



## USDA Beef Carcass Grading Instrument Enhanced Grading (IEG) Program

### 1 Purpose

This document provides the requirements for Establishments that wish to utilize the Instrument Enhanced Grading (IEG) Program for applying the *United States Standards for Grades of Carcass Beef* (U.S. Beef Grading Standards).

### 2 Scope

This document sets forth the requirements for monitoring plant personnel applying the US Beef Grading Standards utilizing an approved instrument. Applicants desiring to participate in this program must submit to the Quality Assessment Division (QAD) a plant program that addresses all aspects and requirements set forth in this document to include documentation and procedures for corrective actions. Grading activities utilizing the grading instrument by the certified plant employee will be in accordance with the U.S. Beef Grading Standards. Application of the U.S. Beef Grading Standards will be monitored and verified by a QAD grader utilizing this document and the Applicant's approved plant program.

### 3 References

*USDA QAD Instrument Assessment Systems for Livestock Carcasses and Carcass Products*

[\*United States Standards for Grades of Carcass Beef\*](#)

[\*QAD 500 Procedure: Beef, Bullock, and Bull Grading Methods and Procedures\*](#)

[\*QAD 515 Procedure: Beef Carcass Instrument Grading Procedures\*](#)

### 4 Responsibilities

#### 4.1 Plant Responsibilities

- a. Ensuring proper validation of the instrument.
- b. Daily documentation of validation parameters.
- c. Ensuring that the QAD grader is notified when the instrument does not properly validate.
- d. Ensuring that the instrument is not used until properly validated.
- e. Validation of the instrument at the beginning of the shift.
- f. Ensuring that the instrument operator is properly trained and training is documented.



- g. Ensuring proper image capture.
- h. Ensuring that carcasses not represented by an image, when the instrument is properly functioning, are not assigned a quality grade. All carcasses must be represented by a retrievable image when the instrument is functioning.
- i. Ensuring plant employee applying the U.S. Beef Grading Standards has been certified by QAD to apply the grade standards.
- j. Ensuring that preventative and corrective actions are taken when observations and findings indicate potential noncompliance.
- k. Ensuring that a documented quality control system is in place to monitor and identify issues related to sawing, ribbing, carcass splitting, or other presentation defects, on a continuous basis, throughout each shift. Quality Control documentation will be made available to the QAD grader upon request.
- l. Assuring carcasses are adequately chilled and ribbed a minimum of ten minutes prior to presentation for instrument grading or traditional grading.
- m. Ensuring that the instrument technology is operated in accordance with the manufacturer's guidance.
- n. Providing instrument assessment data and ribeye images (color or black and white) to the QAD grader monitoring the system as requested.
- o. Ensure images are sharp and clear (properly focused and not blurred).
- p. Ensure the ribeye surfaces are free of processing debris that would negatively impact instrument prediction.
- q. Ensure camera placement includes the 12<sup>th</sup>-13<sup>th</sup> rib cross section.
- r. Ensure control measures are being conducted to verify proper alignment of camera mechanism on carcass surface.
- s. Provide the QAD grader with a copy of the unprocessed and processed images for each carcass selected for the AQL review of image capture.

#### **4.2 Quality Assessment Division Responsibilities**

- a. Plant employee designated to apply the U.S. Beef Grading Standards utilizing the instrument must at a minimum possess a four-year university degree, or three (3) years of meat related experience, and/or a combination of education and experience.



- b. QAD and the National Meat Supervisor will determine the examinations, correlations, etc., administered to the plant employee to ascertain knowledge of the grading standards.
- c. The QAD grader will review, understand and verify the Applicant’s approved plant program.
- d. Utilize the Program Monitoring Procedures noted below in Section 5.
- e. Verify, as applicable, that the instrument(s) is/are on an approved list via serial numbers, etc.
- f. Verify that all components (camera head and controller box) have the same ID number for camera numbers >300. For camera numbers < 300 verify that all components (camera head, cable and controller box) have the same ID number.
- g. Daily completion of the QAD Grading Checklists (Exhibit A, B).
- h. Conduct traditional grading, temporarily, as needed if the instrument fails to validate.

**5 Program Requirements**

**5.1 Program Monitoring Procedures**

Certified plant employees applying the U.S. Beef Grading Standards based on instrument augmentation shall identify carcasses that comply for designated grades based on the U.S. Beef Grading Standards. The QAD grader shall record all defects observed throughout the entire number of samples required. All defects recorded by the QAD grader will be changed to reflect the proper USDA quality grade.

**TABLE I. MONITORING (Normal)**

<b>Slaughter Rate Number of cattle per shift</b>	<b>Sample Size (Number of carcasses)</b>	<b>Accept/Reject Criteria (Normal Level of Review)</b>
Up to 1000	80	5/6
1001 to 1600	120	7/8
1601 to 2200	160	9/10
Over 2200	200	11/12

Once the final grade has been determined, the QAD grader will randomly select the appropriate number of carcasses for review and record those that are not accurately identified per the U.S. Beef Grading Standards. Factors that may be the cause of an inaccurate grade designation include, but not limited to:



- Maturity
- Dark cutting characteristics
- Blood splash
- Callous
- Improperly ribbed carcasses
- Improper sawing
- Bone dust/sawing debris/fat on the ribeye that causes the instrument to provide an invalid marbling score

## 5.2 Changing Levels of Monitoring Activities

- a. If during a single shift the QAD grader records inaccurately graded carcasses exceeding the acceptable level noted in Table I, the plant will be moved to Tightened sampling for the next production day for that shift. Tightened sampling levels are in Table II.
- b. Tightened sampling procedures will continue for three (3) consecutive days. If after three (3) consecutive days the plant demonstrates that they have taken corrective action they shall move back to normal sampling procedures. Corrective action may include re-evaluation of the plant employee, by QAD by means of a written correlation.
- c. If the QAD grader observes/records more than the acceptable number of inaccurately graded carcasses while on tightened sampling the plant will go to traditional grading by QAD graders, minimum of two (2) per shift, for a 1-week period of time. The Applicant will be responsible for all associated travel costs and per diem incurred to travel additional graders to their location.
- d. After one-week of traditional grading by QAD graders, the plant may be allowed to return to utilizing licensed plant personnel to apply the grades, pending adequate corrective and preventative actions have been taken. The program will resume with three (3) consecutive days of tightened monitoring, with acceptable results, prior to returning to normal sampling.
- e. Reduced Sampling - If monitoring shows that grades and certification are properly applied per Table I under Normal levels for 20 consecutive days, then sampling frequency is reduced per Table III. Monitoring remains at the Reduced levels unless the maximum number of defects is exceeded. If this number is exceeded, monitoring switches to the Normal level.



**Table II – Monitoring (Tightened)**

<b>Slaughter Rate Number of cattle per shift</b>	<b>Sample Size (Number of carcasses)</b>	<b>Accept/Reject Criteria (Tightened Level of Review)</b>
Up to 1000	80	3/4
1001 to 1600	120	5/6
1601 to 2200	160	7/8
Over 2200	200	9/10

**Table III – Monitoring (Reduced)**

<b>Slaughter Rate Number of cattle per shift</b>	<b>Sample Size (Number of carcasses)</b>	<b>Accept/Reject Criteria (Tightened Level of Review)</b>
Up to 1000	50	3/4
1001 to 1600	80	5/6
1601 to 2200	120	7/8
Over 2200	160	9/10

**5.3 Gross Non-Compliance** - QAD management may suspend the approval of the plant’s application of carcass grades and identification of Carcass Specifications when significant numbers of obvious mis-gradings occur, beyond those being monitored under reduced, normal or tightened monitoring procedures. Actions to identify and correct the non-conformance by the Applicant will be immediately addressed.

- a. If during a single shift the QAD grader records inaccurately graded carcasses exceeding the acceptable level noted in Table IV, the plant will be moved to Tightened sampling for the next production day for that shift. This will be the same sampling rate.
- b. Tightened sampling procedures will continue for three (3) consecutive days. If after three (3) consecutive days the plant demonstrates that they have taken corrective action they shall move back to normal sampling procedures. Corrective action may include re-evaluation of the plant employee, by QAD by means of a written correlation.
- c. If the QAD grader observes/records more than the acceptable number of inaccurately graded carcasses while on tightened sampling, the plant will go to traditional grading by QAD graders, minimum of two (2) per shift, for a 1-week period of time. The Applicant will be responsible for all associated travel costs and per diem incurred to travel additional graders to their location.



- d. After one-week of traditional grading by QAD graders, the plant may be allowed to return to utilizing licensed plant personnel to apply the grades, pending adequate corrective and preventative actions have been taken. The program will resume with three (3) consecutive days of tightened monitoring, with acceptable results, prior to returning to normal sampling.

Table IV – Continual Monitoring

Slaughter Rate Number of cattle per shift	Sample Size (Number of carcasses)	Accept/Reject Criteria (Review of holding cooler)
Up to 1000	40	3/4
1001 to 1600	60	4/5
1601 to 2200	80	5/6
Over 2200	100	6/7

5.4 Non-Conformances (NC) - The QAD grader shall:

- 1) Issue NC’s (Exhibit B) for program deviations and/or deficiencies observed during monitoring activities outside of the designated monitoring/sampling noted in Table I, Table II, or Table III.
- 2) Require a written response to each NC within one business day of receipt of the NC. The NC response shall include actions taken to correct as well as prevent reoccurrences of the nonconformance.
- 3) The QAD grader will retain copies of NC’s and applicant’s responses in the files. The QAD grader will provide copies of NC’s and applicant’s responses to the immediate QAD supervisor, QAD Office and the National Meat Supervisor.

Depending on the severity of the NC, failure to respond to NC’s and to take corrective actions, within the specified timeframe may cause suspension of the program.

5.5 Certifying Plant Employees

The National Meat Supervisor or designee will certify qualified plant employees responsible for program integrity and application of the U.S. Beef Grading Standards. This will be accomplished through a process that includes both a written exam and a carcass cooler correlation. The qualified plant employee must achieve a passing score on both the written (70% or higher) and carcass correlation (80% or higher) sections of the testing. (Note: Carcasses used in a correlation for the purpose of certifying plant employees must represent a full range of factors that will adequately demonstrate the individual’s knowledge, skills, and ability to perform authorized duties.)



Upon satisfactory completion of training and testing, plant employees will be certified to perform authorization grading duties, including identification for Carcass Specifications where applicable. Certification of plant employees will be required to be renewed every two years by the National Meat Supervisor or designee. This will include both a written exam and carcass cooler correlation. After the completion of two certification cycles (4 years) for certified company employees, QAD Management may suspend the written test requirement for those certified company employees that have shown sustained accurate application of the U.S. Beef Grading Standards and integrity for the program.

In addition, a record designating that each certified employee has completed and passed the required tests, signed by the QAD Director and the certified plant employee, shall be issued and must be on file at the Applicant's facility as well as the QAD headquarters office. When QAD is requested to assist in the training of the plant's employee, the Applicant shall incur any additional costs at the unscheduled rate, including travel costs associated with the training of their designated employees.

#### **5.6 Continuing evaluation of Certified plant employee**

The certified plant employee will be evaluated and tested on a continuing basis to ensure adequate knowledge of the U.S. Beef Grading Standards and carcass specification requirements. Evaluations will occur monthly, via written tests and/or written correlations. The certified plant employee is expected to maintain a high level of knowledge of the requirements for the position, and a high level of integrity in support of QAD programs.

#### **5.7 QAD Equipment**

Where applicable, USDA stamps used for identifying carcasses will be provided by the QAD. USDA stamps and roller brands will be secured by USDA employees when not in use. Only trained plant employees or QAD graders are authorized to use this equipment. Misuse of issued equipment may cause suspension of the plants approved program.

#### **5.8 Meetings**

The integrity of QAD programs must be maintained at all times. The QAD grader will interact with the company and schedule meetings as needed to discuss issues and/or observations for promoting continuous improvement of the program. The applicant will record minutes detailing the issues discussed during the meetings. Copies of the minutes will be maintained for the files in the grading office.



## **6 Applications**

### **6.1 Submission of Proposals**

Prospective applicants are required to submit a written plant program which must be approved prior to the commencement of activities associated with this program. The plant program must address each required area and outline specific procedures used to ensure that these requirements are met. Each applicant shall submit an electronic copy to the National Meat Supervisor and Grading Services Branch Chief. Applicants may also send a hard copy of their program to:

USDA, AMS, L&P, Quality Assessment Division  
Grading Services Branch Chief  
1400 Independence Avenue, Stop 0258  
Washington, DC 20250

The National Meat Supervisor will notify applicants of their program status within 20 working days of receipt of the plant program.

### **6.2 Amendments to Programs**

Amendments to approved programs shall be submitted to the QAD for review and approval prior to implementation. The National Meat Supervisor or designee shall notify the applicant of amendment status within 10 working days of receipt and shall issue a notice to the applicant indicating amendment approval or denial.

### **6.3 Charges for Providing Service**

The applicable QAD scheduled hourly fee shall be charged for the in-house QAD grader performing the monitoring activities. The unscheduled hourly fee and all travel costs incurred for additional graders, if needed, shall be borne by the Applicant.

## **7 Change Record**

The following changes were made to the August 31, 2018 revision of this document:

- a. Replaced agent with grader.
- b. Revised 4.1 e. by removing additional validation requirement.
- c. Revised 4.2 f. by adding verification that all components have same ID numbers.
- d. Revised 5.1 by adding: All defects recorded by the QAD grader will be changed to reflect the proper USDA quality grade.
- e. Revised 5.3 to clarify Gross Non-Compliance and added Table IV Continual Monitoring.
- f. Revised 5.5 by adding passing scores and language for possible reductions in the testing.
- g. Replaced schedule with specification.



- h. Replaced commitment and non-commitment with scheduled and unscheduled respectively.

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