G1432

Understanding Lamb Carcass Contest Information

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> This NebGuide explains how to interpret data from lamb carcass contests.

Introduction

Lamb carcass contests provide youth and their families with information that can enhance breeding programs and the overall educational experience of a 4-H sheep project. Carcass contests help create an awareness of current lamb carcass qualities that are considered desirable by the lamb industry and by consumers. Carcass contests identify those carcasses that excel in the qualities of meat yield and meat quality. Ideally, market animals that excel in live animal characteristics also will excel in carcass characteristics. However, carcass contests seldom account for live animal characteristics such as rate of gain or structural soundness. Thus, animals that excel in carcass contests may or may not be the most desirable animals overall. Selection, breeding, nutrition and management practices can affect both carcass and live animal characteristics. The practices that result in superior live animals and that produce superior carcasses can only be identified when carcass information is available and can be easily interpreted.

Percentage of Boneless Closely Trimmed Retail Cuts

Most lamb carcass contests rank the lambs based on the percentage of boneless closely trimmed retail cuts (%BCTRC), which is an estimate of how much edible lean meat the carcass will yield. The %BCTRC for lambs is usually in the range of 45 - 55%. This means that if you have a 70 lb lamb carcass with a calculated %BCTRC of 50%, you would expect it to yield 35 lbs of boneless meat with a minimal amount of fat. Four factors are used to calculate BCTRC, including hot carcass weight (HCW), fat thickness, body wall thickness (BW), and ribeye area (REA). Each of these factors alone has a correlation to the amount of lean that a carcass will produce, but when combined in the following formula, they provide an accurate estimate of the percentage of lean on the carcass.

$$\%BCTRC = 49.936 - (.0848 \times HCW) - (4.376 \times fat) - (3.530 \times BW) + (2.456 \times REA)$$

Hot carcass weight is the weight of the dressed carcass immediately after processing, before it has been chilled. Lambs that weigh 110 to 130 lbs live will usually have carcasses that weigh 55 to 75 lbs. An average dressing percent, or the percent of the live weight that becomes carcass, for show lambs is approximately 54%. In other words, a lamb that weighs 120 lbs live will produce a carcass that weighs approximately 65 lbs (120 × .54).

Fat thickness is measured between the 12th and 13th ribs over the mid-point of the ribeye muscle, perpendicular to the outside surface of the fat (see diagram). It is measured from the outside surface of the carcass to the ribeye muscle. Most lamb carcasses will have between .1 and .3 inches of fat. Between these ranges, less fat is more desirable and will increase the %BCTRC as compared to more fat. However, less than .1 inch of fat is not desirable, as a thin layer of fat is needed to provide some protection to the underlying meat. Carcasses with less fat may become dehydrated, shrink in weight, and produce less desirable meat due to the dehydration. In cases where some of the fat may have been removed from the carcass during processing, the fat thickness measurement is adjusted and is reported as adjusted fat thickness. In carcass shows, the data reported will usually say "adjusted fat thickness" to account for any carcasses that may need the adjustment, even though this may only be a few carcasses.

Body wall thickness is measured between the 12th and 13th ribs, five inches from the center of the backbone (see diagram). The entire thickness, including both lean and fat, is measured at that point. This measurement adjusts for fat distribution on the carcass in areas other than directly over the ribeye. As a single measurement, it is a better predictor of overall yield of meat than is fat thickness over the ribeye. Body wall measurements have a larger range than fat thickness measurements, but most carcasses will have body wall thicknesses between .4 inches and 1.2 inches. A lower body wall measurement will result in a higher %BCTRC.

Ribeye area is also measured between the 12th and 13th ribs, on the cross-section of the exposed ribeye, or *longis-*

simus dorsi, muscle. It is measured in square inches. Most show lambs will have ribeye areas between 2.5 square inches and 4.0 square inches, although some may be larger than 4.0 square inches. Outside of the show lamb industry, only a small percentage of lamb carcasses have REA's over 3.0 square inches. A larger ribeye area is more desirable and will result in a higher %BCTRC. Ribeye area may also be abbreviated "LEA" for loineye area.

Carcass contests may set a minimum standard for REA. A commonly used standard is:

Min. REA = (1.4 +(hot carcass weight × .02))

For example, a 70 lb carcass would have the following minimum required REA:
Minimum REA = (1.4 + (70 × .02))
Minimum REA = 2.8 square inches

This standard is used to assure that all carcasses meet at least a minimum level of muscling. Without such standards, a carcass that is extremely lean, but very light muscled, may rank relatively high. This is would not be representative of what is desired in the industry, because consumers expect to have a certain amount of meat on the lamb chops and other meat cuts that they eat.
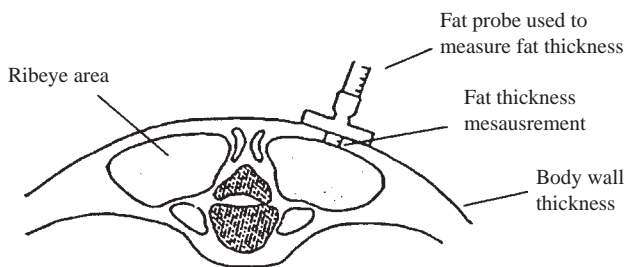
Grades and Other Information

In addition to the information needed to calculate the %BCTRC, lamb carcass shows may also provide yield grade (YG), quality grade (QG) and leg score information. Lamb yield grades are also an indicator of the percent of salable meat that a carcass will yield. However, yield grades are based only on fat thickness measurements, and do not take muscling differences into account. Therefore, the %BCTRC usually provides a more accurate estimate of the yield of lean meat. Yield grades for lamb carcasses are *1, 2, 3, 4* and *5*. For carcass shows, yield grades are reported to the nearest tenth. Yield grade is calculated by the following formula:

Yield grade = 0.4 + (10 × adjusted fat depth)

For example, a carcass with .2 inches of fat would have the following yield grade:
YG = 0.4 + (10 × .20)
YG = 2.4

Quality grades are intended to predict eating satisfaction of the meat. Evaluations of the color of lean, the amount of flank streaking (fat on the inside flanks of the carcass) and conformation (overall shape and fat cover) of the carcass are used to determine quality grade. Over 95% of all lamb carcasses are graded as *Choice* or *Prime*. The other quality grades for lamb are *Good* and *Utility*. Each grade has a high, average and low designation. In a carcass contest these are indicated as *Ch- (Low Choice), Ch° (Average Choice), Ch+ (High Choice)*, with similar designations within *Prime*. Within the *Choice* and *Prime* grades there is little or no difference in eating quality, thus quality grades are seldom used in the rankings for a carcass contest.

Leg scores also may be reported for a carcass contest and provide another indication of muscling. Because the leg is one of the last places that an animal will put on fat, the leg score provides an indication of the amount of lean as compared to the amount of bone. Leg scores are reported either by numeric code or by name. The names and corresponding numeric code for leg scores are as follows:

Prime+ = 15	Choice+ = 12	Good+ = 9
Prime° = 14	Choice° = 11	Good° = 8
Prime- = 13	Choice- = 10	Good- = 7

Prime is considered a superior leg score, with a very wide and thick leg that would yield a high amount of lean as compared to bone. *Good* leg scores indicate narrow, angular legs, that would have a relatively high percentage of bone, as compared to lean in the leg.

Summary

Carcass contest information can be used to plan for and improve future projects. Fat thickness and body wall thickness information can be used to adjust diets to reach the optimum level of finish at the time the lamb is harvested. Ribeye area information can be used to plan for breeding programs that improve muscling characteristics. Appropriate use of carcass contest information can help with the process of selecting animals that excel in both live animal characteristics and carcass characteristics.

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