GRAZING MANAGEMENT - ANNUAL WEED CONTROL

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WHY CHANGE?

Why should we look at grazing management as a means of controlling annual grass weeds? The use of chemicals to control weeds in pasture has become more successful and common in recent years due to a greater range of products and improved timing of application.

One reason is that the community and governments are pushing to decrease chemical usage. The lobby to lower chemical usage is winning the day in the USSA. Also the ever-present cost-price squeeze forces graziers to look for alternatives.

Reuter (1989) states "With the exception of Tasmania, all states reported that the legume content of annual and perennial pastures had deteriorated in recent years, and in some instances to exceptionally low levels. Pastures are now often dominated by weeds and inferior annual grasses."

Included in the causes for this decline was grazing management. Chemical control in this case may only provide a short term answer. Longer term control may require a change in the way the pasture is grazed, either by timing or stocking pressure or both.

We have all seen that even under moderate grazing pressure seldom is a paddock evenly grazed. It might be due to hills or gullies or the position of watering points. Uneven changes in pasture composition will result over time.

WHAT CHANGES OCCUR WITH GRAZING?

The lower the stocking rate the greater the opportunity for selective grazing and the more likely is compositional change.

In general it seems that continuous heavy grazing is detrimental to many acceptable perennials, which are likely to be replaced by unacceptable perennials, annuals or bare ground. Total pasture dry matter might not vary but quality might.

Annuals are also vulnerable if heavily grazed at flowering, seeding or germination, but light grazing may be tolerated. Most annuals have evolved mechanisms such as unpalatable seeds, heavy production of seeds and staggered germination to withstand abuse and so colonise sites where perennials have been weakened. (Stebbins 1957)

CAN WE CONTROL COMPOSITIONAL CHANGES?

If we know the life cycle of the species present we can time grazing to benefit the favourable species at the expense of the undesirable species.

A good example of this has been the program for wire grass (Aristida spp) spp) control on the North-West Slopes. In summary, heavy summer grazing reduces the undesirable wiregrass while resting in winter and spring favours Wallaby grass (Danthonia spp). (Lodge and Whalley 1985)

EFFECT ON LIVESTOCK

Depending on seasonal conditions sheep production will be affected under such a system. They will concentrate on the most digestable species and only eat the low quality wiregrass when there is no choice.

The same applies in other situations where livestock are being used to clean up a pasture.

If the life cycles of desirable and undesirable species are similar, continuous heavy grazing will be damaging to both species. However, the desirable species will be placed under more pressure than the undesirable. Subterranian clover and Vulpia spp would be an example.

We need to be able to apply heavy grazing pressure for specific short periods. This can only occur with large mobs and temporary subdivision. The overall stocking rate on the property does not change, only the temporary stocking pressure on certain areas.

CONTROLLED GRAZING - ITS ROLE IN PASTURE MANAGEMENT

Controlled grazing started in New Zealand in the 70's with the aim to use existing feed better by controlling animals' intake. This is vastly different from rotational grazing where the grazing animal is used to increase pasture production, often at the expense of animals.

Changes in pasture composition have been noticed as a side effect. Fraser (1957) reports on the effect of cattle grazing. The main effect has been an increase in the ryegrass content and a reduction in the amount of vulpia. Although it would be expecting too much to see vulpia eliminated, it has certainly been made more digestible and palatable and the grazing in the vulpia area was more even. The amount of sweet vernal, browntop and creeping bent was lessened, Yorkshire fog was increased but not excessively and clovers have not been disadvantaged.

A trial was started in 1986 at Cressy Research Station, Tasmania, looking at controlled grazing.

Initially, the controlled grazing only occurred during winter and all blocks were set stocked in spring, so few differences in annual species have been recorded between controlled grazed (C.G.) and set stock. The one difference was the decline in barley grass and winter grass under C.G. A project involving C.G. over spring is in its first year.

C.G. for part of the year is now practised by over 200 graziers in Tasmania. Beattie (pers. com.) reports he has seen many situations where graziers have successfully changed pasture composition through C.G.

SLENDER THISTLE CONTROL

A technique used in Tasmania for control of slender thistles in pasture involves closing the paddock up at the autumn break. The resulting pasture growth modifies the development of the thistle so that they produce upright plants with soft foliage and prickles instead of flat and prickly rosettes. Heavy grazing occurs 6-10 weeks later and the soft thistles are readily eaten.

Bendall (1974) states since this method avoids the use of chemicals it has no adverse effect on pasture composition. This has been shown to have a beneficial effect on pasture by reducing the proportion of weedy grasses and encouraging the growth of sown grasses and clovers.

EXPERIENCES OF C.G. IN THE YASS DISTRICT

Over the last 12 months I have tried C.G. on a few properties in the district.

One property had improved paddocks which are dominated by vulpia. The paddock was control-grazed in late autumn and mid spring.

It was obvious that the first C.G. removed a high percentage of the vulpia and pruned the rushes. This allowed the clover a better chance to develop. The density of clover was greater and plants bigger in the C.G. paddock than surrounding paddocks.

The effect on seed set and germination of the vulpia will be known this autumn.

Another property had lower slopes dominated by rank fog grass, so restricting grazing to 50-70% of total area, depending on the paddock. Wethers were used for C.G. in late spring and removed the large quantity of rank fog grass.

The fog grass responded to the summer rain and all sheep used these areas over summer willingly, so increasing grazing area. However, unless the lower slopes are grazed more heavily in spring the problem will recur.

The fog grass has shown on this property to be productive if kept under control.

HOW IS A CONTROLLED GRAZING (C.G.) SET UP?

1. Assess the area to be grazed for dry matter yield.

   Pasture quantity assessment skills need to be developed, either via a Department Pasture/Animal Assessment Project site (Goulburn, Tamworth, Oberon) or by doing your own pasture cuts, or by using an instrument such as a rising plate meter.

2. Assess animal requirement.

   The New Zealand Advisory Service handbook, Feed Budgeting, provides tables for daily feed requirements. (Tables 1 & 2)

3. Work out the mob's requirement and area needed to match this. Decide how many days between shifts and this now gives the area to be fenced. Temporary electric fencing is used.

4. Blocks can be grazed for either 1, 2, or 3 days. A one day block will result in more dry matter being eaten. The longer on a block the more trampling and wastage will result. Stock are removed after 3 days so the new shoots are not eaten.

If you are using cattle, flexibility is needed during periods of heavy rain. Heavily "pugged" areas are to be avoided.

Before anyone starts C.G. they need to be able to assess pasture quantity. Remember the aim is to uniformly graze the area without affecting animal performance.

SUMMARY

Annual pasture weeds are partly the result of grazing management. There are examples of how, with correct timing, desirable species can be encouraged.

The use of C.G., if the timing is right, can achieve changes in pasture composition while being able to maintain reasonable production.

I am not suggesting we should embrace C.G. like the New Zealanders but use the technique at strategic times to achieve desirable changes in pasture.

Grazing management will not solve all annual and perennial weed problems but it will assist in maintaining a more productive and balanced pasture.

There is a lack of data in NSW about the timing of grazing and what species we can manipulate. Maybe a combination of controlled grazing and chemicals will give the best results. We must look at grazing management as a tool to maintain a balanced pasture.

Table 1.

Daily Feed Requirements of ewes, wethers and weaned lambs

Ewes/wethers

Liveweight kg	Requirement (kg DM/day) maintenance
40	0.73
55	0.85
70	0.92

For flushing - multiply maintenance requirements X 1.5

For last month pregnancy - multiply maintenance requirements X 1.5

For lactation - multiply maintenance requirements X 3.0

Shorn ewes/wethers - multiply maintenance requirements X 1.5 (winter)
X 1.1 (summer)

Lambs and Hoggets

Liveweight	Liveweight gain/day gms			
	0	50	100	200
	Requirements (kg DM/day)			
20	0.5	0.7	0.9	1.4
30	0.6	0.8	1.1	1.6
40	0.7	1.0	1.2	1.8

Table 2.

Daily feed requirements for growing steers & heifers

Liveweight kg	Liveweight gain/day (kg)				
	0	.5	.75	1.0	1.5
	Requirements kg DM/day				
100	2.2	3.1	3.4	3.9	4.9
200	3.1	4.4	5.2	5.9	7.6
300	4.0	5.7	6.8	7.7	9.9
400	4.7	6.9	8.1	9.4	12.1
500	5.5	8.1	9.4	10.9	14.2

All tables are assuming a mixed length leady pasture with ME of 10.8 MJME/kg DM. The ME of pasture varies during the year from 12MJME/kg DM for short green pasture to 8MJME/kg DM for dry stalky pasture.

These tables should be used as a guide. They are based on New Zealand conditions and may not exactly apply to NSW.

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