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MICHIGAN BEEF PRODUCTION

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Guidelines for Judging Steer Shows

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The author neither condones nor condemns steer shows. This bulletin is simply an attempt to discuss those issues that seem to merit consideration at this time. Since steer judging criteria change with time, this bulletin will soon be out of date.

Carcass Specifications

Most beef industry representatives in the United States agree that a finished steer carcass should fit somewhere within the following specifications:

- Carcass Weight: 600 to 800 lb.
- Quality Grade: Low Choice or higher
- Yield Grade: 3.9 or better (i.e., 1, 2, or 3)
- External Fat Thickness: 0.25 to 0.60 inch
- Rib Eye Area: 11.0 square inches or more
- Percent Internal Fat: 1.5 to 4.0%

To put the above figures in perspective, a 700 lb. carcass having 0.6 in. external fat, 12.0 sq. in. rib eye, and 3.5% internal fat would have a yield grade of 3.5, which is about average for the general population of slaughter steers in the United States. A more ideal 700 lb. steer carcass would have: 0.4 in. external fat, 14.0 sq. in. rib eye and 2.5% internal fat, resulting in a yield grade of 2.2. Carcass shows are often won by steers that are leaner and heavier muscled than this, but it is difficult to find individuals with this kind of cutability (yield grade) that will still grade Choice.

Resolving the Weight Problem

During the past decade, the trend in beef cattle type has been toward larger-framed, growthier cattle that mature later and weigh heavier when they accumulate enough finish to grade Choice. As a result, some win-

ning steers in recent years have been heavier than desired by the industry.

Ideal carcass weight varies with region of the country as well as the relative supply of beef at a given time. For example, the eastern seaboard may accept Choice steer carcasses weighing up to 900 lb. (approximately 1,450 lb. live wt.), whereas another region may discriminate against carcasses weighing over 700 lb. (approximately 1,150 lb. live wt.). When beef is in short supply, the industry will tolerate heavier carcasses, but when there is an oversupply, heavy cattle tend to be discounted in price. These variables make it difficult to make hard and fast rules about the ideal weight range for show steers, especially since the show season generally runs from July to December in the northern states. Nevertheless, most of the beef industry prefers Choice steer carcasses that weigh in the range of 600 to 800 lb., as indicated above. Depending upon dressing percentage, this would translate to a live weight range of approximately 950 to 1,350 lb.

Early in the show and fair season, when steers are younger and have not been on feed as long, judges should probably be more tolerant of outstanding steers that are on the light end of the weight range. Late in the show season, when steers are older and have been on feed for a longer time, there is justification for being more tolerant of the heavier steers.

Some shows have imposed a maximum weight limit on their steers. This limit is usually around 1,250 to 1,300 lb. although some have gone higher. In later shows that have maximum weight limits, there is the problem of exhibitors shrinking extremely heavy steers down to a point where they appear stale and unthrifty and may fail to grade Choice.

For the time-being, the weight problem in steer shows is still unresolved.

Avoid Extremes in Frame Size

Because frame size is related to physiological maturity, rate of fat deposition, and eventual weight at which a steer will grade Choice, extremes in size of frame should be avoided. This applies to extremely small-framed steers that would grade Choice before reaching 950 lb., or extremely large-framed steers that would not grade Choice until weighing over 1,350 lb.

The table at the bottom of the page is a rough guide for evaluating frame size:

Using the widely adopted University of Missouri score system as a guide, a steer with a frame size of more than 6 would have difficulty grading Choice before he weighed 1,350 lb. Conversely, steers having frame sizes of 1 or 2 would tend to become overfinished if fed much beyond 950 lb. live weight.

The averages listed above are compiled from relatively large numbers of cattle. It should be emphasized there are many individual exceptions that would not fit these averages.

Determining Quality Grade in the Live Steer

Quality grade in the carcass is determined primarily by the degree of marbling (intramuscular fat) in the meat. The only way this trait can be determined in the live steer is by evaluating how much external fat or finish he has. According to an Idaho study involving 349 4-H steers in seven county fairs, the correlation between fat thickness and quality grade was +.62 (+1.00 = perfect correlation). This correlation is far from perfect but is high enough to give us some confidence in our ability to select steers that will grade Choice, assuming that we can evaluate how fat a steer is. In the Idaho study, the percentage of steers grading Choice

within a given fat range were: up to .25 in. fat, only 13%; from .30 to .45 in. fat, 53%; .50 to .60 in. fat, 73%; .65 in. fat and over, 86%. These data suggest that to have a better than 50-50 chance of grading Choice, we should be looking for at least .35 in. of fat in our steers.

Factors other than degree of external finish may dictate how individual show steers will grade; for example, an excessive amount of shrink or body weight loss prior to slaughter may lower a steer from Choice to Good quality grade. If a steer has been maintained on a limited amount of feed for a long period of time in order to hold his weight, he may not grade Choice. Furthermore, an excessive amount of travel or other stress factors such as disease, severe weather conditions, etc. may play a rôle in lowering quality grade. Obviously, it is difficult for a live show judge to determine with certainty whether a particular steer has been subjected to any of these factors.

Where and How to Check for Finish

Visual indicators of fatness would be a full brisket, flank, twist and cod and well-covered rib and loin. If the steer has a long haircoat, he should be handled over the rib and loin to make certain that he is properly finished. Another area to handle is the rear flank; if a steer is correctly finished, the inside of the flank will be moderately filled with fat. Furthermore, a finished steer will usually carry small pads of fat over the ends of his pin bones on each side of the tailhead.

Indicators of an under-finished steer are: (1) no fat in the brisket and only a flap of skin between the front legs; (2) prominent ribs; (3) thin flank; (4) small, thin cod; (5) no fat over the pin bones. If a steer exhibits one

TABLE 1. Guide to Evaluating Frame Size, Using Missouri System, Michigan System.

Frame Score, Missouri System	Frame Score, Michigan System	Average Shoulder Height at 12 months (in.)	Average Weight When Steers Grade Choice ¹	Approximate Description
1	1-2	39	750-850	Extremely small; dwarf-like
2	2-3	41	850-950	Below average for British breeds
3	3-4	43	950-1,050	Average for British breeds
4	4-5	45	1,050-1,150	Above average for British breeds
5	5-6	47	1,150-1,250	Extreme for British breeds; above average for smaller-Exotic ½-bloods; average for larger Exotic ½-bloods.
6	6-7	49	1,250-1,350	Above average for larger Exotic ½-bloods.
7	7-10	51	1,350 & up	Extremely large-framed, higher percentage Exotics

¹Assumes a high energy diet full-fed from weaning to slaughter.

or more of these indicators, the probability that he will grade Choice is very low.

How to Determine Muscling

Rib eye area is used as a measure of carcass muscling because it is easily and accurately measured. However, it is not as closely correlated with total carcass muscling as some other measures such as percent trimmed round, which would be time-consuming and expensive to determine. In the live animal, we cannot see the rib eye *per se* but we can observe other large muscle groups which are indicators of total muscle mass. They are as follows: (1) wide, bulging quarter, especially through the center and lower portions; (2) the muscle over the hip ("jump muscle") can be observed to move up and down when the steer walks, which in extreme cases may be an indication of double muscling; (3) you can see some indication of muscle movement through the stifle area when the steer walks; (4) as viewed from the rear, the steer's top will have a muscular "turn" or contour to it; (5) the lower shoulder (arm and forearm) will be bulging and muscular in appearance.

Problems in Extreme Muscling

If the above indicators are expressed to an extreme degree, the steer in question is abundantly muscled and could have difficulty in reaching the Choice grade. If a steer is definitely double muscled, his carcass will be essentially devoid of external finish as well as marbling. Besides failing in quality grade, double muscled cattle tend to possess other undesirable traits such as lower fertility, calving difficulty and lower milking ability. Therefore, double muscled cattle should not receive a high placing in the show ring. Depending upon the size and quality of the show, they should probably be placed somewhere in the bottom half of the class.

How to Determine Cutability (Yield Grade)

Cutability or yield grade is simply a measure of the percent trimmed, boneless retail meat that may be obtained from a beef carcass. The best indicator of high cutability is leanness (absence of fat); the next most important indicator is the steer's apparent degree of muscling. Therefore, lean, heavy-muscled appearing steers will have the highest cutability and extremely fat, light-muscled appearing steers will have the lowest cutability. For grading purposes, the U.S.D.A. has five levels of cutability called yield grades—1, 2, 3, 4, 5—with 1 being the highest (leanest) and 5 the lowest (fat-test).

Unfortunately, cutability tends to be negatively related to quality grade; that is, the higher the yield grade, the lower the quality grade, and vice versa. Therefore, in evaluating steers, the judge has to make a

reasonable compromise between quality grade and yield grade. For the past decade or so, most steer show judges have been criticized for overemphasizing yield grade at the expense of quality grade. The fact that many Grand Champion steers have failed to grade Choice has reinforced this criticism, although other factors besides lack of finish can lower quality grade, as mentioned earlier.

How to Compromise the Quality Grade and Yield Grade Problem

The goal in a steer show should be to select a Grand Champion that quality grades a minimum of Low Choice with a yield grade of 1, 2 or 3. The odds of a yield grade 1 steer having a quality grade of Choice are relatively low. Therefore, it is dangerous to select a yield grade 1 as a Grand Champion. A good goal to aim for is yield grade 2. According to U.S.D.A. data, about 60% of the yield grade 2 carcasses in the United States grade Choice. Of course, yield grade 3 steers are even safer, because 75 to 80% of them quality grade Low Choice or better. Generally speaking, most judges probably ought to be selecting for more finish than has been the case in recent years so as to give themselves a better chance of picking one that will grade Choice. Nothing raises the ire of the local public more than a Grand Champion steer that fails to grade Choice. On the other hand, the fatter yield grade 4's and 5's are equally undesirable and should not be placed high. Extremely thin steers that would grade Standard should be placed even lower. A reasonable order in a typical county fair steer class might be as follows:

- (1) Choice 1 and 2 steers.
- (2) Choice 3 steers.
- (3) Leaner end of the Choice 4 steers.
- (4) Good grade steers.
- (5) Fatter Choice 4's and Choice 5's.
- (6) Standard grade steers.

Where Does Conformation or Type Fit In?

Although many pragmatic individuals will argue the point, others feel that a Grand Champion steer should possess some added eye appeal or aesthetic qualities that set him apart from his contemporaries. These somewhat intangible attributes include the following: (1) adequate length of body and length of leg; (2) strong, straight topline; (3) level rump and straight hind leg; (4) straight underline; (5) smooth shoulder and trim front end; (6) adequate but not excessive bone; (7) correct at the walk. Cattle breeders tend to place the greatest emphasis on these traits, meat packers and retailers the least emphasis, and cattle feeders and university judges somewhere in between.

A classical problem in today's steer shows is what to do with the under-finished steers that are superior in

conformation or type, but simply aren't fat enough and/or heavy enough to make ideal slaughter steers at that particular show. In other words, the right kind that will be better for a later show. Many judges now agree that if these steers are in lighter-weight classes, they can logically win their class, but they should definitely not be selected as Champions. In the heavier classes of ideal slaughter-weight steers, a logical order might be as follows:

- (1) Choice 1's, 2's, 3's and leaner 4's with acceptable conformation.
- (2) Good grade steers with superior conformation.
- (3) Fatter Choice 4's and Choice 5's.
- (4) Good grade steers with poor conformation.
- (5) Standard grade steers.

In making ribbon group awards for smaller county 4-H shows (A, B, C or Blue, Red, White), the Choice 2's, 3's, leaner Choice 4's and Good grade steers with superior conformation could be Blue ribbon steers; the

fatter Choice 4's and Choice 5's could be Red ribbon steers; and the poorer Good grade and Standard steers could receive White Awards. In larger, stronger shows, it might be preferable to drop the Choice 4's and the superior conformation Good grade steers into the Red group, and the fatter 4's and 5's into the white group, resulting in the following groups:

Blue Ribbon Group:

- (1) Choice 1's
- (2) Choice 2's
- (3) Choice 3's

Red Ribbon Group:

- (1) Choice 4's
- (2) Good grade steers with superior conformation

White Ribbon Group:

- (1) Choice 5's
- (2) Good grade steers with poor conformation
- (3) Standard grade steers