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*RE: United States Department of Agriculture, Agricultural Marketing Service Proposes Revisions to the Procedures related to Red Meat Instrument Grading – January 4, 2023.*

Dr. Horne:

Cargill Beef has used camera augmented grading with USDA since September 2, 2009. Camera technology has significantly improved the accuracy and consistency of grade application and certification of brands with numerous criteria. This is readily apparent between plants, between shifts, within shifts and across graders daily. Camera augmented grading systems have enhanced the feedback and consistency of information back to beef producers. Producers are now more confident in camera augmented data to make genetic and managerial production changes.

The proposed requirements for new technology approvals by USDA are harder to meet than the original requirements, especially for ribeye area. Is this necessary when compared to subjective evaluation - 3 to 5 graders gridding ribeyes, measuring backfat, calling yield grade and marbling would not likely pass these proposed requirements?

Some of the proposed requirements are new and an addition to current USDA checks and balances for camera grading plants. Providing images and camera data for random monthly USDA checks is more onerous and disrupting to daily operations. Currently, USDA personnel are present in plants overseeing camera calibration at the start of each shift every day of operation. Will any of the existing checks (i.e., 4 marbling cards run at the start of each shift) be replaced with these newly proposed requirements?

The newly proposed QAD 516 – Continual Monitoring Procedures – needs to be reevaluated, refined, and simplified before implementation. Why do packers pay for 2 to 3 graders per shift if we have to provide this camera and grading information back to USDA daily, weekly, monthly, and annually? Today, packers pay for the cameras, the computers to run the cameras, the touch screens to display camera results, the USDA grader's touch screen, an hourly employee to operate and place the camera, and another hourly employee to apply USDA grading and certification stamps. QAD 516 as proposed will take significantly more time, technical personnel and come at a substantial, additional cost to meet these requirements. QAD 516 reads like a research proposal; collect a bunch of data daily, weekly, monthly, and annually, eventually assess and then narrow down to only essential data, say quarterly. These proposed rule changes discourage the use of science-based technologies and encourage packers to revert to historical subjective grading and certification. Hence, QAD 516 needs to be tabled and further research is warranted before implementation of a more refined approach.

It is concerning that we have used the same marbling algorithm for 14 years and now USDA grading supervision wants to adjust it downward and tighten the camera grading lines. The beef industry has

changed dramatically over these 14 years through improved genetics, longer time on finishing diets, more all natural cattle, heavier carcass weights and fatter carcasses. These industry changes are responsible for the increases in U.S. Prime, Premium Brands and U.S. Choice - - not a change in the camera grading technology. Moreover, these industry changes have propelled beef demand to another level over the last decade.

Using the gold standard committee marbling average of 3 to 5 supervisory graders has never worked to set a baseline for camera marbling. Camera grade recommendations need to mirror USDA line grader calls to provide a seamless transition from subjectively applied grading to camera augmented grading. This seamless transition for grading has been in place since the onset of camera augmented grading except for a two-week period in 2017 when USDA AMS adjusted camera marbling down and industry grading decreased approximately 10 percent disrupting supply and demand. Subsequently, USDA AMS changed camera marbling back to match the grade consist applied by USDA line graders.

We need to use more science and less subjectivity in setting grade lines and comparing technologies. USDA AMS should collect ether-extracted fat as a more science-based measure for marbling and setting a camera grading line. Dow et al., 2011 and Emerson et. al., 2013 reported high correlations between camera marbling and chemical fat. Chemical fat could also be used for line grader and gold standard committee comparisons. Furthermore, Vierck, 2017 reported marbling texture had minimal impact on eating quality; hence, coarse marbling should not be excluded from premium brands.

<https://doi.org/10.2527/jas.2010-3382>

<https://doi.org/10.2527/jas.2012-5514>

<https://krex.k-state.edu/handle/2097/35777>

These proposed rule changes for camera augmented grading and certification make it more onerous for camera grading and certification plants than for plants that still use historical subjective USDA grading and certification (i.e., non-camera plants). USDA should consider the following potential improvements to modernize the camera grading and certification process:

1. USDA has not changed the rules for regrading since the inception of camera augmented grading (2009). A grader's call for marbling on-line must exceed the camera by 20 degrees or more to achieve the higher quality grade; on a regrade rail the rule is 40 degrees above the camera marbling to grade the higher quality grade. In USDA subjectively graded (non-camera augmented) plants, Small00 and Slightly Abundant00 qualify for U.S. Choice and U.S. Prime, respectively; there are no 20- or 40-degree rules for plants that choose to grade subjectively. When Cargill initially started camera augmented grading with USDA we were only holding 100 carcasses per week for regrade consideration. Currently, we are back to holding over 1,000 carcasses per week in many plants for regrading, like when we were subjectively grading with USDA.
2. Seven laser camera heads should be approved to provide instant feedback on camera placement opportunities to camera operators. In testing, we normally see more variation in camera variables like marbling due to variation in operator placement of the camera than among cameras. We are operating the 7-Laser camera software in Canada and our operator warnings plus errors have gone from over 5.0% to 1.5% in a few short weeks.
3. One of the requirements to meet USDA's QAD 515 rules is for the meat packing plants to ensure the camera lens is in focus. This is difficult to do visually. E+V has developed a sharpness card to check a camera lens for various defects (out of focus, miss-aligned, dirty, etc.). USDA should

approve this card as soon as possible as a best practice, even for GigE versions of E+V cameras.

4. One of the rules in QAD 515 allows for graders to disqualify a camera if they override and downgrade 10 percent or more carcasses during their turn online. This creates downtime in plants, disrupts productivity and may not be an issue with a camera. Workmanship opportunities like stray fat particles on the ribeye surface, poor ribbing, or camera placement issues are not appropriate reasons to disqualify a camera and take it down from operation. We recommend that the decision to disqualify a camera should be made by an experienced grader or supervisor (GS-9 or higher). New graders with limited experience should downgrade carcasses they feel do not meet the requirements, contact their supervisor, packers can hold the regrades and then hopefully with supervision's involvement, we reach the correct decision regarding whether a camera is operating properly.
5. The rules for Instrument Enhanced Grading and Oversight should be revised to simplify, mirror current industry practices, and reduce subjectivity in USDA auditing. USDA Process Verified Procedures for beef grading and certification will be key in the future for USDA and the Beef Industry.

The quality of beef is at an all-time high in the U.S. due to improvements in the industry mentioned earlier and the backlog of cattle since March of 2020 due to COVID. Premiums for quality beef and branded beef programs have been record high as well. Customers and consumers are not complaining about insufficient marbling or the quality of beef. A majority of producers are marketing their cattle on carcass merit grids; hence, USDA grading decisions impact their bottom lines and their long-term breeding and management decisions. USDA should maintain a "seamless transition" approach when approving and implementing any new technology for grading and certification purposes.

USDA beef grading and certification is a voluntary service paid for by the meat packing industry. USDA and industry should continue to work together to develop, approve and apply meaningful technology to improve the accuracy and consistency of grading and certification without disrupting markets.

Respectfully,

A handwritten signature in blue ink that reads "H. Glen Dolezal, Jr." with a stylized flourish at the end.

H. Glen Dolezal, Jr., Ph.D.  
AVP, New Technology Applications