PASTURE MANAGEMENT FOR HIGH PRODUCTION ON A DAIRY FARM

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At a very impressionable age I sat the the feet of a great master, an extension officer who expounded the principles of good pasture management. Some of the things he said have stayed with me over the years: "Grass is green gold". "It takes grass to grow grass." A little later in life, from one of his disciples, I learnt another principle: "Graze in situ". Largely from these three maxims, plus the necessity of feeding an increasing number of cows on a fixed acreage, I have evolved my present system of pasture management.

Naturally my viewpoint as a practising farmer will be a fairly narrow one, my experiences being largely confined to the southern Hawke's Bay district. Nevertheless I hope it will be an intensive one, an enlargement as it were.

Grass Is Green Gold

We are constantly being told, particularly by overseas visitors, of our wonderful grassland climate. Because of the prolific growth we get, I feel we tend to undervalue pasture as a feed supply. When one lives in a land of plenty it is difficult to imagine the sources of supply drying up. By constantly keeping in mind this important concept that "grass is green gold", we will, I think, gradually evolve a different attitude to grass. We must realise that each blade of grass represents not only a slice of sunshine, but also a fraction of gold dust.

It Takes Grass to Grow Grass

We are told that to grow pasture we need soil of good fertility, water, and sunlight.

Soil

As there seems to be a dash of Irish in me I will describe the soil as a sort of "fixed variable", fixed because as farmers we are stuck with whatever is contained within our boundaries as a basic material; variable-infinitely variable-not only from farm to farm or even field to field, but also from season to season. Soil is a living, moving, ever-changing mass.

The largest item of expenditure on most dairy farms is the annual fertiliser bill. A lot of thought and in many cases expert advice goes into planning the topdressing programme. Soil tests are highly favoured by some experts. Others 'regard them as a waste of time. "By guess and by God" is the usual reply when a farmer is asked why he puts on a certain quantity of a certain type of fertiliser at a certain time of the year.

Fashions change, albeit slowly, in the farming world. Some 12 years ago it was clearly demonstrated that there was apparently no correlation between high topdressing rates and high production per acre. From a study of south Taranaki dairy farms given at last year's Massey Dairy Farmers' Conference, it seemed to me that there was quite a good correlation.

If your soil seems to have a high phosphate fixation and a potash deficiency, plenty of potassic super appears to be good business (remember this is green gold that you are producing).

Water

Water is something we have little control over, one of the variables that we have to cope with, make the most of when it is in short supply, and get rid of quickly when it is in over supply. Free-draining soil and adequate rainfall are very important assets in maintaining high-producing pasture.

Sunlight

Control of light interception. could be the most neglected of the three factors I mentioned above. I don't know much about it, but it appears from work done at Grasslands (Brougham 1963) that pasture of a reasonable length is necessary to make the maximum use of the available light: "It takes grass to grow grass".

Also those belts of trees which clutter up our dairy farm as well as being fertility traps must cost us a lot of production from loss of light to the pasture. After having spent time and money in planting and maintaining shelter belts, and after much consideration of the pros and cons, I have spent further time in removing them.

Species

Species are obviously of great importance and we aim to plant and maintain those which will give us the greatest production over the whole year. Spread of growth is probably of more importance than total production. Palatability, even when the pasture is perhaps overlong, is most important, as it gives one that

flexibility of management without recourse to a silorator or mower.

Short-rotation ryegrass, timothy, and cocksfoot, plus of course white clover, are my favourites. However, they constitute only a proportion of the pasture. Perennial ryegrass, browntop, fog, the poas, and weeds probably make up the balance.

However good certain species are, a criterion of a good grass must be that it can maintain itself against competition and stand up to the wear and tear imposed by a high stocking rate. Possibly a super browntop rather than a super ryegrass could be the answer to our quest for higher production!

All of these things (and others not mentioned) are important, but my initial heading, the principle of "grass to grow grass" is, I feel, something we do not place enough emphasis on. When a good flourishing plant is eaten off it regrows rapidly at nearly all times of the year. Whether this happens because of light interception, or a stronger root system, or more adequate reserves I do not know.

Leave your lawn until it is 6 in. high, mow it, and watch it grow. Mine has no fertiliser at all, and its rate of growth, compared to my pampered well trodden pastures, is a source of amazement.

The hard part, of course, is to get the pasture into that nice 6 in. to 9 in. growing state before it is eaten off. At many times of the year the needs of the animals become paramount and one is abusing or mismanaging one's pasture.

However, by careful study of the amount of grass ahead, perhaps with a little extra supplementary hay, one can slow down the rotation sufficiently to build up the grass in most fields to the desirable level. Some fields, whether because of grazing during a period, of non-growth or too much hoof damage during wet weather, seem to get in the doldrums and may stay there for the best part of the season, compared to the next field, where species are exactly the same but are grazed (perhaps a week later) during what I term a growth period.

There is some connection between time of grazing and weather. This is shown by the way in which a certain field may take off and grow very rapidly after a particular grazing. By getting this start the field can continue to produce at an above-average rate for several months.

By the addition of a little nitrogen plus perhaps a more lax grazing technique (the high bite) and/or possibly a longer spell, we may be able to start this process off. If this set of circumstances can be induced as a feed shortage approaches, the advantages are obvious.

Another illustration of this principle is the behavour of the grass on dung patches. Obviously a dung patch gets extra fertility; possibly less obvious but perhaps nearly as important is the fact that it is not grazed, or only lightly grazed for some time, and that having got that start its growth rate accelerates.

Using Grass. Graze in Situ

Grazing management is usually aimed at making the best possible use of available feed. Obviously a sufficiently high stocking rate to be able to utilise pasture "in situ" throughout most of the year (in all except peak periods of growth) is desirable. Cow numbers are probably more important than quality, particularly in the early stages with most farms and/or farmers. It is certainly easier to get the numbers than the quality. By using the available techniques of herd testing and A.B. it is possible to get good quality animals capable of a high degree of efficient utilisation and acclimatised to your farm and your methods. Building up herd quality, unless one is prepared to spend fairly large (and I think uneconomic) amounts of capital, is a relatively slow process, but an interesting one, and one which we should start as early as possible.

By trying to align the needs of the animals with the pasture growth curve (those two humps that lecturers love to put on the blackboard) we can eliminate much of the need for expensive practices such as hay and silage feeding. MacKenzie showed clearly (Massey Dairy Farmers' Conference 1960) that later calving dates could result in a 50 per cent reduction in the amount of autumn-saved pasture needed for a dairy herd.

Some form of rotational grazing, preferably on a paddock basis to save work and time, seems to be the most efficient way of utilising our "green gold." I use this system with strictly no day or night paddocks all the year round, the length of rotation being anything from about 8 days up to 28 days during periods of slow growth or reduced stock numbers which occur at the beginning or end of each season.

In good growing periods when one knows that there is likely to be a reduction in growth looming up, a slowing of the rotation giving a better clean up will result in the building up of a cushion of reserve of feed ahead. This of course will result in a lowering of quality. I doubt if this is important, provided the farm is not understocked. There will be less wastage when grazing this in situ than there would be if pasture is conserved by, say, silage making, even of the most efficient kind, and subsequent feeding out.

Also, as we extend our growing season and possibly combat the effects of dry periods by the previously mentioned better species and higher fertility our needs for supplementary feeds diminish.

One of the most valuable papers for dairy farmers @resented in recent years was Johnson's "Lessons from a Drought" (Massey Dairy Farmers' Conference 1962). In this he showed that some of our traditional standards and methods of feeding dairy stock, , particularly during winter, were quite wide of the mark.

After the dry 1962 summer hay was selling at 10s. to 12s. 6d. a bale. Provided one had a reasonable chance of harvesting the winter bite, a little extra nitrogen would provide the same amount of better quality food very much more cheaply.

Of course, hay made from a true surplus is not so expensive. I favour a method copied from a Taranaki farmer of using toppings for hay. I slow down the rotation during early December as pastures become uneven and clumpiness appears. This is when growth is obviously outstripping demand. Also the weather is likely to give one a sporting chance of harvesting.

I tend to graze the fields a little harder and shave the leftovers as soon as possible after the cows are out. Yields vary from 5 to 40 bales per acre, depending on the amount of Californian thistle in the field.

Total yields for the past three years were approximately 1,800, 1,250, 1,750 bales, with one or two fields being lost with wind each year.

This type of hay making helps to keep pastures in growing condition throughout a greater part of the year. It also necessitates ownership of a baler. Mine is second-hand, provides endless joy to the family, and gives me ulcers. The hay-making process is naturally spread over two months as pastures need from three to four weeks' recovery time. One of its great virtues surely must be that the hay is taken largely from the high fertility patches and is of high quality.

Wintering Systems

One's aims should be to winter sufficient cows to cope adequately and profitably with next year's grass. One of the essentials of good farming is to be very flexible in management. MacKenzie (Massey Dairy Farmers' Conference 1960) has given a masterly blueprint on the advantages and disadvantages of different systems.

I have tried grazing off and/or crop and hay. The biggest disadvantage is in the quality and availability of winter grazing.

These are. factors over which one has little or no control-not recommended.

We had several years of split-herd wintering recently; it was very successful from the animal point of view, but there were some disadvantages with pasture damage leading to spring feed shortage. Until recently I believed that this was offset by the treading effect controlling the browntop, but last year's experience showed that to be a fallacy.

Last winter I tried the block grazing system and at this stage I feel I will use it again next year. It involves a 24 hour shift with an electric fence fore and aft. The cows are fed almost purely on pasture, which is saved for this purpose during the autumn. No water is necessary, as there is plenty of moisture in the pasture at this time of the year. Back fencing must be carried out strictly to avoid pasture damage.

As I did not have sufficient grass but did have a good supply of hay I supplemented my grass with an increasing quantity of hay, but found that I had to provide water. One has to be careful and try to take into account seasonal differences in assessing the effect of any practice, but I feel that the September feed position was much improved this season.

Summary

One must have clear aims at the outset as far as pasture management is concerned. Use the principles outlined, but keep sifting the latest information from the experts. (This term covers research workers, extension officers, and farmers, not necessarily in that order!) There are two things: 1. To grow as much grass as possible, over as much of the farm as possible, keeping it as uniform as possible. 2. To use it as efficiently as possible at all times.

DISCUSSION

Q. Mr Sandbrook appears modest about his results. Would he care to give us the production figures he is achieving with the farming policy he has outlined?

A. Year 1960/61, 79 cows, 30,900 lb butterfat; 1961/62, 89 cows, 34,200 lb butterfat; 62/63, 101 cows, 34,000 lb butterfat.

Q. Mr Sandbrook expressed the belief that it is wrong to invest large amounts of capital in quality stock in the initial stages of development. Would he give his reasons for this belief?

A. A high-priced, high-production herd coming to a new farmer and a new farm is likely to fail to come up to expectation. I prefer to take a low-priced, low-production herd with enough extra numbers to allow some culling, use Herd Improvement Assn. service and techniques, getting animals acclimatised to the farm and farmer.

Q. From slides shown it appears Mr Sandbrook has large paddocks. Would he give us his ideas on subdivision.

A. My fields range from 3 - 5½ ac. I favour 16 to 24 fields per farm. Twenty fields on a 40 acre farm means 50 cows in a 2 acre paddock; 20 fields in a 350 acre farm (in Taranaki, of course) means 400 cows in about 18 acres.

Q. Is Mr Sandbrook very much in favour of new pasture species, and does he favour rotational grazing?

A. I would always use the latest strains of seed available, and would want to introduce new species such as Ariki.

Q. Could Mr Sandbrook give us his topdressing policy and in particular his thoughts on time of application? I do not use rotational grazing.

A: Fertiliser: 8 cwt per acre of 30 per cent potassic super in two 4 cwt dressings, August/September and February. Nitrogen: mainly in Spring to ease the September feed gap, at 1 - 3 ton per annum.

Q. Would Mr Sandbrook give us his ideas on how he will achieve even higher production, say from 500 to 600 lb butterfat/acre.

A. As in the past, find some high producing farmer, copy his techniques, plus endeavouring to interpret the findings of our research workers and putting theory into practice.

Q. The speaker showed, interest in the new hybrid ryegrass. How does he propose to introduce this grass into his pastures?

A. By using Mr Blackmore's spraying techniques, 1 - 2 pints of Paraquat and seeding on the surface, problably during March or April.