

Paper 14

GRAZING MANAGEMENT IN PRACTICE CANTERBURY

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INTRODUCTION

In my opinion, the greatest problem with lucerne at present is its declining production due to pests and diseases, and a paper on grazing management in Canterbury could have little application unless some answers are found to its present problems. However on many shallow droughty soils lucerne still offers valuable feed during dry periods, and it is through sheer necessity that some farmers persist with the crop. A major concern with lucerne is that correct grazing management is much more important than it is with grass/clover pastures. There is however, a growing realization that lucerne has other less obvious disadvantages when compared to pasture. These are the stress-related effects on stock of high grazing densities and large mob sizes, necessary if correct spelling periods and utilisation levels are to be achieved with lucerne.

THE PLANT

The need to match the time of utilisation with the cycle of lucerne growth, is in the main, well understood by Canterbury farmers. Most realise that premature grazing of the plant quickly negates any production advantages that it may have over grass/clover pastures and will lead to high expenses associated with weed control, stand renewal and stock health. The plant restores its root system reserves during the period immediately prior to and during maturity, when photosynthesised energy is surplus to the growth requirements of the plant. I consider premature grazing as the number one management fault. Such management reduces the level of energy stored in the roots, and it is this energy that ensures rapid recovery. The initial burst is critical to the success of that growth cycle and if conditions are not ideal at this time, the amount of regrowth is seriously effected. Such things as drought, or the bruising or grazing of new shoots, will reduce yield. When lucerne is grazed or harvested the development of new shoots is markedly accelerated. These new shoots can, depending on maturity and plant vigour, be large enough to be damaged by stock or vehicles within 4 - 10 days.

Canterbury farmers are generally aware of this factor and they know that immature growth is soft and less valuable to stock and can induce red-gut in sheep.

It is worth noting from a management view-point, that in the writer's opinion, root development occurs when the plant, in a state of high energy or maturity, is harvested or grazed. Although this opinion is not scientifically verified, 13 years of observation would indicate much increased root development, especially noticeable in deep loose soils, on plants that have been grazed several times at maturity, compared to those which for one reason or another are left ungrazed or harvested for long periods in an overmature state.

Thé best indicator of maturity in lucerne, is the first appearance of new shoots from the crown, although there are many farmers still relying on the appearance of flowers.

GRAZING MANAGEMENT

Experience has shown, especially at high stocking rates, that it is desirable that stock remain on a lucerne diet for a considerable time, in order to allow optimum nutritional advantage and to simplify grazing management decisions and hence, enhance the chance of correct spelling of the stand.

To achieve this, while at the same time avoiding damage to the grazing stimulated regrowth, a considerable number of paddocks are generally provided to each mob, often to achieve self contained rotations in which the regrowth is allowed to mature before grazing. This is where stock stress becomes apparent and there are three factors involved; mob size, frequency of shifting and stocking density. Subdivision is a variable, but there are limitations associated with cost of fencing, water supply and labour for frequent shifting. The situation has been illustrated by comparing lucerne with grass, under both set stocking and a probable rotational grazing system.

TABLE 1: Comparative ewe mob sizes and stocking densities for both lucerne and grass pastures under different grazing systems.

Pasture type and grazing method	Paddocks per mob	Paddock size (ha)	Number of Mobs	Mob size	Stocking density (ewes/ha)	Grazing period (days)	Rest period (days)
Lucerne Rotational	8	6	1	768	128	6	42
Grass Set Stocked	1	6	8	96	16	8	Nil
Grass Rotational	4	6	2	384	64	7	21

Table 1 considers an area of 48 ha stocked at 16 ee/ha with 6 ha paddocks. With standard paddock size and average desirable grazing management, lucerne requires larger mob sizes and greater stocking densities than two grass management systems. When ewes with lambs at foot are involved, the problem is compounded and mismothering is a common feature. In addition, as lambs become more reliant on grazing, severe competition will develop between the ewe and lamb as the paddock becomes grazed out, and early weaning becomes desirable. This raises a further extension of the stress problem.

Trial work would indicate that weaning lambs as young as 4 weeks of age will result in only a small check in growth rates and large savings in total feed required. Unfortunately, from our experience in the field, where mob sizes are much larger, very serious checks to young lambs can occur and fattening rates slowed excessively, when weaning occurs from 4 - 6 weeks.

Most trial work involving plant and animal relationships is on a small scale and therefore rarely shows the stress effects resulting from large mob sizes. We consider this to be a serious deficiency of current research technique.

We recognise that small trials are necessary to first establish possibilities but when significant results are obtained, the work should be repeated in farm scale trials. The effect of varying the number of paddocks per mob or paddock size independently or together is illustrated in Table 2.

Section (a) in Table 2 shows the influence of reducing paddock size without altering the number of paddocks per mob or stocking density. Section (b) shows that without altering subdivision, stocking density and mob size can be reduced by decreasing the number of paddocks per mob. The only limit to this is to excessively increase the grazing period in each paddock. Section (c) shows the inter-relationship between both factors, when operating together on a fixed area of land.

A balance between all these factors has to be decided upon to arrive at a desirable compromise. This is where we feel research may be able to assist.

In practice, a frequently used combination of paddock size and number of paddocks during the spring-summer, would be approximately six to eight paddocks per mob each paddock of 4 - 6 ha, giving a common mob size of 500-800 ewes, a stocking density of 125 ewes per hectare and with

TABLE 2: The influence of paddocks per mob and paddock size on ewe mob size, stocking density and shifting frequency, at one stocking rate.

Paddocks per mob	Paddock size (ha)	Total area (ha)	Mob size	Stocking density (ewes/ha)	Grazing period (days)	Rest period (days)
a. 8	12	96	1,536	128	6	42
8	8	64	1,024	128	6	42
8	4	32	512	128	6	42
b. 12	8	96	1,536	192	4	44
8	8	64	1,024	128	6	42
4	8	32	512	64	14	42
c. 4	12	48	768	64	14	42
6	8	48	768	96	9	45
8	6	48	768	128	6	42
12	4	48	768	192	4	44
16	3	48	768	256	3	45

TABLE 3: Relationship between lucerne height and herbage mass.

Types of growth*	Conversion
Spring — tall, dense, leafy	Height (cm) × 80 = kg DM/ha
Summer — med-tall, open stalky	Height (cm) × 60 = kg DM/ha
Winter — short, prostrate, leafy	Height (cm) × 160 = kg DM/ha

* It is important to note that the type of growth on the lucerne be assessed by relating it to the season in which it grew.

six to seven days per paddock, a spell of 40 - 45 days before regrazing. After weaning farmers generally group mobs of ewes together into larger mobs which can clean up after lambs have taken the best from each paddock. For example, there may be 3 mobs of 600 lambs spending 6 days on each paddock, with 1,500 ewes in one mob spending 2 days in each of the lamb paddocks, after the lambs have moved on. Total grazing time in each paddock would then equal eight days. Without mobbing-up the ewes, there would be a 12 day grazing period, which is excessive.

WINTER

The most successful method of treating lucerne during the winter is to graze it extremely hard once, and this is now common practice in Canterbury. We find "all-lucerne" wintering with daily shifts, supplemented with hay, quite successful in terms of weed and pest control, sheep production and cost. The harder the lucerne is grazed, the more weeds will be controlled, to the extent that running-off onto a stand for up to 3 weeks has proven to be very successful.

Crown rot can be a disease problem associated with heavy winter trampling. However, it appears that where the trampling is successful in reducing low weeds like annual poa, even extended trampling of 2-3 weeks does not result in significant crown rot damage. On the other hand lenient winter grazing in the presence of such weeds is often dramatically fatal to a stand. In these situations herbicides should be applied shortly after grazing, to allow the sun and frost onto the crown of the plants. Where paddocks are not hard-grazed during the winter, they are normally sprayed for aphids either during winter or early spring.

MEASURING DRY MATTER PRODUCTION

During the course of a 2 year all-lucerne grazing management trial involving 45 hectares with a mob of 700 ewes, we recorded the height of the lucerne pre-grazing and

the herbage mass. From this information, we have produced conversion figures, which when related to the height of the lucerne, will give a reasonably accurate visual assessment of the consumable herbage. Depending on the type of growth being measured, one of three figures must be used. (Table 3)

CONCLUSION

Lucerne has been likened to a thoroughbred, as it requires specialist management to achieve best results. Without such management, it will produce no more than easier to manage grass/clover pastures.

Large blocks of grazing lucerne in Canterbury are being rapidly reduced to smaller areas on which lambs are fattened and hay is cut. We notice that ex-lucerne areas show increased fertility and the subdivision and consciousness of rotational grazing has made a significant contribution to better pasture management on the plains.

Lucerne will continue to contribute towards increased animal production on drier soils, but a growing awareness of various costs will probably restrict it from its once held position as a general pasture plant.

DISCUSSION

Koller: Where you have irrigation there seems to be little advantage in growing lucerne, but in areas where you haven't, to rely on ryegrass/white clover seems like a backward step to me.

Wall: Under dry land, lucerne is looking well on shallow soils, especially after this dry year. I expect an upsurge of interest in lucerne, but there are problems with management of lucerne.

Janson: A lucerne unit at Winchmore is carrying 15 ewes/ha, unirrigated, and this is achieved with no great problems at all. Farmers have "conned" themselves out of lucerne.