



The Growing Angus Advantage

Numbers tell the story of how a breed evolved to produce competitive commercial straightbreds.

Story & photos by **Miranda Reiman**

If feedyard performance pays the bills and governs bidding for calves, then “The Business Breed” is really taking care of business. Evidence suggests the Angus breed has been developed to a point where crossbreeding may not provide a feedlot or carcass advantage.

Two recent feedlot analyses from Iowa and Kansas, on more than 86,000 head, show Angus cattle beat crossbreds on feed. That doesn’t surprise scientists at the Roman L. Hruska U.S. Meat Animal Research Center

(USMARC), part of the U.S. Department of Agriculture-Agricultural Research Service (USDA-ARS), whose data say the Angus breed has caught Continentals in many growth traits.

“Angus has a lot of tools and research, and breeders have used them to select a lot harder,” says Larry Kuehn, MARC research geneticist. “Take yearling weight, for example. They’re almost as high as Simmental and Charolais now, and they’ve passed Limousin and Gelbvieh. There’s been a tremendous amount of pressure there.”

Sally Northcutt, genetic research director with the American Angus Association, says postweaning performance in the breed has shot upward since the 1980s.

“We’ve seen a significant change in what Angus cattle will do in the last 15 to 30 years,”

she says. “Historically, the Angus breed was not considered competitive in terms of postweaning gain, but the data show you can capitalize on aggressive feedlot gain from Angus genetics. In the past, producers thought they had to get that from other breeds.”

Real-world results

One report looked at cattle fed at Decatur County Feed Yard, Oberlin, Kan., from 2003 to 2009. The Certified Angus Beef LLC (CAB) licensee tracked performance and carcass measures on calves in four groups: solely Angus, predominantly Angus, other breeds and unknown.

The straightbred group had the highest average daily gain (ADG) at 3.53 pounds (lb.), compared to 3.32 lb. for those with less

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► “Part of the improvement in gain is due to the health, but then those cattle have to be genetically superior to gain,” says Darrell Busby, TCSCF manager, of the breed’s performance in TCSCF lots.

Angus heritage, 3.21 lb. for other breeds and 3.27 lb. for the unknowns (see Table 1).

They also finished more quickly — 152.1 days on feed vs. 162.7 for unknowns and 174.3 for others — and did so at a heavier final weight. The Angus group averaged 1,214 lb., while their next closest counterparts, the other breeds, left the feedyard at 1,189 lb. The remaining categories both finished at 1,178 lb.

“I just have to emphasize genetics, genetics, genetics — it really is that,” says Dan Dorn, supply development manager for Decatur. “We have seen an improvement over the years; we’re starting to see more muscling in Angus cattle, and that’s good.”

An Iowa Tri-County Steer Carcass Futurity (TCSCF) analysis illustrates this Angus advantage. Cattle records from 2002 to 2009 were sorted into four groups based on sire and dam information: low-percentage Angus, half-Angus, three-quarter Angus and straightbred Angus.

The more Angus breeding, the better the average daily gain (ADG). The range was 3.28 lb. per day down to 3.1 for the lowest quartile. The straightbreds also stayed healthier, with lower morbidity and

mortality rates, and lower treatment costs (see Table 2, page 153).

“Part of the improvement in gain is due to the health, but then those cattle have to be genetically superior to gain,” says Darrell Busby, TCSCF manager. “Once they hit our feedlots, they’re pretty much on the same nutritional regime and implant strategy, so the difference you’re seeing would be a combination of health and genetics.”

The higher-percentage-Angus cattle spent fewer days on feed, 163.9 compared to 169.1 for half-bloods and 175.2 for those with a quarter or less Angus genetics.

Both datasets also demonstrate the carcass quality that is a hallmark of the breed.

The TCSCF reports straight-Angus cattle reached 82% Choice, and 27.3% qualified for the *Certified Angus Beef*® (CAB®) brand. That’s compared to 51.5% Choice and 8.9% CAB for the lowest-percentage Angus group.

At Decatur, the solely Angus cattle reached 19.19% CAB, compared to 5.84% for all other black crossbreds, and that made a significant difference in final grid payments. Carcasses from the solely Angus group were worth \$1.94 per hundredweight



► **Above:** “A highly superior breed in terms of one trait can beat its crossbred, if it’s enough different than the average of the pure breeds,” says Larry Kuehn, USMARC research geneticist.

► **Below:** “The Angus people don’t think of their cattle as a terminal sire breed, but I do, because *Certified Angus Beef* and very effective selection for growth rate has put them in that position,” says Larry Cundiff, retired professor emeritus, USMARC.



(cwt.) more than their contemporaries.

“That’s \$15 per head, and that’s our profit margin most times,” Dorn says.

Popularity justified

This “complete package” of growth, performance and carcass quality helps explain the popularity of the Angus breed, Northcutt says.

An estimated two-thirds of commercial herds are Angus or Angus-based; USDA reports more than 60% of the fed-cattle mix shows Angus influence.

“The classic example of having to bring in another breed to achieve feedlot performance isn’t necessary with the selection tools we have for Angus and carcass merit and the feedlot component,” Northcutt says.

USMARC researchers have calculated crossbreed expected progeny differences (EPDs) since 1993, and these show a distinct trend in Angus genetics.

“Birth weight is as flat as it can be, even

Table 1: Characterization of performance and carcass trait by sire breed

Item	Solely Angus	Predominantly Angus	Other breeds	Unknown
Treatment cost, \$/head	2.88	3.77	4.44	3.81
Est. final wt., lb.	1,213.5	1,178.2	1,189.4	1,178.2
ADG, lb./day	3.53	3.32	3.21	3.27
Carcass price, \$/cwt.	133.84	132.99	131.90	132.23
Lot CAB® acceptance rate, %	19.19	11.93	5.84	9.19

*Data on 56,438 head at Decatur County Feed Yard, 2003-2009.

Table 2: Effect of percentage Angus on health, performance and carcass characteristics

	Low	Half	Three-quarter	Straight
Percentage	9.2 ^a	48.6 ^b	74.2 ^c	99.4 ^d
Days on feed	175.2 ^a	169.1 ^b	167.4 ^c	163.9 ^d
ADG, lb./day	3.1 ^a	3.2 ^b	3.2 ^b	3.3 ^c
Health:				
No. of times treated	0.34 ^a	0.23 ^{b,c}	0.26 ^b	0.23 ^c
Ind. treatment cost	7.72 ^a	5.54 ^b	6.72 ^c	5.6 ^b
Morbidity rate, %	21.7 ^a	15.5 ^b	17.2 ^c	16.0 ^b
Mortality rate, %	1.7 ^a	1.1 ^a	1.5 ^a	1.7 ^a
Carcass data:				
Avg. yield grade	2.56 ^a	2.78 ^b	2.93 ^c	3.03 ^d
CAB [®] acceptance, %	8.9 ^a	15.8 ^b	16.7 ^b	27.3 ^c

^{a,b,c,d}Means within a row with unlike superscripts differ (P<0.05).

Source: Tri-County Steer Carcass Futurity data from 30,000 head on feed, 2002-2009.

a little negative, while yearling weight is just climbing,” says Larry Cundiff, the USMARC emeritus geneticist who first published those EPDs.

In this year’s update, the average Angus birth weight shared the lightest spot with Red Angus at 92 lb., but yearling weight climbed to the third highest at 1,020 lb. — only 11.5 lb. less than Charolais (see Table 3, page 154).

“Angus has the best marbling by quite a bit,” Kuehn says. “They have a little bit of a trend in ribeye area now. They’ve made some steps toward the Continentals, but it’s too early to say much.”

The Association’s database shows yearling weight has climbed since its 1979 base year (zero) to +82 lb. in 2009. More than 30% of the improvement came in the past decade.

“That’s aggressive,” Northcutt says. “The data would suggest the lines are fairly steep in terms of growth performance we’ve put into Angus cattle.”

As the breed has evolved, Cundiff says his breeding recommendations have, too.

“The Angus people don’t think of their cattle as a terminal sire breed, but I do, because *Certified Angus Beef* and very effective selection for growth rate has put them in that position,” he says.

Bob Weaber, University of Missouri (MU) geneticist, says that is a shift that’s come in the past 10-20 years.

“Historically, you say ‘terminal’ sire and they automatically think of the European breeds because they want to add pounds, but you can gain the same amount of weight by using high-performance Angus genetics,” he says.

That’s a trend that many commercial producers haven’t evaluated lately.

“The perception most breeders have is that Angus are moderate in terms of growth and performance,” Weaber says. “They don’t recognize how much Angus has improved to close that gap in growth performance relative to the Continental breeds.”

That can cause a challenge, he says: “Taken by itself, a change in growth or lactation can be advantageous, but if the perception is different than reality, the cattle may not be managed to their genetic potential.”

Larger, higher-performing cows likely need more feed than their predecessors, Cundiff adds. To that point, the Association recently announced an EPD to target feed efficiency, and the residual average daily gain (RADG) measure will help producers select for better converters. Breeders already had access to the \$EN tool within the Angus \$Value suite of index tools. \$EN allows selecting bulls that sire more- or less-efficient daughters.

Efficiency is just one more example of the benefits of using Angus genetics in a breeding program, Northcutt says.

“We have selection tools available to make directional change and have a variety of

avenues you can take, be it a balanced-trait bull, a terminal type with more postweaning and carcass, or more emphasis on the maternal side,” she says.

The diversity helps producers who want the ease of a straightbred system.

“As I talk about program design, there are two points I try to make. One, crossbreeding has its advantages, but it’s not for everybody,” Weaber says. “And, two, you need to understand breed differences and how those differences impact your selection and management program.”

Retained-ownership producers may benefit the most from an Angus focus.

“Weight accounts for about two-thirds of the variation in carcass value, and gradability accounts for one-fourth. If you want to ensure those two things, Angus becomes a real desirable choice,” he says.

But what about heterosis?

But it needs to be a herd-level decision, he adds, “Does the improvement I can make by using one single breed make more profit than the competing crossbreeding system?”

Reproduction, as one of the lowly heritable traits, tends to show the biggest heterosis kick, Weaber says, and losses in that segment of production are hard to overcome. Breed complementarity from crossbreeding Angus to continental European breeds has long been touted as the way to achieve better feedlot performance. But, because of the improvement in Angus growth genetics, that strategy may not have the advantage it once did.

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► “I just have to emphasize genetics, genetics, genetics — it really is that,” says Dan Dorn, supply development manager for Decatur County Feed Yard, of the Angus breed’s dominance in the feedyard.

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“A highly superior breed in terms of one trait can beat its crossbred, if it’s enough different than the average of the pure breeds,” Kuehn says. Take marbling in the example of an Angus-Limousin cross. There is a full point difference in marbling EPDs between the two breeds.

“Even if the crossbred has better marbling than the average, the Angus is still going to beat the crossbred,” he explains.

Although it’s doubtful you’ll find Cundiff advocating a straightbred strategy, he grants that “marbling is not a trivial matter when the average [Choice-Select] spread is \$8 per hundredweight (cwt).”

He says the dairy industry is the perfect example of straightbreeding for one particular trait.

“Holsteins produce the most milk relative to any cross they made, even though there’s a big heterosis advantage to dairy crossing and milk production, it doesn’t beat the purebred,” Cundiff says.

That’s a good illustration, but the difference in beef production is that selection for marbling doesn’t have to be independent of all other economically relevant traits.

Professional Cattle Consultants (PCC) of Weatherford, Okla., analyzed more than 800,000 feedlot closeouts for the factors that influence profitability. The data, which came from a pool of subscribing feedyards and CAB licensees, showed one thing consistently. No matter how the variables are sorted, quality, profitability and performance are linked.

“The more profitable cattle have a much higher average daily gain (3.3 lb. vs. 2.8 lb.) and the same trend was true for the higher-grading cattle,” says Shawn Walter, PCC chief analyst. “That clearly tells you that you don’t

have to sacrifice grade for performance.”

“Higher-grading cattle were about twice as profitable as lower-grading cattle, with an average return per head of \$35.21 compared to \$18.03,” he says, also suggesting that reduced variability will increase profit.

PCC doesn’t track breed data, but Walter says the trends are apparent.

“We continue to see improvements in gains,

out weight and overall performance. At the same time, we know that the percentage of

Angus in the mix continues to increase,” he says. “I think you can correlate improved profitability. As we’re getting more Angus in the mix we’re still getting more gain and growth in the cattle. That shows me that the growth genetics that have been introduced in the Angus breed are really showing up in the overall dataset.”

That’s a credit to the breeders who have worked hard to make directional change, says Dave Patterson, MU reproduction physiologist.

“The reason these straightbred Angus cattle are outperforming crossbred

cattle is because of the aggressive use of AI (artificial insemination) in the Angus breed and how much more genetic diversity there is,” he says. “Angus has been the most aggressive in terms of AI, and the results are pretty apparent.”

In the university’s Thompson Farm



PHOTO BY STEVE SUTHER

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research herd that Patterson used for fixed-time AI work, recent harvest groups have hit as high as 86.8% CAB and Prime.

“When you look at the technology that the breeders have embraced, first open AI and now ET (embryo transfer), that lets you ramp up your potential to capitalize on key genetics,” Northcutt says.

More than half of the 282,911 Angus registrations in 2009 were from AI, more than 11% from ET work — numerically, that’s a huge influx of top genetics.

The Angus investment in performance information — 90,000 carcass records and 6.4 million weaning weights, for example — seems to be paying off.

“The growth traits and carcass traits are straightforward and extremely accurate. The carcass database, with the integration of carcass data, ultrasound and genomics, is the best technology available,” Northcutt says.

“The data speaks for itself,” she adds. “How many breeds can rattle off a list of traits like calving ease, maternal milk, carcass merit and now postweaning growth as just an offering of potential genetics and selection tools?”

Only one comes to mind, and that breed calls to mind things like profitability, cash flow and income statements.



PHOTO COURTESY BOB WEABER

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Table 3: Select breed-of-sire means and deviations from Angus on industry scale, lb. (spring 2010 genetic evaluations)

Breed	Birth wt.*		Weaning wt.*		Yearling wt.*		Milk*	
Angus	92	(0.0)	601	(0.0)	1,020	(0.0)	592	(0.0)
Hereford	96	(4.9)	599	(-2.0)	993	(-27.0)	569	(-22.6)
Red Angus	92	(0.8)	585	(-16.1)	989	(-31.1)	583	(-8.7)
Brahman	104	(12.2)	613	(11.5)	964	(-55.9)	601	(9.4)
Charolais	99	(7.7)	623	(21.4)	1,032	(11.5)	580	(-11.3)
Gelbvieh	95	(3.5)	603	(2.2)	1,004	(-16.7)	597	(5.3)
Limousin	95	(3.6)	601	(-0.4)	990	(-30.4)	577	(-15.1)
Simmental	96	(4.3)	616	(15.0)	1,023	(2.5)	587	(-4.8)

*Adjusted to USMARC EPD and weight means for Angus.

Source: USDA Meat Animal Research Center.

