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NEWS

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Executive Office
206 Riffel Rd.
Wooster, OH
44691-8588
Phone: 330/345-2333
Fax: 330/345-0808

Manhattan Office
1107 Hylton Heights Rd.
Manhattan, KS
66502-2822
Phone: 785/539-0123
Fax: 785/539-2883

Japan Office
Japan Business Center
WBG Marive East 14F
Nakase 2-6 Mihama-ku
Chiba-shi, Chiba 261-7114
Japan
Ph.: 011/81-43-297-3363
Fax: 011/81-43-297-3374

www.
certifiedangusbeef
.com

Contact: Lindsay Domer, CAB Industry Information Intern,
(785) 539-0123, ldomer@certifiedangusbeef.com

Angus influence affects efficiency, carcass merit

Successful producers have always tried to raise high-quality, high-performing cattle, but may have felt compelled to choose one ideal over the other. That's not necessary, according to a recent analysis of data from the Iowa Tri-County Steer Carcass Futurity (TCSCF).

What is the effect of percent Angus genetics on performance in the feedlot and on carcass merit? Mark McCully, supply development director for Certified Angus Beef LLC (CAB), worked with colleagues Larry Corah and Mike King at CAB, and Iowa Extension beef specialist Darrell Busby to present a research summary.

The data came from 18,250 steers and heifers consigned to TCSCF from 2002 to 2007, and categorized into quartiles by their degree of Angus influence: Low, Half, Three-quarter, or Straightbred Angus (Table 1).

After a minimum 28-day preconditioning period before arrival at any of 10 TSCSF feedlots, cattle were weighed and given initial implants, vaccinations and body scores within their first four days on feed. All were given similar implants and health treatments and fed the same energy level.

McCully presented and discussed the data earlier this year at the Southern Section, American Society of Animal Science meetings in Dallas, Texas.

The results may have revealed the solution to producers' dilemma. Research showed that Angus influence had a positive effect on a number of performance and carcass factors.

"For years, breed composition has been recorded on cattle enrolled in the Futurity," McCully says. "These data are now some of the most comprehensive available where genetics are quantified."

Straightbred Angus cattle showed better feedlot health and lower treatment costs than cattle with less Angus influence. The straightbred average treatment cost of $4.60 per head was $3 less than that for the lowest-Angus-influence cattle.

Moreover, that was less than the treatment costs for the typical crossbreds in the middle quartiles. Overall health significantly improved with increased Angus influence. Straight Angus cattle had a sickness rate of 14.8%, while cattle with low influence had a rate of 22.8%.

"This is one of the most interesting findings in the analysis, but one we don't have a thorough explanation for," McCully says. "The data showed less sickness and reduced treatment cost as the percent Angus increased, but pre-feedlot health protocols were prescribed to be the same for all cattle. So, this appears to be a genetic effect."

Some of the earliest data on breed-type effect on health came from a 1984 doctoral dissertation on the effects of pre- and post-transit potassium levels, receiving diets and deworming on highly stressed calves, by Frank Brazle at Kansas State University.

The published table referred to "Breed Combination," but the four descriptions noted only color, not uncommon for public research. "We can safely assume that the medium-frame solid blacks we noted back then were predominantly Angus," Brazle says now.

In that study, the 2.79% mortality rate in groups of straight blacks compared to 18.39% in black baldies of the same frame size, 12.93% in all black baldies and 6.34% in mixed-color lots.

McCully adds there has been recent data showing that respiratory disease is genetically influenced. He says it is possible that an unintentional selection for respiratory disease resistance may have occurred through popular Angus sire lines.

"It is certainly an area that needs more research," he says.

The TCSCF study also noted relatively fewer days on feed for straight Angus, and the highest average daily gain (ADG) of all groups.

Finally, ability to earn premiums for carcass merit increased with Angus influence.

Marbling scores trended higher in a direct correlation with percentage Angus influence. While nearly a third of straight Angus cattle achieved CAB acceptance or USDA Prime, the low-influence cattle made only 9.3% CAB and only 0.3 % qualified for Prime. On the other hand, less than 1% of the straight Angus cattle were discounted as USDA Standard, compared to more than 5% of the low Angus.

"Angus cattle are known for their carcass merit and marbling ability, specifically, so the improvement in quality grade due to increased Angus genetics came as no surprise," McCully says.

Whether the data reinforced knowledge or revealed something new, he says, "We hope it will benefit producers when they are making genetic selections for their next calf crop."

He notes that the numbers say producers can expect both higher performance and quality grades from straight Angus cattle. "Wise cattlemen will make sure they are looking at all the facts when they make decisions on genetics," McCully says.

For the complete abstract and slide show, see
http://www.cabpartners.com/news/EducatorMailing/SSAbstractEffectPercentageAngus.doc
http://www.cabpartners.com/news/EducatorMailing/SSEffectAngusMcCully

TABLE 1: Effect of % Angus on carcass merit, health and performance among Tri-County Steer Carcass Futurity calves, 2002-2007

	Percent Angus				
Factor	LOW 0 to 25%	HALF 26 to 50%	¾ Angus 51 to 75%	STRAIGHT 76 to 100%	Chi-Square P value
USDA Quality Grade					
Prime	0.26	0.50	1.09	2.27	<.0001
Premium Choice	7.83	15.62	17.94	27.90	<.0001
Choice -	44.62	53.92	53.93	53.79	<.0001
Select	42.17	27.89	25.27	15.36	<.0001
Standard	5.12	2.07	1.77	0.69	<.0001
Calculated Yield Grade class					
1 & 2	76.54	63.05	55.38	47.45	<.0001
3	22.58	35.57	42.67	50.10	<.0001
4 & 5	0.88	1.38	1.95	2.44	<.0001
CAB acceptance[a]	9.51	17.74	18.96	29.61	<.0001
Mortality rate	1.85	1.33	1.39	1.48	.1958
Morbidity rate	22.84	15.72	15.69	14.78	<.0001
Treatment cost/head	$7.77	$5.44	$5.48	$4.60	<.0001
Average daily gain, lb.	3.10	3.23	3.18	3.28	<.0001
Total number, head	4,767	3,684	3,460	6,339	

Records with one or more of the following criteria were deleted prior to analysis to remove outlier values in these variables: on-test weight greater than 1000 pounds, delivery weight greater than or equal to 1000 pounds, warm-up average daily gain greater than or equal to 13, feed to gain greater than 18, and cost of gain greater than 300.
[a]Only black hided calves were used in the analysis on the effect of percent Angus class on CAB acceptance rate, which was based on current CAB requirements. SOURCE: TCSCF

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