

MEAT RESEARCH NEWS LETTER

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WEIGHT LOSSES ON HOLDING LIVESTOCK

Animals which are kept off feed for periods in excess of 24 hours lose carcass weight and may also lose edible offal weight.

Expressed as a percentage the loss may seem small, but a 1% loss in carcass weight of all stock slaughtered in Australia amounts to a loss of about 7 million dollars.

The economic importance of this loss in weight means that, within the limits of regulations, hygiene requirements, carcass surface appearance requirements and the practicability of dressing, every effort should be made to keep this off feed period to a minimum. It is an accepted principle in industry that animals to be slaughtered should be starved for a minimum of 24 hours but should have access to water.

LOSS IN LIVELINEIGHT

Livelineight losses are important when animals are sold on a livelineight basis. However, the extent of loss in carcass weight cannot be inferred from the loss of livelineight.

In general, the longer the period of transport the greater is the livelineight loss. Any factor which influences the "fill" of the gut, such as level of feeding, will affect the rate of livelineight loss on fasting.

Adult cattle lose 8 to 10% of their initial livelineight in the first 24 hours, about 3% on the second day, 2% on the third day and 1% on the fourth day. Percentage loss of livelineight has been found to be greater in cows than in steers.

Old lambs lose 5 to 7% of their initial liveweight in the first 24 hours, about 3% on the second day, 2½% on the third day and 2% on the fourth day.

Sucker lambs lose 8-10% on the first 24 hours, about 4½% on the second day, 3% on the third day and 2% on the fourth day.

Pigs lose about 4% of their liveweight per day of fasting. This rate of loss per day is fairly constant on maintained fasting.

Loss of weight is made up of:-

(a) Loss of carcass weight:

This is the major source of economic loss. An animal off feed begins to lose weight from body tissues when the quantity of nutrients absorbed from its gut falls below the level necessary to support its body energy use. Thus the degree of "fill" can influence the rate of carcass weight loss.

Loss in carcass weight over short periods of fasting is due to reduction of fat and to dehydration. Thus good quality young animals, if held in excess of 3 days, may be downgraded due to loss of fat cover and bloom (the surface fat is lost more rapidly than fat from other parts of the body).

The greater the time of transport and the more the animals are upset, the higher will be the carcass weight loss. Carcass weight loss would be expected to be less, on a percentage basis, in heavier animals than in lighter animals.

Steers lose little carcass weight in the first 24 hours off feed. After this the carcass weight loss amounts to about 0.8% of initial carcass weight per day. Losses in vealers and calves are considerably greater. Carcass weight losses in cows are less than in steers.

Old lambs lose about 0.8% in the first 24 hours. After this the carcass weight loss is about 1.5% of initial carcass weight per day. The losses in sheep would be expected to be less (although higher than that in adult cattle).

Sucker lambs lose about 0.8% in the first 24 hours, 2-3% of the initial carcass weight on each of the 2nd and 3rd days and slightly less thereafter.

Pigs lose up to 3% in the first 24 hours and about 3% of the initial carcass weight per day of fasting thereafter. The loss in the early stage of fasting is due mainly to loss of moisture.

(b) Loss of weight of the viscera or offal:

Marked losses in weight of the liver, particularly in the first 24 hours of fasting, have been found with all animals. The livers of sucker lambs lose about 10% of their weight in the first 24 hours of fasting and a further 5% in the second day. Cattle livers lose about 10% weight in four days of fasting. Bobby calf livers lose up to 25% weight in the second day of fasting.

Loss in weight of sucker lamb lungs is about 13% in 2 days of fasting. Kidneys lose about 2% on the second day. There has been found to be no change in weight of the heart.

Stomachs, intestines and caul fat also lose weight on fasting, particularly in the first 24 hours.

There is no change in weight of the skin or hide.

(c) Loss of faeces, urine and moisture

Defaecation and urination usually occur at a maximum rate in the early off feed stages and become slower as the amounts of ingesta and water remaining decline.

In lamb, dry weight of stomach content may be reduced by 33% in the first day off feed. Similarly with cattle the greatest decrease in digestive tract material is in the first 24 hours and the bulk of it is eliminated in 2-3 days.

GENERAL

Loss in liveweight and carcass weight due to water losses will vary with temperature, humidity and degree of handling.

Some of the weight loss figures given are based on research done in cooler climates and losses could be higher in the hotter parts of Australia.

The carcasses of animals which have lost weight prior to slaughter may lose less weight during chilling or freezing, but there is conflicting evidence on this.

Attempts have been made to reduce the loss of carcass weight, due to dehydration in the live animal, by providing animals with water containing certain salts or drugs which increase water retention.

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NEWS JOTTINGS

Next issue will be Microbiological Criteria for Meats.

Mr. R.A. Barton, who is a world authority on carcass composition, visited the laboratory in May and addressed members of the staff. Mr. Barton is from the Department of Animal Husbandry, Massey University, New Zealand.