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December 21, 2017
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TO: Montgomery County Beef Improvement Association Members

FROM: Michael E. Heimer
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Agriculture

A handwritten signature in black ink that reads "Michael E. Heimer". The signature is written in a cursive style.

RE: December 2017 Browsing Newsletter

EFFECT OF HORNS ON CARCASS BRUISING

A sample was evaluated of 4,287 finished cattle in 27 lots slaughtered at one facility. Of all cattle, 7.7% had horns. Across lots this ranged from 0 to 26.5%. If present, horns were measured for length of longest horn and for distance between horn tips.

Average horn length was 4.4 inches, ranging from 1.2 to 11; average distance was 15.6 inches, ranging from 5.5 to 25.6. Across lots, prevalence of bruising was 55%, ranging from 0 to 98%. Bruising occurred most frequently (61%) down the topline, with over half of that occurring over the loin and rib. Severity of bruising was about evenly distributed between minor, moderate, or severe. Even though incidence of bruising was relatively low in the shoulder region, a higher percentage of bruises there were severe.

The authors reported "a poor relationship between prevalence of bruising and prevalence of horns within a lot" which is contrary to most published reports. However, "bruising prevalence and horn prevalence were significantly influenced by feedyard origin, suggesting that bruising could be occurring due to other factors such as facility design, cattle handling, and trailer type". Since most bruising occurred down the topline, the authors noted this implied "other likely sources of bruising".

BRANDED BEEF – IT'S NOT ALL THE SAME

The USDA-Agricultural Marketing Service has a provision to officially certify beef programs, commonly called branded beef products. The first and most commonly recognized of these

is Certified Angus Beef®, which was implemented in 1978. Currently there are 86 such programs. Of those, 53 have a single requirement for carcass grade/marbling. The remaining 33 have multiple carcass grade/marbling specifications, with unique brand names for each.

Of those with a single specification, 60% are for Angus, validated by registration papers to verifiable Angus parentage or, more commonly, by visual means (body solid black except in front of shoulder or below flank, horned or polled). 12% are limited to other specific breeds and 28% are open to all. 70% require carcass maturity of A (from animals younger than approximately 30 months of age), 21% allow maturity of A or B (approximately 30 to 42 months of age), and 9% have no maturity requirement. 43% have ribeye area and carcass weight requirements, almost all being 10.0-16.0 sq. in. and <1050 lb. All but one program disqualifies dark-cutting lean; all but 3 programs (which are for export to Europe) disqualify hump heights over 2 inches. 1 program also uses certified non-hormone treated cattle (NHTC) plus no animal byproducts in feed, antibiotics, or growth promotants (Never-Ever-3).

We often think of branded beef as being only for higher quality, typically higher than Low-Choice. Of these single specification programs, 49% require Mid-Choice or higher, 8% High-Choice or higher, and 4% require Prime. However, 9% allow Low-Choice or higher and 26% allow Select or higher; one program allows Standard or higher and one has no grade/marbling requirement.

Of the 33 programs with more than one marbling/grade, 70% are for Angus, 9% for other specific breeds, and 21% have no breed requirement. Contrary to single grade programs, only 15% of these multi-grade programs accept only A maturity; 76% allow A or B maturity and 9% have no maturity limits. 5 programs also include NHTC. Also, only one of these programs has restrictions for ribeye area or carcass weight, 21% have no dark-cutting disqualification, but only 1 program has no hump restriction. 55% have separate product brands for Prime, Choice, or Select; 15% have separate brands for Prime, Upper 2/3-Choice, Lower 1/3-Choice, or Select and 12% for Choice or Select.

Considering the separate products marketed by programs with more than one marbling/grade requirement, there are 149 brand names. The number of USDA Certified Beef Programs (branded beef) continues to increase and 49% of the brands are less than five years old. We can probably expect more branded beef. However, it will likely be difficult for any brand, existing or new, to overcome the dominance of Certified Angus Beef®.

MINERAL CONSUMPTION AND PERFORMANCE OF STOCKER CATTLE

Mineral supplements are typically provided to growing cattle to correct forage deficiencies and as a carrier for additives to enhance weight gain and/or prevent diseases. In this study, Angus-Red Angus crossbred steers averaging 565 lb initial weight were grazed on wheat pasture for 90 days (late November to late February). Mineral consumption was randomly

measured on 53 days using radio-frequency ear tags and a computer-monitored mineral feeder.

ADG averaged 2.27 lb, ranging from 1.54 to 2.77. Individual steers averaged visiting the feeder on 44% of the days, ranging from 24% to 70%. Mineral consumption increased as weight increased, averaging 0.16 lb/day. ADG was 0.15 lb/day greater for steers visiting the feeder more often than average, compared to those visiting less than average. The authors indicated this higher ADG may have been due to the increased frequency of consumption of lasalocid contained in the supplement. They also indicated daily hand feeding of such mineral-additive mixes could reduce variation in consumption and therefore might reduce health problems. However, cost of providing the mix would increase.

INHERITANCE OF HORNS

Cattle can be horned or not, i.e. are polled. Inheritance of these conditions is controlled by a single gene. Every animal has two alleles (possible form) at each gene. A parent randomly passes one of the two alleles to a calf. The polled allele is genetically dominant and is usually designated as P. The horned allele is genetically recessive and is usually designated as p. Dominant alleles cover up the phenotypic expression of recessive alleles. If both alleles inherited from both parents are the same, the animal is termed homozygous. If the alleles are different the animal is heterozygous.

Homozygous polled parents (PP) always produce polled calves. If the other parent also is PP then the calf is PP. If the other parent is horned (pp) the offspring will all be phenotypically polled but all will be heterozygous (Pp), also sometimes called a “carrier” of the recessive allele. If a PP parent is mated to a Pp, the probability in offspring, on average, is 1/2 PP and 1/2 Pp; all offspring would be polled but 1/2 could be carriers of the horned allele. If two Pp parents are mated the probability in offspring is 1/4 PP, 1/2 Pp, and 1/4 pp; even though both parents are polled, 1/4 of their calves could be horned and 1/2 could be carriers. But there can be complications in this simple inheritance.

Scurs are horn-like tissue attached to the skin, not to the skull as with horns, and can be very small to almost as big as small horns. Inheritance of scurs is not completely understood. Regardless, scurs can occur only in Pp (heterozygous) cattle. Also, scurs occur more frequently in males than in females. Another gene has been speculated to interact with the horned/polled gene in *Bos indicus* cattle, called the African horn gene, but there is no research verifying its existence.

Over the years, a number of formerly horned or mostly horned breeds have developed interest in creating polled cattle. With the advent of genotyping through DNA samples, identification of the polled/horned gene may be done. At this point, the cost through breed associations of such a test is in the area of \$30-35; if coupled with other genomic tests this cost is usually reduced to around \$20. Some seedstock breeders provide this information to prospective buyers.

IMPACT OF DAIRY CATTLE ON BEEF PRODUCTION

In 2016, dairy cattle produced 23% of total beef supply from slaughter of finished cattle and culled cows, up from 18% in 2002. Of the amount of beef produced from dairy cattle in 2016, 61% was from finished steers, 6% was from finished heifers, and 33% was from cull cows.

It is estimated that 85% to 90% of the dairy cattle in the U. S. are Holstein, so Holstein steers are the largest source of beef from dairy cattle. Significant percentages of Holstein steers are finished starting at young ages (“calf feds”) and are fed for considerably longer periods than in most beef finishing programs.

Largely as a result of calf feeding and long finishing periods, Holsteins tend to have higher quality grades than might be predicted from comparisons evaluating their inherent marbling potential. From 2002 through 2016, Holsteins produced 32% to 60% (depending on the year) of USDA Prime carcasses. Jerseys are inherently high in marbling potential, so Jerseys (whether as purebreds or crossed with beef breeds) also contribute to production of high-grading beef. In addition to their effect on quantity and quality of beef, dairy cattle numbers vary less over time than beef cattle, so beef supply from dairy cattle is more consistent. Dairy breeds also are less variable genetically, so they are more predictable in feeding performance and carcass composition than our more variable beef population.

BQA TIP-OF-THE-MONTH: RECOMMENDED TYPE AND LOCATION OF INJECTIONS

Always follow product labels when giving injections. If the label allows for either intramuscular or subcutaneous injection, then the subcutaneous route should be used regardless of animal age. If the label requires intramuscular use, give all intramuscular injections in the neck. When given in the muscle, all products have the potential to create injection site lesions and impact the tenderness of meat for a few inches around the injection. Give subcutaneous injections in the neck, dewlap, or elbow pocket. When given properly, any knots that result from subcutaneous injections will not impact meat quality and will be removed with the hide.