

Introduction

Started in Bénin 22 years ago, grass-cutter (*Thryonomys swinderianus*) husbandry expanded very rapidly in some fifteen countries of Africa in Southern of Sahara. Different research works carried out on grass-cutter permit to improve its production performances and to adapt it to life in captivity. Obtained research results between 1983 and 2002 concern: development of the elementary breeding techniques (breeding systems in pen on floor, batteries of cages and floor-off pen); improvement of grass-cutter productivity with a litter size of 4.7 young per birth and an average number of 1.8 births annually per female; diseases treatments by modern veterinary medicine as well as by formulas of the veterinary pharmacopoeia and/or traditional medicine using the medicinal plants; etc. Different results presented here are obtained from researches carried out on grass-cutter farms and in the experimental farm of Agriculture Research Centre of Agonkanmey in Bénin from 2003 to 2005.

Results

Determining the optimum age for castration in bred grass-cutter males: The bred grass-cutter male is castrated without the anaesthesia when it is between 4 and 8 weeks old. The castrated grass-cutter produced more meat than the entire grass-cutter male at the same age. The optimum age of the bred grass-cutter castration is 6 weeks old. The live body weight of the castrated bred grass-cutter male (castrated between 4 and 8 weeks old) is 1.4 times superior than this of the entire grass-cutter male at the same age. The food consumption ratio of the castrated animal is 1.33 times lower than this of the entire grass-cutter male.

Recorded performances in grass-cutter farms belonging to the reconverted fishermen as grass-cutter breeders in southern Bénin: The age of marketing of bred grass-cutter for consumption is 6 months old and it costs 8,000 F CFA (12.21 €) whereas the input of production is 2,223 F CFA/an (3.39 €). The fishermen reconverted as grass-cutter breeders gain 3.6 times what they invest in their new activity.

Possibility of the parasitic circulation between grass-cutters and small ruminants: The intestinal parasites are more frequent in farming associating many species of which grass-cutter than in farming containing only grass-cutter. Collected forages in nature and distributed to animals would be infested. The larva of ovine notably *Haemonchus contortus* and *Trichostrongylus colubriformis* survived and became adults in grass-cutter's body. However, sheep intestinal parasites setting rate is lower in bred grass-cutter; adult worms cause diarrhoea; the infesting larvae do not have remarkably effect on grass-cutters health.

Valorisation of the refusal of green forages in the food of the sheep: The refusal of green forages of grass-cutter is appreciated better than some fresh green forages by sheep. Their valorisation in sheep feed permit to produce 11.5 kg of meat and to make an annual benefit of 9,612 F CFA (14.67 €).

Growth rate and food behaviour of bred grass-cutter nourished exclusively with basic diets containing various green forages: The grass-cutter nourished with the basic diet consisted of exclusively 7 fresh green forages has good performances (the food consumption ratio is 5.87:1. The food wasting rate is 71.4 % compared to those fed only with the basic diet of 6 forages (*Panicum C1*, *Moringa oleifera*, cassava stem, crown of pineapple, green papaya and *Paspalum vaginatum*) and of 5 green forages (refusal of sugar cane, *Panicum maximum*, *Pennisetum purpureum*, *Bambusa vulgaris* et *Centrosema pubescens*).

Influence of the diet composed of cassava products on weight gain in bred grass-cutter: All products of cassava (stem, leaf, root, peeling) are used as grass-cutter food. The diet containing cassava reduces the wasting by 22 % compared to the classic and usual diet (green fodder + complement with agro-industrial by-products). The food consumption ratio with the diets containing cassava products is 5:1 against 6:1 with the classic and usual diet.

Feeding value of agricultural products, small scale food production and agro-industrial products in order to find the bred grass-cutter basic diet: Agricultural products like the maize (grain, team, spar), the cassava (team and fresh roots) and the sweet potato, small scale food production as the pineapple (crown's heart, lamella crown, entire crown, peeling), the maize (bran, cossets, peeling) and the roasted soybean, and agro-industrial products like the groundnut (cake), the wheat (moulding bran, granulated bran), the cotton (seedcake), the dry brewer's draffy, the maize (germ), the palmist (industrial cake), the soybean and the rice (bran) are used in the bred grass-cutter diet. About agricultural products, the grain of maize has a higher dry matter (DM) rate (85.5 %) and crude protein (38.8 %) and a lower crude cellulose rate and fat. It also contains an average of 350 g of digestible protein per kg DM more than 4 times the content of the teams of maize and cassava and the maize spar. In the small scale food production group, without maize bran, cassava cossets and roasted soybean where the DM is superior to 80 %, the DM rate is inferior to 30 % for others products. Roasted soybean has the higher crude protein rate (43 %) and digestible protein (320 g/kg DM). About the inventoried agro-industrial products, only bran rice has a low crude protein rate (16.1 %) and organic matter rate (30.64 %) and digestible protein (91 g/kg DM) and a high crude cellulose rate.

Inspection of bred grass-cutter herd, a tool for detection of sick animals: The herd inspection is done by observing and appreciating: -i- the space layout of the animals; -ii- the aspect of their fur (normal = glossy hairs; abnormal = bristled up hairs and in this last case, when blowing on the animal hairs, if the hair always bristles up then the grass-cutter is sick but if it becomes again normal, then the animal is coping against cold or freshness); -iii- the aspect of their droppings (normal droppings = solids with a median furrow as a coffee bean; abnormal droppings = soft, liquid or semi-liquid paste); -iv- the food consumption; -v- others particular events (wounds on the body, prostrated in a corner, laid down, refuse the caresses, shake the head incessantly, etc.). It is noticed that 98.57 % of inspected bred grass-cutters have a glossy hairs, this means that they seem well. Among the 1.43 % found with a bristled up hairs, 1.36 % recovered their normal fur when man blew on them. This indicates that the animal fights against cold or freshness. On the other hand 0.07 % of grass-cutters maintains his bristled up hairs after blowing on them. This shows that these animals are coming down with a disease to detect and to treat. About their droppings aspect 99.17 % of the grass-cutters had normal droppings but 0.83 % had abnormal droppings and droppings without a median furrow. At the 0.01 % of grass-cutters the droppings are semi-liquid and it is the proof of digestive disorder. 99.16 % of grass-cutters had better food consumption. Only 0.9 % has lower food consumption and 0.1 % of grass-cutter food consumption tends towards zero. The others particular observed events during the inspection of bred grass-cutter herd are: vaginitis, trauma, equilibrium problems, constipation, inflammations, posterior legs paralysis, respiratory disorder and dental affections. The herd inspection is the golden rule, which permits to detect sick animals and to treat them, so quickly to identify the pathological problems. The communication with the grass-cutters permits to limit in maximum the factors of psychosocial stress.

Marketing channel of bred grass-cutter marketing in Bénin: The current organization of the grass-cutter's channel is strongly staked and the structure of the marketing circuits indicates that 7 distributions circuits including 3 relating to grass-cutter for consumption and 4 relating to bred grass-cutter for reproduction. More than 50 % of the selling price corresponds to the share of the intermediates of the marketing circuits. The function costs of grass-cutter products marketing increase with the number and the complexity of the works.

Conclusion

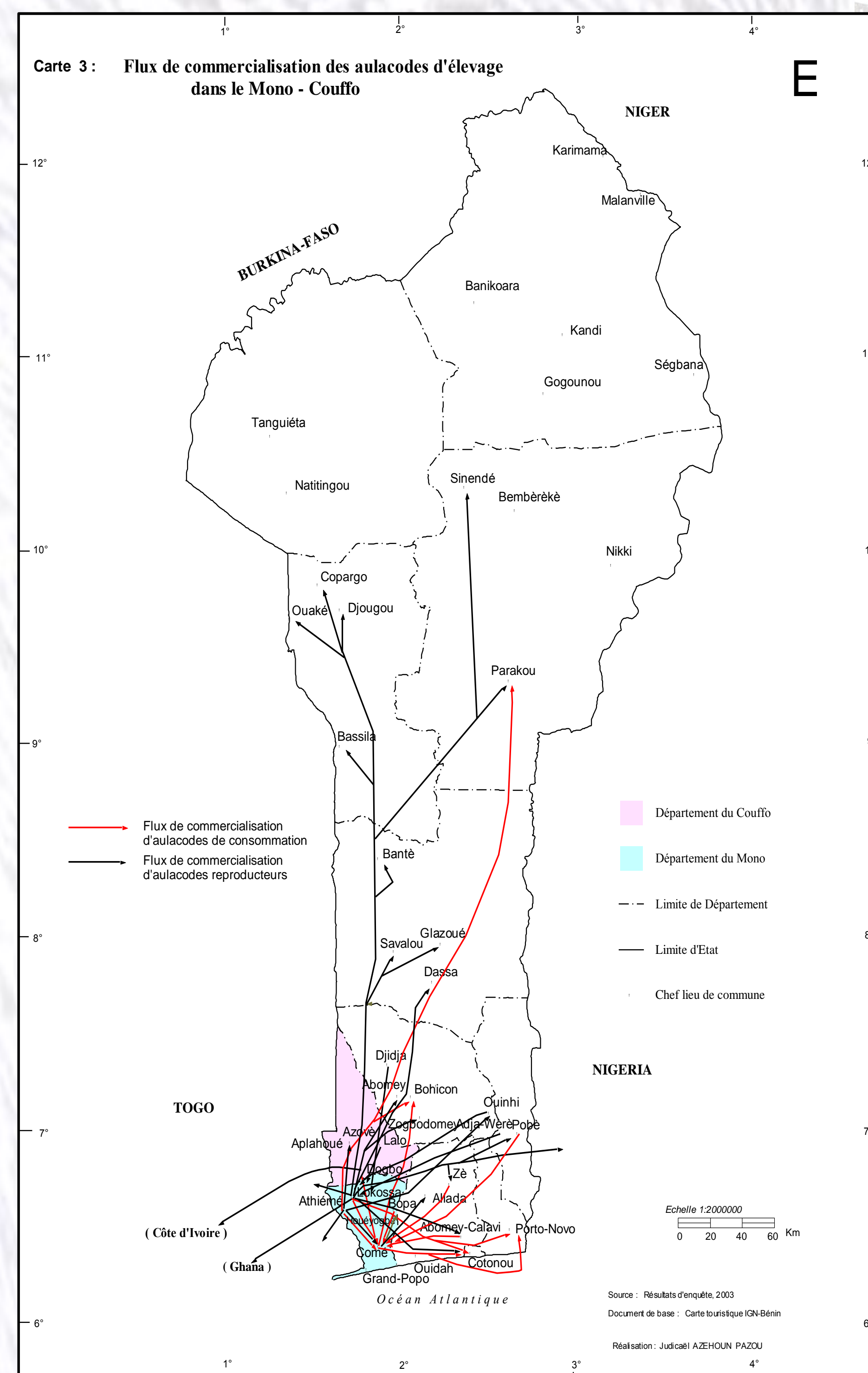
The different researches carried out on grass-cutter permit to improve its production performances and to adapt it to life in captivity.



Normal droppings



Grass-cutter and its green forages refusal



Sheep fed with grass-cutter green forages refusal



Fresh green forages



Cassava peelings