

Goats & pastoral farming

GOAT HUSBANDRY AND MANAGEMENT

Goats can be profitably incorporated into existing farming systems, providing benefits of:

- increased revenue and profitability from the sale of meat and fibre.
- improved productivity from the livestock presently farmed.
- improved pasture quality, and lower cost weed control.
- a non-chemical alternative for weed control.

The advantage that goats have over sheep, cattle and deer is that they have a preference for a varied diet, and a habit of browsing and selecting roughage in their diet. But although they do well on what appears to be low quality forage, high performance will only be achieved when goats achieve high intakes of high quality forage.

Goat husbandry and management is important in ensuring that expectations are met, and that goat farming provides an enjoyable extension to the farming business.

Feed Requirements

Information on the feed requirement of pastorally farmed goats is limited. Most authors have published daily feed requirements that are similar to sheep. This is logical given the similarities in digestion between sheep and goats. However, one factor which needs to be acknowledged is their behaviour of grazing the steeper areas of hill country paddocks. The results is an increase in their maintenance feed requirement by 20-25%. Another factor is that they can obtain nutrition from feed that is unsuitable for sheep.

Maintenance requirements for goats are listed in *Table 1*. and comparison is made with the feed requirement for ewes.

Table 1 Daily Energy Requirement for Maintenance MJ ME/day

Liveweight Gain (g/d)		Liveweight (kg)				
		20	30	40	50	60
Goats Easy Terrain		5.0	6.8	8.4*	10.0	11.4
Goats - Steep Terrain		6.0	8.0	10.0	1.2	13.7
Ewes				8.5	10.0	11.5

* The nutritional value of mixed length leafy pasture is 10.8 MJ ME/kg DM. On this pasture, this daily energy requirement would be met by feeding 0.78 kg of DM/day. The nutritional value of common feeds is available in "A Guide to Feed Planning" - NZ Sheep Council, 1994.

Source: NZSAP 1987

The energy requirement for growth has been assessed at 30 MJ ME/kg of liveweight gain (NZSAP 1987). This is comparable to the values used for sheep production so it appears reasonable to adopt existing sheep feeding standards for goats, taking into account differences in liveweight between the species and potential for different diet components.

Suggested energy requirements are detailed in *Table 2*.

Table 2 Daily Energy Requirement for Young Stock MJ ME/day

Liveweight Gain (g/d)	Liveweight				
	20	25	30	35	40
0	6.5	8.0	9.0	10.0	11.0
50	8.0	9.5	11.0	12.0	13.5
100	9.5	11.0	13.0	14.5	16.0
150	11.0	13.0	15.0	16.5	18.5
200	12.5	14.5	17.0	19.0	21.0
250	14.0	16.5	19.0	21.0	23.5
300	15.5	18.0	21.0	23.0	26.0

There is limited information on the effect of pregnancy and lactation on the energy requirements of grazing goats. The main features are that goats have similar daily milk production to sheep, but the milk fat content is lower. Peak milk production in Saanen does is reported to be approximately 6 l/day, with Cashmere producing

does peaking in the range 1.5 - 1.8 l/day, with a milk fat content of 4.5-5.5%. By comparison, the fat content of sheep milk is 7.8%.

These production levels would suggest that the energy requirement of goats during lactation would be less than for sheep. In practice, it would appear that the energy intake for goats in the lactation period should be modelled on the requirements for ewes as in Table 3. This approach recognises that when offered shorter pasture goats are less efficient grazers than sheep, and there is an increased energy cost associated with this.

Table 3: Proposed Energy Requirements for Does During Lactation - MJ ME/day

Live-wgt (kg)	Single Sucking				Twin Sucking			
	Week of lactation				Week of lactation			
	1	3	6	9	1	3	6	9
40	20.0	23.0	20.0	18.5	23.0	26.0	23.0	20.0
45	21.0	24.0	21.0	19.5	24.0	27.0	24.0	21.0
50	24.5	28.5	24.5	20.5	28.5	32.0	28.5	22.0
55	25.0	29.0	25.0	21.5	29.0	33.0	29.0	23.0
60	26.0	30.0	26.0	22.0	30.0	34.0	30.0	24.0
65	27.0	31.0	27.0	23.0	31.0	35.0	31.0	25.0
70	28.0	32.0	28.0	24.0	32.0	36.0	32.0	26.0

The effect of nutritional stress during lactation is similar for goats and sheep. Low feed intake at kidding will add to abandonment, and kid losses; while low feeding levels in early lactation will increase the loss in weight and condition of does, and markedly affect kid weight gain. However a doe may be feeding more offspring than a ewe.

Feed Intake

Compared to sheep, higher pasture heights are required for goats to achieve the feed intake necessary for high performance. This is particularly important in the late winter and early spring period when pasture cover is seasonally low. During this time, when grazing only pasture, does need to be allocated feed of 5-7 cm height to achieve high weight gain and/or milk production.

Goats with preferred browse available, or being fed other supplements, may be able to achieve comparable performance on pasture of lower height. However, the extent to which goats are able to select from the feed on offer, feed digestibility, and the ease of grazing can combine to significantly reduce feed intake and productivity. As for sheep, high quality feed is required for high production.

Seasonality of Liveweight Gain

Like deer, weight gain in goats appears to be seasonally modified. McCall and Lambert noted:

In Australia, Cashmere-producing kids grazed on pasture stop growing (weight stasis) or lose weight in May-June, but are capable of reasonable liveweight gains (70-80 g/d) in early autumn and rapid gains (100-140 g/d) in spring. A wide range of supplements were ineffective in stimulating growth in May and June. A period of weight stasis in kids fed widely differing pasture allowances (0.7 vs 3.0 kg DM/hd/d) also has been found in New Zealand feral kids between mid-April and early-July. Pasture allowance relationships for other times of the year are not available.

Shearing

Angora goats are generally shorn twice a year at 6 monthly intervals in Autumn and Spring. The seasonal pattern of fibre growth and the need to shear cashmere goats prior to fibre shedding from mid winter can create management difficulties.

The need to harvest cashmere in late winter, coinciding with a period of high feed demand and extreme and variable weather contributes to a period of stress, which can result in high stock losses without suitable management.

As fibre regrowth on goats is not as rapid and body fat levels are lower than in sheep, sufficient feed and shelter must be available for at least 6 weeks post shearing. There are other management points that are also critical.

The decision to shear or harvest fibre involves achieving a balance between environmental conditions, fibre production per goat, and fibre prices. Where per head production has been low, a decline in fibre prices has resulted in many flocks remaining unshorn. It is expected that this trend may continue. Improved returns for goat meat, relative to fibre, and wider inclusion of short haired meat type sires in breeding programmes may result in a shift in emphasis away from fibre harvesting in commercial flocks.

References

- McCall and Lambert:*
In NZSAP Occasional Publication No 10 - 1987
NZ Sheep Council:
A Guide to Feed Planning - 1994
NZ Goat Industry:
The Agricultural Research Division Perspective
MAF 1985