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A Low Cost Mechanism for Restraint and Handling of the Collared Peccary (*Tayassu tajacu; Pecari tajacu*), applied in Kourou, French Guiana

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Abstract

In order to reduce production costs attached to peccary farming, a low cost mechanism for restraint and handling was tested. Eighteen (18) collared peccaries were handled and restrained by three (3) personnel of the Kourou Experimental Station in French Guiana. Seven (7) wooden transport cages and one (1) restraining cage were used to carry out the procedure. In approximately three (3) hours all of the animals were identified with ear tags, weighed and any general maintenance and grooming applied. The methodology which is cost effective on labour, time, tranquilliser, space utilisation and functionality, can be used by farmers desirous of pursuing peccary farming.

Introduction

Extensive Peccary farming has been firmly established for years in Latin America, and is rapidly developing in other Neo-tropical countries. The costs attached to this farming system can be high, so low cost mechanisms can be useful in alleviating them. Handling, as part of peccary production is also of particular concern from a security standpoint, when one considers the animals' well-known aggressive comportments. The problem is one of achieving these goals in a cost-effective manner. The method described hereunder is an attempt to address this concern, and, as an example, the production system under which the method was tested is a semi-extensive one.

Materials and Methods

Eighteen (18) collared peccaries were stocked in a 25m x 25m enclosure located at the Soucoumou Experimental Station in Kourou, French Guiana. Three employees (a "Technicienne, Faune Sauvage" (TFS), providing technical guidance for the CAG-UWI project entitled *"Connaissance de la Faune Sauvage de la Guyane: Possibilités de Gestion et de Domestication"*; an "Agent, Faune Sauvage" (AFS), her Assistant; and a "CIA", one of the General Farm Assistants) of the "Service d'Utilité Agricole de Technologie et d'Innovation (SUA-TI), Chambre d'Agriculture de la Guyane (CAG)", entered the enclosure for the purposes of manipulating the animals.

Expanding on the restraint and handling technology used in Brazil by Nogueira (1999) and Neto (personal communication, 2003), the following manipulation steps were carried out:

a) the animals were enclosed in a small corral located within the enclosure; this being done to protect the personnel and to reduce stress on the animals;
b) seven (7) transport cages were assembled to form a corridor, and the restraining cage was placed at the end of this corridor;
c) the first set of animals were run through the corridor where they were held, immediately preceding their manipulation. The first animal went directly into the restraining cage;
d) the CIA then immobilised the animal in the restraining cage by pressing it between the side of the cage and the plywood sheet mounted to the handles;
e) the AFS next administered 1.5ml of the tranquiliser Zoletil 100®, i.m. to the animal at the level of its thigh using a 5ml syringe;
f) the animal was then released for the tranquiliser to take effect, while the animal next in line entered the restraining cage where steps (d) and (e) were repeated;
g) once the animal fell asleep, it was positioned on its side on the scale, using the pig lasso to secure its mouth shut. It was then weighed in this position;
h) length and width measurements, were taken by the AFS with a wooden folding tape measure. Measurements of the animal's length spanned the tip of the snout to the rump, while the width measurements began and ended at the top of the back to the bottom of the stomach respectively. Ear-tags on which the animal's identification number was written with a marker were fitted into the appropriate space

in the ear-tag punch and the male and female tags rejoined by piercing the animal's ear. The puncture on the newly-tagged animal was disinfected with AluSpray®, to reduce any possible incidence of infection (Fig. 1).

Figure 1: Disinfecting a freshly ear tagged, tranquilised Collared Peccary using the pig lasso for added security. (Source Author, 2004)

Other general maintenance and grooming activities (e.g. nail clipping), were also performed on the animal. All data were noted by the TFS on a datasheet developed for this purpose, and were then inputted into the Microsoft Excel programme;

i) after the completed operation, the sleeping animal was placed in a shaded recovery area;
j) different aspects of the operation were photographed by the TFS.

Results and Discussion

The entire operation lasted approximately 3 hours, and all 18 animals were manipulated in the described manner. An approximate completion time per 'sub-activity' is as follows: (a) weighing – ~5-7 minutes (time allotted for accurate positioning of the animal); (b) measurements – 5 minutes; (c) ear tagging – 1-2 minutes; and (d) disinfecting < 1 minute. Some 15 minutes/animal were used for each manipulation therefore. In a previous attempt on the station some 15-20 minutes were required to administer the tranquiliser by gun. A maximum of 3 persons were used, so that the manpower demand is not particularly high. In other commonly practised methods, upwards of 4 persons are needed. Other advantages include its cost-effectiveness on space – as it can be quickly dismantled and reassembled, as needed so that the enclosure need not have the corridor as a permanent fixture; and functionality – as the cages can also be used to transport the animals. The proximity of this method has also effectively decreased the quantity of tranquiliser used during one manipulation operation (Fig. 2), compared to using a tranquiliser gun to administer it.

Figure 2: A demonstration of an administration of the tranquiliser i.m., to an restrained Collared Peccary. (Source, Author, 2004)

Cautions to note however: (a) reduced cage usefulness and security over time (> 1 year) as animals may gnaw at the wood and create gaps for possible escape; (b) heaviness of the wooden cages especially when carrying animals can cause injury to handlers.

Conclusion

Based on the result of this trial, future manipulations should be less time-consuming, but it is dependent on the time initially taken to herd the animals and enter them into the corridor. It is therefore suggested that for a resource-challenged farming operation whether sole or integrated, and interested in peccary farming, this methodology can be incorporated with little extra time and labour demands.

Further research would more fully exploit the advantages of the methodology in a cash-strapped environment.

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The ability of Near Infrared reflectance spectroscopy (NIRS) to assess quality and level of topical grass intake by creole sheep.

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Abstract

Near infrared spectroscopy is increasingly use as an alternative to classical analytical method to evaluate quality and functional properties animal feeds and human food. This method provides a rapid, clean and green, and accurate measure of chemical composition of diet. At the same time, attempts to evaluate these parameters in grazing systems are laborious, time consuming, costly and introduce bias in parameter estimation. The aim of this study is to evaluate the potential of faecal and forage NIRS to assess functional properties of diet ingested by Creole sheep. Derived standard errors of cross validation (SECV) and coefficient of determination using faecal spectra were 2.18 % and 0.70 for organic matter digestibility, 9.27 g/kgP$^{0.75}$ and 0.28 for organic matter intake and 6.76 g/kgP$^{0.75}$ and 0.27 for digestible organic matter intake. Association of faecal and herbage spectra lead to increase of prediction accuracy of 17.4, 7.4 and 7.2 % for organic matter digestibility, organic matter intake and digestible organic matter intake respectively. These results clearly indicate that near infrared reflectance spectroscopy represent a new tool to study and monitor breeding systems.

Introduction

Amongst parameters contributing to ruminant production from forage, intake is the more important (Minson, 1990) but also the most variable and the most difficult to measure accurately. In pen fed experiments, measure of intake is laborious, costly, and time consuming. In grazing systems, voluntary intake can only be estimated by indirect methods requiring estimation of both total faecal excretion and digestibility. If several indirect methods allow estimations of digestibility (in vitro digestibility (Tilley and Terry, 1963, in sacco degradability (Demarquilly and Chenost, 1969), or method based on faecal index (Boval, 2003), they can introduce bias in intake estimation. At the same time, near infrared spectroscopy (NIRS) is increasingly used in agro industry to evaluate nutritional quality of animal and human foods. The aim of this study is to determine the potential NIRS to predict quality and quantity of diet ingested by martnik ewes.

Materiel & Method

The experiment was carried out at the experimental station of the National Agronomic Research Institute (INRA) in Guadeloupe.
Twelve martnik ewes weighing 44 (± 10 kg) were employed in this study. Each ewe was individually housed in metabolism cage to be fed fresh forage harvested from plot of Digitaria decumbens (Pangola). Grass was cut daily early in the morning and chopped (5 cm length) before being offered. Animals received amount of forage 1.1 times greater than their voluntary intake. Fresh weight of forage offered, forage refusals and faeces excreted were measured. Sub-samples at approximately 300 and 200 g fresh weight were collected for dry matter (DM) determination for forage and faeces respectively. Forage and faeces sub-samples were pooled within week and ewe before further processing and analysis. Organic matter intake (OMI), organic matter digestibility (OMD) and resultant digestible organic matter intake (DOMI) were calculated for each ewe per each week. Absorbance spectra (log 1/R) of samples were recorded using a Foss NIRSystem 6500 mono-

chromator. Samples were scanned at 2 nm intervals over the wavelength range 700-1100 and 1100-2500. Spectrums were subsequently reduced over the NIR region. Spectral data were processed using ISI software (Infrasoft international; Shenk, 1992). Calibration of dietary composition, OMI and OMD were developed using Modified Partial Least Square procedure (MPLS) as this technique has been proven to be superior in earlier research (Shenk and Westerhaus, 1993; Park et al., 1997, 1998).

Results & Discussion

Calibrations statistics for OMD obtained in our study (Table 1) using faecal NIRS compare favourably with those reported by Boval et al (2004) with steers fed with Digitaria decumbens or Dichatium sp (SEC-V = 2.0; $R^2 = 0.69$). Coates (1998) develop faecal NIRS equation for predicting DM digestibility (DMD) using data from 54 in vivo trials covering a wide range of pasture grass and legume hay and the author obtains a SEC of 2.5 % and R^2 of 89.0 (n = 187). Faecal NIRS equation for predicting OMD developed by Lyons and Stuth (1992) and Leite and Stuth (1995) used *in vitro* estimates of digestibility determined on oesophageal fistula sample as reference values. The resultants SEC value of 1.66 and 2.01 %, respectively were comparable with the 1.88 % from this study despite the fact that we used *in vivo* digestibility as reference value. Indeed, *in vivo* digestibility introduces an "animal factor" into the calibration process which is not taking into account in *in vitro* digestibility.

Variable	*n*	SEC	SEC-V	R^2_{CV}
OMD (%)	82	18.8	2.18	70.7
OMI (g/kg$^{0.75}$)	82	6.13	6.76	28.5
DOMI (g/kg$^{0.75}$)	82	6.03	9.27	27.3

There was a deterioration in cross validation statistics for intake (Table 1) as reported by Boval et al (2004). This is consistent with previous reports based on forage NIRS predictions of OMI where SECs (and R^2) for OMI of 9.6 (72.0), 7.3 (71.0) and 3.4 (90.0) g/kgBW$^{0.75}$ were reported for cattle consuming arid and semi-arid forages (Ward et al., 1982), temperate grasses and legumes (Redshaw at al., 1986), and silage (Park et al., 1987), respectively. Comparatively with OMD, *in vivo* OMI is subject to further "animal factors" such as rumen size or physiological stage. Moreover it is also affected by "forage factors" (forage digestibility, dietary chemical content …).

Since digestible organic matter intake is the resultant of digestibility and intake processes, it would allow intermediate statistics. Nevertheless, with SEC-V of 6.76 and R^2 of 27.31 % (Table 1) and taking into account the standard deviation of the reference value (SD = 7.69), calibration of DOMI in as poor as intake calibration. To how knowledge, no published reports of faecal NIRS calibration for predicting DOMI were found with which to make a real comparison.

Association of faecal and herbage spectra lead to increase of prediction accuracy (SECV = 1.80 and $R^2 = 0.79$, SECV = 8.58 and $R^2 = 0.46$ and SECV = 6.27 and $R^2 = 0.51$) for OMD, MOI and DOMI respectively. Requirement of software (Dardene, unpublished data) to associate faecal and forage spectrum makes this technique difficult to implement in breeding systems. Moreover, in grazing systems sampling of diet ingested are laborious and supply variable results.

Conclusion

These results clearly indicate the potential of near infrared spectroscopy to assess intake and digestibility of ruminants. Although precision obtained in intake prediction are lowest than digestibility prediction, it remain acceptable compared with those usually used in grazing system. Association of faecal and forage spectrums offers a new tool of research of diet quality in grazing system.

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Influence of a sugar cane diet on growth performance, carcass traits and meat quality in Creole growing pigs

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Abstract

The aim of this study was to evaluate a feeding system based on the use of sugar cane on growth performance and meat quality on local Creole breed (CR). Over the 30 to 65 kg body weight range, 3 groups of 12 CR pigs were fed with a control Soya meal-corn diet (C group), with sugar cane fresh juice (SCJ group) or with ground cane stalks (GCS group). Both SCJ and GCS were supplemented with Soya bean meal complement (45.8% crude protein diet).
Growth performance were significantly (P<0.001) affected by treatment. The average daily BW gain was threefold lower in GCS group than in C and SCJ groups. Fatty carcasses were found in C and SCJ diets which contrasted with GCS carcasses. However, the dressing percentage was significantly lower in GCS than C or SCJ groups. According to the indicators of meat quality measured on *longissimus dorsi* muscle, our results suggested a sensitive and technological superiority in C and GCS than in SCJ group.
In conclusion, this study suggests CR pig's ability to reach good growth performance and technological meat quality with a well-formulated sugar cane meal.

Introduction

The potential feed resources for pigs in the tropics are different from those traditionally used in temperate latitudes. Sugar cane is a crop with very high potential for biomass production. It is traditionally cultivated and processed for sugar production. However it can be envisaged as a multipurpose crop with an important role in animal production as non conventional feed resource.
The technology for using sugar cane as the basis of pig feeding is now employed commercially in several tropical country, specially in juice or molasses form (Preston, 1980; Mena, 1981). Nevertheless, there is very little information concerning the use of whole or ground sugar cane stalks for feeding pigs.
The present study was therefore designed to examine the influence of a sugar cane diet on growth performance, carcass traits and meat quality in Creole growing pigs. In fact, according to its low nutritional requirements, it would be assumed that CR pigs might be use in extensive production system, inside a mixed crop farm system, with sugar cane as feeding resource to provide high taste quality niche product to the market.

Materials and Methods

Experimental design and animal management
The effects of dietary treatment based on the use of sugar cane were studied on a total of 36 CR pigs (18 females and 18 castrated males) between 30 to 65 kg BW. This trail was performed at the experimental facilities of INRA in Guadeloupe, a French Caribbean island characterized by a humid tropical climate. Blocks (n=12) were initially composed of 3 littermates and moved at about 20 kg in an open concrete floor experimental room. At the end of the adaptation period, i.e., when animals weighed about 30 kg, one pig per block was randomly assigned to one of the 3 different dietary treatments: a control Soya meal-corn diet containing 15% crude protein and 14.2 MJ DE/kg (C group), a sugar cane fresh juice diet (SCJ group) or a ground cane stalks diet (GCS group). Both SCJ and GCS diets were supplemented with Soya bean meal complement (400 g/d of a 45.8% crude protein diet). Pigs were assumed to be fed close to the ad libitum level and had free access to water.

Measurements
The pigs were weighed every two weeks. Monthly, backfat thickness was measured ultrasonically (Agroscan, E.C.M., Angoulême, France) at the last rib at 45 mm from midline. Average daily feed intake was measured daily for each group as the difference between allowed and refused feed. The brix value and the DM content of sugar cane were measured weekly and the values averaged over monthly periods. Samples of allowed and refused feed were analyzed for dry matter (DM) by drying to constant weight at 65°C in a forced draught oven during 4 days. Dried samples were ground through a 0.75 mm screen before standard chemical analysis.
At about 65 kg, all pigs were slaughtered by electric stunning after a 24-h fasting period. Empty gastrointestinal tract, internal organs and carcass were also weighed. After cooling for 24-h period at 3°C, the carcass was weighed and the left half was dissected according to the normalized European procedure. The carcass lean content was estimated from ham and loin weights, whereas carcass fat content was estimated from leaf fat and backfat weights.
Regarding meat quality parameters, ultimate pH was measured in the *longissimus dorsi* (LD) 6th rib muscle, the day after slaughter. Colour parameters were also measured on LD muscle using a Minolta chromameter CR300 (Minolta, Tokyo, Japan) with reference to reflectance (L*: 0= black, 100 = white) and two colour coordinates, a* (redness) and b* (yellowness).

Statistical analysis
Growth performance, carcass and meat quality traits were submitted to an analysis of variance (GLM procedure, Statistical Analysis Institute, 1997) including the effect of feed, block, sex and their interaction. Means comparison was performed according to the pdiff option of GLM procedure of SAS.

Results and Discussion

The growth performance were significantly (P<0.001) affected by dietary treatment (Table 1). Length of growth period was 52, 65, and 190 days for C, SCJ, and GCS group, respectively. In consequence, the average daily BW gain was significantly lower (P<0.001) GCS group (200 vs. 671 and 557 g/d respectively for C and SCJ pigs).

Table 1: Effect of dietary treatment on growth performance in Creole pigs (least square means)

Treatments	C	SCJ	GCS	RSD	Statistical Analysis
Nb. of pigs	12	12	12	-	-
Duration, d	52.1[a]	64.9[b]	190[c]	14.1	F***
Body weight, kg					
Initial	30.8[a]	29.4[a]	26.2[b]	4.1	F*
Final	64.8	64.6	64.1	2.2	NS
Average daily gain, g/d	671[a]	557[b]	200[c]	61.1	F***

C = soya meal-corn diet; SCJ = sugar cane juice diet; GSC = ground cane stalks diet.
F: effect of feed.
NS: not significant; * P< 0.05, ** P< 0.01, *** P< 0.001.
a, b, c Means without common letter differ significantly.

The reduced growth performance recorded in pigs fed with GCS diet resulted from its low energetic level due to the high level of fiber content (i.e., NDF content: 40.8 vs 15.6 and 5.6 g/100g DM GCS vs C and JSC groups, respectively). However, energetic cost at extracting juice (and energy) from GCS diet might be involved in a low efficiency for energy utilization in such diet and then in the low ADG of GCS pigs (table 2). Subsequently, the daily DM intake is reduced in GCS diet in relation with an increase of time dedicated to consumption of GCS diet. On average, daily DM were 1.2, 1.8 and 2.2 kg/day/pigs for GCS, C and SCJ, respectively. To sum up, the low growth performance for the GCS group of pigs was a consequence of a concomitant reduction of the average daily fed intake and dietary energy content.

Carcass performance were also affected by treatment (Table 2). Expressed in g/kg of left carcass weight, fat cuts weight (backfat + leaf fat) was significantly lower in GCS than in other groups (49.6 vs 76.3 g/kg; P<0.001). In contrast, lean cuts weight (ham + loin) was significantly higher in GCS group (282 vs 265, 258 g/kg, GCS vs C, and SCJ respectively; P<0.001). Regarding the carcass drip loss, there were no significant difference between the dietary treatments studied.

Table 2: Effect of dietary treatment on carcass performance in CR pigs (least square means)

Treatments	C	SCJ	GCS	RSD	Statistical Analysis
Slaughter BW, kg	64.8	64.6	64.1	2.2	NS
Dressing percentage, %	80.9[a]	81.1[a]	79.2[b]	1.1	F***
Digestive tract, g/kg	66.1	65.5	68.6	4.6	NS
Internal organs, g/kg	36.4[a]	36.6[a]	32.9[b]	2.7	F***
Carcass drip loss, g/kg	23.0	23.1	27.2	0.3	NS
Lean content, g/kg of left carcass weigh	265[a]	258[b]	282[c]	7.6	F***, S**
Fat content, g/kg of left carcass weigh	74.7[a]	77.8[a]	49.6[b]	10.3	F***
Backfat thickness, mm	37.2[a]	40.6[a]	24.6[b]	6.4	F***

Legend: see table 1.
S: effect of sex.

Our results showed that C and SCJ had fatter carcasses than GCS groups of pigs (Table 2). In fact, the C diet was initially formulated for Large White pigs with higher nutritional requirements than CR pigs (Renaudeau et al., 2005). According to its low growth potential, the high adiposity of CR pigs fed with C diet was related to an increase of extra energy and protein available for lipid synthesis. The high adiposity of SCJ carcasses could be explained by an excess of energy which increase fat deposition. The dressing percentage was significantly lower in GCS than in others groups (79.2 vs 81.0%; P<0.001). This result was mainly related to the higher relative weight of digestive tract in the GCS group due to the high dietary fiber content in the diet.

Whatever dietary treatment, the common indicators of meat quality measured on LD rib muscle, revealed a good quality of the CR pig meat. These results are in accordance with previous trials carried out in our experimental station (Deprès et al., 1992; Renaudeau et al., 2005). Nevertheless, ultimate pH was lower in SCJ group than in GCS and C group (Table 3). Regarding to the colour parameters, SCJ meat was lighter than GSC meat (L* value: 70.5 vs. 62.6, SCJ vs. GCS, respectively). These results suggest that SCJ technological meat quality is not as good as the GCS and C groups. Indeed, a low ultimate pH result in muscle protein denaturation and diminish technological quality of meat (Henckel et al., 2000).

Table 3: Effect of dietary treatment on meat quality in CR pigs measured on LD muscle (least square means)

Treatments	C	SCJ	GCS	RSD	Statistical Analysis
Ultimate pH	5.72[a]	5.45[b]	5.60[c]	0.1	F**, FxS*
Lightness, L*	66.8[ab]	70.5[b]	62.6[a]	5.4	F**
Redness, a*	8.8	8.0	7.0	1.9	NS
Yellowness, b*	6.9	7.1	5.4	1.8	NS

Legend: see table 1.
S: effect of sex.
L* = greater L* value indicates a lighter colour.
a* = greater a* value indicates a redder colour.
b* = greater b* value indicates a more yellow colour.

Conclusion

This study suggests that good growth performance and technological meat quality can be obtained with a well-formulated sugar cane meal. The GSC treatment significantly reduces growth performance but increases carcass lean content and meat quality. In contrast, rather good performances are measured in pigs fed with SCJ but this treatment has detrimental consequences in carcass and meat quality. Further researches are required to elaborate the dietary approach based on use of sugar cane with the aim to find the best compromise between growth performance and meat quality criteria.

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How to produce heavy goat carcass with lean meat in Guadeloupe ?

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Abstract
The objective of the present study was to determine in the Creole goat the effects of an energy-rich diet on the carcass characteristics. Two groups were determined according to the % of concentrate (C) in the diet: C0% and C50%. The chilled carcass yield reached 66 % and 68 % for C0 and C50 animals. The proportion of muscles reached 70 vs 72 %, respectively. Values of the muscle to bone ratio were high: 3.3 vs. 3.7, respectively. Regarding proportions of fat tissues, both groups deposited less subcutaneous than visceral fat. C50 animals deposited more omental fat tissue (3.3 against 1.5 % of carcass weight) than C0 and their fat cover scores were 3 vs. 2 (scale from 1 to 5). The proportion of intermuscular fat did not differ between groups and was around only 8%. From these first results, it seems possible to produce heavy carcass while maintaining low proportions of fat in the meat or low fat cover score. Creole goats exhibits a good potential as meat producer in our region.

Introduction

From a health point of view, ruminant carcass has two major defects: it contains too much fat and the fat is mainly satured or mono-satured with a possible influence on cardiovascular disease in man. Consuming lean meat with low cholesterol content is an important issue for the consumer. Therefore, goats may offer an attractive alternative because they are leaner than cattle and sheep. The Creole goat of Guadeloupe is a small-sized meat breed which is mostly reared on pasture allover the year and produces light (6 to 10 kg) but lean carcass. Although it is a meat breed, very few studies give informations on carcass characteristics of Creole goats (Alexandre, 1987). The objective of the study was to determine the effects of an energy-rich diet on the carcass characteristics of Creole goat.

Materials & Methods

One hundred and forty eight intact male goats from Creole genotype were used in this study. After weaning at 3 months, two groups were determined according to their feeding system. In the first group (C0, n= 106), animals received tropical forage *ad libitum*. In the second (C50, n = 42), they received the same basal diet with commercial pellets (50% of diet DM), composed of maize (68%), soya bean meal (24%), wheat issues (6%) and minerals (2%). The goats were weighed twice a month from weaning to slaughter.

The animals were slaughtered at the end of either 4, 8 or 11 months of growth. The goats were weighed before slaughter (SW). Slaughtering was made following commercial procedures. The main body components were weighed: head, feet, skin, full and empty gastrointestinal tract, intestinal and mesenteric fats, and red organs. The carcass (including kidney and kidney fat) was weighed before and after cooling (at 4°C during 24h). Then the chilled carcass was graded according to conformation, colour of the meat and fat cover scores (3 different scales of 5 points). The left half carcass was used for carcass cutting according to standard methods and procedures (Colomer-Rocher et al. 1987), and for dissection of the shoulder.

The chilled carcass yield was calculated as cold carcass weight related to empty body weight (slaughter weight subtracted by the value of full gastrointestinal tract).

After the dissection of the shoulder of the half left carcass, the muscles, the bone and the intermuscular fat were weighed. The proportion of muscles, returned to the weight of the shoulder and the ratio of muscle weight to bone weight were then calculated .

Results & Discussion

1. Variation of slaughter weight

The slaughter weights varied from 13.5 to 42.0 kg according to the diet and the fattening duration. The heavier SW were observed with the energy-rich diet (45 % of C50 goats weighing 31 kg or more) while the lighter for the forage diet (50 % of C0 weighing 19 kg or less). For both groups, 24 kg of SW seemed to be an interesting alternative (45 % of animals reaching this weight whatever the diet). The three intermediate SW were taken into account for comparisons.

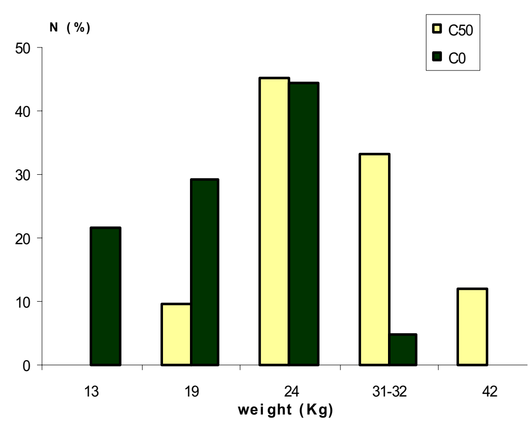

Figure 1: 1: Proportion of goats according to slaughter weight and diet

2. *Carcass yields and characteristics*

At 24 kg, the chilled carcass yield were similar and were around, 64 % and 66 % for C0 and C50 groups. However, the cold carcass weights were different: 9.2 vs. 11.4 kg, respectively (table 2). These results are in agreement with the effect of a diet rich in energy and proteins that generated higher growth and heavier carcasses. The notes of conformation (on a scale of 1 to 5) were on average 3.6 ± 0.6 for the C0 group and 4.2 ± 0.5 for the C50.

slaughter weights (Kg)	C0		C50	
	CCW (Kg)	Muscles (%)	CCW (Kg)	Muscles (%)
19	7.1	68.9	9.1	70.0
	±0.9	±2.4	±0.6	±1.5
24	9.2	71.8	11.4	72.3
	±0.9	±3.0	±1.0	±2.7
31-32	12.1	69.0	15.5	72.8
	±1.7	±6.4	±1.4	±4.0

Table 2: Cold carcass weights (CCW) and proportion of muscles (mean ± S.D) at 19, 24 and 32 kg of SW in Creole bucks according to the diet.

3. *Proportion of muscles and the muscle to bone ratio*

At 24 kg SW, the proportion of muscles (table 2) was 70 % for the C0 and the muscle to bone ratio was 3.4. Same traits for the C50 were 72 % and 3.7, respectively. Values for the other SW (19 and 31 kg) are reported in table 2. These results shown that the quantity of meat varies slightly from a diet to another and is high comparing to other breeds (Alexandre 1987; Warmington and Kirton , 1990).

4. *Proportion of fat tissues*

Regarding proportions of fat tissues, both groups deposited less subcutaneous than visceral fat. The fat cover scores (scale from 1 to 5) varied from 1.2 to 2.4 for C0 and from 2.8 to 3.6 for C50 (table 3). The subcutaneous fat cover is thin and poorly developed as reported by many researchers that have studied different breeds or management (see review of Warmington and Kirton ,1990). The weights of omental fat tissue varied from 39 to 206 g for the C0 group and from 267 to 1068 g for the C50. Thus, an energetic diet seemed to encourage the synthesis of fat by the animal. However the fat is deposited at higher rates in the abdominal area than as as body fat reserves (Colomer-Rocher et al.,1992). The proportion of intermuscular fat (IF) did not differ between groups and was low. Values of IF according to SW, were around 5.4 to 10.9 for the group fed only with forage, and 6.5 to 8.1 for the group receiving supplements.

Leanness is a common feature of goat carcasses (Warmington and Kirton, 1990, Gallo et al.,1996) and was also observed in this study on Creole goat of Guadeloupe.

slaughter weights (Kg)	C0		C50	
	FCS	OF/CCW(%)	FCS	OF/CCW(%)
19	2.1	1.3	3.3	2.9
	±0.7	±0.8	±1.0	±0.2
24	2.4	1.5	2.8	2.5
	±0.8	±0.8	±0.9	±1.1
31-32	2.0	1.7	3.1	4.3
	±0.0	±1.0	±1.1	±1.8

Table 3: Fat cover scores (FCS) and ratio of omental fat (OF) on cold carcass weights (CCW) (mean ± S.D) at 19, 24 and 32 kg of SW.

Conclusions

In view of all these first results, an energy-rich diet allows high carcass weights and yields. The feeding mode influences the carcass quality of the Creole goat. While becoming heavy, the proportions in muscles therefore in meat improve. The fat tissues that accumulate, essentially localized in the visceral area, doesn't alter the quality of the commercial carcass. It seems possible to produce heavy carcass while maintaining low proportions of fat in the meat. Creole goats exhibits a good potential as meat producer in our region. Assuming that the diet influences the fatty acid profiles of caprines further studies are required to characterise the fatty acid profile of this breed and to assess the diet influence.

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