Trait	Subject	Approval Section	Installation Section
Marbling	Exclusion of carcases	5.3.1.2	5.2
Marbling	Stationary	6.1	5.3.1
Marbling	Chain speed		
		6.2	5.3.2
Marbling	Chain speed		
Ribeye Area	Stationary	7.1	
			5.3.1
Fat Thickness	Stationary	8.1	
Yield	Stationary		
		9.1	
Yield	Stationary		

Approval Document

A final Official Marbling Score will be computed from the independent observations for each carcass. Carcass data will be excluded from the test if the difference of any one of the independent observations exceeds a range of three (3) times the root mean square of the differences between all independent observations and their corresponding average for that carcass.

95% of the carcasses shall have all three of the predicted marbling score observations within 20 marbling score units of the mean predicted marbling score for that carcass.
Average residual = 0 + 10 marbling score units where the residual is the difference between the predicted instrument marbling score and mean expert panel marbling score
• The standard deviation of the residuals (rSD) from the mean expert panel marbling score < or + 35 marbling score units; and,
• Slope of 0 + 0.075, using the residual from the MEPMS as the dependent variable (y axis) and the average of the instrument marbling score and mean expert panel marbling score as the independent variable (x-axis).
(Accuracy)
•95% of the carcasses shall have all three of the predicted ribeye area observations
within 1.0 square inches of the predicted mean ribeye area for that carcass.

(Repeatability)
•95% of predicted ribeye area observations within 0.5 square inches of the mean of the three ribeye area observations for that carcass

95% of the carcasses shall have all three predicted fat thickness observations within
0.2 inches predicted mean fat thickness for that carcass

R2 = 0.90 or greater

Installation Document

A mean expert marbling score (MEMS) will be calculated. If the mean expert marbling score is greater than 30 marbling units from any individual expert call, then data from that carcass will not be used.

95% of all carcass prediction residuals (difference between online and offline instrument) shall not exceed 10 marbling units

R2 value of the marbling residuals (difference between USDA mean expert marbling score and the proposed facility instrument) ≥ 0.95

The standard deviation of the marbling residuals between MEMS and proposed instrument (RSD) ≤ 20

95% of all ribeye area measurement residuals shall not exceed 0.5 square inches

95% of all fat thickness measurement residuals shall not exceed 0.1 inches

95% of predicted final yield grade residuals shall not exceed 0.5 final yield grade

The residual standard deviation (RSD) of final yield grade shall not exceed 0.25 yield grade units

Comment

Different metrics for excluding carcases

Metric for installation document is 2x more accurate than approval document

No requirement of R2 in approval document

Standard deviation of residuals is stricter in the installation document and approval document

Installation document is more 2x more accurate on residuals when comparing technology to expert

Installation document is more 2x more accurate on residuals when comparing technology to expert

Completely different metrics between Approval Document and Installation Document