

## MANAGEMENT TO MAINTAIN SOIL PRODUCTIVITY:

# MANAGING PASTURES FOR LAMB PRODUCTION

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**SUMMARY:** This paper describes the grazing management principles and practices for a prime lamb enterprise on a pasture improved New England property. Property details, fertiliser practices, and the annual animal husbandry practices are outlined. Current problems are discussed, chiefly the unreliability of rainfall in quantity and incidence. As a consequence of this deficiency, pastures are lacking in quantity and quality, especially in regard to an adequate legume component. Grazing management techniques, past and present are discussed. The major objective of matching animal nutrition requirements as closely as possible to the pasture growth cycle is still considered to be fundamental in the future as it has been in the past.

Input costs, especially fertiliser are still seen as a major constraint to optimum pasture maintenance and enterprise profitability. It is therefore essential that optimum fertiliser rates are applied on a sound targeted basis.

### Property details

#### General

- *Name:* 'Earlstoun'
- *Location:* New England district - 3 km west of Guyra.
- *Altitude:* 1323 m above sea-level.
- *Area:* 540 ha, subdivided into 44 paddocks.
- *Soils:* 70% basalt, 30% ironstone.
- *Rainfall:* 800 mm p.a., distribution 60% summer, 40% winter.
- *Stocking rate:* 9.5 DSE/ha.

#### Fertiliser history

Annual applications of 125 kg/ha single super for approximately 30 years, except for drought years, then Goldphos 10 every second year for the past 8 years at 65 kg/ha.

#### Pastures

All improved to varying degrees, established by all methods - aerial, prepared seedbed, direct drill and sodseed over past 38 years. Pasture species are mainly phalaris, demeter fescue, perennial rye, white clover and some microlaena.

### Enterprises

Initially Merino breeding flock, then progressively to all XB flock (no cattle) producing 2nd x lambs as pastures improved. Six years ago the lamb enterprise was reduced by 50% due to unreliable seasons making lamb finishing difficult. A small XB cow enterprise producing vealers for domestic market plus a finewool (18.5-20 micron) wether enterprise.

#### Prime lamb enterprise

Consists of 1st x ewes joined to LAMBPLAN tested Poll Dorset rams with superior growth rate and leanness indices. In the past the objective was to produce the traditional 16-18 kg fat lamb for the domestic market. In recent years the objective has been to produce a Large Lean Lamb (Elite Lamb) weighing 20 kg+ and with a 2 to 3 Fat Score for the changed domestic market and for export.

#### XB flock management

Ewes are joined mid April for an early September lambing using 1½ % rams. The ewes' condition at joining should be as heavy as seasonal conditions will allow. If feed is limited an attempt is made to flush the ewes for joining. Rams are manually assessed and ranked for testicular status to maximise ram usage and effectiveness. 1% are put out with the ewes for the first week, the remaining ½ % being added a week into joining. Rams must be in the best possible condition prior to joining.

Ewe condition is allowed to gradually slip to 3 score after joining. Pregnancy scanning has not so

far been used, but will probably be used in the future, especially if ewe or pasture condition at joining is suspect. Pre-lambing supplementary feeding of a mixture of 80% maize and 20% lupins is standard practice in all but exceptionally good years, starting on average 6-8 weeks before lambing. Ewes are set stocked in small paddocks for lambing. Normal lambing percentages are 130-150%, depending on season and percentage of maiden ewes. The single male lambs and the larger twin male lambs are made into cryptorchids in all but very severe drought years (1994).

Lambs are weaned by 15 weeks at the latest, the worse the season, the earlier the weaning - down to 10 weeks. Cryptorchids and wether lambs are separated from the ewe lambs at weaning, and receive the best pastures to promote maximum growth. Rarely in recent years have lambs been sold as suckers. Weaning is usually in December, and marketing of lambs seldom starts before the end of January. The usual lamb selling season extends from February to June. Following weaning the ewes' plane of nutrition is reduced and they are shorn in early January. Condition is gradually restored to the ewes in the lead up to joining.

Methods of marketing lambs include a small group marketing scheme direct to retail butchers, by paddock sales and through CALM. No saleyard selling is used.

## Pasture management

### Fertiliser

Fertiliser is applied every year to half the property in the form of 65 kg/ha of Goldphos 10. Molybdenum is added every 3rd or 4th year at the rate of 100 gm/hectare. Fertiliser is mainly ground spread, with some rougher areas done from the air.

NSW Agriculture guide to P withdrawal from grazed perennial pastures by a lamb enterprise indicates that the annual removal of P under the 9.5 DSE/ha would be approximately 10 kg (Duncan & Crocker 1993). Therefore it can be seen that the current fertiliser practice on 'Earlstoun' is supplying a significantly sub-optimal amount of P.

Low enterprise profitability and variable, dry seasons are the excuses offered for not fertilising more heavily. Subject to the current drought breaking, soil tests will be done this year and fertiliser amounts adjusted accordingly. Targeted use of fertiliser will also be considered to fertilise pastures more efficiently and to finish lambs and cattle.

### Weeds

In some seasons, invasion by annual grasses has necessitated either winter spraying alone to allow spring clover growth to occur, or to be followed by direct drill pasture renovation to replace the annual grass species with improved perennial species. Blackberries and nodding thistles are minor but persistent weed problems.

### Renovation

Renovation has been occasionally undertaken to increase the production and stability of the perennial pastures. Most renovation has been by spraying and direct drill, with occasional use of fully prepared seedbed. Perennial pasture species undersown to oats as a cover crop.

### Grazing management

The prime objective is to match the animal nutrition requirements to the pasture growth cycle. Unreliable seasons have made this difficult to achieve on many occasions, but the objective remains sound.

A range of grazing management techniques has been used over the past 38 years. At the time of purchase of 'Earlstoun,' rotational grazing was in vogue. Small paddocks were recommended so the property was quite intensively subdivided, mainly on the basis of different soil types and/or arable or non-arable. This high degree of subdivision enabled good grazing control, but involved a higher labour and management input.

'Crash' grazing was popular for a short time, but proved to be a high risk system and often lived up to its name. Phalaris poisoning was one common problem.

Strategic rotational grazing is the system practised at present and for some years past. The criteria for stock movement are stock condition and pasture availability and sometimes survival. Under severe drought conditions phalaris based pastures are selected as 'sacrifice' paddocks in which to handfeed relatively large mobs of stock. No permanent damage to these pastures has been observed provided recovery periods are subsequently allowed.

In most years, rotational grazing of both ewes and weaned lambs is practised. Ewes are set stocked for lambing and up to lamb marking. Mobs are small for lambing and are aggregated after lamb marking and rotationally grazed until weaning. Weaned lambs are rotationally grazed through a smaller number of paddocks and 'cleansed' of inter-



nal parasite larvae by grazing with adult sheep or cattle.

Set stocking is used when there is little or no pasture growth due to dry weather.

### Current problems

Variable and non-seasonal rainfall patterns, including drought have had serious effects on pasture composition and production.

Reduced legume content (white clover) has reduced the ability to grow and finish lambs and adversely affected the level of nitrogen fixation for the perennial grass species. The New England growing season, even in normal seasons, is relatively short so a high legume content of pasture is essential if the heavier weight lamb carcasses are to be achieved. Research results (Wilkins & Munro 1988) show that lamb liveweight gains on white clover are 65% better than on grass. This clearly demonstrates the importance of maintaining a significant legume component in pastures for lamb production.

Fertiliser costs are an on-going financial problem. It is not encouraging to see ABARE predicting a 5% increase in fertiliser prices during the 1995/96 year. Pasture establishment and maintenance costs are serious constraints on establishing and maintaining productive pastures.

Reduced quantity and quality of pastures for lambs necessitate supplementation in the form of a fodder crop, supplementary feed, or even lot feeding. Whichever form is used the added cost of production would exceed \$10/lamb. This cost may well be unacceptable and may result in lambs being sold at lighter weights or even sold as stores.

Serious damage to pastures on the red basaltic soils by scarab grubs in recent years has been a significant problem. Resowing affected paddocks with less susceptible plants (lucerne and red clover) as a temporary remedy will be undertaken in early spring. Resowing with permanent grass based pas-

tures will only be attempted when the scarab numbers have been reduced to low numbers.

### Conclusions

Matching animal nutrition requirements as closely as possible to the pasture growth cycle will remain a prime objective.

The establishment and maintenance of the most productive perennial pastures for prime lamb production remains a complex and difficult challenge. The degree of difficulty is being increased by variable and non-seasonal rainfall patterns.

Research will hopefully produce more productive and persistent white clover (or other legumes) and improve fertiliser and grazing management practices.

Soil testing will be used as a guide to fertiliser requirements on 'Earlstoun' when the drought breaks and more appropriate quantities applied on a more targeted basis.

Pasture renovation requirements will be assessed only after at least 12 months of reasonably normal seasonal conditions have elapsed. Experience has indicated that drought affected pastures in this district are capable of full regeneration once growing conditions become favourable.

The use of PROGRAZE as a tool for better grazing management will also be undertaken when the current drought has broken.

### References

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