

IMPROVING PASTURES AND PRODUCTION WITH GRAZING MANAGEMENT  
- A PRACTICAL VIEWPOINT

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Land is one of the few assets, which with proper care, should appreciate in quality over time. What is proper care? I categorise pastures in three ways:

Improved pastures on arable land.  
 Grasslands on non-arable land in higher rainfall areas.  
 Rangelands as may be found in the Western Division of NSW.

Although we are involved in all three categories I would like to concentrate on grasslands today. A large area of NSW can be included in this category, where it should be easier to increase fertility than rainfall.

"Wongalong" is 486 ha (1200 ac.) of largely non-arable land, the soil being derived from basalt on the hilltops and from shale/slate elsewhere. The average annual rainfall was said to be about 750 mm (29 inches).

When I started managing "Wongalong" in 1934 the country had obviously suffered from many years of heavy rabbit infestation. The grasses were mostly redgrass, corkscrew, and some *Danthonia spp.* In suitable seasons there was barley grass and naturalised clovers etc on the sheep camps, together with variegated thistles and stinging nettles. Saffron thistle was widespread. However the feed must have been sweet because the rabbits increased in numbers.

Our major enterprise has been based on breeding Corriedales but in recent years we have changed to Merinos for wool, and have added some goats.

#### OBJECTIVES

Grasslands were most important to our future prosperity. The methods had to be restricted to the finance available. The best method seemed to be to get anything to grow on the non-arable land by any means available, and then stock it in such a way as would encourage the desirable grasses and herbage and discourage the remainder.

The factors influencing germination and/or growth of pastures are:

Sunlight and warmth.  
 Moisture, especially the ability of the ground to absorb rain.  
 Fertility.  
 The tendency for the plant to endeavour to complete its annual growth cycle.

#### APPLICATION OF ABOVE FACTORS

- a. Careful consideration has to be given to the time of the year that grazing takes place and to the effect of tall species overshadowing short species.
- b. Annual rainfall cannot be increased, but the ability of the soil to hold and absorb that rain can be greatly increased.

- c. Our fertility buildup resulted from superphosphate, rotting vegetable matter and animal droppings. Early tests on small plots containing all but one of a standard set of trace elements showed no improvement over superphosphate only. Many tests designed to show the importance of sulphur by comparison with phosphorus were inconclusive. We did use some sulphur fortified superphosphate, but our policies were governed by moderation. Quantities depended on available finance.
- d. Species. Early efforts to establish a clover/grass mixture terminated with clover only. Later efforts terminated with clover-phalaris only. At a still later date, strips of phalaris were established through the non-arable country from the air. Attempts at sod seeding a grass mixture in wide furrows in a clover dominant pasture failed as the seedlings were smothered by clover.
- e. Weeds. Variegated thistle growing vigorously in the autumn seldom causes trouble in the spring. We have never considered the cost of spraying variegated thistle justified. Patterson's Curse was reduced considerably by grazing in some instances. In another case it failed, due I think to adverse seasons depriving the competing grasses of the moisture it required at the critical moment. This area was sprayed from the air with 2,4-D and oversown with phalaris, with very satisfactory results.

The saffron thistle has reduced greatly over a period of time. After the phalaris was established in strips from the air across the non-arable land the saffron thistle was greatly reduced in the phalaris strips. Since then there has been a general reduction in weed level.

- f. Grazing. The grazing and camping habits of many different groups of animals differ. Some breeds of sheep differ from others. We have only just started on goats, but I expect they will have their place. No opportunity to use these special characteristics should be missed.

**If you do or if you don't! - some obvious examples.**

- a. All stock select and eat phalaris seed heads. Compare the spread of phalaris on the roadside with the phalaris in a grazed paddock alongside.
- b. The ability of the plant to recover after being eaten off greatly depends on the stage of its growth and the height that is left. The results are very obvious by comparing the recovery after cutting for silage.
- c. A tendency for annuals to replace perennials after a pasture has been thinned out by moisture stress.
- d. The effect on the shorter grasses by the overshadowing by taller grasses, and the beneficial effect on clovers, where the sun is allowed to penetrate through the grass.
- e. The effect of the density of ground cover on the regeneration of both annual and perennial species at the break of the season.
- f. The effect of the density of the pasture on the runoff of rain.
- g. Some naturalised species of grass and clover which have acquired the ability to withstand our variable seasons, are an advantage in grassland pastures.
- h. Examples such as stooling of wheat crops, the pruning of trees and shrubs, the cutting of the front lawn, might be used to give some

indication of the best way to graze grasslands to the best advantage.

- i. An extreme example is the method used near Valdivia, in Chile. Here magnificent basalt country, in about the same latitude as Auckland, has become overgrown and useless. Labour is cheap and money is scarce. To effect recovery everything is cut down and burnt, and oversown with grasses and superphosphate. The resultant growth including blackberries, tree suckers and seedlings, is very heavily grazed with sheep for a year or so, until the better species start to dominate.

#### ACHIEVING RESULTS

Fertile non-arable land deteriorates slowly, and it recovers slowly.

It seems easier to get results yourself, than for others to use your suggestions. This may be because it requires considerable grazing intensity, careful observation and prompt action.

The area to be grazed and the number of stock must be suitable.

Suitably grazed grassland will provide a green pick further into the summer, and a quicker response to an autumn break.

#### DID IT PAY, NOT WILL IT PAY ?

Yes, it did pay.

A farmer cannot sell a good grassland pasture, so the amount he can spend on producing that good pasture must have some relevance to the value of the commodity he produces from it.

The extent to which a farmer should spend money to achieve perfection must also be influenced by factors beyond his control which might cause his plans to fail.

Since I started, the number of methods, and the cost of those methods, have both greatly increased, as has the value of the commodity produced.

The factors in grassland management which I think will remain relatively stable are: the grazing behaviour of different animals, the effect of that grazing on the pastures, and the unreliable nature of the seasons.

There is every reason to have great confidence in the productivity of our grasslands as long as they receive proper care. The correct influence of grazing animals on that pasture will always have its place.