

DEVELOPING ARABLE AND NON-ARABLE SULPHUR DEFICIENT SLOPES COUNTRY

Norton Crane
 "Yarraman Station"
 Quirindi, NSW

PROPERTY DESCRIPTION

"Yarraman Station" is 3500 ha in area, 2500 ha of which is suited to grazing. The balance is too steep. It is located in the foothills of the Liverpool Ranges about 40 miles west of Quirindi. The property is a north-south valley with both walls of the valley included. The altitude ranges from 500 m on the valley floor to 1,000 m on the western side and to 700 m on the eastern side. I have managed the property for over 5 years and have implemented all the pasture improvement which now totals 1700 ha.

The rainfall is around 750 mm/annum which is fairly evenly distributed as far as usefulness. Autumn seems to be the driest period. Although people are quick to point out that more rain may fall in summer, I think if the extra evaporation during summer is considered then the winter rainfall could be slightly ahead in effectiveness.

Soils are all black and red basalts with a pH of 6-6.5. They are high in phosphorus, but extremely low in sulphur. Low sulphur = low nitrogen = low protein grasses and no winter growth = poor livestock liveweight gains = poor milking ability = low stocking rates = low breeder fertility. With the application of sulphur and improved pastures the above equation is reversed.

THE LIVESTOCK OPERATION

At present we have a 700 cow breeding herd consisting of 400 hereford/poll hereford cows and 300 simmental X hereford cows. Without entering a crossbreeding discussion, I have found that you must turn all the highly productive pasture into kilograms of beef. By crossbreeding we are able to maximise the use of our pastures. Some purists will argue against crossbreeding, but hybrid vigour seems to work for us. We also run 2,000 merino sheep and 400 cashmere goats. The goats are used for weed control, particularly sweet briar. The sweet briar seems to flourish on easterly aspect country that has been fertilised with sulphur.

PASTURE DEVELOPMENT

1. Fertiliser.

As mentioned our soils are sulphur deficient so before any legumes can be grown successfully, sulphur is applied with clovers. On "Yarraman" sulphur is applied in two ways

- a) S.F.45 45% S
- b) Gypsum 17-20% S

In 1988, gypsum was the cheaper form to spread per unit of S. So we are using gypsum to get the country going and after a couple of

applications of gypsum we will then switch back to S.F.45 every 2nd or 3rd year. Fertilisers are applied by air at the rate of 100 kg/ha.

2. Pasture Establishment.

- a) Aerial sown clovers: - clovers are sown in natural grass country. Aspect is a vital part in choosing the country we develop first and the varieties chosen. Our natural grasses are wallaby, Queensland blue (Dicanthium sp.) and red grass (Bothriochloa macra), the most important being wallaby grass (white top; Danthonia linkii).

Easterly aspect country has been developed first. Subclovers at the rate of 2.5 kg to 5 kg/ha and Haifa white clover at the rate of 0.5 kg/ha are aurally sown with fertiliser in April. The seed is inoculated and lime pelleted and also treated for ants.

Paddocks are trimmed back with livestock and grazed prior to seeding. The natural grasses act as shelter for the establishing clover seedlings against wind and frosts which dry the soil out. The natural grass in its present state, due to low fertility, will not compete against the clovers after the first good frost. It is most important that the clovers set seed in the first year to establish a seed bank because of our low seeding rates.

We are sowing Clare and Seaton Park subclover which at a combined rate of 2.5kg/ha costs \$7.00/ha and Haifa at 0.5kg/ha costs about \$2.75/ha bringing total seed costs to \$9.75/ha.

- b) Conventionally sown phalaris/lucerne/clovers:- This has been sown into our oat country. The paddock is fallowed after the last year's oat crop and the soil is prepared to a reasonably fine condition. The pasture is sown in May depending on rain.

Rates - 2.5kg/ha phalaris (Sirolan, Siroso): \$6-\$7/kg
 2.5kg/ha lucerne (Pioneer 581 or 5929): \$6-\$7/kg
 2kg/ha subclover (Seaton Park, Clare): \$3/kg
 0.5kg/ha Haifa white clover: \$5/kg

The approximate cost per ha for seed is \$43.

AFL Greentop fertiliser is spread at the rate of 100kg/ha at sowing. I have used a conventional combine with a small seeds box and the sowing tubes positioned in front of the harrows.

During the first year the thistles are controlled with 2,4-DB and do not seem to reappear in the second year. The new pasture is normally grazed in the first spring for short periods depending on the season.

After the establishment phase, I have found the above mix more economical and productive than oats on this property. The reason I say that is because the annual cost of maintenance is \$10/ha and we have fattening feed all year round if the season is right. Oats will cost a minimum of \$80/ha to prepare and

sow annually. On the pasture we average 1kg/hd/day liveweight gain when fattening cattle with gains up to 1.5kg/hd/day in spring.

THE PROBLEMS

1. Bloat.

This tends to be a problem particularly in the initial years of pasture establishment. After a few years and the initial clover dominance the grasses seem to increase production and we have a better balance.

Strategies to overcome the problem include:- bloat capsules, oil in water troughs and monitoring cattle in susceptible paddocks and moving if necessary to safer paddocks.

2. Natural Grass Retention.

A lot of comment is made that natural grasses that have been improved with clovers will be choked out. I have carefully monitored our natural grasses and so far they have only thickened up. Before improvement we had thistles and little grass on our hills but now we have the opposite. My only comment is management. Do not overgraze. Also try not to let the clover grow to a massive stand in spring as when it matures it will form a massive mat and could stop grasses coming through. Control thistles as well.

THE BENEFITS

Finally, we've spent the money, what are the benefits?

1. Increased stocking rates.
2. Higher weaning weights of calves (200kg to 300kg).
3. Higher fertility in cows.
4. Turning unproductive winter country into top fattening country.
5. The ability to go through dry spells easier.

In regard to increased cattle stocking rates my only comment is that although we have doubled the carrying capacity, the main benefits are the 100kg weaning weight increase and the ability to fatten on our pasture all year. Basically I am saying kg/ha of beef produced is more important than the number of stock run.