THE D.P.I. SHEEP RESEARCH CENTRE AT MENIFO

By Catherine Kilroy, Publications Officer,
Education and Training Branch, D.P.I., Konedobu

INTRODUCTION

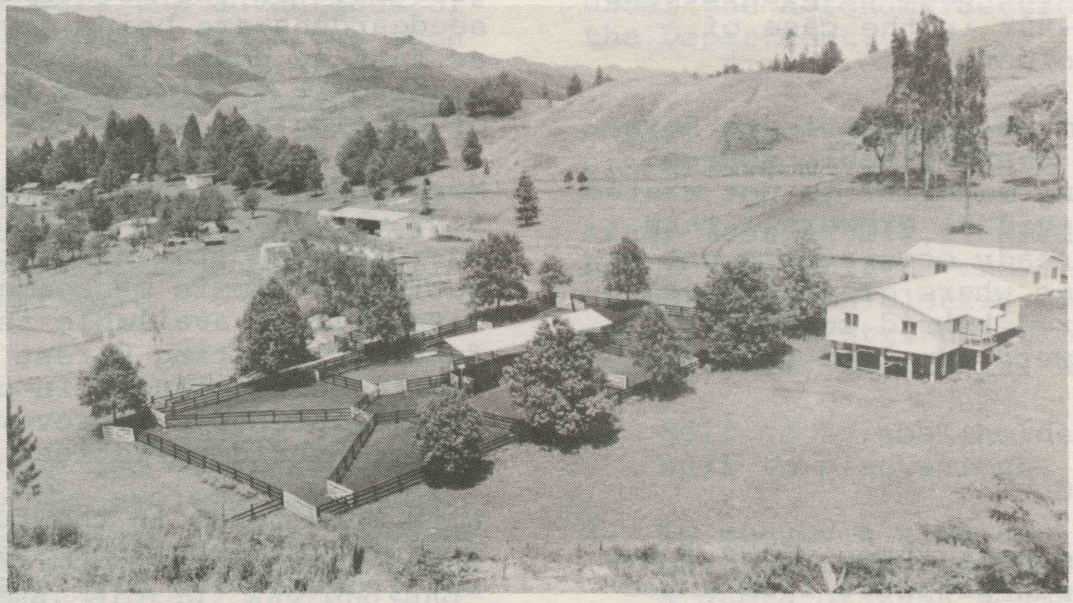
In 1974, at the request of the Papua New Guinea Administration, the New Zealand Government arranged for feasibility studies to be carried out for a sheep project in the Highlands.

The land chosen for the project was at Menifo, about 20 km south of Goroka. It covers 324 hectares of open grassland about 1600 m above sea level and was formerly part of Bena Bena cattle station.

The D.P.I. Sheep Research Centre at Menifo is an N.P.E.P. project and is assisted by New Zealand.

It started operating in 1975, when 881 sheep were shipped to Lae from New Zealand. In 1980, a second importation of 845 sheep arrived from New Zealand. In October 1981, the total flock on the station was 1780 - made up of about 1200 ewes, 400 lambs and 200 hoggets (females under 1 year old), plus a small number of rams. They are almost all Perendales or Corriedales or crosses, with a few Priangons. Another 425 females are scheduled to arrive in 1982.

The Centre is now successfully carrying out its two functions. First, it supplies breeding stock for distribution to smallholder projects in six provinces. Second, research is being carried out into methods of sheep management for the Papua New Guinea Highlands.



The headquarters of the D.P.I. Sheep Research Centre at Menifo

An improved pasture of a white clover and kikuyu mixture on trial at the Centre

PASTURE IMPROVEMENT

The 881 sheep which arrived at Menifo in 1975 were mainly Perendale and Corriedale ewes, with a small number of males. For the first three years, the sheep did not do particularly well. Compared with New Zealand, growth and lambing rates were low and wool production poor. These disappointing results were thought to be caused by poor nutrition.

During these three years, a lot of work was done on fencing: the land was divided into paddocks; and a tall security fence was built around the boundary to keep out dogs, and to prevent stealing. However, little work was done on pasture development.

Until 1978, most of the land at Menifo was still under kunai, which is not very nutritious for sheep. Only about 4 ha had been replanted with improved pasture. Ploughing in and replanting of larger areas began in 1978, and by October 1981 improved pasture covered about 120 ha. The improved pasture consists mainly of a mixture of a native grass called kikuyu, and a legume, such as Haifa white clover, or desmodium.

The pasture improvement programme continues.

On the new pasture, the sheep have done much better. By 1980, the lambing rate had risen from under 50% to over 80% and growth rates and wool production had improved.

SHEEP MANAGEMENT AT MENIFO

The Centre is run by a Supervising Manager who is an experienced sheep farmer, provided by New Zealand Aid. The national staff consists of a Station Manager, the National Sheep Extension Officer, an agronomist and 16 labourers.

Grazing system

Menifo station is divided by wire fences into over 40 large paddocks. These are grazed in rotation by groups of sheep. The sheep are separated into groups according to age. A herd of about 225 cattle is kept on the station for 'cleaning up' the pastures after the sheep have grazed.

The system is as follows: Young sheep graze in a paddock of well grown grass. They will eat the young tender shoots first. After about 2-4 days, they are replaced by adult sheep. The adult sheep will eat coarser older shoots. Finally after 2-4 more days, they are replaced by cattle who eat all the very coarse grazing which sheep will not touch.

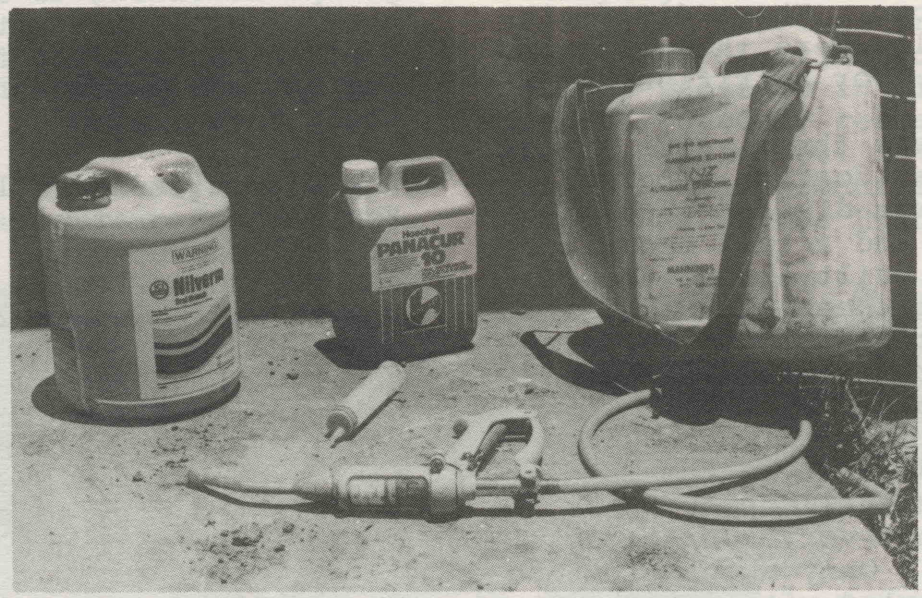
The paddock is then left ungrazed for 2-3 weeks and the pasture re-grows.

Mineral deficiencies

Ever since cattle were introduced to the highlands, it has been known that the soil is deficient (lacking) in iodine.

Sheep at Menifo licking at a salt block. The sheep and lambs know that they need more salt, and will automatically come to lick.

Giving a sheep a dose of antihelminthic drench using the automatic drencher (See below)



Equipment used for drenching sheep with antihelminthic medicine. Two types of antihelminthic are in the containers on the left. The small syringe in the centre of the picture is suitable for smallholders with just a few sheep. It has to be refilled before each dose. The automatic drencher (nozzle at the front of the picture, hose and right hand container) is suitable for larger numbers of sheep. The correct amount of drench is pumped through at each dose.

Iodine deficiency in the diet of sheep causes goitre (swelling of the glands of the neck) and lambs are born dead.

The answer to the problem is to place iodised salt licks in the paddocks with the sheep. The salt licks used at Menifo contain various elements including Iodine, Phosphorus, Calcium, Magnesium, Zinc and Iron. They cost K7.00 each, and one is enough for 100 sheep for one week.

Diseases

The most difficult problem with sheep is the high risk of infestations of intestinal worms. Every sheep is drenched with a broad spectrum anthelminthic (medicine used against many parasitic worms) once every month. Monthly treatments are important because in the paddock grazing system, there is a high risk of re-infection.

Another serious problem is screw-worm fly. Sheep are checked for strikes regularly, and are treated when necessary. (See Entomology Bulletin on Screw-worm fly in this issue of HARVEST (pp. 132-135).)

Water

Every paddock where sheep are being kept has a supply of water. It could be either a dammed water-course, or a tank supplying to a water trough.

SMALLHOLDER SHEEP PROJECTS

Lambs are weaned at 4-5 months. Some are kept back for breeding at Menifo, and the rest are supplied to smallholders at 6-8 months old. The Centre supplies projects in the Southern Highlands, Enga, Western Highlands, Simbu, Eastern Highlands and Morobe Provinces.

As of July 1981, there were 140 smallholder projects involving a total supply of 880 sheep. Another 523 had been sold to 39 Missions. Schools, Plantations and Corrective Institutions accounted for another 246 sheep. There are also 12 D.P.I. demonstration units which have been supplied from Menifo.

D.P.I. Extension Officers, or farmers themselves put in requests for sheep. For first-time projects, the Centre will supply wethers (castrated males) for fattening only. If the projects are successful, breeding stock may be supplied, e.g. four females and one male after a year of successful farming with wethers.

Young females are supplied at K35 each, and males at K30. Females are more expensive because there is a greater demand for them, and they have greater value as breeders.

After fattening for 6-12 months, a live wether could fetch K50 to K100.

In smallholder projects, careful management is just as important as in large-scale projects. In particular, sheep must be drenched with an anthelminthic. It is not usually necessary to drench every month, since under village conditions the risk of re-infection is smaller.

It is also important to provide mineral supplements to the diet in the form of an iodised salt lick. One block may last for several months on a small project, so it should be kept under cover or it will be washed away by rain.

D.P.I. extension officers check up on smallholder projects and give advice on problems. The main problems arise from poor nutrition and animal health.

A smallholder bringing his sheep back to the village after a day of grazing

Breeding problems sometimes occur. For example, an unshorn sheep under heat stress will not become pregnant.

For further advice, farmers and extension officers can consult staff at the Research Centre, or their area Veterinary Officer.

WOOL

In Papua New Guinea, sheep are kept mainly for their meat. However, another valuable product is wool. Of the sheep varieties at Menifo, Corriedales and Perendales give the best wool. Priangon wool is rather hairy and is not worth as much.

D.P.I. buys wool from smallholders at K1.00 per kg, or 50t per kg if sheared by D.P.I. staff. At present this wool is stored at Menifo.

There are plans to build a wool scouring plant at Bena Bena, near Menifo, where there is a good water supply. Here, the wool will be cleaned ready for dyeing and spinning. It will be staffed by D.P.I. labourers.

Once the scouring plant is operating, the weaving centres in the Highlands (e.g. at Wabag, Goroka and Mendi) will be able to buy cleaned Papua New Guinea wool, instead of importing from Australia.

RESEARCH AND TRAINING AT MENIFO

Part of the New Zealand Aid contribution to the sheep project was to provide a Research Officer to carry out trials and experiments to improve sheep projects in Papua New Guinea. He also checks on the progress of smallholder projects, and is in charge of developing training programmes.

Research

The main areas of research are:

- The effect of major and minor elements as pasture nutrients.
- Growth trials on different types of pasture.
- Breed comparisons: Corriedale, Perendale, Priangon and Priangon x Corriedale breeds will be compared under similar conditions for growth rates and lambing. The same comparisons are being carried out on about 10 farms in Eastern Highlands Province.

- Trials on various antihelminthic treatments are being conducted for the National Veterinary Laboratory at Kila Kila.

- Trials planned include:

  A plot trial for 30 grass and legume pasture species suitable for the tropics and sub-tropics.

  Mineral deficiency trials. It is suspected that soils may be deficient in cobalt.

One of the pasture nutrient trials

Training

Two types of course are held at Menifo. One is designed for field officers, and the other for farmers. One course of each type is held for each of the 6 provinces every year. So there is a training course at the station every month.

The courses last for 4 days. Those for field officers consist of a series of lectures and practical sessions about sheep-rearing and management. Those for farmers are mainly practical. The farmers' courses are open both to people who already keep sheep, and to people who are thinking about starting projects.

An R.D.O. demonstrating how to shear a sheep

CONCLUSION

After a slow start, the Sheep Research Centre at Menifo is now proving that with careful pasture management, Corriedale and Perendale breeds of sheep, and also crossbreds, can be raised successfully on a relatively large scale in this part of Papua New Guinea. It has also shown that sheep make good village animals in the Highlands. The meat is popular, and the animals are small enough to be easy to handle. In addition, an extra income can be made from selling wool.

However, village farmers must manage their sheep properly if their projects are to succeed. The research and management staff at Menifo will be pleased to give advice on setting up new projects or solving problems encountered in existing ones.

For any assistance required, contact the National Sheep Extension Officer at Goroka Regional Livestock Office. (Telephone: 72 1155).