

## Evaluation of the Carcass Yield of Rabbits in Farms in Southern Benin Carcass Yield of Rabbit

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**Abstract:** The carcass yield of 60 rabbits (30♂ and 30♀) with an average age of 105 days were evaluated in December 2012 at the breeding farm "CeTAVI" located in the town of Abomey-calavi Southeast of Benin. The animals are housed in groups of six in wire cages with 80 by 40 cm floor size. They are all from local strain parents. The feed consisting of different types of roughage and concentrate presented in floury form is served at will. Drinking water is served without restriction to all animals. The slaughter of animals took place early in the morning after 12 h of fasting. The rabbits were bled after being stunned with a wooden club at the occipital region. The average live weight at slaughter was 1503.28 and 1450.96 g, respectively for males and females with no significant weight difference ( $p>0.05$ ) between the 2 sexes. The average weights of hot carcasses and carcass average yields were, respectively 890.64 g and 61.34% for males and 928.90 g and 61.74% for females. No significant difference ( $p>0.05$ ) was observed between individuals from different litter size or parturition ranks.

**Key words:** Rabbit, slaughter, carcass yield, benin, local strain parents, animals

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### INTRODUCTION

The rabbit (*Oryctolagus cuniculus*) is one of the animal species mainly raised for their meat. It has an exceptional reproductive performance that increases its carcass potentiality. Indeed, a four months old young doe is able to obtain up to eight young rabbits (Coudert *et al.*, 1985) on average every 44 days (Ouyed, 2009)  $>8$  L/year. However, rabbits should be placed under farming conditions enabling them to fully express their production and reproduction potential. The contribution of rabbit breeding to the supply of meat products for human consumption in Benin has increased remarkably in recent years. According to statistical data from FAO (2000) and the Beninese Association of Cuniculteurs the number of livestock farming increased from 400 in 1988 to 1,350 in 2007 with a strong predominance of family farming. The success of rabbit breeding in Benin, apart from its ability to provide high yielding animal proteins is due to the fact that rabbit being an omnivorous species has a strictly herbivorous diet. The animal is indeed capable to valorize

efficiently forages that do not enter directly into the human diet. The production of rabbit meat becomes an interesting opportunity for farmers who do not have grain surpluses. This production is passed, according to from 4 tons in 1993-240 tons in 2005, representing an average annual increase of  $>8\%$ . It is increasingly supplied by specialist farms of medium-sized and commercial type, making slaughter at their production sites. The carcass yields obtained after slaughter are generally a reflection of the breeding practices. Jehl (2000) notes that among the factors having a moderate influence on the quality of the rabbit carcass there are the effects of season and temperature and the effect of the breeding methods. The advantage of evaluating the carcass yield of rabbits is according to Renouf *et al.* (2007) in the fact that some slaughterhouses take account of carcass yield in the rabbit payment. The reasearchers mentioned that these practices could develop in the coming years and that it is therefore important to know the factors of variation in carcass yields such as age, slaughter weight, genetics, conditions and practices of breeding, feeding as well as

practice of slaughter. Similarly, Pertusa *et al.* (2014) mentioned that some slaughterhouses would consider indexing the purchase price of kg live weight of the rabbit basing on carcass yield in order to prevent excessive economic impact. Thus, the improvement of carcass quality through the modern practices of breeding becomes a major stake for the breeders of rabbit. The objective of this study is therefore to evaluate the carcass yields of rabbits under the conditions of breeding in the south of Benin in order to appreciate the carcass quality and identify possibly weak points in the technical conduct put in place.

## MATERIALS AND METHODS

**Study environment:** The study was carried out at the Technical Center for Poultry Farming and Breeding of Small Animals (CeTAVI) located in the commune of Abomey-calavi in the south of Benin. The climate of the subequatorial type is characterized by two dry seasons and two rainy seasons. The average annual rainfall is about 1200 mm of which 700-800 mm for the first rainy season and 400-500 mm for the second rainy season. The average monthly temperatures vary between 27 and 31 °C. The relative humidity of the air varies between 65% (January-March) and 95% (June-July). The absolute maxima reached are 100% and are recorded during the rainy months. Absolute minima revolve around 20% and correspond to the great dry season (harmattan period).

**Period and duration of study:** The study was conducted over a period of 4 months from 22 August to 20 December, 2012, corresponding to the end of the short rainy season and the beginning of the dry season. The herbaceous cover at this time of year became less and less luxuriant and offered less abundant forage availability.

**Animal material and experimental conduct:** The animal material used in the present study is composed of 60 young rabbits (30♂ and 30♀) aged on average 105 days. The animals all of local strain are housed by groups of 6 in cages of dimensions 80 on 40 cm of floor. They come from 11 mothers of which 4 primiparous and 7 multiparous. The feed of animals is made up of coarse fodder and food concentrate served at will in mealy form. Drinking water is made available without restriction. The slaughter of the animals took place early in the morning after 12 h of fasting. The rabbits were bled by section of the carotid artery after being stunned by a cudgel struck at the level of the occipital region. The carcass is then suspended

head down for a few minutes to promote flowing blood. After slaughter, the rabbits were skinned and eviscerated. The posterior and anterior hind legs as well as the head were separated from the rest of the carcass.

**Measuring and collecting data:** The live weights of the animals at slaughter and the weights of the empty carcass were measured using a scale of 5 kg±5 g of these two measurements, carcass yield was determined by calculation according to the formula: Commercial carcass weight/Live weight before slaughter)×100.

**Data analysis:** The collected data were analyzed using SAS Software Version 9.2 (Statistical Analysis System, 9.2). The dependent variables included: live weight at slaughter, weight of the hot empty carcass and the carcass yield of the rabbits. These variables were previously subjected to the normal distribution test to ensure that they were consistent with an analysis of variance that was performed using the Proc GLM (General Linear Model) procedure. The statistical model used for the analysis of variances was as follows:

$$Y_{ijk} = \mu + A_i + B_j + e_{ijk}$$

Where:

$Y_{ij}$  = Observed value of the studied dependent variable  
Y

$\mu$  = General mean of the dependent variable Y

$A_i$  = Fixed effect of sex (i = 1, 2); 1 = male; 2 = female

$B_j$  = Fixed effect of the parturition rank (k = 1, 2);  
1 = primiparous; 2 = multiparous

$e_{ijk}$  = Variance residue

## RESULTS

Table 1 shows the carcass performances of rabbit by gender and maternal parturition rank. With 1503.28 g the average live weight at slaughter of male rabbits exceeded that of females by 3.48%. The average weight of the warm empty carcass was 890.64 and 928.9 g, respectively for male and female rabbits. That of the carcass yield was 61.34 and 61.74%, respectively. The slight superiority noted in female rabbits was not sufficient to induce a significant difference.

The parturition rank of the rabbits did not have any significant influence on the different recorded carcass performance. Rabbits born to primiparous mothers weighed an average of 1470.39 g at slaughter versus 1507.91 g in those born to multiparous mothers. The empty warm carcass weight was an average 2.32% better in rabbits born from multiparous mothers than those from primiparous mothers with 906.07 g. Carcass yields were

Table 1: Carcass performances of rabbits according to, gender and maternal parturition rank

Variation criterion	Carcass performances		
	Live weight at slaughter (g)	Warm empty carcass weight (g)	Carcass yield (%)
<b>Sex</b>			
Male	1503.28 <sup>a</sup> ±171	890.64 <sup>a</sup> ±105.05	61.34 <sup>a</sup> ±2.61
Female	1450.96 <sup>a</sup> ±150.07	928.90 <sup>a</sup> ±117.62	61.74 <sup>a</sup> ±2.32
<b>Rank of parturition</b>			
Primiparous	1470.39 <sup>a</sup> ±164.48	906.07 <sup>a</sup> ±115.57	61.56 <sup>a</sup> ±2.57
Multiparous	1507.91 <sup>a</sup> ±153.40	927.08 <sup>a</sup> ±100.39	61.47 <sup>a</sup> ±2.01

<sup>a</sup>The values of the same column, within the same variation criterion with the same exponent letter are not significantly different at the 5% threshold

61.56 and 61.47%, respectively for rabbits born from primiparous mothers and those born from multiparous mothers.

## DISCUSSION

Rabbits slaughtered at 15 weeks of age with an average live weight of about 1.5 kg a empty warm carcass weight of just over 900 g and a carcass yield of more than 61% presented satisfactory carcass characteristics compared to those obtained by Ouhayoun (1989) in rabbits slaughtered between 10 and 11 weeks of age and weighing on average 2.3 kg at slaughter with a commercial carcass of 1.3 kg, i.e., 56.52%. Rabbits from different genetic types and aged 9 weeks in the study conducted by Ouyed (2009) yielded a carcass yield of between 52.73 and 54.35%. Obtained a carcass yield of just under 58% in 15-week-old rabbits raised in biologic breeding, compared with 55% in 10 weeks old rabbits raised in conventional mode. It emerges from all the above that the age at slaughter of rabbits is determining in carcass yield variation as Renouf *et al.* (2007) affirmed. Moreover, it appears from the results obtained in this study that the lightest rabbits at slaughter, mainly females and those born from primiparous mothers have the highest carcass yield but no significant. This is probably related to the proportion of the parts removed including the skin, head, viscera and feet the total weight of which would be unfavorable to the yield of animals heavier at slaughter. But, according to Jehl (2000) the yield would be better for the heavier animals of the same age and for the oldest of the same weight. This is confirmed by Varewyck *et al.* (1982) who observed on the rabbit of race "Blanc de Termonde" that at the same age, the heaviest animals showed a higher slaughter yield. The positive effect of the weight of animals at slaughter on their carcass yield thus seems to be established. However, it is not excluded that the weight advantage of the carcass yield noted in older subjects may be due to excessive fat deposition. Indeed, according to Combes, the external, inter and intramuscular lipid deposits would increase as the animal gets older. Although, rabbit meat is recognized to be moderately lean (Emna, 2010) particularly in relation to intramuscular fat,

excessive feed in energy component, given at an advanced age, leads inexorably to an accumulation of fat that manifests on carcass yield.

The effect of sex on carcass yield was not sufficiently apparent in this study. Both male and female rabbits showed almost identical yields. This was confirmed by Varewyck *et al.* (1982) who obtained carcass yields of 57.55 and 57.71%, respectively for male and female rabbits of race "Blanc de Termonde" slaughtered at 12 weeks of age and weighing between 2 and 2.5 kg. Female rabbits, despite their slaughter weight of 3.48% lower than that of male rabbits had a carcass yield of 0.65% higher. In addition to the non-marketable parts of the carcass that would be heavier in male rabbits, the tendency of female rabbits to accumulate more fat than male rabbits may partly justify the results obtained.

## CONCLUSION

The evaluation of the carcass yields of rabbits in the farms in the south of Benin has made it possible to appreciate the carcass quality of slaughtered animals. The choice of breeders to slaughter the rabbits at the age of 15 weeks was probably decisive in achieving a carcass yield above 60% which may be satisfactory. Most of the younger slaughtered rabbits in different trials showed significantly lower carcass yields. Whether the rabbits were male or female, originating from a primiparous or multiparous mother did not have any importance on the carcass yield.

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