

Japanese Beef Grading

BEEF MARBLING

CLASSIFICATION OF BEEF MARBLING GRADE

| | Grade | BMS No. |
|---|---------------|----------------|
| 5 | Excellent | No. 8 – No. 12 |
| 4 | Good | No. 5 – No. 7 |
| 3 | Average | No. 3 – No. 4 |
| 2 | Below Average | No. 2 |
| 1 | Poor | No. 1 |

The relationship between beef marbling evaluation and classification of grade is as follows:

COLOR AND BRIGHTNESS OF MEAT

In this item, meat color is evaluated by Beef Color Standard (B.C.S. No.) prepared as seven continuous standards. Average color range is from No. 1 to No. 6 of B.C.S. No., and carcasses in this color range can be graded in “Grade 3” or upper grades.

Brightness of meat is evaluated by visual appraisal. At the final decision of grade of this item, both factors are considered.

CLASSIFICATION OF COLOR AND BRIGHTNESS GRADE

| Grade | Color B.C.S. No. | Brightness |
|-----------------|-----------------------|---------------|
| 5 Very good | No. 3 – No. 5 | Very good |
| 4 Good | No. 2 – No. 6 | Good |
| 3 Average | No. 1 – No. 6 | Average |
| 2 Below Average | No. 1 – No. 7 | Below average |
| 1 Inferior | A Grade, except 5 – 2 | |

FIRMNESS AND TEXTURE OF MEAT

For this item, two factors are evaluated by visual appraisal, and they are classified into five grades. At the decision of the final grade of the item, both factors are considered.

CLASSIFICATION OF FIRMNESS AND TEXTURE GRADE

| Grade | Firmness | Texture |
|-------|---------------|---------------|
| 5 | Very good | Very fine |
| 4 | Good | Fine |
| 3 | Average | Average |
| 2 | Below average | Below average |
| 1 | Inferior | Coarse |

COLOR, LUSTER AND QUALITY OF FAT

One of the factors in this item, fat color, is evaluated by Beef Fat Standards (B.F.S.) prepared as seven continuous standards. Average color range is from No. 1 to No. 6, and carcass in this color range can be graded as “Grade 3” or upper grades.

The remaining two factors, luster and quality, are evaluated simultaneously by visual appraisal. Three factors are considered in the decision of the final grade of the item.

CLASSIFICATION OF FAT, COLOR, LUSTER AND QUALITY GRADE

| Grade | Fat Color | B.F.S. No. | Luster and Quality |
|-------|---------------|---------------|--------------------|
| | Excellent | No. 1 – No. 4 | Excellent |
| 4 | Good | No. 1 – No. 5 | Good |
| 3 | Average | No. 1 - No. 6 | Average |
| 2 | Below average | No.1 – No. 7 | Below average |
| 1 | Inferior | A Grade | Except 5 – 2 |

DETERMINATION OF OVERALL MEAT QUALITY GRADE

Overall meat quality score is graded down to the lowest grade amongst the four items as follows:

| | |
|-------------------------------|---|
| Beef Marbling | 4 |
| Color and Brightness | 4 |
| Firmness and Texture | 3 |
| Fat Color, Luster and quality | 3 |
| Overall Meat Quality grade | 3 |

STAMPING OF YIELD AND MEAT QUALITY SCORE ON CARCASS

Final yield of carcass quality scores are indicated on carcasses by one class of the 15 combinations.

DIVISION OF CLASSES

| Yield Score | Meat Quality Score | | | | |
|-------------|--------------------|----|----|----|----|
| | 5 | 4 | 3 | 2 | 1 |
| A | A5 | A4 | A3 | A2 | A1 |
| B | B5 | B4 | B3 | B2 | B1 |
| C | C5 | C4 | C3 | C2 | C1 |

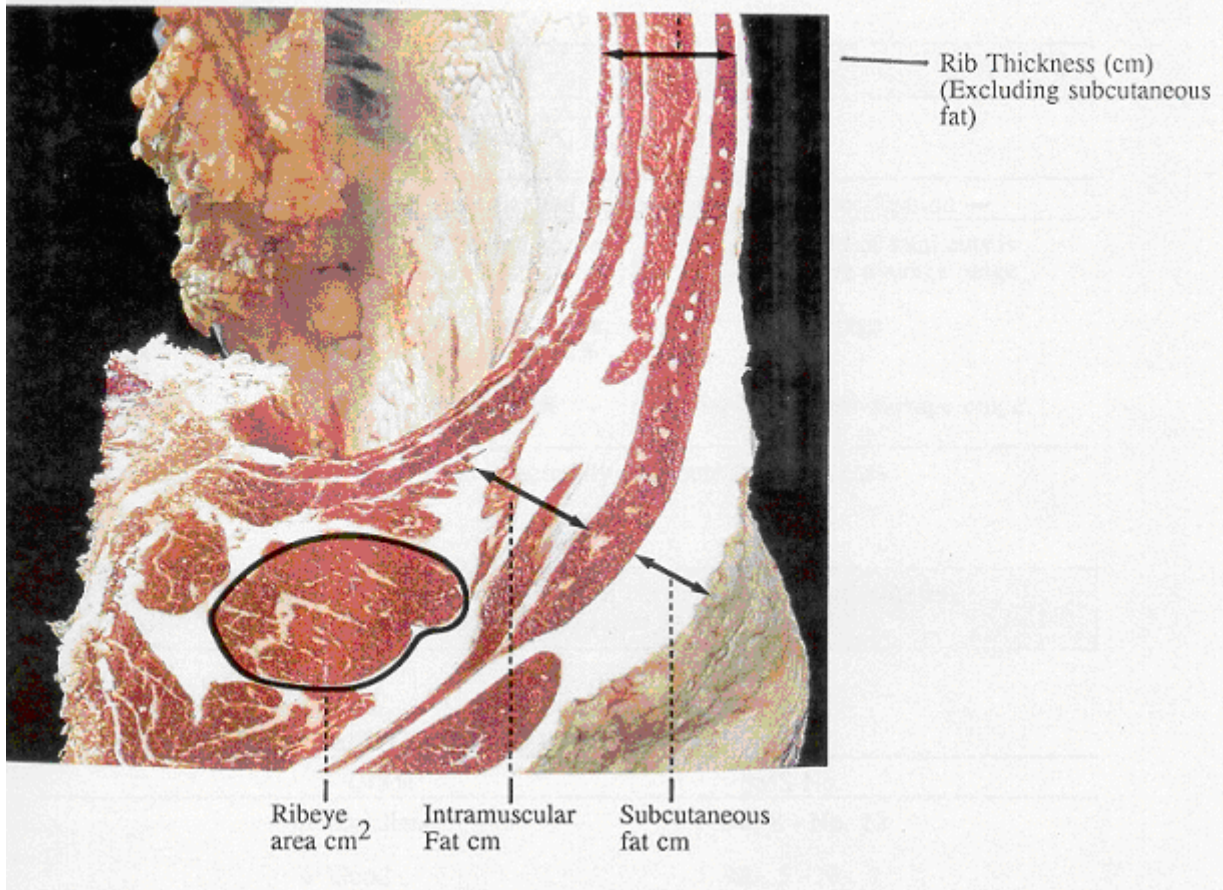
DAMAGE INDICATION BY SUPERScript STAMP

A carcass which is recognized to have any damage is stamped with a superscript mark classified according to the type of damage.

CLASSIFICATION OF THE TYPE OF DAMAGE

| Type of Damage | Mark |
|--|------|
| Muscle bleeding (stain or blood splash) | (A) |
| Muscle edema | (I) |
| Inflammation of muscle or fat infiltration | (U) |
| External wound | (E) |
| Part mission | (O) |
| Other | (KA) |

CARCASS MEASUREMENTS (6th/7th RIB) FOR YIELD GRADE



Beef Color Standard (BCS)



| | | | | | | |
|------|-------|------|------|------|------|------|
| No.1 | No. 2 | No.3 | No.4 | No.5 | No.6 | No.7 |
| 2-3 | 4 | 5 | 5 | 5 | 4-3 | 2 |

First row gives the BCS number and the second row gives the Quality Grade

Beef Fat Standard (BCS)



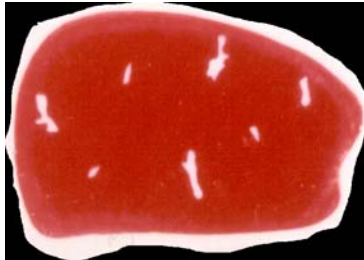
| | | | | | | |
|------|-------|------|------|------|------|------|
| No.1 | No. 2 | No.3 | No.4 | No.5 | No.6 | No.7 |
|------|-------|------|------|------|------|------|

BFS numbers

Beef Marbling Standards



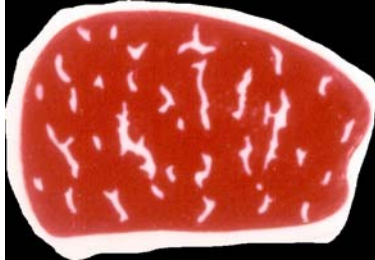
BMS # 1 Quality Grade 1



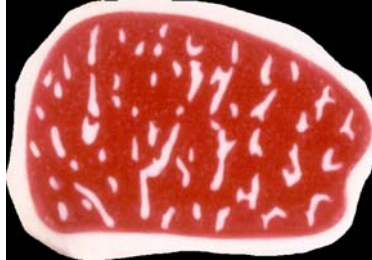
BMS # 2 Quality Grade 2



BMS # 3 Quality Grade 3



BMS # 4 Quality Grade 3



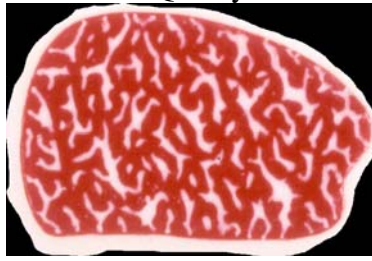
BMS # 5 Quality Grade 4



BMS # 6 Quality Grade 4



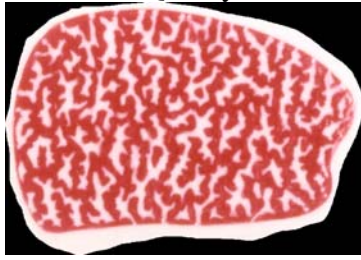
BMS # 7 Quality Grade 4



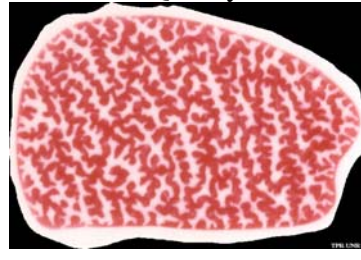
BMS # 8 Quality Grade 5



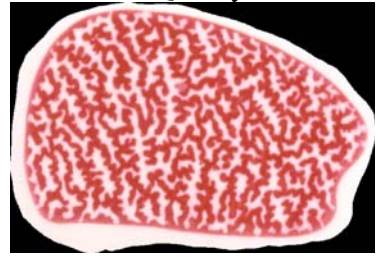
BMS # 9 Quality Grade 5



BMS # 10 Quality Grade 4



BMS # 11 Quality Grade 5



BMS # 12 Quality Grade 5

Equivalence of U.S. and Japanese Marbling Scores

| U.S.D.A. Quality Grade | U.S.D.A. Marbling Score* | BMS Number | Japanese Quality Grade |
|------------------------|--------------------------|------------|------------------------|
| | Extremely Abundant 50+ | 11 or 12 | 5 |
| | Extremely Abundant 0-49 | 10 | 5 |
| | Very Abundant 50-99 | 9 | 5 |
| | Very Abundant 0-49 | 8 | 5 |
| | Abundant | 7 | 4 |
| | Moderately Abundant | 6 | 4 |
| Prime | Slightly Abundant | 5 | 3 |
| | Moderate | 4 | 3 |
| | Modest | 3 | 3 |
| Choice | Small | | |
| Select | Slight | | |
| | Traces | | |

- There are no official grades above Abundant in the USDA specifications. The terms Very Abundant and Extremely Abundant are arbitrary.

JAPANESE MEAT GRADING

J.R. Busboom and J.J. Reeves
Washington State University
Pullman, WA 99164