Session II - Discussion 1

Speakers: Mr J.I. MCNITT: Methods of small holder rabbit production

Mr O. COSTA: Rabbit production in Mozambique

Mr L.N. ODONKOR: A new system of rabbit production

H.Y. KAYUMBO, (Director-General Ranzania National Scientific Research Council), said that he believed Leucaena had the same toxic effects to classes of livestock other than rabbits and asked what happened if this plant was fed to other animals e.g. goats and sheep.

J.I. MCNITT, replied that leucaena was known to contain a toxic compound mimosine, whose toxicity varied with the species of the animal to which it was fed; the season of the year, the part of the plant fed etc. The young growing shoots and leaves appeared to have more toxic effects when fed to livestock than the older parts of the plant.

M.L. KYOMO, (Dean, Faculty of Agriculture, University of Dar es Salaam), said that the toxicity of leucaena occurred if too much of the feed stuff was given to animals. It appeared that the toxic compoung accumulated in the animal's body, so that even if only small amounts of the feedstuff were offered at a time, toxic effects might be apparent after a prolonged period of using the feedstuff. These toxic effects might even affect human beings who ate meat from affected animals. There was need for more research in this field.

N. MAMATTAH, (Ghana), said that does fed on leucaena had been observed to develop fungus on the skin coupled with shedding of fur.

Mr MSHANA, (Tanzania), asked what was the distribution of mimosine in leucaena.

J.I. MCNITT, replied that the toxin appeared to be mostly concentrated in young parts of the plant, but more research was needed to confirm this.

L.D. KANGNI, (Togo) pointed out that in Togo dried leucaena had been fed to rabbits up to 8-12% of the ration without any ill-effects being observed.

J.I. MCNITT, commented that he fed fresh leucaena to rabbits and that the same ill-effects had been observed even if the feedstuff were dried before being offered to the animals. It appeared that it was the amount of leucaena given to the animals that mattered, rather than the form in which it was offered.

L.D. KANGNI, commented that in the Togo experience dried leucaena had beneficial effects when given to rabbits and chickens.

M.I. KYOMO, added that it certainly appeared to be the total amount of leucaena offered to the animals which was important. In some countries they had tried to feed pelletted leucaena to animals but the same toxic effects had been observed.

J.E. OWEN, asked what was the mortality rate among the rabbits in Mr Odonkor's unit in Ghana, when was mortality rate highest and what were the most probable causes of these deaths.

L.N.ODONKOR, answered that the mortality rate experienced under his system of production was 8-10%. Most of the deaths were due to poor feeding of the newly weaned rabbits.

B. GOHL, (International Foundation for Science, Sweden), asked if palm-oil leaves were fed regularly to the rabbits and asked if any analysis had been made on the composition of these leaves.

L.N. ODONKOR, replied no, palm-oil leaves were not regularly offered,only when other types of forage could not be easily obtained. So far no analysis had been done on the composition of palm-oil leaves.

M.L. KYOMO, said that the toxicity of mimosine in animals was manifested only after a long period of feeding because the effects were cumulative.

J.P. LUNGU, (Zambia) asked how recording work was minimised in the 'New System of Rabbit Production' in Ghana.

L.N. ODONKOR, replied that the recording work was minimised by keeping records on batches of animals rather than on individual animals.

M.L. KYOMO, commented that in practical animal husbandry recording work is normally simplfied by working with group identifaction rather than individual identification.

M.E. SHAYO, (Tanzania), aksed how many rabbits could be kept in a single cubicle and was it possible to mix animals from different litters.

J.I. MCNITT, replied that a doe and her litter were housed in a 65 x 81 cim cubicle for two months. It was possible to mix the litters, but it had not been necessary to do so.

M.L. KYOMO, asked if Mr Odonkor experienced any problems of fighting when rabbits from different litters were mixed.

L.N. ODONKOR, answered that they did experience such problems. This had been the main reason for designing the kindling section.

M.L. KYOMO, asked what was the estimated number of rabbits in Mozambique, would they sell some of the rabbits to Tanzania.

O. COSTA, replied that there are about 2,000 breeding units and they would be willing to sell some of the rabbits.

J.E. OWEN, asked if Mr Odonkor castrated the male rabbits.

L.N. ODONKOR, replied that he did castrate the rabbits at 3 months of age. This made the animals docile. After this the animals were given carbohydrate feeds to fatten them.

D.M. MABEBA, (Tanzania) asked what was the recommended male/female ratio.

L.N. ODONKOR, replied that the recommended ratio was 1 male to 10 or more females. The idea was to avoid a situation whereby the buck would force the doe to mate.

N. MAMATTAH, said that square cubicles had the advantage that whenever the doe was not in the mood to mate she went into a protective corner but in round cubicles the buck was likely to chase the doe around until she finally gave in.

J.I. MCNITT, answered that hand mating was the normal practical system used. The round cubicles were not meant to be mating-chambers.

L.N. ODONKOR, added that the situation whereby the buck forced himself on the doe did not occur if the doe was introduced to the buck when she was in heat.

J.E. OWEN, asked how he could tell when a doe was ready for mating.

L.N. ODONKOR, replied that the vulva became red, the doe mounted other rabbits or was mounted by them, and the doe readily accepted the buck.

Session II- Discussion 2

Speakers: R. RAMCHURN: New feed resources for rabbits in Mauritius.

F.M. EL AMIN: Reproductive performance of rabbits selected for post-weaning growth rate

C. GIATTAS, (University of Dar es Salaam), referred to the paper by R. Ramchurn where he mentioned that feeding sugarcane only had no problems but feeding it with 40% complete rabbit meal showed problems of hair loss.

R. RAMCHURN, reiterated that this was true, that no ill effects were observed when feeding sugarcane only.

C. GIATTAS, replied that there was no examination of the livers of affected animals and that the relationship of the disorder with the feed was only an observation.

N. MAMATTAH, (Ghana), cautioned the workshop on the use of the terms 'concentrate' and 'ration' as these might be confusing.

M.L. KYOMO, (Dean, Faculty of Agriculture University of Dar es Salaam), wanted to know whether the sugarcane was fed as pellets or in loose form as these different forms of feed affected feed intake.

R. RAMCHURN, agreed with M.L. Kyomo as to the effect of feed treatment on feed intake but added that he did not see any necessity of pelleting sugarcane.

E.M. SHAYO, (Ministry of Agriculture, Tanzania), asked why Mr Ramchurn was carrying out his experiments in isolation as he had mentioned in his paper.

E. RAMCHURN, replied that this was because of there being few animal scientists in Mauritius.

J.M. RUGH,(Voisins Mondiaux-Togo), asked whether they had analysed the feeds used in the experiment because he found it interesting to note the higher growth rates on sugarcane than on leucaena.

R. RAMCHURN, agreed with the observation and said that the analyses were made on the feeds.

H.Y. KAYUMBO, (Director-General, Tanzania National Scientific Research Council) observed that the humus chopper used to chop sugarcane was rather expensive and questioned if this was to be used by peasant producers. He also asked why sugarcane was used instead of the by-products.

R. RAMCHURN, replied that the chopper was actually cheap and chopping was necessary as rabbits will not accept the entire sugarcane. He added that trials using molasses and bagasse were under-way.

M.L. KYOMO, added that in certain circumstances it is more economical to feed whole sugarcane than by-products.

P.I. SUNNI,(University of Dar es Salaam), asked what were the advantages of pelleting rabbit feeds and was this not expensive.

R. RAMCHURN, explained that feed pelleting improves feed intake and reduces feed wastage. He added that feed pelleting was cheap because it was done on a commercial scale.

K. BRUHN, (University of Dar es Salaam), asked Dr El Amin to give some estimates of heritability in rabbits.

F.M. EL AMIN, replied that the heritability (h^2) for growth rate was high at about 40% and that for littersize at weaning about 20%.

N.MAEDA, (Tanzania), pointed out that breeders of other species bred for increased milk production to improve weaning weights and postweaning growth rates. Was this not possible in rabbits? This would also help in increasing the size of litters.

F.M. EL AMIN, noted that the rabbit suckles her young only once in 24 hours and this was for a short time. Thus increasing the litter size to over 8 would wxceed the number of teats on the mother. He proposed that selection for increased number of teats would allow increasing litter sizes but the extra teats so far observed had been non functional.

N. MAMATTAH, asked if the rabbits used in the breeding experiment were local or imported and also if there were rabbits which could be considered local to Sudan.

F.M. EL AMIN, replied that the New Zealand White and Californian breeds were used in his experiment but there were local rabbits in the Sudan.

Session II- Discussion 3

Speakers:	J.P. ADUMA:	coccidiosis in rabbits
	W.D. SEMUGURUKA:	Observations on rabbit diseases in Tanzania
	J.M. RUGH:	Housing of rabbits

B.U. KOTHARI, (University of Dar es Salaam), asked about the effectiveness of available drugs against coccidiosis.

J.P. ADUMA, noted that the faecal oocyst count was not always a good indication of the state of the disease and that animals with low counts might suffer considerably and visa versa. The most effective drug depended on circumstances, including the drugs used previously.

J.E. OWEN, (Tropical Products, Institute, Britain), from his experience noted that coccidiosis was often associated with white spots in the intestine. The intestinal walls were apparently often thin and the intestines filled with gas.

J.P. ADUMA, noted there were many organisms in the intestines which could be confused with coccidiosis.

J.E. OWEN, asked about salmonella problems in rabbits with reference to lizards which were sometimes found running over the cages.

W.D. SEMUGURUKA, noted that there were many animals that could transmit salmonella and that lizards etc could be implicated in certain conditions.

N. MAMATTAH, (Ghana) asked about the possibility of producing vaccines against coccidiosis.

J.P. ADUMA, answered that vaccines against protozoans were relatively difficult to produce and were of limited effectiveness. He felt the need was to make maximum use of good management and available drugs in combatting coccidiosis.

N. MAMATTAH, asked if the mud houses discussed by J.M. Rugh suffered from problems with insects such as fleas, and asked how were such houses disinfected.

J.M. RUGH, replied that he had not encountered any cases of insect problems with the mud houses and that these were maintained clean by daily sweeping. He added that sunlight was perhaps a factor in their natural disinfection in some cases.

J.P. ADUMA, mentioned the possibility of irradiated oocysts as vaccines.

M.E. SHAYO, (Ministry of Agriculture, Tanzania), commented that irradiated oocysts had not given good results.

D. GASPARI, (Mozambique), pointed out that hepatic coccidiosis was most serious in smaller scale units and intestinal coccodiosis in large units.

J.M. RUGH, observed that there were certainly more disease problems in larger units.

Mr MELLA, (Ministry of Agriculture, Tanzania), asked if it was possible to recommend a best housing system for Africa.

J.M. RUGH, replied that the possibilities were so diverse as to make this impossible. He suggested that promotion projects should have various designs and types on display so that farmers could choose which was most appropriate to their circumstances.

N. MAEDA, (Livestock Development Division, Tanzania), added that even in Tanzania different areas required different hutch types according to climate conditions.

J.P. ADUMA, asked if there were problems of mastitis in Tanzania.

W.D. SEMUGURUKA, replied that mastitis was not a problem in Tanzania.

P. WARNER, (Tsetse-Fly Research Project, Tanzania), reported that his unit of around 150 rabbits had only 2 cases of mastitis in 3 years.

W.D. SEMUGURUKA, warned against the continous prophylactic use of antibiotics for reasons of inducing resistant strains of bacteria and the risk of residues in the meat.

P. WARNER, stated that in his unit there had been no case of coccidiosis in 3 years as a result of good hygiene and management.

J.E. OWEN, commented that mastitis was a particular problem in intensive units using post partum mating, because of the stress that this practice induced.

H.Y. KAYUMBO, (Director General, Tanzania National Scientific Research Council), asked in the light of the potential importance of rabbits what was the situation with regard to the teaching of rabbit husbandry in African Faculties of Agriculture.

N. MAMATTAH, (Ghana), said that the University of Ghana was showing increasing interest in rabbit production. He stressed the use of short 3-week courses to illiterates, school-leavers and literates in promoting rabbit production in Ghana.

M.L. KYOMO, (Dean, Faculty of Agriculture, University of Dar es Salaam), stated that in the past the Association of Dean's of African Faculties of Agriculture had not considered detailed curriculum matters such as the time given to the teaching of rabbit production. However, he felt that in Faculties generally the attention given to rabbits was very small.

J.P. ADUMA, said that the University of Nairobi gave no courses in rabbit production. At Egerton College, Kenya, the students worked in the rabbit unit but there was no formal teaching in the subject.

R. RAMCHURN, agreed that some immunity to future attacks could develop although he was unable to say anything about the actual mechanism involved.

R. RAMCHURN, asked what was the tolerable level of oocysts in the faeces.

J.P. ADUMA, answered approximately 2 000 o.p.g. although it was difficult to be categorical because lower levels might result in actual disease and higher levels have apparently no effect.

Mr MELLA, pointed out that coccidiosis was to some extent self curing provided tissue damage was not extensive and there was no re-exposure, however the animal often died because of initial tissue damage.

A.J. NGOMUS, (Tanzania), asked what was the order of importance of the rabbit diseases at Egerton College.

J.P. ADUMA, replied that the disease conditions in order of importance were 1. coccidiosis, 2. pasteurellossis, 3. mastitis, 4. skin conditions.