

Paper 13

GRAZING MANAGEMENT IN PRACTICE OTAGO

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INTRODUCTION

The dry areas of Otago are particularly well suited to lucerne. In Central Otago the present problems associated with lucerne have only slightly affected the popularity of the crop. In North Otago stem nematode (*Ditylenchus dipsaci*) has dramatically decreased the area in lucerne. East and South Otago with generally higher rainfall have only small areas of lucerne for hay.

Most farmers appreciate the need for special grazing systems for lucerne. In practice the ideal system is often compromised to fit in with stock management. The penalties for a less than ideal system are less in dry areas than they are in moist.

SUITABLE CLIMATE AND SOILS

The area regarded by advisers as suitable for lucerne has been reduced from areas below 700 mm annual rainfall, to 600 mm and under. The production advantage of lucerne reduces as rainfall increases and the problems with pests, diseases and weeds increase. In areas above 600 mm lucerne is usually a specialist crop for hay production and some lamb fattening. Below 600 mm the proportion of lucerne for grazing increases as the annual rainfall decreases.

The proportion in lucerne very seldom exceeds 60% of the farmed area. There are four main reasons for this apparent low percentage.

(1) Irrigation: We estimate that 80-90% of the valley floor farms in Central Otago have some irrigation.

(2) Associated hill country: Many also have associated hill country.

(3) Dryland pasture preferred : Some farmers don't have the ability to manage dryland lucerne.

(4) Soils : Over quite large areas some physical or chemical soil factor will limited the suitability of a soil for lucerne.

We estimate that at present in Central Otago half the area with soils suitable for lucerne is in fact growing lucerne. Of the remaining area suitable for lucerne, a large proportion is of very light soil. There are approximately

35,700 ha of lucerne grown in Central at present (1978/79 Agricultural Statistics). In North Otago there used to be 15,700 ha (1974/75) but this has been reduced to 11,200 ha (1978/79).

GRAZING MANAGEMENT

In Central Otago lucerne grazing management is made easier by the fact that most farmers have only a small proportion of their farms in lucerne.

Spring

Ideally of course, lucerne should not be grazed in the early spring, before the end of the growth cycle, but lucerne can provide valuable lambing feed and it grows faster in the early spring than pasture. Consequently farmers are successfully lambing on lucerne and accepting the penalty of lower annual herbage production.

For example, one farmer set-stocks his ewes at 15/ha for a six week period from lambing to tailing. Initially the ewes preferentially graze the grass weeds allowing the lucerne to continue growing with little interference. At the end of six weeks the stands are fairly well grazed down and the ewes and lambs are mobbed together and begin a rotation with grazing periods of about two weeks. The key to this system is that the stands are allowed to grow to the 10% flowering stage before re-grazing.

Summer

On the heavier and high water table soils where growth often continues well into the summer, most farmers follow reasonable management practices when grazing lucerne. Periods of two to three weeks grazing per block are fairly common. Provided the stock are not left on a block when it is grazed down, grazing for up to three weeks appears to have little effect on subsequent growth. Reducing the grazing period to say 10 days is unlikely to produce significant extra production because the following growth cycle is usually restricted by summer drought. On light soils

with low moisture holding capacity longer grazing periods are sometimes practiced. In a normal year in areas of 350 mm annual rainfall and on light soils, lucerne will have one full growth cycle in the spring-early summer and very little growth in the summer. In this situation the problem of grazing regrowth buds, over extending grazing periods, may not arise due to drought. In wet years grazing periods of over three weeks will reduce lucerne production but overall production will still be higher than the average dry year. There is therefore, little incentive to install further subdivision and water supply to maximise production, when in fact a surplus may exist. However there is the danger that poor grazing management in a wet year will lead to the same problems associated with mis-management in wetter areas.

It is common practice to graze for extended periods when growth has stopped due to drought. This appears to have little immediate effect on subsequent growth. However there is a danger that this practice predisposes the plant to crown and root rot diseases.

We have seen considerable thinning of stands following prolonged droughts. Farmers desperate for feed will graze stands very hard, and often regraze at an immature stage following rain. In our experience crown rot can be found in all lucerne stands, but it is only in circumstances where some form of additional stress is placed on the stand that significant plant death will occur.

Autumn

The autumn flush of growth following the summer drought is extremely variable. In periods of feed shortage lucerne management will usually suffer. Feed is normally in short supply in autumn and immature lucerne is often grazed. Farmers are advised to delay autumn (April-May) grazing till new crown shoots appear, or after growth has stopped due to frost. This will allow the build up of root reserves resulting in earlier spring production.

In Central Otago most lucerne stands can be grazed safely before and during tugging. Lucerne is almost free of the foliar diseases which lead to the build up of the oestrogenic compound which effects ewe fertility. We have given considerable publicity to this fact. However bad news is more easily remembered than good news and many farmers still believe it is dangerous to graze lucerne in the autumn. The only penalty from grazing lucerne for flushing and tugging, is a reduction in early spring growth through a reduction in root reserves.

Winter

Some farmers are successfully carrying lucerne as standing hay into the early part of winter. Some losses through frost do occur but these losses are minimised where the lucerne has not reached the end of its growth cycle. Frost resistance appears to be related to moisture levels in the plant. Our observations suggest that lucerne subject to drought stress in the autumn is more easily damaged by frost.

Winter grazing management of lucerne varies considerably. At one extreme it is used as a winter feeding

pad for periods of a month or more. At the other extreme it is not grazed at all. Treading damage to the crown during winter is, we believe, one of the prime causes for crown rot infection. Most farmers now graze stock on lucerne for as short a period as sub-division allows.

We are advising farmers that a quick grazing for a week or less in winter should help to delay the build-up of aphids in the spring.

HAY

Feed conservation is important in inland Otago due to the long winters. Approximately half the area in lucerne is used primarily for hay production. Depending on climate and soil, dryland stands are used for one or two cuts of hay. Further growth is mainly used for finishing lambs. Without lucerne many farmers would have difficulty putting weight on weaned lambs. Lucerne retains high feed quality once growth has stopped through drought.

IRRIGATION

Until recently irrigating lucerne for hay production has been popular amongst farmers. Where surface irrigation is used the life of stands has decreased dramatically over the last few years due mainly to the rapid spread of bacterial wilt (*Corynebacterium insidiosum*) and Verticillium wilt (*Verticillium albo-atrum*). These two disease are now present in nearly all irrigated stands, reducing productive stand life from 7 - 8 years, to 3 - 4 years. The problem of disease is not as great under spray irrigation since there is usually little surface flow of water. These two diseases are sometimes found in dryland stands but in most instances they do not cause significant damage.

At present where farmers intend to surface irrigate we are normally recommending that lucerne should not be sown. As new cultivars with higher levels of disease resistance become available, we expect a resurgence of interest in lucerne for irrigation. The alternatives available at present are: ryegrass/white clover with lower production and quality, but which can be considered permanent; or Pawera red clover which should not be fed green to female stock. Most farmers are going for the pasture option at present.

NEMATODES

On the North Otago downlands an estimated 75% of the reduction in lucerne area can be attributed to the spread of lucerne stem nematode. Fortunately inland areas of North Otago and Central Otago are almost free from nematode problems. It is possible that the nematode thrives better on the coast or in areas when the rainfall is greater than 500 mm. Resistant cultivars can replace this lost lucerne but advisers in the area feel that the level of a few years ago are unlikely to be regained.

Many farmers have improved their grass pasture management by rotational grazing, and this has reduced the relative advantage of lucerne over pasture. The relative advantage of lucerne would of course be greater in drought conditions, and when the next drought occurs in North Otago interest in lucerne will return.

APHIDS

In general the lower the rainfall the fewer are the problems encountered with aphids. When aphids are a problem farmers often graze or cut stands earlier than normal rather than use insecticides. In dry conditions this practice appears to work. Dessication and sunlight can dramatically reduce aphid numbers and provided conditions remain dry, reinfestation of the new shoots will be low. The pattern of aphid attack is variable and difficult to predict. Large numbers are usually encountered only in late spring, early summer and occasionally in autumn.

Untreated, aphids are reducing production, plant life, hay quality, and the quality of feed for finishing lambs.

WEEDS

In areas below 600 mm annual rainfall, annual brome (*Bromus sterilis*) and barley grass (*Hordeum murinum*) are often present. Farmers often consider it necessary to use herbicides, under these conditions, every 2 - 4 years and in my opinion this can be justified. Although the lucerne yield may not be greatly increased the quality of the first hay cut is improved. Also pelt damage to young lambs caused particularly by brome grass is often severe when herbicides are not used.

In wetter areas and under irrigation, flat weeds also require herbicide treatment.

Poor grazing management and inadequate fertiliser contribute to weed problems, but in my opinion in most cases weed control cannot be achieved through grazing management alone.

CONCLUSION

The standard of lucerne grazing management in Otago is generally good. Since the proportion of lucerne grazed on many farms is not high, good grazing management is relatively easy to achieve.

In Central Otago the area in dryland lucerne continues to increase despite some loss in farmer confidence. We expect confidence to improve as more pest and disease resistant cultivars become available. In North Otago a return to the large scale use of lucerne appears unlikely, due to improved grass pasture management and the absence of severe drought in recent years.

Advisers in Otago consider that in the drier inland areas, lucerne will continue to have a valuable role in resistance to drought and as a producer of high quality feed.

DISCUSSION

Gluyas: What cultivars are used in Otago?

Talbot: Wairau is still being used in dryland stands in the lower rainfall areas. This is partly because it is cheaper and partly because pest and disease problems are less than in wetter regions. Some farmers are using the new cultivars. Under irrigation Saranac, Washoe and WL318 are being used.

Q. What fertiliser is used?

Talbot: Most dryland stands get sulphur-fortified-superphosphate at quite low rates, 125 kg/ha every second or third year, because soil phosphate levels are generally high.

Q. What mob sizes of ewes with lambs are used?

Talbot: Depends on the stand, but up to 600 in a mob.