

THE PASTURE/ANIMAL SYSTEM:

PASTURE UTILISATION ON A VICTORIAN DAIRY FARM

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Abstract: "Silvrian" is a 150 ha dairy farm located in the Kiewa Valley in Victoria. Since 1977 butterfat production per cow has doubled and total output has increased from 10,000 to over 75,000 kg butterfat in 1992/3. A large part of this increase is due to management strategies developed to make best use of pastures and to minimise supplementary feeding. For effective management of pasture and livestock, accurate farm record, precise pasture measurements, local knowledge of species responses and electric fencing are important tools which underpin rotational grazing practices designed to keep pasture in a highly productive and digestible state. In addition to the high dairy output achieved, the grazing strategy developed has improved plant density and composition of our pastures.

INTRODUCTION

Sarah and I started farming in 1977. I had worked as a jackeroo on sheep and Hereford studs in the Western Districts and managed a beef property at Kilmore. Sarah was trained as a medical technologist from Melbourne.

We came back from overseas intending to be beef farmers and subsequently purchased "Silvrian", a property in the Kiewa Valley, Vic. At that time, the beef and dairy industries were in a depression to the extent that dairy cows were being destroyed by farmers. Although we had no intention of becoming dairy farmers, we bought approximately 40 cows for \$30/head and used the facilities on the farm to gain a cash flow, whilst still running Herefords.

During the 1982 drought we learned about gross margins and realised that the dairy cows were the most cost effective way to harvest the grass grown on our farm. We now see ourselves as professional dairy farmers.

PROPERTY DETAILS

Silvrian is a property of 150 ha of rising country in an 800 mm annual rainfall area. In addition to the home property we lease another 150 ha of river flats which includes 12 ha of irrigated pasture. The irrigated area is sown to ryegrass and white clover, and

we are sowing down our higher country and some flats with a phalaris/subclover mixture.

This year we plan to calve 400 cows and to run about 100 calves which are weaned at 8 to 10 weeks. Young stock are agisted from 6 months to 22 months when they return to "Silvrian" just before calving.

This time of calving might go against the accepted practice, but computer analysis of income and cost estimates suggest that this pattern is the most profitable for our farm under the present pricing structure for Victorian Milk. However, it does mean we are looking for good quality grass during winter for both our cows and young stock.

In harvesting grass with dairy cows we use a couple of important assumptions:

- Pasture is the best and most cost effective feed available. Therefore, ideally we would like to fully feed our cows on pasture alone. Quality silage is the next most cost effective feed option followed by grain.
- Our lactating dairy cows require 18 kg dry matter/ head/day to reach our production target. This feed should be at least 16% protein and have > 64% digestibility to provide around 190 MJ of metabolisable energy.

We have two distinct times of the year as far as

grazing our dairy herd is concerned. Our pasture management is very different for each of these scenarios. The times when management is critical are:

- When cows are eating the grass faster than it is growing. The challenge here is rationing the quantity of pasture.
- When pasture is growing faster than the cows are eating it. The challenge here is maintaining the quality of pasture. This second scenario for us is the harder of the two to manage. The bottom line for managing our pasture during these times relies on our ability to assess both the quantity and quality of pasture available and to estimate what the cows are getting from the paddock each day.

IMPORTANT FARM TOOLS

To effectively manage pastures and livestock at these times, we use the following tools regularly.

Farm Records

There is a written history recorded for each paddock in our farming operation. This includes: details of sowing (*eg.* date, conditions at sowing, seeding rates *etc.*), fertiliser program, and the amount of fodder conserved each year. A daily record is kept of the area fed off, our estimates of feed before and after grazing, and milk produced from that area.

Pasture measurements

We regularly walk into paddocks with a note book and a pasture meter to record pasture height and density. A visual appraisal is made of the evenness of the pasture, the percentage of clover present (*ie.* the protein level) and the "stalkiness" of the grass (*ie.* digestibility of sward).

Species knowledge

This is difficult. However, some information on growth rates and feeding values is a great help. Most of the research work has been carried out on species different from ones we are growing. We rely therefore largely on "local knowledge" and our own accumulated experiences.

Portable electric fencing

Electric fencing is an important tool which enables us to control our grazing rotation.

FARM PROGRAM

I will briefly run through our grazing year to explain how I use these four tools to assess pasture quality and quantity.

Before the "autumn break" phalaris clumps and any other dry rank pasture species are mulched to remove all residue. This will give the best quality regrowth.

We have found very little work for dairying on our pasture types. However, our observations suggest that the optimum height for grazing is 15 cm. This height is critical because we have found that at 20 cm, pasture digestibility declines rapidly as does its ability to regrow vigorously and evenly. We like our pastures to have 40% clover and 60% grass.

We have learnt through experience that the optimal level to graze down to is about 5 cm. Below this height, intake is severely restricted and milk production falls. Above this height, too many clumps are left and the digestibility of these on the next rotation has dropped to such an extent that the overall pasture quality for the paddock has fallen away dramatically.

These rules of thumb sound good in theory, but in practice it is a matter of compromise. We have to ration grass while the cows are eating faster than the pasture is growing. This is done by allowing the pasture to get away after the autumn break while feeding freshly calved cows on silage, grain and a few blades of irrigated pasture.

Once the grass has reached the optimum height, the cows go into a strict rotation averaging approximately 50 days. We aim to offer fresh grass to our herd every twelve hours.

Not all paddocks are ready at once. Differences in pasture species, aspect, soil type and drainage produce quite different growth rates in various paddocks which are usually staggered over time.

When the rotation begins, usually six weeks after the break. All paddocks are assessed and the amount of feed available is recorded with the help of a pasture

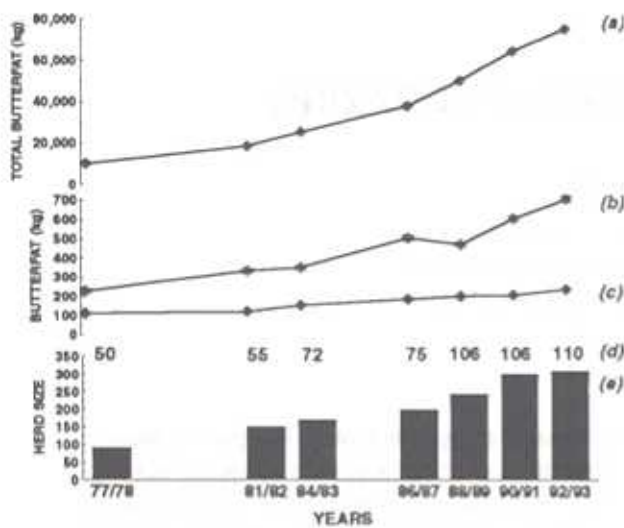


Figure 1: Production at "Silvrian" for 1977 to 1992 - (a) Total butterfat production (kg); (b) Butter fat produced (kg)/effective hectare; (c) Butterfat production (kg)/cow; (d) Total effective dairy hectares and (e) Herd size.

meter. Using the best estimate available for pasture growth rates, we set out a feed budget. This is done by a committee of people on the farm.

From this assessment, we work out what the likely feed deficit will be and fill this with silage and grain. For most of the first part of the lactation this works out as 1/3 grass, 1/3 silage and 1/3 grain.

Milk production on a daily basis is very sensitive to feed quantity and if we have estimated badly, then we are soon alerted by the vat sight glass.

As the grass growth speeds up, we speed up the rotation and cut down on silage and grain. It is most important to check what is left in the paddock. If too much grass is left then we know the cows are starting to substitute the least cost effective grain and leave the pasture. Once any pasture becomes long and rank it is wasted and is mulched to promote fresh growth.

As the rotation shortens, paddocks become "spare" and these are taken out of the rotation and set aside for silage production. This can be the hardest time of the year because the situation can change so quickly. Suddenly the "magic spring day" (as some call it) is upon us. Grass is now starting to grow faster than the cows can eat it. The problem in terms of pasture management is changed from one of quantity to one of quality.

We have found milk production to be very sensi-

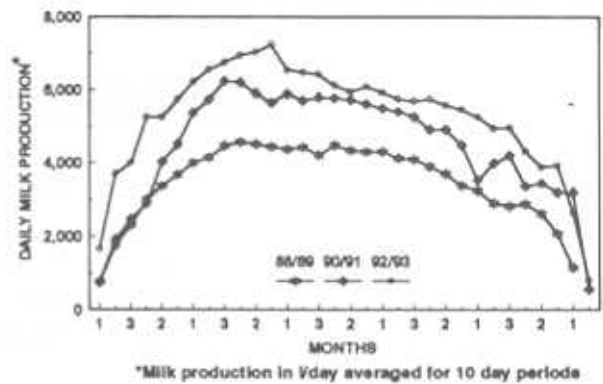


Figure 2: Daily milk production (l/day) at "Silvrian" averaged for 10 day periods.

tive to feed quality. Milk production graphs traditionally dip badly in November. This becomes a critical time to be able to assess what is in the paddock so that real surpluses can be conserved to fill next year's deficit. If we are too cautious, we end up with a rapid deterioration in quality.

This is still a time of trial and error for us. Each year we have put more into silage and grazed more cows on a smaller area. The production per cow is increasing (Figure 1) and pasture quality is lasting longer into late spring/early summer.

CONCLUSION

In conclusion while the ability to assess the quantity and quality of pasture in a paddock is only a part of overall management on our dairy farm, I strongly believe it is a very important part.

Our production figures show us that while we have still got a long way to go, we are making some headway. Production per cow and per hectare is increasing (Figures 1 and 2), grain fed per cow is dropping, animal health problems are decreasing and the bottom line is looking healthier.

While we have a continuing program of pasture renovation and establishment, we have found that pasture density and composition has improved with strategic grazing.

So, with a notebook for records, a pasture meter for measurements, a consultant to ring when I cannot find the feed value for a mixed sward of sorrel and nut grass and a portable electric fence, we will continue to stand in the paddock and watch the grass grow till the cows come home!