

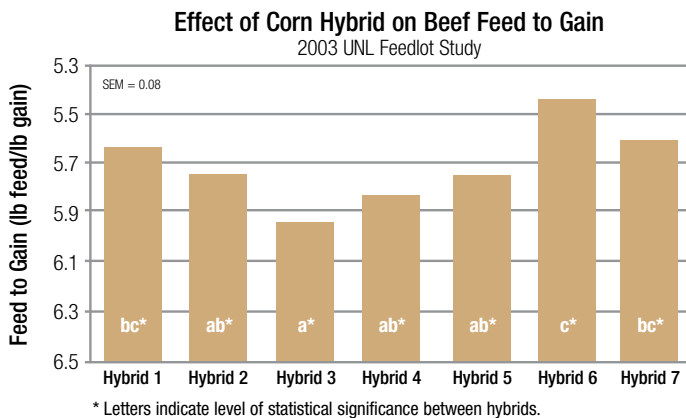
The University of Nebraska – Lincoln (UNL) and Syngenta Seeds have worked jointly to determine the influence of corn kernel traits on feedlot cattle performance. The information from these trials provides answers to the following two questions.

1. Is cattle performance affected by the corn hybrid selected for feed rations?
2. What kernel characteristics of the hybrid most influence feed performance?



Beef Feedlot Study Design

- Crossbred steer calves were randomly assigned to pens.
- One of seven hybrids, each with different kernel characteristics, were fed in ration to an assigned pen.
- Rations consisted of 66% dry-rolled corn of the test hybrid with 20% wet gluten, 10% corn silage, and 4% supplement.
- Each hybrid was replicated in four pens.
- Cattle were fed for 167 days and processed at a commercial packing plant.
- Carcass data was collected and several beef performance and quality variables were calculated.



Graph 1

Kernel Characteristics Evaluated

1. Test weight
2. Weight of 1,000 kernels
3. Kernel size and shape
4. Feed constituent content (% protein, oil, starch, etc.)
5. Starch type
6. In-vitro starch disappearance
7. In-situ rate and extent of disappearance
8. Kernel hardness

Feedlot Study Results

Hybrids used in the ration statistically influenced “feed to gain” (Graph 1). Feed to gain is the average pounds of feed needed for each pound of animal gain. Lower feed to gain values are more desirable because animals consume less feed to produce the same amount of weight gain. Other animal performance variables measured but not influenced by hybrid grain characteristics include: dry matter intake, average daily gain, hot carcass weight, marble score and twelfth-rib fat.



Best Predictors of Feed to Gain Response

- Weight of 1,000 kernels
 - Higher values correlated to better (lower) feed to gain ($r^2 = -0.8135$; $P = 0.026$).
 - Measurement is different from test weight which is weight per volume and is influenced by kernel shape and density.
- Kernel hardness
 - The Stenvert Hardness Test provided the best predictor of feed to gain response.
 - Hybrids that required less time to grind in a micro-hammer mill ($r^2 = 0.8275$; $P = 0.022$) and produced a larger percentage of soft particles ($r^2 = -0.83202$; $P = 0.021$) resulted in improved feed performance (lower feed to gain).
- In-situ rate of disappearance
 - Percent of grain digested in designated time period when placed in the rumen of live animal.

Garst® Brand Hybrid Beef Feed to Gain Ratings					
Hybrid Series	RM	Feed to Gain	Hybrid Series	RM	Feed to Gain
89N10	77	▼	86M39	105	●
89R58	80	▼	86H30	105	●
89V30	83	▼	86G35	105	★
89S28	83	✘	85V24	106	▼
89S01	85	●	85K93	106	●
89J14	86	▼	85B65	106	●
89Z07	87	▼	85V88	107	★
89K65	88	●	85E98	109	★
89G13	90	★	84S08	109	●
89X34	91	▼	85Z64	110	▼
89T43	92	▼	85K17	110	●
88R16	94	▼	84Y14	111	●
88Q29	96	●	84U58	111	●
88K05	96	✘	84T28	111	●
88E24	96	●	84A40	111	●
88W22	97	●	84Z02	112	▼
88U62	97	★	84J30	112	●
88R89	97	●	84H71	112	★
88F75	97	▼	84G70	112	★
88M51	98	★	83T94	112	●
88B37	99	●	84U96	113	●
87G94	100	▼	83S06	113	▼
87V47	101	▼	83L67	113	●
87U28	101	▼	83F08	113	★
87Q79	101	●	83E90	113	▼
87P52	101	★	83B40	113	▼
87F33	101	▼	83X61	114	●
87Y27	102	★	83R38	114	●
87W74	102	▼	83C55	114	●
87T18	102	▼	83P07	115	★
87W95	103	●	83M47	115	▼
87D54	103	▼	82R05	115	●
86J49	103	★	82K01	116	●
86X11	104	★	82R44	117	●
86T82	105	●	82H82	118	▼

Rating Hybrids for Feed to Gain Performance

Syngenta Agronomy Research annually collects grain samples from multiple trials across the Midwest to characterize feed to gain performance. Assessments measuring 1,000 kernel weight and Stenvert Hardness Test analysis (time to grind and soft particle percentage) are conducted for each hybrid and used to assign a feed to gain rating based on the findings.

Feed to Gain Ratings

- ★ Hybrid is the best choice for optimizing feed to gain in a dry-rolled corn ration.
- Hybrid is well suited for use in a dry-rolled corn ration.
- ▼ Hybrid should only be used in a dry-rolled corn ration when packaged with “star” and/or “circle” hybrids.
- ✘ Hybrid is better suited to end-uses other than a beef feedlot dry-rolled corn ration.

For more information, contact your Garst Seed Dealer or call 1-888-GO-GARST. Visit us at www.garstseed.com.

