

Residual Feed Intake Information

All bulls in this year's sale were fed individually during a 45-day trial in late November through early January at the K-State Beef Cattle Research Center (BCRC). Student employees, with supervision from unit managers, read each bull's bunk each day. Amount fed was adjusted daily to keep only a small amount of feed remaining in the bunk by the next feeding, and the amount fed each day was recorded. Bulls were weighed every two weeks during the trial.

At the conclusion of the trial, residual feed intake (RFI) was calculated for each bull. The amount of feed each bull was expected to have consumed was calculated, based on its weight and rate of gain. Heavier bulls and those gaining at a faster rate would have a higher expected intake. RFI is the actual dry matter intake (DMI) minus the expected DMI, expressed in pounds of dry matter per day. Bulls with lower values for RFI consumed less feed relative to their size and gain, thus were more efficient. Unlike feed to gain ratios, RFI values are not biased by the size or growth rate of the animal. For example, the best (lowest) RFI Angus bull was nearly average for rate of gain during the test. The second best RFI Angus bull was one of the slowest gaining, and the fourth best RFI Angus bull was among the fastest gaining.

Bull	Weight on Test	ADG on Test	Expected DMI	Actual DMI	RFI	RFI Rank
Lot 34	851 lb	3.71 lb/d	23.93 lb/d	21.50 lb/d	-2.43	#1 Angus
Lot 32	830 lb	3.78 lb/d	23.84 lb/d	24.17 lb/d	0.33	Top 50%
Difference			+0.09	-2.67	-2.76	

As an example, consider two Angus bulls in this year's sale offering, Lot 34 and Lot 32. Fairly similar in weight and rate of gain during the test, they were expected to consume about the same amount of feed per day. But Lot 34 actually consumed significantly less feed per day. The difference in RFI values for the two bulls is -2.76 pounds of dry matter per day. If the bulls would have weighed exactly the same and gained at exactly the same rate, we would expect Lot 34 to consume 2.76 pounds less feed (dry matter) per day.

Research has shown RFI to be moderately heritable, so progeny of low RFI sires should be expected to be more efficient as feeder cattle. Studies are currently underway to determine the relationship between RFI in growing cattle and efficiency of mature cows. In addition to RFI values, bulls in the top 50 percent or better for their breed are noted in the catalog.

We appreciate the efforts of Dr. Jim Drouillard, faculty coordinator for the BCRC, Garrett Parsons and Leanne Thompson, research assistants at the BCRC, and the student employees of the BCRC and the Purebred Beef Teaching Unit in making this data collection possible. For questions about RFI values, contact Dr. Dan Moser at (785) 532-2459 or dmoser@ksu.edu.

The values and rankings of the bulls below are the same as those listed in the 2009 catalog.

RESIDUAL FEED INTAKE (RFI)

LOT	BREED	TATTOO	RFI VALUE	BREED RANK
1	ANGUS	8157	0.21	Top 50%
2	ANGUS	8145	0.72	
3	ANGUS	8187	-2.12	Top 5%
4	ANGUS	8188	1.95	
5	ANGUS	8209	-2.05	Top 10%
6	ANGUS	8144	1.34	
7	ANGUS	8200	-0.09	Top 50%
8	ANGUS	8199	-1.08	Top 25%
9	ANGUS	8150	-1.07	Top 25%
10	ANGUS	8149	1.42	
11	ANGUS	8192	-2.43	Top 5%
12	ANGUS	8161	2.27	
13	ANGUS	8140	1.48	
14	ANGUS	8205	1.59	
15	ANGUS	8122	1.39	
16	ANGUS	8190	-1.74	Top 25%
17	ANGUS	8183	-0.85	Top 50%
18	ANGUS	8165	-1.72	Top 25%
19	ANGUS	8164	0.98	
20	ANGUS	8177	0.32	Top 50%
21	ANGUS	8184	0.58	
22	ANGUS	8201	-1.47	Top 25%
23	ANGUS	8171	4.04	
24	ANGUS	8119	1.95	
25	ANGUS	8121	2.72	
26	ANGUS	8174	0.36	
27	ANGUS	8194	-0.66	Top 50%
28	ANGUS	8114	0.32	Top 50%
29	ANGUS	8111	2.90	
30	ANGUS	8118	0.33	Top 50%
31	ANGUS	8108	1.10	
32	ANGUS	8206	0.32	Top 50%

33	ANGUS	8162	-1.84	Top 10%
34	ANGUS	8155	-0.06	Top 50%
35	ANGUS	8147	-2.22	Top 5%
LOT	BREED	TATTOO	RFI VALUE	BREED RANK
36	ANGUS	8208	2.36	
37	SIMM	50U	-1.31	Top 50%
38	SIMM	48U	-1.33	Top 25%
39	SIMM	23U	-2.61	Top 5%
40	SIMM	9U	-1.95	Top 25%
41	SIMM	22U	0.20	
42	SIMM	29U	-2.46	Top 10%
43	SIMM	47U	-0.71	Top 50%
44	SIMM	21U	2.91	
45	SIMM	33U	-0.05	
46	SIMM	52U	-2.03	Top 25%
47	SIMM	57U	0.52	
48	SIMM	25U	-0.28	Top 50%
49	SIMM	27U	0.35	
50	SIMM	28U	-0.26	
51	SIMM	35U	-0.79	Top 50%
52	SIMM	56U	0.65	
53	SIMM	54U	1.67	
54	SIMM	63U	-1.24	Top 50%
55	HERF	814	-0.11	
56	HERF	813	n/a	n/a
57	HERF	818	n/a	n/a
58	HERF	815	-0.45	
59	HERF	817	0.06	
60	HERF	807	-1.06	Top 25%
61	HERF	824	-0.41	
62	HERF	826	-0.47	Top 50%
63	HERF	822	-1.27	Top 25%
64	HERF	831	-1.44	Top 5%