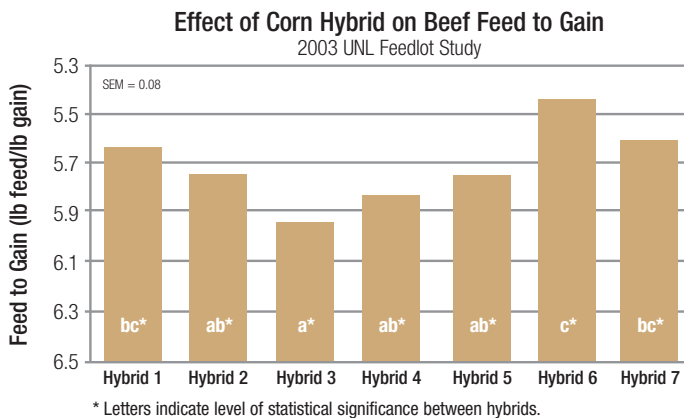


The University of Nebraska – Lincoln (UNL) and Syngenta Seeds have worked jointly to determine the influence of corn kernel traits on feedlot cattle performance. The information from these trials provides answers to the following two questions.

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

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.

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



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.

NK® Brand Hybrid Beef Feed to Gain Ratings					
Hybrid Series	RM	Feed to Gain	Hybrid Series	RM	Feed to Gain
N08N	77	▼	N53C	105	●
N12R	80	▼	N53W	105	●
N16M	83	✘	N54H	105	●
N16Z	83	▼	N56V	106	▼
N17H	83	▼	N58L	106	●
N19G	85	●	N61P	107	★
N21J	86	▼	N63R	109	★
N25N	87	▼	N64S	109	●
N22C	88	✘	N68A	111	●
N23F	88	●	N68B	111	●
N23K	88	●	N68T	111	●
N27B	90	★	N68Y	111	●
N27W	91	▼	N69H	112	★
N29A	92	★	N69Z	112	▼
N29T	92	▼	N71G	112	★
N33R	94	▼	N72A	112	●
N34N	96	●	N72K	112	●
N36K	96	✘	N71B	113	▼
N36Q	96	●	N72D	113	▼
N37D	97	▼	N72F	113	★
N38U	97	★	N72Q	113	▼
N38W	97	●	N73N	113	●
N39M	98	★	N74C	113	●
N39Z	99	●	N71M	114	▼
N40T	100	▼	N73V	114	●
N45A	101	●	N74R	114	●
N45P	101	★	N77P	114	●
N46F	101	▼	N75M	115	▼
N46U	101	▼	N76D	115	●
N47V	101	▼	N77H	115	●
N48W	102	▼	N78W	115	★
N48S	103	▼	N78S	116	●
N49J	103	★	N82V	117	●
N50K	103	●	N78N	118	▼
N51T	104	★	N78B	119	▼

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 NK Retailer or call 1-800-445-0956. Visit us at www.nk-us.com.



This bulletin was developed by Syngenta Agronomy Research. Syngenta Agronomy Research studies and evaluates environmental and cultural practices that impact yield in both corn and soybean production to provide answers to the critical issues facing growers. In 2010, 27 research trials were conducted at 10 Syngenta Agronomy Research locations.