

Table S1. Distribution and breed covariate grouping used in individual models of each response variable.

	Type of Variable	Distribution	Covariate Grouping
Commercial weight	Continuous	Gamma	AN, SM
REA	Continuous	Gamma	AN, SM, CH
Grade fat	Continuous	Gamma	AN, SM, CH
Marbling	Continuous	Gamma	AN, SM, CH
Muscle score	Categorical	Binomial	AN
Fat class	Categorical	Binomial	AN, SM, CH
Dressing percentage	Percentage	Beta	AN, SM, HH
Estimated yield	Percentage	Beta	AN, SM, CH
Fat (IMF)	Percentage	Beta	AN, SM
Primal Cuts			
Round	Percentage	Beta	AN, SM
Loin	Percentage	Beta	AN
Flank	Percentage	Beta	AN, SM, CH
Chuck	Percentage	Beta	none
Rib	Percentage	Beta	AN
Plate	Percentage	Beta	AN
Brisket	Percentage	Beta	AN
Shank	Percentage	Beta	AN
Lean Component			
Round	Percentage	Beta	AN, SM, CH
Loin	Percentage	Beta	AN, SM, CH
Flank	Percentage	Beta	AN, SM, CH
Chuck	Percentage	Beta	AN, SM, CH
Rib	Percentage	Beta	AN, SM, CH
Plate	Percentage	Beta	AN, SM, CH
Brisket	Percentage	Beta	AN, SM, CH
Shank	Percentage	Beta	AN, SM, CH
Total	Percentage	Beta	AN, SM, CH
Fat Component			
Round	Percentage	Beta	AN, SM, CH
Loin	Percentage	Beta	AN, SM, CH
Flank	Percentage	Beta	AN, SM, CH
Chuck	Percentage	Beta	AN, SM, CH
Rib	Percentage	Beta	AN, SM, CH
Plate	Percentage	Beta	AN, SM, CH
Brisket	Percentage	Beta	AN, SM, CH
Shank	Percentage	Beta	AN, SM, CH
Total	Percentage	Beta	AN, SM, CH

REA, ribeye area; IMF, IntAN = Angus; SM, Simmental; CH, Charolais.