

PASTURE IMPROVEMENT IN PAPUA NEW GUINEA

*By Anne Bunning,
Formerly, Agricultural Economist,
Beef Cattle Research Centre, Erap.

INTRODUCTION

What can a cattle project owner do if his kunai, kangaroo or pit pit grasses are eaten out by the cattle? The answer may be to spray herbicide on the weeds which are coming in, to move all the cattle out of that area for a while, or to plant a new grass. This article looks at the potential use of new grasses on cattle projects in the Markham Valley. The conclusion is that learning how to manage the original kunai, kangaroo and pit pit would be a safer investment at present than replanting. This is because there is not enough information available about the new grasses and their management for a project owner to decide between them.

PASTURE MANAGEMENT

There is evidence that with good management, cattle projects can keep their kunai, kangaroo and pit pit pastures. This means that the project owner must have good fences and gates which he knows how to use; he must not let the grass get old and tough, and he must not keep too many cattle on his project. Unless a project owner knows how to manage his original grasses, he should not plant new grasses because they will not last either. Once a project owner knows how to manage a pasture, then he can consider growing new grasses to fatten his cattle more quickly.

There is a school at Erap in the Markham Valley which teaches cattle project owners how to manage their grasses (as well as other things they must know to raise cattle). The local didiman will also show them how to build and use a fence, or when to move their cattle into another paddock.

In some areas the project owner has no choice but to clear the trees and bush and plant grass before his cattle come. Around Popondetta, for example, projects have been able to plant up to 15 hectares of new pasture by hand in the year before the cattle arrive. In the Wau-Bulolo area cattle are sharing their pastures with forestry. Special pasture plants have been sown and experiments are being done to see which of them are most suited to forest grazing.

*Present address: Department of Agriculture and Fisheries, Adelaide.

PASTURE INTO WEEDS

Cattle, like people, will choose what they eat. If they eat out one grass and a second comes in which does not taste as good, the cattle will not eat this second grass, or will eat only a small amount. This second grass will gradually take over the paddock and the cattle will not grow as well.

So what does the project owner do? He can spray or dig out these weeds as they appear; he can close up the paddock for three years and let the original grass come back or he can plant a new pasture. Before deciding, the project owner must look at the cost of each of these choices and at how much money he would earn afterwards. If he is not sure that he would earn more money than the cost of removing the weeds, he should ask more people and get more information before he starts ploughing the ground.

INFORMATION ON GRASSES AND LEGUMES*

Experiments are being done with cattle on different grasses and legumes and there is a lot of information from cattle owners who have used different grasses and legumes on their land. However there are still many questions to answer. We must know:-

- a) at what age individual grasses are most digestible and most nutritious;
- b) what cattle weight gains can be obtained from grasses at this age;
- c) whether pastures will persist when grazed at this age;
- d) how long the pasture will persist under different stocking rates;
- e) how breeding performance compares on different pastures;
- f) what pasture species are best under different soil and moisture conditions.

Until scientists find acceptable answers to those questions, we must simply ask people who have already planted and grazed these new pastures about their experience. Cattle project owners need the information now. There are many weed infested pastures and decisions must be made now about what to do with them.

COMBINING CROPPING AND PASTURE

A policy of sowing improved pasture after a cash crop may have advantages in many areas. Apart from providing a cash income in the first year and some capital for the pasture development programme to follow, the use of the ground for cropping is a good preparation for a new pasture.

If a real investment is to be made in the block, ploughing equipment must be available. Contract tractor ploughing must be done by a good driver with mechanical knowledge. Buffalo are being used for

*A legume is a special plant which puts nitrates into the soil. Nitrates help the grass to grow better.

ploughing in the highlands, but their use in the lowlands is limited by the climate.

CONCLUSION

Pasture improvement requires a high resource input and the benefits are uncertain. It should only be attempted where necessary, and where other alternatives have already been considered and rejected. A weed free kunai grass pasture should not be replaced by a higher carrying capacity elephant grass pasture as a matter of course. An improved pasture takes almost a year before it can carry any cattle, there is no guarantee that it will establish successfully, and it requires careful management. While a natural pasture is present and productive, the project can continue successfully without the expense and risk of attempting pasture improvement. A project owner may be better advised to simply add a legume by hand, rather than plough up the ground and plant new pasture. Only if the natural pastures have been cropped out or grazed out and weed invasion is high, should the cattle project owner consider ploughing up a block, and then only if he knows why his original pasture disappeared and has learned how to avoid this in the future.

The soil and water conditions in one area of a project may be very different from those in another area of the same project. The conditions will also change from project to project. A decision made on one area of one project cannot be transferred to another area or another project unless the soil and water conditions on the project, and the skills of the project owner, are the same.

Once the soil conditions and rainfall are known, the type of grass to be grown can be decided. Once the grass is known, the stocking rate and turn off time can be worked out. Once the pasture and weaner costs, and the pasture life with a particular stocking rate are known, the project income can be determined, based on the ability of the project owner. The next step is to find out the breeding performance of cattle on different pastures. Only then can a development programme of breeding and fattening cattle on specially sown pasture be compared with other alternatives for the development of cattle project land.

Further information on costs and returns for establishing improved grasses and legumes in pastures can be obtained from the Planning, Economics and Marketing Branch of the Department of Primary Industry.