of fats for their diet.

The study was conducted to determine the carcass yield of rabbit as affected by different dietary weeds if there will be significant differences among treatments especially it aimed to:

1. determine the carcass weight, carcass length and dressing percentage.
2. determine the weight of viscera, gastrointestinal tract and the
3. percent lean and bone.

The study was conducted at the Meat Laboratory under the Department of Animal Science, College of Agriculture, Benguet State University, La Trinidad, Benguet on February 15, 2012.

REVIEW OF LITERATURE

The New Zealand White weighs 10-12 pounds at maturity which occurs 6-8 months of age. At 8 weeks rabbit will weigh 4 pounds or more live weight and dress out at 2-2.5 pounds. Best rabbit in the world for food because it's plenty of meat on a little bone (Bennette, 1984).

Rabbit meat is highly digestible, tasty, low-calorie food, often recommended by nutritionists over the meats. Moreover, large rabbit industry integration is becoming more important and the development of the rabbit meat production is forcing processing plants to improve slaughter capacities by using high-speed and more automated slaughter lines (World Rabbit Science, 2004).

The office of home economics, state relations of the United State Department of Agriculture has made extensive test and have stated that domestic rabbit meat is the most nutritious meat known to man. Rabbit has 795 calories per pound, Chicken 810, Veal 840, Turkey 1190, Lamb 1420, Beef 1440, Pork 2050.Rabbits will produce 6 pounds of meat on the same feed and water as a cow will produce 1 pound of meat on the same feed and water (USDA, 2008).

Compared with the meat of the species, rabbit meat is richer in proteins and certain vitamins and minerals. However, it has less fat. Rabbit fat contains less stearic and oleic acids than other species and higher proportions of the essential polyunsaturated linolenic and fatty acids (FAO, 2009).

Cholesterol level in rabbit meat is much lower than chicken, turkey, beef, pork (Alabama A and M University, 1989).

The dressing percentage range from 60.3%- 63.3% of the Dutch were greater than those of the New Zealand with a range of 55.9% - 59.2%, indicating breed variations. The percentage also increased between 8 (55.9%) to 13 (59.2%) weeks of age, but declined slightly in the mature rabbits. Normally, the dressing percentage increases with age until rabbits approach maturity (MSUCARES, 2010).

Wild Radishes (*Raphanusraphanistrum*) are rich in ascorbic acid, folic acid, and potassium. They are a good source of vitamin B6, riboflavin, magnesium, copper, and calcium. One cup of sliced red radish bulbs provides approximately 20 calories, largely from carbohydrates (Wikipedia, 2011).

Black nightshades (*Solanumnigrum*L.) leaves and tender shoots are widely used as vegetables throughout the world and have provided a food source since early times. The leaves can provide appreciable amounts of protein and amino acids, minerals including calcium, iron and phosphorus, vitamins A and C, fat and fibre, as well as appreciable amounts of methionine, an amino acid scarce in other vegetables (Edmonds and Chweya, 1997).

Hairy Bitter cress (*Cardaminehirsuta* L.) is a petty annual herb colored rich green. It is very abundant, and easy to weed-up, but nearly impossible to get rid of totally. It is also a delicious, nutritious wild edible, reminiscent in flavor to watercress (Jacobson, 2001).

MATERIALS AND METHOD

The materials that were use in the study were the following; Six 1.8 kilograms New Zealand White Breed rabbits about 115 days of age, kitchen knife,chopping board, containers, weighing scales, measuring tape, cleaning tools, digital camera, record book and ball pen.

All rabbits were the same in weight. Two rabbits were taken from each of the three treatments from the previous study.Two rabbits from each treatment were slaughtered to represent two replications.The rabbits from the previous growth study utilized the following treatments;

T_1- Black Nightshade

T_2- Hairy Bitter Cress

T_3- Wild Radish

The rabbits having a body weight of 1.8 kilograms were slaughtered (Figure 1). Before the animals were slaughtered, they were not offered any amount of forage. During slaughtering, the jugular vein was cut with a sharp knife. To allow complete bleeding the head was immediately removed across the back of the head down to the tip of the jaw. The feet were removed and then the skin was cut at the hock joints of the legs across the lower part of the body. The tail was removed and the skin was pulled down and forward from the body. A slit was made from the lower part of the abdomen near the anus to the mid-point of the lowest rib taking care not to puncture the intestine. The internal organs and other gut contents were removed and weighed during evisceration (Figure 2). The dressed carcass was weighed (Figure 3). The organ weights were taken and expressed as

percentage of the dressed weight. Thecarcass was wash with clean water to remove hair and any other soil or debris. The length of the dressed carcass was measured from the atlas vertebra to the first bone of the tail (Figure 4). The lean from each carcass was removed then weighed and expressed as percentage of carcass weight (Figure 5). The bone without flesh was weighed and expressed as percentage of bone (Figure 6).

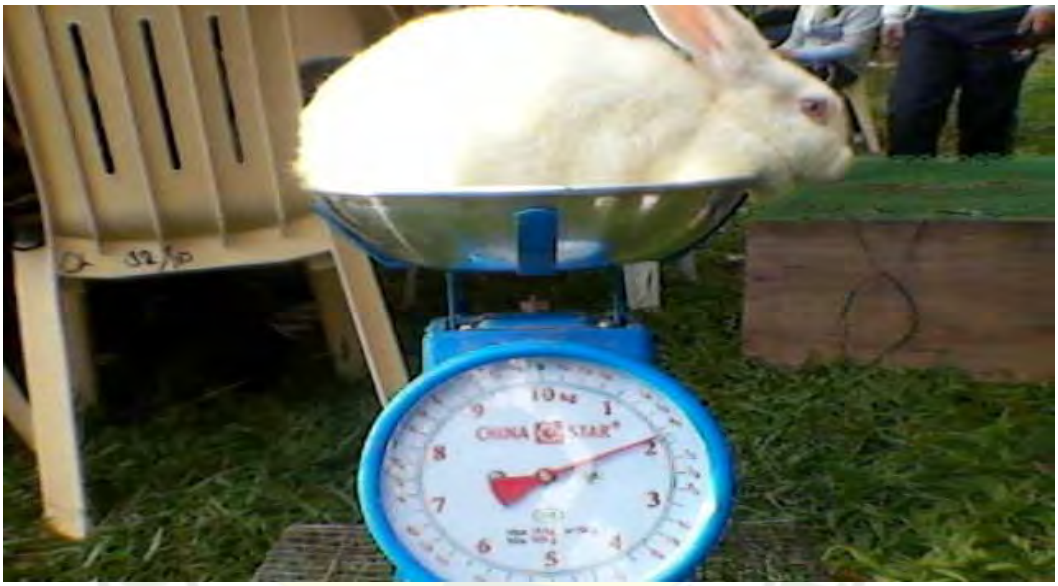

Figure 1.Rabbit being weighed before slaughter

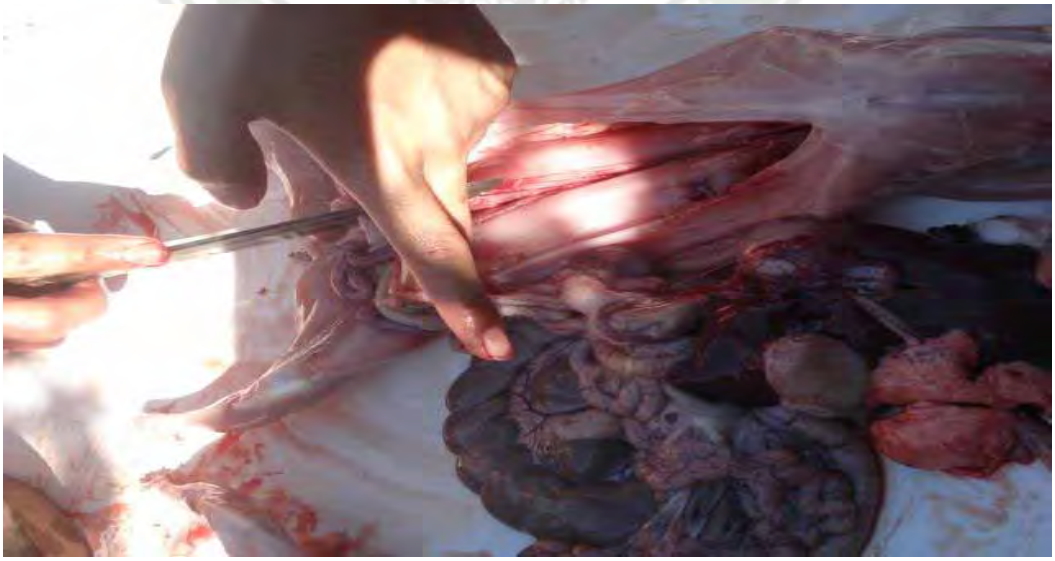

Figure 2. Evisceration of rabbit

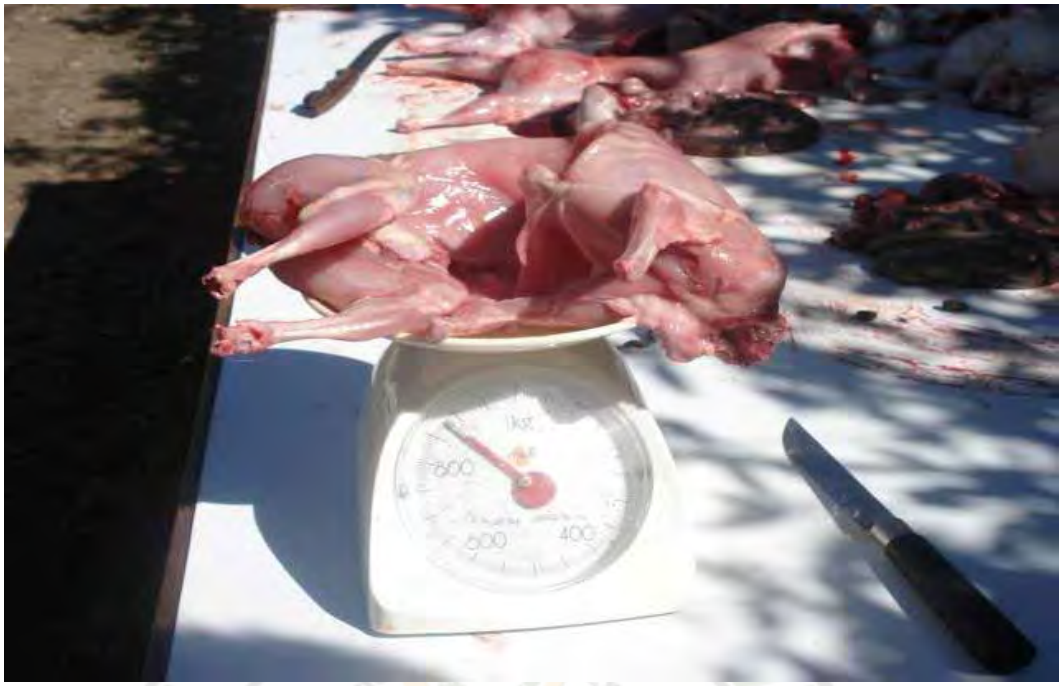

Figure 3. Weighing of carcass from the slaughtered rabbit

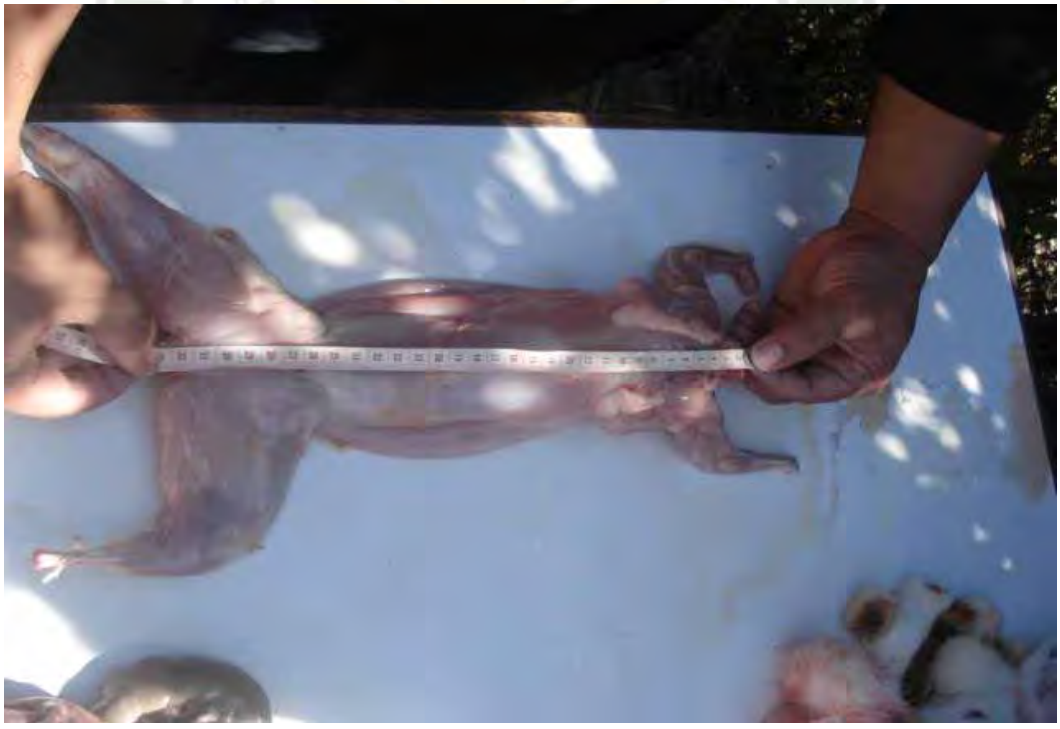

Figure 4. Measuring carcass from the slaughtered rabbit

Figure 5. Weighing of lean from the slaughtered rabbit

Figure 6. Weighing of bone from the slaughtered rabbit

Data Gathered:

1.Slaughter weight (kg). This refers to the weight of the live rabbit before slaughter.

2. Carcass weight (kg). The weight of the carcass with the head and viscera removed.

3. Carcass length (cm). This refers to the length of the carcass from the atlas vertebra to the first bone of the tail.

4.Dressing percentage. This was obtained by dividing the carcass weight by the slaughtered weight and multiplied by 100.

5. Weight of viscera (kg). This refers to the weight of the internal organs removed.

6. Weight of GIT (Full) (kg). This refers to the weight of the gastrointestinal tract which includes stomach and intestinal content.

7. Weight of cleaned GIT (Empty) (kg). This refers to the weight of the gastrointestinal tract after has been emptied.

8. Weight of lean (kg). This refers to the weight of all the lean separated from each carcass after deboning.

9. Weight of bone (kg). This refers to the weight of the bone of each carcass after deboning.

10. Percentages of viscera. This was obtained by dividing the viscera by the slaughtered weight and multiplied by 100.

11. Percentages of GIT. This was obtained by dividing the GIT by the slaughtered weight and multiplied by 100.

12. Percentages of cleaned GIT. This was obtained by dividing the cleaned GIT by the slaughtered weight and multiplied by 100.

13. Percentagesof lean. This was obtained by dividing the lean by carcass weight and multiplied by 100.

14. Percentages of bone. This was obtained by dividing the bone by the carcass weight and multiplied by 100.

Data Analysis

All the data on the carcass of rabbits were subjected to analysis of variance for Completely Randomized Design. Treatment means were compared by the least significant difference.

RESULT AND DISCUSION

Slaughter and Carcass weights
and Dressing Percentage

Table 1 shows slaughter and carcass weights and dressing percentage of 115 days old rabbits fed with different dietary treatments. Rabbits were dressed after 15 hours of fast. Statistical analysis shows that there were no significant differences in terms of carcass weight and dressing percentage due to the similarities on the nutrient content of the weeds. It shows that all the slaughtered rabbits in terms of weight were actually the same.

Table shows that the carcass weight of the experimental rabbits fed with Hairy Bitter Cress gave themean weight of 0.92 kg. Those fed with Black Nightshade had a mean weight of 0.90 kg. Thecarcassweight produced by rabbits given Wild radish was 0.87 kg.

Dressing percentage range from 48.4% - 51.2% which is higher than the dressing percentage reported by Alcausin (2010) which ranged from 46.2% - 47.31% and lower than Danga-ay (2003) which ranged from 50% - 53%.

Table 1. Slaughter weight,carcass weight and dressing percentage

TREATMENT	SLAUGHTER WEIGHT (kg)	CARCASS WEIGHT (kg)	DRESSING PERCENTAGE (%)
Black Nightshade	1.8	0.90	50.0
Hairy Bitter Cress	1.8	0.92	51.2
Wild radish	1.8	0.87	48.4

Carcass Length

Table 2 shows the carcass length of the rabbits as affected by different treatments. Statistical analysis shows no significant differences in the length of the dress carcass among the treatment. Carcass lengths of rabbits fed with black Nightshade have a mean length of 33.9 cm. Those fed with Hairy Bitter Cress gave 33.5 cm while the rabbit fed with Wild Radish have a carcass length of 33.25 cm.

Percentage of Viscera

Table 3 shows the weight of viscera as percent slaughter weight as affected by different treatments. Statistical analysis shows that there were no significant differences in terms of weight of viscera as percent of the live weight. Rabbit fed with Black Nightshade have a percent of 29.59. Wild Radish has a percentage of 28.89 while Hairy Bitter Cress haspercentage of 28.20.

Table 2.Carcass length of the rabbits

TREATMENT	CARCASS LENGTH (cm)
Black Nightshade	33.90
Hairy Bitter Cress	33.50
Wild radish	33.25

Table 3.Percent weight of viscera in relation to live weight

TEATMENT	VISCERA: LIVE WEIGHT RATIO
Black Nightshade	29.59
Hairy Bitter Cress	28.20
Wild radish	28.89

Percentage of GIT (Full and Empty)

Table 4 shows the mean weight of full and cleaned GIT as percent of slaughter weight as affected by different treatments. Statistical analysis shows that there were no significant differences in terms of percent GIT. TheGIT of Black Nightshade as percent of the live weight was 24.19 %, 23.47 % for Wild Radish and 21.81 % for Hairy Bitter Cress.

In terms of cleaned GIT statistical analysis shows no significant differences. Black Nightshade has a percentage of 10.7 kg; Wild Radish 10.84 % and 10.34 % for Hairy Bitter Cress.

Percent of Lean and Bone

Table 5 shows the mean weights of bones and leans express as percent carcass weight as affected by different treatments.

Table shows that there were no significant differences in terms of bone expressed as percent carcass weight. Percentage of bone rages from 24.61% - 28.4%.

Table shows that there was no significant difference in terms of lean expressed as percent carcass weight. Percentage lean ranges from 72.72% - 75.56%.

Table 4. Percent GIT weight (Full and Empty) in relation to the live weight

	MEAN	
TREATMENT	FULL GIT (%)	EMPTY GIT (%)
Black Nightshade	24.19	10.70
Hairy Bitter Cress	21.81	10.34
Wild radish	23.47	10.84

In the study of Alcausin (2010), weight of lean expressed as carcass weight ranged from 71.18% - 75.58%.

Table 5.Percent bone and lean of dressed rabbits

TREATMENT	% BONE	% LEAN
Black Nightshade	27.85	74.16
Hairy Bitter Cress	28.40	72.72
Wild radish	24.61	75.56

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

This study on the carcass yield of rabbit as affected by different kinds of weeds was conducted at the Meat Laboratory under the Department of Animal Science, College of Agriculture, La Trinidad, Benguet. This study aimed to determine the carcass weight, carcass length, dressing percentage, weight of viscera, gastrointestinal tract, percent lean and bone. Six 1.8 kg New Zealand White Breed rabbits were used in the study. The rabbits were distributed into three treatments following the completely Randomized Design (CRD).

The different treatments used were as the follows: T1- Black Nightshade, T2- Hairy Bitter Cress, T3- Wild radish.

The rabbits used in the study were the same in weight. Before they were slaughtered they are not offer any amount of forage. The result found that there were no significant differences in terms of carcass weight, carcass length, dressing percentage, weight of viscera, weight of GIT and cleaned GIT, percentage weight of lean and bone because of the similarities in the nutrient content of the weeds that makes them not significant.

Conclusion

Based on the result of the study, it is concluded that rabbits fed with black nightshade, hairy bitter cress and wild radish have no significant differences in terms of carcass yield due to similarities in the nutrient content of the weeds that makes them not significant.

Recommendation

Black nightshade, hairy bitter cress and wild radish may be use as main feed on forage for rabbits as its effect on the carcass yield. As carcass weight concern the hairy bitter cress is the best treatment in these three weeds.

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APPENDICES

Appendix Table 1. Carcass weight of the rabbits (kg)

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	0.88	0.92	1.80	0.90
T_2	0.90	0.93	1.83	0.92
T_3	0.85	0.89	1.74	0.87
GRAND TOTAL			5.37	
GRAND MEAN				0.89

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	0.0021	0.001050	1.536	9.552	130.8165
Error	3	0.0020	0.0006833			
TOTAL	5	0.0042				

^{ns}=Not Significant CV=2.92%

Appendix Table 2. Carcass length (cm)

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	34.8	33.0	67.8	33.9
T_2	34.5	32.5	67.0	33.5
T_3	33.5	33.0	66.5	33.3
GRAND TOTAL			201.3	
GRAND MEAN				33.57

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	0.4300	0.215000	1.1722	9.5521	30.8165
Error	3	3.7450	1.2483333			
TOTAL	5	0.0042				

^{ns}=Not Significant CV=3.33%

Appendix Table 3. Dressing percentage

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	48.89	51.12	100.01	50.01
T_2	50.00	51.67	101.67	50.84
T_3	47.23	49.45	96.68	48.34
GRAND TOTAL			298.36	
GRAND MEAN				49.73

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	0.4500	0.215000	1.1722	9.5521	30.8165
Error	3	3.7450	1.2483333			
TOTAL	5	0.0042				

^{ns}=Not Significant CV=3.33%

Appendix Table 4. Percentage of viscera

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	30.56	28.62	59.18	29.59
T_2	27.78	28.62	56.40	28.20
T_3	30.00	27.78	57.78	28.89
GRAND TOTAL			173.36	
GRAND MEAN				28.89

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	1.9321	0.966067	0.6168	9.5521	30.8165
Error	3	4.6988	1.5662667			
TOTAL	5	12.8025				

^{ns}=Not Significant CV=4.33%

Appendix Table 5. Percentage of GIT (Full)

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	25.00	23.39	48.39	24.19
T_2	21.67	21.95	43.62	21.81
T_3	25.00	21.95	46.95	23.47
GRAND TOTAL			138.95	
GRAND MEAN				23.16

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	5.5859	2.992950	1.4998	9.5521	30.8165
Error	3	5.5865	1.9955000			
TOTAL	5	12.8025				

^{ns}=Not Significant CV=6.10%

Appendix Table 6. Percentage of the emptied GIT (kg)

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	10.84	10.56	21.40	10.70
T_2	10.28	10.39	20.67	10.34
T_3	11.12	10.56	21.68	10.84
GRAND TOTAL			63.75	
GRAND MEAN				10.63

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	0.2719	0.135950	2.0186	9.5521	30.8165
Error	3	2.2020	0.0673500			
TOTAL	5	0.4739				

^{ns}=Not Significant CV=2.44%

Appendix Table 7. Percentage of lean

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	73.87	74.45	148.32	74.16
T_2	73.34	72.10	145.44	72.72
T_3	75.29	75.84	151.13	75.56
GRAND TOTAL			444.89	
GRAND MEAN				74.15

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	0.2084	0.104217	0.0897	9.5521	30.8165
Error	3	3.4841	1.1613500			
TOTAL	5	3.6925				

^{ns}=Not Significant CV=2.93%

Appendix Table 8. Percentage of bone

TREATMENTS	REPLICATION I	REPLICATION II	TOTAL	MEAN
T_1	27.28	28.41	55.69	27.85
T_2	27.23	29.57	56.80	28.40
T_3	25.06	24.16	49.22	24.61
GRAND TOTAL			161.71	
GRAND MEAN				26.95

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN OF SQUARES	COMPUTED F	TABULAR F 5%	TABULAR F 1%
Treatment	2	6.4945	3.247267	3.0948	9.5521	30.8165
Error	3	3.1478	1.0492500			
TOTAL	5	9.6423				

^{ns}=Not Significant CV=7.61%