Goat Note

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Pre-slaughter Management of Goat

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INTRODUCTION

Pre-slaughter management can have a significant impact on the marketability of goat meat. It involves management practices on farm or at the point of capture through to slaughter. Mustering, drafting, loading, trucking, handling, noise, strange surroundings and mixing with other stock are all associated with the marketing process. Inadequate pre-slaughter management can reduce liveweights, carcase weights, meat yields and meat quality, as well as increase mortalities, injuries and condemnations. These effects will decrease the economic returns for goat meat.

Here we describe pre-slaughter management of goats and its effects on goats, goat carcases and goat meat yield and quality, and recommend strategies aimed at improving goat meat production and marketing.

THE CURRENT SITUATION

Goats are often deprived of food and sometimes water for one to two days between muster and slaughter. Although goats are generally quite resilient to normal marketing procedures and many are sold on direct consignment to the abattoir, they may be deprived of food (and water) for long periods due to lengthy transit and holding periods. This is due to harvesting practices for feral goats, and long distances between the point of muster and abattoirs for both domesticated and feral goats.

Livestock drafting procedures need to be improved. It is not uncommon for goats to arrive at abattoirs in poor body condition due to inaccurate live assessment and poor selection procedures at the point of muster. This can add considerably to the problems of lengthy transport and fasting.

Producers and processors may also utilize yards and holding facilities not specifically designed for goats which may add to stresses associated with marketing.

It is important for everyone connected with the marketing process - producers, transporters, stock agents, stockmen and meat processors - to minimise fasting time and stresses associated with marketing of goat meat.

MARKETING BEGINS ON THE FARM

Some pre-slaughter practices only relate to the farm management, for example, weaning and castration. Other practices such as fasting, watering and handling apply across all sectors - on farm, during transport and at the saleyard or abattoir.

Weaning

Weaning affects growth and carcase quality. It is common to wean goat kids between 3-5 months of age. If the aim is to market prime kids it is best to leave them on their mothers because :-

weaning reduces kid growth rate and may even result in liveweight loss :

weaning reduces the fat content of the carcase which may result in down grading:

weaning reduces dressing percentage due to an increase in rumen weight contents and a possible decline in carcase weight :

many markets prefer milk fed unweaned kids as they produce a lighter coloured, more succulent carcase.

Kids in poorer body condition due to weaning also lose more liveweight during the marketing process. They yield smaller carcases with less meat. Kid carcases with little fat do not withstand the slaughtering and chilling processes well. The time of weaning may be influenced by other management decisions such as pre-joining preparation of the doe. If it is necessary to wean, the weaning shock can be minimal if kids are provided with good quality pasture and/or supplementary feed before and after weaning.

Castration

Castration produces animals with :-

more fat and less muscle in the carcase :

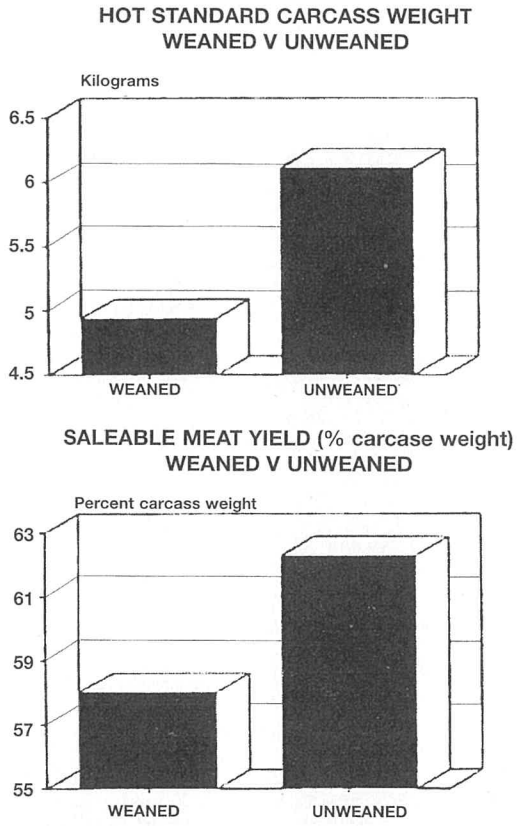
lower liveweights than entire males of the same age.

These differences become more obvious with age and are quite evident when males reach puberty.

The need or usefulness of castration will depend on:

(i) **The desired marketing age and weight of meat kids.**

Figure 1. **Weaning can affect growth, carcase characteristics and economic returns. This figure compares young unweaned goats with goats weaned 3 weeks prior to slaughter.**



Kids marketed in the prime kid liveweight range (10-25kg) will not show significant differences between sexes. Castration slows growth rate and reduces feed conversion efficiency compared to entire males. As long as puberty is not reached, management of entire male kids is no different to castrates and may produce heavier, better muscled carcases than castrates of the same age. However, if entire males are to be marketed at heavier liveweights it becomes necessary to segregate them from females before they become sexually active.

(ii) **Market Preferences**

Castration produces a carcase with greater fat coverage compared to entire males, which may be advantageous for cold storage and may result in more succulent meat. Some markets may prefer lighter weight carcases with more fat and may associate older entire male carcases as being darker coloured with the possibility of meat taint. Other markets, however, may have cultural preferences for meat from entire goats rather than castrates.

DRAFTING GOATS FOR MARKET

Producers and suppliers need to know their market in terms of age, sex, liveweight and live assessment categories. Accurate "hands on" assessment of body condition and measurement of liveweight before goats leave the property is crucial. Buyers usually have specific requirements for age, carcase weight and carcase fat score which can be correlated to live animal assessment.

Stock in poor body condition:-

experience greater liveweight losses :

have lower dressing percentages :

yield less meat than those selected with higher live assessment scores.

Stock that are in poor body condition are less able to withstand the rigours of prolonged transport and holding before slaughter, especially under wet and windy or very hot conditions.

Other factors to consider during drafting include:

health status :	diseased or unhealthy stock may not survive the marketing process, may be condemned at the abattoir, or pose a risk to healthy stock.
cleanliness :	dirty goats presented for slaughter may result in contaminated meat.
pregnancy status :	pregnant does can abort as a result of stresses associated with marketing.

Domestication : the degree of domestication of goats may influence their ability to handle stresses during marketing.

Once goats are mustered and denied food and water the initial rate of liveweight loss is rapid. Carcase weight losses occur more slowly. Hence, if the period between muster and transport is minimized, carcase weight and meat quality are less affected.

Information contained in this document in italics is from Codes of Practice and therefore should be met according to law.

HANDLING OF GOATS

Animals accustomed to good handling will travel better and be easier to manage at the saleyards and abattoirs. This will result in fewer mortalities, injuries and condemnations. *It is essential that individual animals are caught gently to reduce stress to the individual and nearby animals.*

Special care is required for feral goats. They should be handled quietly to avoid panic and trampling. Account must be taken of their possible unwillingness to drink and eat from troughs when preparing for long journeys. For live export of feral goats it has been shown that animals two-tooth or younger may adjust more readily to captivity and hand feeding regimes than many older animals.

Different categories of stock, such as bucks, does with kids at foot, heavily pregnant does and small or young stock should be separated in. holding yards, on trucks and at abattoirs.

Animals that are suffering should be promptly and humanely destroyed. The appropriate methods for the humane destruction of goats are outlined in the welfare codes of practice listed at the end of this publication.

STOCK HANDLING FACILITIES

Well designed handling facilities on farm, at the saleyard and abattoir will assist in the movement and handling of animals and will minimise stress.

Fences should be secure and high enough to prevent goats escaping. Projections likely to cause injury should be eliminated from fences yards and gates.

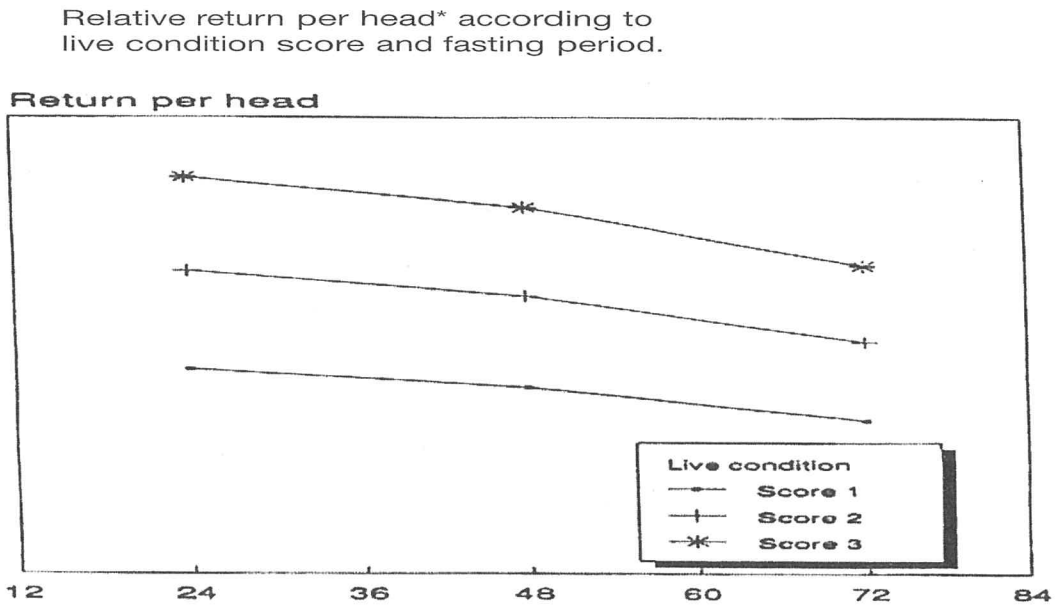
Mixing of unfamiliar animals prior to slaughter may result in fighting, stress and/or injury. *Sufficient yards should be provided to avoid mixing different groups of stock.*

Gates must be wide enough to allow easy flow of animals, particularly for bucks with large horns. *Properly designed laneways, ramps, and races will also assist in the flow of stock and prevent injury.*

Yards should be designed to minimise both dusty and boggy conditions. Flooring in pens, if concrete should be non-slip. It is undesirable to keep stock on concrete for prolonged periods. Mesh flooring should be an appropriate grid width, especially for younger stock with small hooves which can be caught in spacings. Also restraining devices should be suitably adjustable to securely hold young prime kids.

In extremes of climate (hot or cold) shelter must be provided for all stock. This is particularly important for young goats, recently shorn stock or animals in poor body condition being held in cold, windy and rainy conditions. *Drinking water must be provided in assembly or holding yards.* For further information on watering requirements refer to section on "Water".

Figure 2. Economic returns to producers vary with length of fasting period and condition score. By minimizing fasting period and by marketing goats in good condition returns be maximised.



TRANSPORT

The aim when transporting goats is to reach the destination by the quickest, least stressful means. Considerate treatment ensures the welfare of the animals by minimising transport stress and injury and is equally important for maintaining liveweight, body condition, carcase weight, and meat quality.

Transport stresses goats. The extent of the stress varies with the length of transit time, handling during loading and unloading, driver skill, road conditions, crate design, stocking density, weather conditions and the health and condition of the livestock being transported.

Goats are deprived of food and water during transport and will lose weight. The greater the transport time the greater this loss unless they are rested, fed and watered. Transport may also result in carcase weight loss, but this can be minimized by free access to water during the period between arrival at the abattoir and slaughter.

Animals fatigue during travel. The risk of bruising or injury, condemnation, or death increases with the length of transit time, especially if stock are very young, in poor body condition or poor health, or pregnant. The effects of transport may also reduce meat quality, producing a carcase with a higher pH, darker colour and shorter storage life. Resting after transport with access to feed and water may help restore meat quality characteristics.

Only fit and healthy goats should be selected for transport. Codes of practice highlight the need for adequate water, feed and rest for animals travelling for 24 hours or more. This 24 hour period includes holding periods before loading and after arrival, as well as the actual travelling time.

To prepare animals for travel, a 12 hour rest period with food and water after mustering and before loading is beneficial. Feral goals captured by muster or chase should be rested for a minimum of 24 hours with suitable feed and water before transport on journeys longer than 8 hours.

Goats should have a rest period of between 12-24 hours after each 36 hours of travel. However, unloading and loading goats for rest may cause more stress than continuing the journey for a limited period. The period of travel may be extended to 48 hours if the animals are travelling well and the journey can be completed.

Water and feed requirements must still be met in all cases. Water provided once in each 12 hour period and feed provided once in each 24 hour period. Kids require feed at least every 8 hours. Mustering, loading and transport must be well planned to fit in with the required watering, feeding and resting arrangements whilst avoiding too much extra handling.

Truck crates and loading ramps must be well designed for safe and secure travel. Care should also be exercised to load at the correct density, to segregate stock and to ensure goats are unable to escape from transport with open tops. For example, male feral goats are usually placed on lower decks of semi-trailers.

Whenever kids, heavily pregnant does or newly shorn goats are being transported, extra consideration must be taken to protect them from injury through overcrowding and trampling. *Kids, pregnant does and newly shorn goats need special consideration to avoid wind chill during cold, rainy weather.* The vehicle should be covered when transporting these groups under conditions with a high wind chill factor.

To reduce wetting and contamination it may be preferable to hold domesticated goats off feed and water for a period prior to being trucked provided this does not compromise legal requirements. For example, if stock are coming off very lush, green pastures this will allow them to empty out prior to trucking and arrive at abattoirs in a cleaner drier condition. This will also help decrease cold stress in kids who would otherwise become wet with urine lost during transport A suitable alternative may be to incorporate raised mesh flooring, through which faeces and urine can pass, into transport facilities. Access to water and shelter is essential on arrival at their destination.

EFFECTS OF FASTING

As previously outlined, during the marketing process goats are denied access to feed as a result of mustering, drafting, transport and holding requirements.

Long periods without feed prior to slaughter :-

reduce liveweight;

reduce carcase weight;

reduce meat yield;

reduce meat quality;

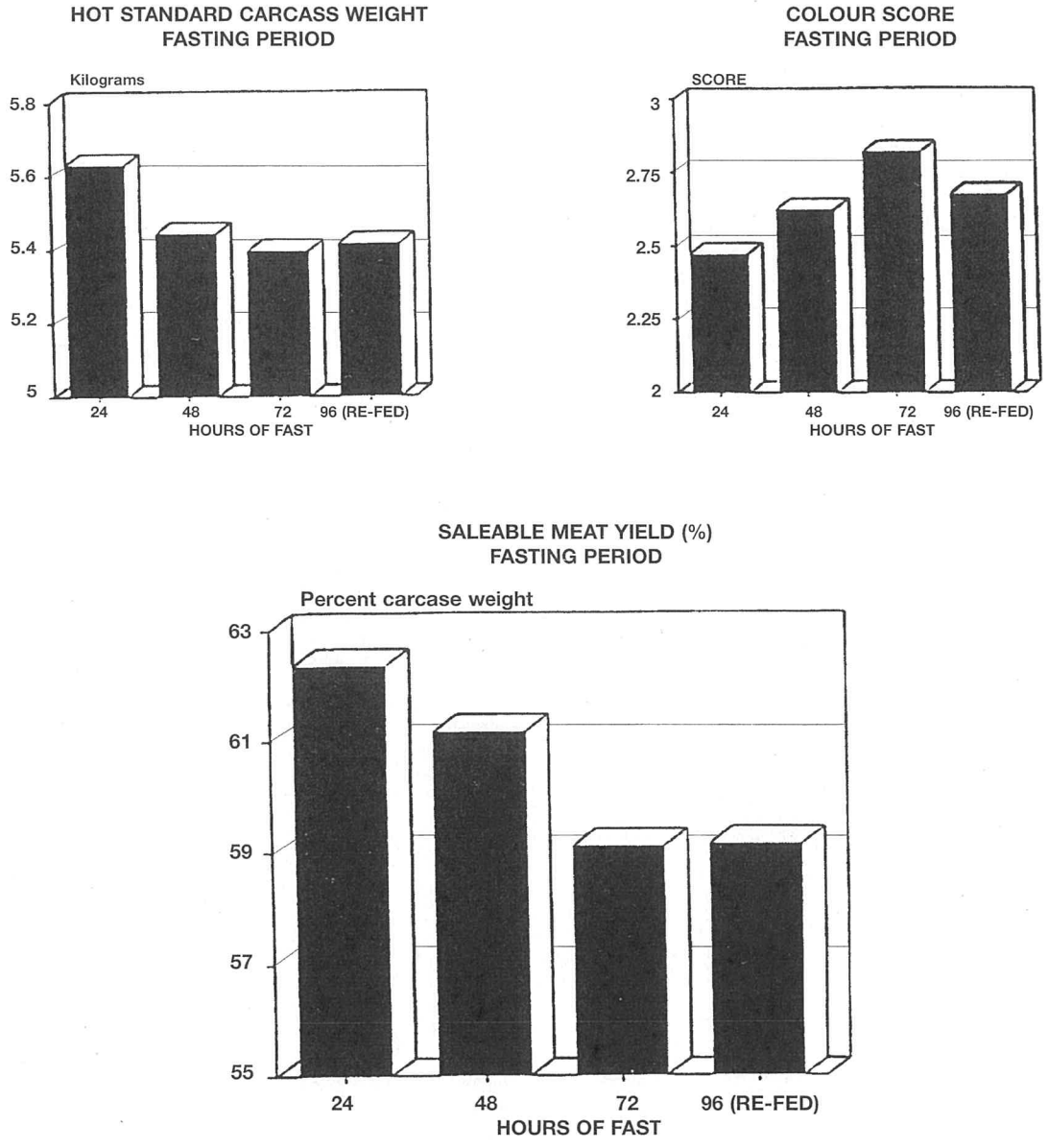
may be harmful to the animal's welfare.

During the first 24 hours of fasting, liveweight loss is mainly due to loss of gut fill. Some carcase weight loss also occurs and as the fast progresses, the loss of water, fat and muscle in the carcase increases. Liveweight and carcase weight losses are greatest in animals in poor condition, recently weaned, and/or denied access to water.

Fasting for extended periods produces carcases with a lower meat yield and less fat cover. This lack of fat cover may affect carcase quality as a result of rapid chilling. Fasting for extended periods alone may not directly reduce meat quality characteristics, however, when combined with other factors such as handling, transport and climatic stress, adverse effects are likely to occur. When stock have been through a lengthy and stressful process prior to slaughter, meat quality may be enhanced by allowing animals to rest quietly for a time prior to slaughter.

Re-feeding during a lengthy fast has been shown to limit liveweight and carcase weight losses. This situation may not hold, however, for feral animals unaccustomed to handling and hand-feeding because inadequate feed intake may occur. *If animals are to be held, transported or rested for greater than 24 hours prior to slaughter they should be provided with feed.* This applies on farm as well.

Figure 3. **Carcase characteristics of young goat kids are adversely affected by lengthy fasting periods.**



Long term fasting reduces liveweight, carcase weight, meat yield and may also reduce meat quality, producing darker, drier meat. It pays to keep total fasting time to a minimum.

EFFECTS OF WATER DEPRIVATION

During marketing water is lost from the animal's gut and bladder resulting in a lower pre-sale liveweight. Water is also lost from muscle tissue and fat reserves resulting in decreased carcase weight when drinking water is withheld.

Welfare codes recommend that watering facilities be provided in all receival yards or in any yards where stock are to be held for more than 24 hours. Stock should have access to cool, clean drinking water at least once in each 12 hour period. This should be more frequent for goat kids, pregnant does and for all stock in hot weather. All goats should have access to water immediately after transport. Water should be provided in troughs so that all ages and classes of stock can drink.

Stock should be offered water at all times when being held and at some point during lengthy transport periods, particularly in hot weather- This will reduce the risk of dehydration and minimise liveweight and carcase weight losses.

CONCLUSIONS

Marketing is a stressful process for animals. During this process goats lose liveweight and carcase weight; some may be injured and some carcases may be condemned. Prolonged stress will also decrease carcase and meat quality.

Animals that are presented in good body condition are less affected by the marketing process. Provision of water and minimum fasting is advantageous for meat production. Nutrition, weaning and other management practices such as castration must be considered for prime kid production.

Everyone connected to the marketing process - producers, transport agents, stockmen, meat processors - should attempt to minimise the problems and stresses associated with it. There is a need for proper handling methods and facilities right through until the goat is slaughtered.

Better marketing and pre-slaughter management improves both carcase and meat yields as well as meat quality. This results in increased returns for goat meat.

Figure 4. **Water deprivation has had additional effect above fasting on liveweight loss, carcase characteristics and economic returns. The effects of water deprivation are increased in hot weather.**