

Session I - Discussion 1

Speaker: Mr M. MGHENI: Rabbit husbandry in Tanzania

C. Giattas, (University of Dar es Salaam), understood that in Malawi rabbit meat was taboo to Moslems, contrary to that reported by Mr MGHENI for Moslems in Tanzania.

A. HAQ, (University of dar es Salaam), reported that in the Moslem country of Pakistan rabbit meat consumption was not restricted by religious taboos.

M. MGHENI, reiterated that Moslems in Tanzania consumed rabbit meat without any apparent infringement of religious teachings.

N. MAMATTAH, (Ghana), submitted that poorer Moslems in Ghana used rabbit meat as a cheap alternative to mutton in religious celebrations.

R. RAMCHURN, (University of Mauritius), commented on the danger of rabbit meat being likened to that of cats and a consumer resistance developing as a result.

M. MGHENI, replied that such associations were in fact commonly found but stated that such problems in increasing consumption arose due to an ignorance of the potential of rabbit meat and its extreme palatability.

J.W. RUGH, (voisins Mondiaux, Togo) commented that when eggs were in short supply, there were sometimes taboos against certain family members eating them, e.g. pregnant women and children. Once eggs were plentiful the taboos tended to disappear.

A. HAQ, asked for comparative costs of rabbits as compared to other species, re: cost of producing 2 kg of liveweight in 112 days.

M. MGHENI, answered that proper costings were not yet available in Tanzania, he further pointed out that comparative costings were of limited meaning when different feeds were being used e.g. waste grasses for rabbits c.f. specially compounded feeds for poultry. However, using concentrate feeds on the University Farm, Morogoro, he stated that the feed costs amounted to 3 shillings 85 cents to 3 months of age.

P. WARNER, (Tsetse Fly Research Project, Tanzania) commented that introducing kindling boxes at 3-5 days before kindling gave best results.

J.I. MCNITT, (Bunda College, Malawi), agreed with the previous statement, adding that earlier introduction of the kindling boxes led to them being used for defaecation resulting in coccidiosis problems.

J.E. OWEN, (Tropical Products Institute, Britain), stressed the need to slaughter at a fixed liveweight rather than a fixed age. For New Zealand Whites the approximate weight was 2.5 kg after which feed conversion efficiency declined rapidly.

J.L. MREMA (Tanzania), questioned whether rabbits might become a pest, as in Australia, if widespread production was undertaken.

M. MGHENI, said that the survival of non controlled population of rabbits showed their adaptability to a wide range of feeds and added that pest problems will not arise as the rabbits will be raised in confinement.

L.N. ODONKOR, (Ghana), said there was no risk of rabbits becoming a pest provided free range systems were not used.

J.P. ARUMA, (Kenya), noted that in Kenya there were some taboos about pregnant women eating rabbit meat and stressed the need for rabbit extension work to women who largely determined eating patterns.

N. MAMATTAH, returning to the potential pest problem with rabbits, stressed that with the type of broiler rabbit being considered by the workshop there was no problem as such domestic rabbits would not survive long if outside their artificial environment.

Session I - Discussion 2

Speaker: Dr F.M. EL AMIN: Rabbit husbandry in the Sudan

L.N. ODONKOR, (Ghana), asked if the colony systems included both bucks and does.

F.M. EL AMIN, replied that the colonies contained only females and young and that the does were handmated outside the colonies, he reported no problems of fighting or mis-mothering due to the development of a strong dominance order among the rabbits.

J.OWEN, (Tropical Products Institute, Britain), asked how widespread rabbit keeping was in the Sudan.

F.M. EL AMIN, replied that rabbits were extensively kept under many small scale systems and that rabbits were brought regularly to markets for sale.

R. RANCHUM, (University of Mauritius) enquired if marketing of rabbits was easy in the Sudan.

F.M. EL AMIN, answered that there were no taboos partly because wild rabbits were long hunted and eaten and that rabbit was regarded as a luxury meat on some occasions, in other words there was no marketing problem.

K. MAEDA, (Livestock Development Division, Ministry of Agriculture, Tanzania) asked about the most important disease problems in rabbits in Sudan and Tanzania.

F.M. EL AMIN, replied that enteritis constituted the main problem in the Sudan and reported that antibiotics were used in the water supply when the need arose.

M. MGHENI, (University of dar es Salaam), stated that disease problems in Tanzania would be dealt with in a later paper by Dr SEMUGURUKA.

H.Y. KAYUMBO (Director-General, Tanzania National Scientific Research Council), commenting on the biological characteristics of the rabbit, presented a table extracted from Ecological Energetics by J. Phillipson (1966, Publ. Edward Arnold), as follows:

Food utilisation and rate of growth per unit weight by cattle and rabbits

Animals	1 steer	300 rabbits
Total body weight	1300 lb	1300 lb
Food consumption/day	16 2/3 lb	66 2/3 lb
Heat loss/day	20.000 kcal	80.000 kcal
Gain in weight/day	2 lb	8 lb
Gain from 1 ton of food	240 lb	240 lb

J.M. LIWENGA, (Vice-Chairman, Tanzania Scientific Research Council), asked what were the natural predators of broiler type rabbits.

F.M. EL AMIN, replied that there were no predators of hutch kept rabbits except perhaps dogs.

N. MAMATTAH, commented that when there is nothing to eat people will eat anything; snakes, lizards, etc. and thus the introduction of rabbit meat constituted no problem when meat supplies were short. On the question of pests he stated that in Africa where there were so many carnivores and opportunist hunters that pest problems were not likely to occur.

F.M. EL AMIN noted that whilst working in the Sudan the Chinese ate donkeys although these species are not normally eaten by the Sudanese.

J.P. LUNGU (Zambia) asked about the rabbit breeding plans in the Sudan and the value of local breeds.

F.M. EL AMIN noted the adaptability of local breeds but stressed that these were local domesticated and not purely wild rabbits.

J.P. ADUMA (Kenya), asked about the seasonal breeding of rabbits.

F.M. EL AMIN commented that there was no noticeable seasonal effect in his experience although he had not studied it in detail.

M. MGHENI thought that the 3-way crossing system suggested by Dr EL AMIN was only practicable on commercial units.

F.M. EL AMIN agreed with the previous comment and stated that he hoped to receive government subsidies in the Sudan to make the 3-way cross feasible on a commercial scale.

Mr MSHANA (Tanzania) asked about the origins of the local Sudanese rabbit.

F.M. EL AMIN replied that the term "local" referred to an evolved domesticated type and not a purely wild type. In the Sudan the local domesticated type had evolved from various imported rabbits.

J.E. OWEN stressed that a truly wild type in captivity would suffer from such a degree of stress as to make it prone to many disease problems.

N. MAMATTAH stated that the intention in Ghana was to "blow up" the local types with imported exotic stock and to blend the crosses of the latter into the local environment. Further, the intention was to set up parent stock headquarters and to use these to provide stock to prevent inbreeding in village units.

Session I - Discussion 3

Speaker: Mr D GASPARI: Rabbit husbandry in Mozambique

C. GIATTAS (University of Dar es Salaam), asked if the temperatures in Maputo were so high as to justify a selection programme for resistance to heat.

D. GASPARI answered that the temperature in Maputo ranged from 30-40°C. Since high temperature were one of the pre-disposing conditions to coryza infection selection for heat tolerance was justified.

C. GIATTAS asked how one recognized animals suffering from coryza.

N. MAMATTAH (Ghana) replied that the clinical symptoms of coryza were: the affected animal snuffled and there was a nasal discharge coupled with other symptoms very similar to symptoms of pneumonia.

C. GIATTAS said that when the animals showing clinical symptoms of coryza were eliminated, the selection was actually not for heat resistance but rather for resistance to coryza.

D. GASPARI said that it was during intense heat (36°C when it was best to observe the occurrence of respiratory troubles. At this temperature susceptible animals were culled, thus a nucleus stock not showing symptoms of coryza was established to which further selection could be applied. Respiratory problems were associated with productivity in that the higher the infection the lower the productivity of the animals.

J.E. OWEN (Tropical Products Institute, Britain) said that it seemed that selection for heat tolerance was because the susceptibility of the animals to coryza infection increased with increasing temperature, and asked if it was dry heat or moist heat that increased rabbit susceptibility to coryza.

D GASPARI replied that it was the moist heat that increased rabbit susceptibility to coryza. The animals were most susceptible during the wet season. This was the best time to carry out the selection because selection for resistance to diseases had to be done at the time when the animals were most likely to be susceptible.

W.D. SEMUGURUKA (University of Dar es Salaam) asked if it were just one species or strain of bacteria that caused coryza in rabbits.

D. GASPARI answered that there was more than one type of bacteria causing coryza in rabbits.

W.D. SEMUGURUKA stated that selecting for resistance to a disease was difficult due to the numerous pre-disposing factors for a disease infection. These factors might change from one generation to the next.

D. GASPARI replied that the selection operation had to be carried out under controlled environmental conditions.

N. MAMATTAH pointed out that in Europe, poor ventilation and high humidity increased the incidence of coryza because under such conditions ammonia from the urine could predispose to respiratory problems.

J.P. ADUMA (Kenya) stated that in poorly ventilated environments the respiratory system of the rabbit was irritated and the protective mucous membrane was damaged, thus encouraging infectious bacteria to flare up.

M. MGHENI (University of Dar es Salaam) commented that it was best to both change the environment, in order to reduce disease incidences, as well as to breed for disease resistance.

J.E. OWEN said that rabbits could withstand high concentrations of ammonia, more than human beings could easily tolerate when working in rabbit units. The accumulation of ammonia in rabbit houses was not usually the direct cause of coryza, but was symptomatic of poor ventilation.

R RAMCHURN (University of Mauritius) said that in his opinion the drug used in the treatment of coryza in Mozambique was correct but that the dosage indicated was rather too high.

D GASPARI replied that the dispensing of the drug was controlled. The dosage might be too high for pregnant animals but was satisfactory for young growing animals.

C. GIATTAS pointed out that the dosage used would very much depend on the amount of water the animal were expected to take. This factor varied from situation to situation and the quoted dosage might be correct depending on the amount of water taken in by the animals.

Session 1 - Discussion 4

Speaker: Mr L.D. KANGNI: Rabbit husbandry in Togo

J.I. MCNITT, (Bunda College, Malawi), pointed out that it was mentioned in the paper that rabbits were treated against parasites every three months and asked what were the parasites and what was the treatment.

L.D. KANGNI, answered that the parasites were mainly intestinal; ascariasis was the condition most frequently observed. However, problems were rare except where husbandry practices were neglected.

W.D. SEMUGURUKA, (University of Dar es Salaam), asked if the disease was so rare why the three monthly treatment.

L.D. KANGNI, pointed out that the treatment was mainly prophylactic as a precaution against possible outbreaks.

M.E. SHAYO, (Ministry of Agriculture, Tanzania), asked what was the drug of choice, was it a broad spectrum or narrow spectrum antibiotic and what were the active ingredients.

L.D. KANGNI, answered that the veterinary officer was consulted whenever a problem was observed and he was the one who knew the drug of choice and the active ingredients.

N. MAMATTAH, (Ghana), stated that Cénurose was a disease observed in Ghana and was suspected to be caused by a protozoon Encephalotozoon cunuculi, and was more common when there was a heat wave. He reported that sprinkling the animal with cold water might alleviate the problem in some cases and that the disease might be spread by urine of dogs and humans. He suggested to kill the affected animals before the disease was too severe and eat them after discarding the heads.

T.S. KAVISEH, (University of Dar es Salaam), stated that Cénurose was an intermediate stage of a tapeworm found in dogs resulting from the ingestion by the rabbit of grass contaminated by dog faeces.

R. RAMCHURN, (University of Mauritius), asked how the speaker saw an experimental centre developing according to the recommendations in his paper.

L.D. KANGNI, replied that a centre for rabbit research was highly desirable in all countries. The centre should be started with modern techniques and be a place where teachers from all over the country could come and follow a three months course in rabbit husbandry. These people would then start small rabbit husbandry units in their schools with hutches supplied from the centre. These school units would be used to teach the children good practical rabbit husbandry coupled with theoretical lessons in class. Such units would then be pilot projects. With such an arrangement there would be rabbits everywhere in Togo in one year!

N.T. BANGU, (University of Dar es Salaam), said that in the Togolese experience they seemed to be facing problems whilst using high quality feeds like grains, fish meal etc., while earlier reports from Sudan and Mozambique had indicated the converse. He asked why this should be so.

L.N. ODONKOR, (Ghana), pointed out that in commercial production units formulated feeds were required to maintain profitable production in contrast to small scale production where cheap feeds could be used.

L.D. KANGNI, said that forages were useful on family scale production units but in large scale enterprises there were problems about how to offer forages, i.e. dry or fresh. Fresh forages had resulted in intestinal troubles but these were reduced on dried forage.

E.M. KIANGI, (University of Dar es Salaam), asked what caused the disease Cénurose and what was the percentage of animals affected.

L.D. KANGNI, answered that the actual casue was unknown but the symptoms were: screaming and whirling around for 2-3 min. followed by paralysis and later death.

Session I - Discussion 5

Speakers:	Mr J.P. LUNGU:	Rabbit husbandry in Zambia
	Mr J.E. OWEN:	Rabbit production in tropical countries
	Mr N. MAMATTAH:	Sociological aspects of introducing rabbits into farm practice

P. WARNER, (Tsetse-Fly Research Project, Tanzania), asked for advice on the problem of pre-weaning mortality which was an important factor in his rabbit unit.

J.E. OWEN, (Tropical Products Institute, Britain), answered that there were two points of high mortality in the rabbit production cycle, namely, at weaning and the first days after birth. At weaning, mortality was most often caused by poor nutrition, coccidiosis and respiratory conditions. After birth the causes of mortality were trampling, mis-mothering and even predators such as rats. He indicated that for pre-weaning mortality standards of 10% were good and that levels of 20-25% were common with levels of up to 30-40% being often encountered.

P. WARNER, commented that litter mortality was a major constraint in rabbit production and that the kindling box system may not be the most appropriate one.

J.E. OWEN, agreed with the previous statement and pointed out that although there had been significant progress in genetic and nutritional aspects there had been no similar improvements in husbandry techniques. He suggested that the mortality rate following birth might be reduced by joining the litter and does only once per day for feeding and for the rest of the day keeping them separate.