

Sheep for Papua New Guinea?

IN many of the densely populated areas of the highlands, particularly where the hills are steep, beef cattle are rather large units to be incorporated satisfactorily into village farming systems. In order to find a suitable alternative for these areas, the Department has recently commenced an investigation into the possible use of both tropical and temperate breeds of sheep for meat and blanket wool production. The research programme will be based on small flocks to be established at three centres in the highlands—the Wabag/Wapenamanda area, Mendi and Kundiawa.

Sheep have evolved essentially as "dryland" animals (compared to cattle which are generally better adapted to non-arid conditions) and consequently their use in the Papua New Guinea situation poses some problems. Although sheep have performed satisfactorily in many areas of the tropics, these have generally been "dry tropics" areas or in the highlands of tropical countries experiencing a continental climate. Papua New Guinea's insular humid tropics climate therefore represents a relatively new field of investigation.

The major factors to be studied will be reproduction, disease and grazing management. These are, of course, important aspects of any livestock enterprise but they are expected to be the main problems which could affect the successful development of sheep enterprises in Papua New Guinea.

Many temperate breeds of sheep are seasonal breeders. Their breeding activity is stimulated, in part, by decreasing daylight hours in autumn. At the latitude of Papua New Guinea, there is much less seasonal change in day length than in temperate zones. The reproduction of temperate breeds might be disrupted, at least temporarily, by the change to this environment and it will be important to determine the extent of this reaction. For example, there is evidence that when temperate breeds are transferred to tropical environments, it may take a year for them to adapt to the new conditions and resume breeding.

Breeds native to the tropics have adapted to these lighting conditions and they breed throughout the year. The only tropical breed

available in Papua New Guinea at present is the Priangan, a Javanese breed introduced in the pre-war period. A small flock of sheep with Priangan blood has been purchased for study in the programme, and these will be compared with introduced temperate breeds.

Internal parasites will probably be the major disease problem. Experience with sheep in the highlands, as limited as it is, has shown that internal parasites can seriously hinder production, even when the sheep were treated every three weeks. Research will be required to find ways to control parasite levels at reasonable cost.

Sheep generally graze close to the ground and the tall coarse grasses (both natural and improved) common to tropical countries are difficult for them to handle. Although it would seem desirable to investigate shorter improved pasture species such as Kikuyu, *Paspalum*, Para grass, etc., it will also be necessary to know how effectively sheep can use natural pastures and what methods of grazing management will have to be used, since there will be many instances where pasture improvement may not be possible. If it is found that natural pastures cannot be used at all, a considerable amount of detailed work will have to be done with improved species to make certain that the grasses and legumes used are suitable for small-holder management systems. The ease of planting and of management, resistance to overgrazing and ability to provide a quick ground cover will be some of the more important attributes which will be required.

The Department is making no attempt at present to set up village sheep projects. This will depend on the results of the research now being conducted, and we would expect that an intensive research programme over some two to three years will be necessary before the Department can offer sound advice on the management of sheep and the uses to which they can be put. Dr Terry Leche, the Senior Animal Production Officer carrying out this work, will however be reporting progress results through this journal from time to time.