Goat Note

ISBN 09590950 2 0

PUBLISHED
SEPTEMBER 2000

H5

# Preparing to sell Goats

EXTRACTED FROM: Greenwood P.L, May T.J and Finn J.A (1993) Development of objective methods for Marketing and promotion of goat meat (MRC/NSW Agriculture final report DAN 041. Sydney)

## WHY MEET MARKET REQUIREMENTS?

The increased use of sale by description and computerised selling systems such as CALM (Computer Aided Livestock Marketing) will highlight the need for objective description of goats and goat carcases and provide a clearer incentive for growers to market animals which produce carcases of a specific weight and fatness according to buyer requirements.

It is therefore important when supplying a market for goat meat, that the required carcase is described in terms which can be translated to the live animal. By using methods for carcase description, condition scoring, drafting goats for sale and using dressing percentage to estimate carcase weight, as described in this publication, market requirements can be accurately targeted.

Until now it was commonplace to describe a kid goat or a kid carcase as "large or well-finished". This is no longer the case. Instead, the new language is likely to indicate live condition score and liveweight, or fat-class and carcase weight. For example, "live condition score 4 kid weighing 20kg" or "fat-class 4 carcase with 9.5kg hot standard carcase weight".

The need for producers and buyers to be able to use this system is due to consumer consciousness about excessive fatness of some meat products and the amount of meat relative to bone. Generally, consumers now demand lean product with a high meat yield.

Previously, price penalties were not readily apparent to producers because most livestock were sold on a per head basis. Consumers, retailers and processors, however, are acutely conscious of ensuring value for money where meat is traded on a price per kilogram basis.

The description "prime goat kids" (or capretto) refers to unweaned goats with carcases of pale pink meat weighing up to 12kg. A variety of markets exist for unweaned kids. Each market requires a particular carcase weight, fat-score and meat colour. By accurately meeting the requirements of a specific market producers create a competitive advantage over others who fail to meet specifications. This advantage can result in premium prices.

## DRAFTING FOR SALE

In drafting for sale the aim should be to select those kids closest to requirements of buyers. More accurate appraisal of the live goat helps the producer to target specific markets and not be penalised for failure to meet market specifications.

The traditional approach of visually assessing kids as a mob or while they are running through the drafting race, often results in drafts of kids with a wide range of carcase weights and a wide variation in carcase-fat classes. The successful marketing of more even lots of prime goat kids requires weighing and live condition scoring.

Appraisal skill is the means of being able to accurately estimate the eventual carcase weight and fat class of kids while they are still alive. These skills can be improved by experience and regular abattoir feedback, but are also greatly aided by the use of liveweight scales and good live condition scoring skills.

### Carcase weight

The best live guide to carcase weight is liveweight adjusted by an estimated dressing percentage. That is:-

Carcase weight (CW) = Liveweight (LW) x Dressing percentage (DP)

e.g. Where LW = 22 kg and estimated dressing percentage is 45 per cent then

CW = LW x DP
= 22 x 45 percent
= 9.9 kg

Liveweight can be accurately and quickly measured using a modern set of weighing scales. Scales are available that automatically draft several ways according to pre-set weight ranges. Alternatively, small scale producers can utilise girth tape measurements which correlate well with liveweight, or clock-face suspension scales or bathroom scales.

Although Australian kids have an average dressing percentage of around 45 per cent, they vary considerably from as high as 55 per cent to as low as 35 per cent. Typical liveweight of goat kids of varying carcase weight, according to live condition score, are shown in the following table.

**Table 1: Typical Liveweight of goat kids of varying carcase weight, according to condition score:**

| Target carcase weight(kg) | Desired liveweight (kg) at live condition score # | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 4-6 | 10.0-15.0 | 9.5-14.0 | 9.0-13.5 | 8.5-12.5 |
| 6-8 | 15.0-20.0 | 14.0-19.0 | 13.5-17.5 | 12.5-17.0 |
| 8-10 | 20.0-25.0 | 19.0-23.5 | 17.5-22.0 | 17.0-21.0 |
| 10-12 | 25.0-30.0 | 23.5-28.0 | 22.0-26.5 | 21.0-25.5 |
| >12 | >30.0 | >28.0 | >26.5 | >25.5 |

| # Corresponds to carcase Fat Classes | | |
|---|---|---|
| | 1 | 1-3 mm GR tissue depth |
| | 2 | 4-6 mm " " |
| | 3 | 7-9 mm " " |
| | 4 | 10-12 mm " " |

Important factors affecting dressing percentage are:-

**Time off feed (fasting) before live weighing.** Dressing percentage increases by around one percentage point after four hours "emptying out" but only two percentage points after 12 hours.

**Time off feed before slaughter.** Following "emptying out" dressing percentage declines with increasing fasting period before slaughter due to carcase weight loss. Carcase weight (muscle and fat) loss is around 2 to 2.5 per cent after 12 hours, 3 to 4 per cent after 24 hours and 6 to 7 per cent after 48 hours.

**Live condition score.** Lean kids have lower dressing percentages. Dressing percentage changes by an average of around 2.5 percentage points for 1 live condition score. That is, score 2 kids will have a dressing percentage about 2.5 percentage points below score 3 kids.

**Skin weight.** Short-haired and freshly shorn kids may have higher dressing percentages than long-haired kids.

**Sex.** In the weight range for prime goat kids sex differences may not be large. Heavier buck kids may dress out about one percentage point lower than wether kids and one and a half percentage points lower than doe kids. This is because, at the same carcase weight, does tend to be fatter.

**Breed.** The breeding of both sire and dam may affect fat cover and the dressing percentage of kids although breed differences may not be large in the prime kid weight range.

**Weaning.** Weaned goat kids tend to have a lower dressing percentage than suckling goat kids of the same liveweight.

**Carcases trim and temperature.** Carcases trimmed to the AUS-MEAT "standard trim" (thick skirts, kidneys, kidney knob, channel, udder and cod fat removed) will have a dressing percentage approximately one and a half percentage points lower than if these trimmings were not removed. Chilled kid carcase weights are around 2 to 3 per cent less than "hot" weights as a result of moisture loss during chilling.

## FEEDBACK

The producer can obtain valuable feedback by following drafts of kids through the abattoirs and inspecting their processed kid carcases. Carcase fat score and carcase weight can be checked against pre-slaughter estimates. AUS-MEAT feedback sheets can be provided to producers who utilise an accredited works. Similarly, CALM provides valuable slaughter information that helps producers manage and market livestock to suit demand.

Improved skill in assessing dressing percentage comes from knowing both the live and carcase weights of sale lots. With experience and a knowledge of the dressing percentage of kids from particular properties, producers can quickly gain the skill required to make adjustments for seasonal fluctuations, sex and other factors.
All abattoirs can supply copies of kill sheets that show hot carcase weights (i.e. weights taken at the end of the slaughter chain). In addition, abattoirs that have AUS-MEAT accreditation can supply fat-class information.

Most abattoirs welcome requests for kill sheets and fat-class scores and producer inspection of their own goats.

Live condition scoring kids is a "hands on" method which is a valuable tool in estimating carcase fat-class. The level of accuracy needs to be regularly monitored by comparing the score assessed on the live kid with the actual fat measurement on the carcase.

## CONCLUSIONS

Real improvement in growth rates and muscling can be achieved through better breeding, nutrition and health of goats. This can be achieved by using sires and dams selected objectively for faster growth of kids and meatier carcases, judicious use of new management techniques and improved goat kid appraisal and drafting skills. Most importantly, you should use selling systems that pay financial incentives for meatier "high quality" carcases.

**Recommendations to Maximise Your Returns**

Plan in advance an annual, overall management program aimed at the supply of kids to targeted markets based on their requirements for carcase weight and fat-class. This requires improved nutrition by adopting appropriate stocking rates and feeding does optimally in late pregnancy and during lactation, plus better management to control internal and external parasitism.

Buy sires from stud breeders who are making an active attempt to breed faster growing, meatier animals and whose goats, regardless of breed, produce the best kids for you under your conditions.

Use liveweight scales and live condition scoring techniques with regular AUS-MEAT abattoir feedback information to monitor when your kids will be ready for sale and to assist you to prepare sale lots.

Use the selling system that offers the most incentive for prime kid carcases and preferably the system with the least time between your paddock and slaughter.

For the best returns sell:

- healthy well fed clean goats
- goats which are in good body condition
- goats which are at least 3 weeks off shears but not in full fleece
- goats which are outside any withholding period (i.e. have not been vaccinated or drenched within a certain period, depending on the treatment – see instructions on the package)
- quiet animals which have been carefully handled and yarded to avoid bruising
- goats with the appropriate declaration forms correctly filled in
- goats ready on time for the livestock carrier
- the correct number of goats ready for marketing, no more and no less than has been agreed upon.

Kids being sold for high-value capretto markets have special requirements including light pink meat (these kids should not be weaned before sale) and tissue depth at the GR site of 3 to 6 mm (body condition score 1 or 2). It may be necessary to provide special nutritional management for twin-reared kids so that they reach marketable weight and condition at a suitable time. The supplementary feeding of grain to such kids or to their lactating does can improve carcase weight, fatness and condition.

As goats grow, the proportion of the live weight which can be sold as a carcase increases. The carcase represents about 37% of young light-weight kids but increases to about 48% for good condition goats weighing 35 to 45 kg, boers and their crosses dress from 2% to 5% better than other breeds. The amount of fat in the carcase of goats increases as they become heavier. Older, heavy goat can be too fat for some markets.

The message from today's meat consumers is clear. They want lean, tender kid with as much edible meat and as little waste as possible.

**Estimating carcase weights from prime goat kids**

Carcase weight and carcase fat-class are the most important factors affecting the economic value of a goat kid carcase. This is because meat is traded on a price per kilogram basis. There are also important relationships between carcase weight and fatness, cost efficiencies in processing, and yields of saleable meat. All of these factors will affect returns to producers.
Liveweight, live condition score and estimated dressing percentage are the tools that producers and livestock assessors have to use in calculating the carcase weight of goat kids before they are killed. Goat kid producers with such knowledge are in a better position to make the right management and marketing decisions and to get the most benefit from new marketing methods.

A live condition scoring system for goats has recently been introduced which provides a practical method for producers to assess carcase fat-class and improve carcase weight estimation.

The recent introduction of sale-by-description (CALM - Computer Aided Livestock Marketing) and other marketing improvements, such as the AUS-MEAT standardised carcase description system, have created an urgent need for prime goat kid producers to be more accurate in assessing the carcase weight of goat kids before they leave the farm. To do this, it is important to have an understanding of the factors affecting dressing percentage.

**Factors affecting carcase weight estimation**

Of the many factors that have an influence on dressing percentage, the most important are:

liveweight;
fatness and muscularity (live condition score);
time off feed and water (this affects gut fill and therefore liveweight);
pre-slaughter fasting and stress (this affects carcase weight loss);
skin weight (as affected by type of goat and shearing);
sex;
breed;
weaning;
type of feed.

Seasonal variations can also affect dressing percentage by changing growth rate, fatness, muscularity, and age at which animals are marketed.

**Liveweight**

Liveweight should always be measured at the same stage of the marketing process to improve the accuracy of estimation of carcase weight.

Most goat kids are weighed directly off feed or very soon afterwards. If there is a time lag between muster and weighing it is necessary to adjust estimated dressing percentage for the time off feed prior to weighing to account for weight loss as a result of urination and defecation. Liveweight losses vary according to prevailing conditions (especially feed) but generally approximate those shown in Table 2. It should be noted, however, that following feed deprivation (fasting) of animals with similar live condition score, those off lush feed will usually have a higher dressing percentage than those off drier feed. This is because of a faster rate of gut fill loss of the higher moisture content feed.

**Table 2. Effect of varying time off feed on liveweight loss.**

Typical liveweight loss as percentage of liveweight straight off feed.

| Hours off feed | Percentage liveweight loss |
|---|---|
| 2 | 2.0 |
| 4 | 2.5 |
| 6 | 3.0 |
| 8 | 4.0 |
| 12 | 5.0 |
| 24 | 7.0 |
| 48 | 10.0 |
| 72 | 12.0 |

Initial changes in liveweight during fasting result mainly from loss of gut contents, or gut fill. Rate of gut fill loss is greatest in the first 6 to 8 hours off feed, being about 4 per cent liveweight for Australian slaughter size goat kids. For example, a goat kid weighing 20 kg out of the paddock could have a dressing percentage of about 46 per cent. The same goat kids weighed after 6 to 7 hours could dress 48 per cent because of liveweight loss due to gut fill loss.

Losses due to muscle and fat breakdown start to affect liveweight, carcase weight and therefore dressing percentage after about 6 hours off feed. Table 3 shows typical liveweight, carcase weight and dressing percentage changes during the first 12 hours off feed.

**Table 3. Typical effect of time off feed on liveweight, carcase weight and dressing percentage.**

| Time off feed (hours) | Liveweight (kg) | Carcase Weight (kg) | Dressing Percentage |
|---|---|---|---|
| 0 | 20.0 | 9.0 | 45.0 |
| 2 | 19.6 | 9.0 | 45.9 |
| 4 | 19.5 | 9.0 | 46.1 |
| 6 | 19.3 | 8.9 | 46.1 |
| 8 | 19.2 | 8.8 | 45.8 |
| 12 | 19.0 | 8.7 | 45.8 |

Live condition score

It is difficult to separate the effects of liveweight and body condition. In general, better conditioned (3 or 4 score) goat kids have a higher dressing percentage than leaner (1 or 2 score) goat kids. Live condition scoring of goat kids prior to sale will enable you to assess carcase muscle development and fat cover. It will also aid in making dressing percentage adjustments. Recent studies have shown that an increase in one live condition score increased dressing percentage by an average of 2.5 per cent.

The rate of both liveweight loss and carcase weight loss in goat kids is affected by live condition score, with fatter goat kids having lower rate of liveweight loss than leaner goat kids. After 12 hours of fasting, live condition score 2 goat kids lose approximately 0.5 per cent more liveweight and 1 per cent more carcase weight than score 3 goat kids of the same liveweight. Similarly, meat yield (as a per cent of carcase weight) differs by about 3 per cent with each one unit difference in live condition score.

### Weaning

Weaned goat kids tend to have a lower dressing percentage than suckling goat kids at the same fatness and liveweight. For example, sucker goat kids weighing 20 kg liveweight with a live condition score 3 have about a 2 per cent greater dressing percentage than similar goat kids weaned for 3 weeks.

### Pre-slaughter fasting and stress

Prolonged deprivation of feed and water causes dehydration. This results in a loss of body tissues and hence of carcase tissues. Access to water in abattoir holding pens will help reduce this loss. The extent of carcase weight loss, as distinct from liveweight loss due to loss of gut fill, varies according to length of fasting, time off water and degree of stress imposed before slaughter.

Carcase weight loss of typical slaughter goat kids is about 2 to 2.5 per cent in the first 12 hours, 3 to 4 per cent in the first 24 hours, and 6 to 7 per cent in the first 48 hours. An additional 2 per cent loss in carcase weight can be expected if goats are denied access to water for a prolonged period.

### Skin weight

Skin weight influences liveweight and therefore the dressing percentage. Freshly shorn or short-haired goat kids, with their low skin weight, have a higher dressing percentage than similar unshorn long-haired goat kids. As a guide, the weight of pelts from freshly shorn or short-haired goat kids is approximately 9 per cent of liveweight, but skin weights can range from 5 to 15 per cent of liveweight.

### Sex

Although doe goat kids tend to be fatter than wether and buck goat kids respectively, these differences are not great enough to result in large differences in dressing percentage over the normal liveweight range for prime goat kids slaughtered in Australia. Heavier buck kids may dress out about one percentage point lower than doe kids of the same carcase weight because of the difference in fatness.

### Breed

The breeding of both sire and dam may affect fat cover and the dressing percentage of goat kids although in the prime kid weight range breed differences may not be large.

### Importance of scales

Regular liveweight assessment of sale goat kids and abattoir feedback on carcase weights is essential for producers to determine the dressing percentage of their goat kids. This assessment is more accurate where scales are used to obtain liveweights of the goat kids before marketing. Alternatives to electronic scales for small scale producers include girth tape measures which correlate well with liveweight, or bathroom or suspension scales. Furthermore, it is important to assess the carcase fat cover by live condition scoring kids whilst the animals are on the scales, to increase the accuracy of carcase weight estimations.

### Improved assessment

Improved skill in assessing carcase weight comes from knowing both liveweight and carcase weight of sale lots in order to accurately determine dressing percentage. With experience and a knowledge of the dressing percentage of goat kids from particular properties, producers can quickly gain the skill required to make adjustments due to seasonal fluctuations.

### Conclusion

Liveweight and live condition score have a major bearing on goat kid carcase weights. The knowledge and skill required to take best advantage of the relationship between liveweight, fatness and carcase weight can be learnt by experience, the regular use of liveweight scales and live condition scoring and, most importantly, regular abattoir feedback. A sound knowledge of the marketing process will also assist in increasing the accuracy of estimates and help identify areas which can be improved to increase returns to the producer. To maximise returns your marketing system should minimise the time between muster and slaughter.

See the following examples of calculations.

## EXAMPLES OF CALCULATIONS

For consistent comparisons, dressing percentage should be calculated by using the carcase weight commonly used in abattoirs, that is hot carcase weight, after trim, with fats and kidneys removed (AUS-MEAT standard carcase). Similarly, accuracy in estimating carcase weight is improved by consistently weighing kids at the same stage of the marketing process, for example, immediately they come off feed.

**Example 1** Calculating dressing percentage (DP) from known liveweight and carcase Weight

Where liveweight (LW) = 20 kg
carcase weight (CW) = 10 kg

$$\text{Dressing percentage} = \frac{CW \times 100}{LW} = \frac{10 \times 100}{20} = 50\ \%$$

**Example 2** Estimating carcase weight from liveweight and estimated dressing percentage.
Where LW = 20 kg and estimated DP = 45 per cent

$$CW = \frac{LW \times DP}{100} = \frac{20 \times 45}{100} = 9Kg$$

**Example 3** In this example, some of the factors affecting dressing percentage are shown in the calculations.

(a) Assume 3- to 4-month-old goat kids with an average live assessment score of 4, still running with their mothers, average 25 kg liveweight when weighed straight off green feed (good improved clover pasture mix) at midday. They are trucked to the abattoir late afternoon and slaughtered 8:00 a.m. the next day. This draft could be expected to dress 48 per cent, that is, a carcase weight of 12 kg.

(b) Assume the same goat kids were not weighed until 4 hours after they came off feed, that is, 4:00 p.m. with an average liveweight of 24.4 kg (liveweight loss of 2.5 per cent). The expected dressing percentage for these goat kids would be 49.2 per cent, returning the same carcase weight of 12 kg (see Table 2).

( c ) Assume the same goat kids are again weighed just prior to the scheduled slaughter time, 20 hours off feed, with liveweight of 23.3 kg.

$$\text{Dressing percentage} = \frac{CW \times 100}{LW} = \frac{12 \times 100}{23.3} = 51.5\ \%\ \text{(of pre-slaughter liveweight)}$$

(d) Assume the goat kids were not slaughtered until 24 hours after the scheduled time, that is, 44 hours off feed. Also assume that the goat kids were held in pens with water but not feed. This could result in a carcase weight loss of 3 per cent of the 12 kg, that is, a loss of 0.4 kg. Therefore, the carcases from these goat kids would be 11.6 kg.

Dressing percentage on the out paddock (full) liveweight :-

$$DP = \frac{CW\ X100}{LW} = \frac{11.6 \times 100}{25} = 46.4\ \%$$

**OR** Dressing percentage on the liveweight 4 hours off feed :-

$$DP = \frac{CW\ X100}{LW} = \frac{11.6 \times 100}{24.4} = 47.5\ \%$$

**OR** Dressing percentage on the liveweight 20 hours off feed :-

$$DP = \frac{CW\ X100}{LW} = \frac{11.6 \times 100}{23.3} = 49.8\ \%$$