

SESSION I

RABBIT HUSBANDRY IN TANZANIA

Muze Mgheni

Department of Animal Science
Faculty of Agriculture, Forestry and Veterinary Science
University of Dar es Salaam

Introduction

Just as it is difficult to generally talk about Beef, Dairy, Goat, Sheep, Pig or Poultry Husbandry in Tanzania it is even more difficult to talk on Rabbit Husbandry. In a country where the human population is estimated at 14 million, and cattle is estimated to be 10,271,009, goats 5,228,000, sheep 2,472,000, poultry 18,000,000 and pigs 400,000 and grazing land 7 million hectares, it might at first sight appear unjustifiable to talk of other meat sources like rabbits but yet I definitely think it can play a vital role due to reasons that I will elaborate later on. To start with, very little is known about rabbits in this country, we for example have very little knowledge on the numbers and distribution of rabbits in the country. There is, however, a growing desire among farmers, scientists and politicians on the rabbit as a meat animal. It is also known that the keeping of rabbits is increasingly becoming important among school children and that a lot of school children have developed interest in keeping rabbits. As far as it is known, rabbits are kept in most regions of the country for quite a variety of reasons. Apart from institutions like ours, Central Veterinary Laboratory (Temeke), Tsetse research at Tanga, Muhimbili Medical Centre, where rabbits are kept for a variety of research work, most rabbits are kept as a source of meat and money. The housing for rabbits in most cases differ with the size of the rabbitry. Some farmers would maintain two to three does in the kitchen were they are allowed to bore holes and nest their youngs in the hole. Similarly some keep small units outside their houses and let them bore holes and

nest the youngs. In most cases there are kept in small units of one to ten rabbits and wooden or mud and wood boxes are constructed to keep the rabbits. In most cases such boxes and the small houses are constructed from materials that can be found idle around the homesteads. The feeding of rabbits vary from one place to another depending on what is available in different regions. The most commonly used feed in most areas is the wild Lettuce, Leunae cornuta. This is a weed occurring widely and used as a vegetable as well as forage for chicken and poultry. This weed grows in almost all areas in the country. It is fed green and supplemented with different types of brans (maize, sorghum, millets), cooked food remains (porridge, rice, beans), brewers mash, roots (yams, potatoes), bananas peelings, vegetable remains (cabbages, carrots, spinach), and grasses and grass hays. There is still scanty data on their performance but extension material on how to keep rabbits still remain a problem.

Justification for rabbit as a meat producer:

The problem that we need to answer is why rabbits have not for a long time been seriously kept in Tanzania for meat? The answer to this question is not an easy one. It can only be mentioned that probably there were other cheaper sources of meat, or probably there has existed some taboos among tribes or probably lack of encouragement and knowledge has existed amongst scientists and extension workers, or probably the tradition of keeping rabbits simply did not exist.

Similarly one can pose other questions as to whether there is any justification for keeping rabbits now? Are the people likely to accept the rabbit meat and will they keep more rabbits in future? What are the current limitations on increasing rabbit husbandry in Tanzania?

We should first try to appreciate the fact that animal protein consumption in Tanzania is still below the set limit of 20 grams. Table 1 compares the animal protein consumption in selected countries. It will be seen that while other countries are consuming more than 30 grams per person per day, Tanzania is consuming about 9 grams per person per day. This should be taken as an average and definitely it is not evenly distributed. Kwarshikor is still eminent in parts of Tanzania and this still emphasizes on the need for increased animal protein. It is also important to mention here that in order the world to achieve the desired levels of 2,450 calories, 91 grams of total protein, 21 grams of animal protein per person per day by year 2,000 the overall output of animal products in developing countries must increase by 583% Schmidt and Van Vleck 1974. This is not a small increase unless alternative meat sources are encouraged. Similarly the world Bank/FAO 1974-1980 livestock projections in Tanzania concluded that by 1980 consumer prices for beef will increase simply because supplies will not be able to satisfy increasing demand. If the price increase are held down, the report pointed out that some form of demand restriction i.e. rationing or meatless days, will have to be introduced. The report also mentioned that the increase in beef prices will have some useful effects on that alternative sources of other meats such as small stock will be encouraged. This is a very realistic prediction and probably explains why rabbit meat is now being appreciated as the year 1980 approaches. People are already experiencing some meatless days in most areas in Tanzania where price control is practiced. The problems of keeping cattle in the tropics is very well known. I have always mentioned the disadvantages that cattle, sheep and goats have on the genetic parameters that is long gestation length, small number of kids born per birth, long generation intervals, and late maturity. Rabbits as a meat producer has a lot of qualities. It can be fed on a variety

Table 1. Availability of calories and protein per person per day in selected countries

Country	Calories	Total protein,g	Animal protein,g
Union of South Africa	2820	80.2	31.5
Libya	2660	63.7	14.7
Mozambique	2420	47.9	3.8
Madagascar	2330	52.3	9.4
Ghana	2160	48.6	10.5
Kenya	2120	64.4	12.1
Tanzania	2080	58.1	9.1
Ethiopia	2040	54.4	10.0
Sudan	1940	63.9	25.9
Turkey	3110	97.5	15.9
Taiwan	2520	68.2	23.9
Japan	2460	74.7	28.2
Switzerland	3170	88.0	52.8
United Kingdom	3150	87.5	53.8
Denmark	3150	88.7	60.2
Norway	2950	81.2	50.4
United States	3200	95.6	68.6
Canada	3180	95.4	64.1
Mexico	2550	65.7	15.2
Guatemala	2220	56.8	18.7
New Zealand	3290	107.3	74.3
Australia	3120	90.5	60.6
Uruguay	3170	101.6	67.1
Argentina	2920	88.0	58.7
Brazil	2690	66.3	18.3
Venezuela	2490	65.9	26.4
Ecuador	2020	51.5	17.3
Malaysia	2400	54.3	18.3
Pakistan	2230	51.5	11.2
Ceylon	2170	48.0	8.3
India	1810	45.4	5.4

Source: Schmidt and Van Vleck (1974).

of green food, hay, potatoes, roots including some herbs which are considered as weeds in our farms. As a meat producer, the domestic rabbit can claim to produce meat of high quality on a range of feeds wider than that of any other domesticated animal and as efficient as any. It has the advantages that it can be bred at an age of 6 months, and the gestation period is 30 - 33 days, suckling period 5 - 6 weeks (but dams can be mated immediately after giving birth), it gives four to five whelpings per year, and even up to 8 whelpings per year under foster mothering. It throws six to twelve kids per whelping and from 1 doe 30 - 35 kids can be reared and 25 - 30 brought to slaughtering in a year (Sandford 1969).

Where as rabbits can be kept in almost all areas in the country, cattle, sheep and goats are limited to lowland areas and it is rather difficult to keep them on mountains. It is also worth mentioning that tsetse has been quite a limiting factor on the distribution of cattle, sheep and goats in this country. Figure 1 shows the distribution of tsetse and livestock in this country. Though we talk of more than 10 million head of cattle in the country, 88% of this herd is confined to only 7 out of the 20 regions we have and 46% of this herd is confined to only 2 regions (Shinyanga and Arusha). Rabbits can therefore be of great use in these tse-tse areas where other livestock meats are not available. Rabbits also stand a better chance when compared to pork because the moslems who form almost 50% of the population in Tanzania accept rabbit meat in their dishes. Poultry though is well developed industry in Tanzania now and has a short generation interval we still cannot produce our own strains and thus importation of parent stocks seem inevitable. Also poultry needs feed of biological value similar (if not better) to that of human beings. It has therefore been

Fig. 1. Tsetse fly and cattle distribution in Tanzania



difficult to meet the nutrient requirements and we have sometimes had disappointing performances as a consequence of this. Also feed prices have always gone up making the final product prohibitively expensive for the normal wage earners in Tanzania. It appears apparent from my few remarks that there is actually the need and justification for talking about rabbits. The question as to whether the meat is an acceptable one does not really arise. There is already a growing demand for this type of meat and also the Tanzania peoples tastes are very flexible. The farmers have shown quite some keen interests on rabbits and what I have found to be most limiting in rabbit husbandry now is the need for extension material. We need to teach rabbit husbandry through all medias available. Rabbit husbandry need to be incorporated as a course in all levels of Agricultural learning. Pamphlets to farmers on how to keep rabbits are urgently required. Besides all the education required, we need to establish rabbit multiplication units in the regions and these will serve as sources of rabbits to farmers.

Observations:

Data preliminary collected in this Faculty show that rabbits can successfully be kept under the Morogoro conditions. Table 2 summarises the performance of the rabbits and Figure 2 shows the growth pattern of the rabbits. Considering the small mature weight of the rabbits we started with, this is satisfactory performance. It is evident that there is still some improvement that can still be brought about through selection and this is what the project is aimed at. It also appears that with the type of feeds we have used, that is, rabbit meal diluted with maize bran to give a ration of about 12% CP and about 1800 kcal per kg of metabolizable energy and occasionally supplemented

Table 2. Performance of rabbits in Faculty of Agriculture, Morogoro

Parameter	Means	C.V. (%)
Mature weight (grams)	2980	22
Weaning weight (grams) at 42 days	620	24
Weight at 56 days (grams)	1068	18
Gain per day till slaughter at 56 days (grams)	19	-
Dressing (%)	57	8
Percent meat in carcass	74	4
Percent ^{bone} fat in carcass	18.8	16
Percent fat in carcass	7.2	25
Meat: Bone ratio	4:1	-
Pre-weaning mortality	5	-
Adult mortality (%)	0.9	-
Gestation length	30.9	7
Litter size	7.1	28

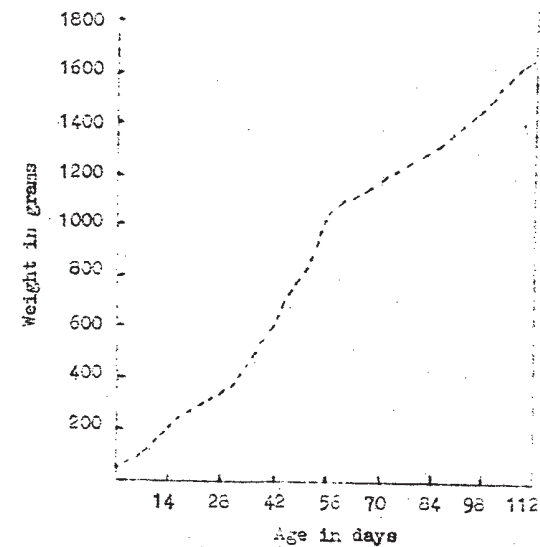


Fig. 2. Growth curve of rabbits from birth to 112 days.

with lucerne, a better performance can be attained if feed of higher energy and protein levels is used. The latter however is not the goal of the experiment since most environments that rabbits can be kept will not afford highly nutritive feeds. The cost of selecting under a poor to moderate levels of feeding is a slow genetic progress. Also as shown in table 3, it appears that there is a prolonged maternal effects in that even at 112 days, there is significant difference in weight between litter sizes. This is probably a bit exaggerated if we take into consideration the few numbers of litters considered. Another worthwhile observation to note, is that there seems to be no particular demarcation for slaughtering rabbits because even after 8 weeks of age there seem still to have a high growth rate.

Conclusion:

Throughout this paper emphasis have been on the justification of rabbit husbandry in Tanzania. There is definitely a potential for such an industry and encouragement need to be enforced. Extension education and government support on rabbits should be increased. Rabbit rearing and eating should for example be encouraged in schools, hospitals, prison and other public institutions. Rabbit rearing and multiplication units should be established in regions to form a source of rabbits to the farmers and institutions as well as being focal areas for extension materials.

Table 3. The analysis of variance for body weight (in kg) at different ages

Age in days	42 days		56 days		112 days	
	DF	Mean squares	DF	Mean squares	DF	Mean squares
Source of variation						
Between litter sizes	7	.299 ³	7	0.4999 ³	7	.897 ¹
Within litters	106	.0136	106	0.0248	106	.212

DF = Degrees of Freedom

- 1. $P < 0.05$
- 2. $P < 0.01$
- 3. $P < 0.001$

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