

RABBIT BREEDING PRODUCTION IN MOZAMBIQUE

by

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1. RABBIT PRODUCTION IN THE COLONIAL ERA

1.1 During the colonial times there was little economic interest in rabbit breeding as cattle was the basis of all animal production due to the great abundance of cheap labour and limitless possibilities of territorial exploitation. Only poultry, amongst small animal species, was utilized in a relatively commercialized way for the urban market, which guaranteed the consumption of large quantities of poultry meat. This made it possible to develop various poultry enterprises throughout the country which are now, once again, in use and have now almost reached their former level of production. A very important increase is foreseen in 1980 which will equal the 1973 production.

1.2 On the other hand rabbit production was confined to pets, and had insignificant economic value compared to other animal production enterprises. A statistical survey made in 1970 gave the total rabbit population in Mozambique as 168 000, but it is not clear if this figure refers only to breeding animals, or to all rabbits in captivity. It is probable, from the method of census that this is the total figure. Consequently, we are able to calculate that the number of breeding stock was less than 20 000 at that time so that rabbit production could hardly have been called a commercial operation.

1.3 This lack of commercial production was reflected in the low level of technology. It is notable that we have found no records of studies on genetics; nutrition; effect of climate on production; economic aspects; or on health and disease in rabbits, all production being of a purely individual and empirical nature.

Obviously, with the end of colonialism and the departure of the colonists, the breeding stock disappeared and rabbit production quickly collapsed.

2. OBJECTIVES OF RABBIT PRODUCTION IN THE NATIONAL PLAN FOR RECONSTRUCTION

2.1 The Third Frelimo Congress decided that conditions would be provided to initiate a national campaign of rabbit distribution in 1978, mainly in the rural areas and through agricultural cooperatives, with the objective of increasing the amount of protein of animal origin for human consumption, using techniques and methods which would stimulate collective reproduction in line with the social and economic development of the rural areas.

2.2 The director of livestock services was therefore asked to submit a National programme of rabbit production for Mozambique. This programme was approved in March 1977 by the Ministry of Agriculture, and the livestock services were made responsible to carry out the programme in the field.

2.3 The plan is divided into three fundamental parts:

The study defined the general conditions, deadlines and phasing and anticipated the limiting factors such as the ordering of technical material, the type of culture and the productive limitations, subject to ambiental factors such as temperature, humidity, feed, tropical diseases, management etc. The plan concluded that the technical limitations could be overcome only by predetermining basic conditions which should be carried out before starting the operation in the production units.

The programme is based on the following fundamental principle which, in our opinion, determines the character of the whole operation.

Assisted rabbit production campaign

This insists that before the campaign starts, suitable sites for the operation (which in this first phase are the production collectives such as agricultural cooperatives, schools, hospitals, military units etc.) should be selected. Following this that a cent-

ral and provincial organization for technical assistance and supplies should be established.

Consequently it was decided to construct a National Centre with the following objectives:

- a. To utilize a standard type of housing suitable to the greater part of the country.
- b. To adapt the standard system of housing to utilize locally available materials in each province, region or district, (to conform to the principle of "self sufficiency").
- c. To produce the necessary animals in order to stock the provinces, progressively.
- d. To select a genetic line of rabbits with a higher resistance to tropical conditions.
- e. Since rabbits are herbivorous rodents, to utilize this fact to the maximum in order to prevent competition with human food stuffs, especially by selecting local legumes in order to provide a plan of nutrition that would guarantee an economic production performance.
- f. To study and elaborate a feeding plan as in e) for all provinces, using local supplies hitherto not utilized by the population, including new species of easily cultivated grasses.
- g. To construct a school for 32 students to train persons for the campaigns.
- h. To establish one or more centres in each province (e.g. Gaza 3; Cabo Delgado, Niassa, Zambézia 2 or more).
- i. The provincial centres have to assume the duty of the national centre, namely:
 - 1) to put into practice the system of housing of rabbits using locally available materials.
 - 2) to multiply the breeding stock to supply the production units.

- 3) to train people to help with the units. These people are only selected after a thorough search of motivation in all cooperative members, and who afterwards will return to work in the production unit as a member of that cooperative.

The provincial centre, therefore, functions as a school but with special characteristics, e.g. it is designed to reproduce all the conditions that the participant will encounter in his village, without any special technical advantages.

Furthermore, socio-political training will be given to him during the course, with the objective of increasing his level of social responsibilities of his emancipation.

Lastly the provincial centre has an obligation to produce sufficient animals to replace those in the production units every 18 months.

Techniques

The technology adopted will depend on the various possibilities and necessities. Thus we have three types of technology:

- a. A technique employed in the centres which utilizes cages of imported netting and a centralized water supply. This is a sophisticated technology with a high investment, with the object of obtaining a high production. This will be the technology transferred to the state production units for intensive poultry production.
- b. An intermediate technology which uses wooden cages and locally produced netting, feeders and drinkers and a feeding programme less sophisticated than in a).

This technology will be used for the urban collective units. The object of the technology is to guarantee good production with low capital investment and avoid importations.
- c. A basic technology such as we have presented in our manual, which is the only one which will allow successful production in rural communities. In this technology the feeding will be exclusively in cages made of local materials, production will be limited and investment will only consist of the labour for constructions

and maintenance, or so called "self sufficiency".

3. TARGETS ACHIEVED

To date a part of the initial programme has been completed. The rabbit houses have been constructed at the national and provincial centres, with 430 breeding stock in the former. Fiftysix supervisors have been trained from the provinces to which they have now returned.

The provincial centres are functioning (in some provinces more than one) and peasants are being trained for the production units, 60 of which have now been selected in the country.

Apart from these courses others have been initiated to train members of other entities (Min. Education, Min. Interior, workers' organization etc.) which have agricultural sections. During January 1979 an evening course will be held for voluntary supervisors, who will be responsible for assisting the urban production units.

A boarding school was constructed for 32 students and more than 2 000 breeding stock have been distributed, with a potential production of 50 000 rabbits, which already surpasses the colonial era.

4. PROBLEMS OF FEEDING, BREEDING, AND HEALTH

4.1 Once it was established that we could breed rabbits using correct techniques and organization, there still remained the problem of feeding them with food not competitive to human nutrition, and at the same time guaranteeing a minimum production to justify the inclusion of a rabbit production unit in the agricultural cooperatives. To solve this we investigated natural legumes present in many parts of Mozambique, but so far we have not tried them out in practice.

We have two alternatives: a) the utilization of sown legumes, where possible under irrigation, such as Medicago sativa which is considered the best where conditions permit its cultivation.

b) The use of natural legumes which are not used for human consumption. Such plants must be hardy and grow without irrigation during the dry season, so that it is only necessary to collect the seeds at the right time and sow them with a minimum of preparation. We have investigated four species, Indigofera erecta (25% Protein D.M.),

Psilotricum boivinianum (20.4%), Marremia tuberosa (23.9%), and Leucaena leucocephala (28%).

This last has the toxin mimosine and should not be used at more than 25% of the ration. Utilization of these legumes could resolve the feed problem in the dry season. Unfortunately although there is an abundance of feed in the wet season, this coincides with the period of highest temperature, which decreases the production of rabbits, so we have an abundance of food but low production in the hot wet season followed by a food shortage at the most suitable time for production in the dry season. With these deep rooted species, the leaves can remain green in time of drought permitting high level nutrition at the most appropriate season for production.

4.2 We are working mainly at a practical level to select a genetic line of animal highly resistance to heat and intestinal coccidiosis - a disease especially favoured by the type of feed available. For heat resistance we are concentrating on the respiratory system, continually eliminating all individuals with coryza or difficult respiration during the hot season.

Our original stock was from animals acquired in the local market, mainly crosses of Californian and Chinchille breeds, crossed with imported animals to prevent inbreeding. At present we have Californian, New Zealand Whites, and improved crosses.

4.3 Regarding health, the major problem is with respiratory conditions. Amongst the imported animals, was diagnosed a Pasteurella multocida of great virulence, with a mortality of about 10 % of the initial animals. We are now selecting severely and continually to improve the situation. As a treatment we are using sulfaquinoxaline at 60% and furazolidone at 40%, in a dosage of 40 g/100 l of drinking water, for 14 days.

In the provinces we had only one case of apparent intestinal coccidiosis, and this through negligence due to lack of any type of prophylaxis and in spite of continual change of feeding. After 3 days of treatment the problem was overcome.

In conclusion, the basic health problem in rabbits in tropical climates is the proper functioning of the respiratory system. Our experience has shown that it is best to eliminate all rabbits that show signs of coryza. In this case it is always advisable to study the feeding regime and control the ventilation system.