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A STUDY OF GOAT CROSSBREEDING
FOR INCREASED MEAT PRODUCTION

ANNUAL REPORT 1989

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A. INTRODUCTION.

1. General.

We present here the first annual report which summarizes actual activities in the field. In view of the fact that the project was granted in August 1987, this is a substantial delay. Most of the time was spent attempting to overcome the difficulties in communication, especially transfer of the money from one place to the other (Washington to Jerusalem, Jerusalem to Kathmandu). The first amount of money arrived to Nepal only in December 1988, and only then was it possible to start the actual work.

2. Objectives and plan.

For convenience the objectives of the project and working plans will be briefly summarized.

The purposes of the research are : i. To test if crossing local Nepali does, of small body weight used for meat production, with Mediterranean bucks of heavy body weight breeds will increase meat production. ii. To compare some Mediterranean breeds found in Israel and to find which of them fits best for this goal. iii. To test the use of frozen semen as a method for shipping genetic material to Nepal.

A herd of 240 does of two local Nepali breeds, Large Khari (KL) and Small Khari (KS), and several bucks of each breed, has to be purchased. The herd was to be housed in a shed built for this purpose on IAAS campus in Rampur. Several bucks of three Israeli breeds, Mamber (M), Damascus (D) and Saanen (S), and frozen semen from

several other bucks of the same breeds should be shipped to Rampur. Crosses will be made between the local does and the imported breeds, as well as with their own bucks. The resulting kids will be followed up to the age of 6 months and one year and data about growth and meat production will be collected. Females of the local x exotic crosses will be tested for their performance as breeding does compared to pure locals.

B. ACTIVITIES PERFORMED.

1. From December 1938 until March 1939 Dr. S. K. Sah, the appointed principal investigator in Nepal, stayed in Israel. During this time he was introduced to herd management practices: nutrition, housing, mating, kidding and disease control. He also attended an international course for sheep and goat breeding and management organized at the center for international agricultural cooperation of the Israeli ministry of agriculture.
 2. Between August 2nd. and September 20th a herd of 270 does and 6 bucks was purchased in Nepal. The herd was composed of approximately equal numbers of KL and KS goats. The animals were collected from 14 different localities. Each goat was eartagged on arrival to Rampur. The herd was drenched against worms a short time after the formation of the herd, and again at mid-November. The herd has been sprayed against external parasites biweekly from October 24th. on. Each doe was weighed and her age was estimated.
- As the planned shed was not built, the herd is housed in

an existing old pig shed which was adjusted for this purpose. The goats are grazing in the IAAS pasture fields about 6 hours per day and in addition thier diet is being supplemented by concentrates.

3. In the institute of animal research in Lahav (IARI) six bucks of each of the Mamber and Damascus breeds were purchased. Two bucks from each breed were prepared for shipment to Nepal (medical check, vaccination, drenching and spraying) and later shipped to IAAS campus in Rampur. From the rest of the bucks semen was collected, processed, frozen and shipped to Rampur too.

4. From September 27th. to October 19th. Dr. D. Rattner and Miss Ayelet Ziv from Israel went to IAAS Rampur. During their stay there the plan of matings was explained to the local staff and the working methods were demonstrated.

Methods of management, nutrition and medical care of the herd were discussed with the member of the department of animal science in IAAS Rampur and with the dean, Dr. Malik. Plans for the new shed were surveyed and discussed too. Miss Ziv revisited IAAS Rampur at the end of November for a few days.

C. RESULTS.

1. Breeds body weight.

The average body weights of adult females of the breeds KL and KS were 18kg. and 15kg. respectively. This is much less than the body weights reported by Mr. Kharel during the preparation of the research proposal (35kg. and 23kg.).

2. Matings.

Matings and inseminations started on October 5th. and were terminated on November 15th.. Originally it was planned to fertilize the does during a period of two estrus cycles (approx. 40 days). During the first 20 days the planned A.I. fertilizations were to be done while the second estrus cycle was to be entirely of natural matings. This is because conception rate in A.I. was expected to be lower than in natural matings. In practise many of the does that were in heat in the second estrus cycle were also inseminated. In total 198 inseminations and natural matings were performed on 135 does. The same number did not come in heat at all, some of them because they were already pregnant at purchase.

Distribution of the crosses (135 does):

Sire breed	KL	KS	M	D	
Doe breed					
KL	13	10	23	26	72
KS	5	13	23	22	63
	18	23	46	48	135

From the goats mated in the first estrus cycle 30% repeated while from those inseminated 50% repeated. According to this 72 kiddings were expected from the first cycle and 39 from the second cycle, totaling 111. After subtracting does that died, only 87 kiddings are expected in the first season, if the does will all survive.

3. Mortality.

The herd suffered from a very high mortality rate, almost from the start. Until November 26th. 103 goats died, among them all the local bucks but one.

Mortality by the week:

Period	Number died
Until 5/10/89	13
6-12/10	9
13-19/10	12
20-26/10	11
27/10-2/11	21
3-9/11	10
10-16/11	12
17-23/11	12
24-26/11	3
TOTAL	103

From the 5th. of October every dead animal was autopsied. Due to the limited facilities for laboratory diagnosis in most cases only gross pathology findings were recorded. In 66 dead animals the lungs were

infected, in 30 animals enteritis or other forms of intestine lesions were seen, changes in the liver were found in 14 animals and heart and pericard damage was observed in 11 animals.

4. Kiddings.

From October 11th. to October 30th. 11 doe gave birth to 12 kids, 7 females and 5 males. Five of the newborn died until the end of November. The rest are raised either on their mothers milk or bottle fed with buffalo milk.

C. EVALUATION

The small body size of the Khari does raise difficulties in mating them with the imported bucks. If this information has been at hand before our visit to Nepal, A.I. with fresh semen could have been planned. Although we had part of the needed equipment, it was not possible to get the needed arrangements in Rampur. We tried to overcome partially these difficulties by building a small stage to elevate the doe during the mating. It worked at least in some of the matings. The males that were purchased in Nepal were all kids, less than one year of age, and they failed to mate part of the needed does. As a result the division of the expected kiddings in the first season is not balanced. It is very urgent to purchase several older bucks of each of the two local breeds soon, so that they will have time to adjust to the local condition before the next mating season.

The mortality was enormous and during the first quarter

of the year about 40% of the herd was lost. Due to the very limited facilities of laboratory diagnosis in Nepal it was not possible to find the direct cause of death, and to find the proper treatment needed. However, it seems to us that the main problem is of management. Visiting Rampur we got the impression that the place is not the best for the planned experiment. Rampur area is not the place where goat herds are found. Although there are many goats in the area, the people usually have only one or a few animals and they keep them tethered at their yard or in roadsides. The pasture vegetation is mainly swamp grass with very few bushes. Another problem may be the shed, although the workers do their best to take good care of the goats.

At the moment about 85 kiddings are expected, almost half of the planned number. There are still 65 does that did not come in heat at the first mating season.

D. COOPERATION.

Communication is a main problem. In Rampur there is only one telephone line and it is very difficult to get a long distance call from there. It is also difficult to get a phone call from Israel to Nepal. Mail is sometimes very slow, an air-mail letter takes 12-20 days. Other electronic communication channels exist only in Kathmandu. The people in Rampur are not always aware how important it is to report currently and accurately.

The actual work in Rampur is done by Dr. S.K.Sah, Dr. I.P.Dhakal, Dr. S.B.Singh and Mr. D.B.Nepali. They are

in charge of matings, health, nutrition and management of the herd. In Israel the bucks were purchased and frozen semen was prepared. Three people of the staff of LARI (Mr. J.Rivier, Dr. D.Rattner and Miss Ayelet Ziv) visited Rampur and instructed the people there in the projects objectives and working methods. More visits are planned in the near future.

E. PERSONNEL.

Mr. Mohan Kharel, who prepared the project program together with the Israeli investigators, left for doctoral studies in the Phillipines at mid-1988. The dean of IAAS Rampur appointed Dr. S.K.Sah to take the place of principal investigator.

On Dr. Rattner's visit to Rampur it was found that the two Nepali co-investigators, Mr. S.L.Pradhan and Mr. S.L.Shrest are working in positions that do not enable them to take part in the research. They were excluded from the list of investigators. Instead, three people of the IAAS Rampur faculty joined the project: Dr. S.K.Singh, a nutritionist, Dr. I.P.Dhakal, a veterinarian, and Mr. D.B.Nepali, animal husbandry expert. It is hoped that these people will be able to help Dr. Sah in running the project properly.