

Demystifying Mature Cow Size

In the beef industry there is no perfect cow size, but breeders should pinpoint the ideal weight and frame that will work for them.

BY ANGIE STUMP DENTON

36-24-36 — the so-called perfect female. Is there a perfect cow size? For years animal scientists have tried to answer this question.

Webster's Dictionary defines perfect as being entirely without fault or defect. Is this really possible? In comparison let's look at the word optimum. Optimum is the amount or degree of something that is most favorable to some end; the most favorable condition for the growth and reproduction of an organism. This definition may be easier to obtain for cattle producers.

Cow size can be a combination of many traits or physical characteristics of an individual. Frame and weight have traditionally been the tools used to measure cow size.

Standards or criteria may have been established and attainable for a perfect woman, hen and sow but, because of the differences in environment and feed resources in the beef industry, setting standards that will excel in all parts of the United States isn't feasible.

There is no simple solution to this question. To tackle this issue, I questioned a sampling of Angus breeders from across the United States. Serving on my cow size panel were:

PHILIP ABRAHAMSON and his family have been raising Angus cattle in Minnesota since 1898. Over the years producing functional cattle has been the goal at Sunnyslope Stock Farm near Lanesboro.

Abrahamson manages 148 Angus females in the southeast corner of the state where the average rainfall is 32 inches and the winters can be cold, long and harsh.

Abrahamson does not measure or weigh his cows, but he does monitor body condition. His herd averages between a body

condition score (BCS) 5 and 6 year-round. He says to increase body condition, more available feedstuffs are needed.

Another goal of Abrahamson's is to ultimately satisfy the consumer by producing a more consistent beef product.

"Our plan is to follow what the industry is telling us to produce and what our customers are telling us," he says. "In a perfect world we could select females that

could raise steers that were a certain sire, quality grade and cutability like the poultry and pork industries can. In comparison, their industries are environmentally controlled and confined, while with cattle the environment can vary from hot summer days to cold winter nights. Beef producers have to deal with a lot of variables when trying to produce a consistent product."

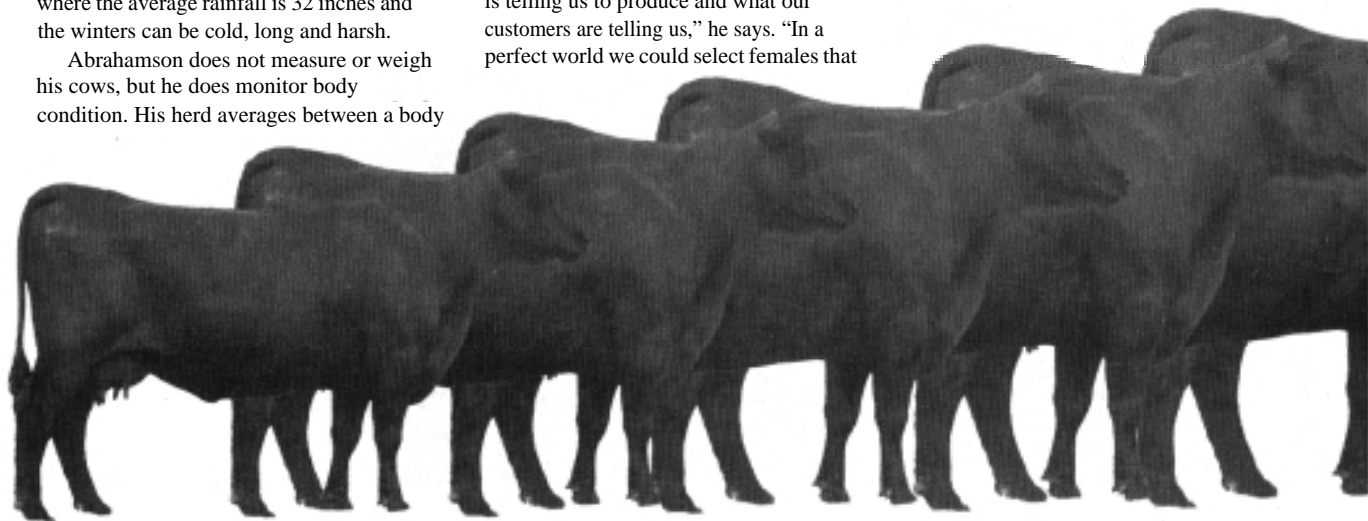
AARON BORROR of Tehama Angus, Gerber, Calif., says it's important for seedstock producers not to be too easy on their cow herd. The Borrer Family manages 350 registered Angus in north-central California where the average rainfall is less than 20 inches.

They receive most of their moisture from December to February so the Borrer Family utilizes irrigated pasture during the summer months. In comparison, many of their commercial bull buyers don't have that luxury so it's important that their genetics can perform in tougher environments. With their management conditions Borrer's cows average 1,400 pounds and frame score (FS) 5.5, but in many of their customers' environments they'd weigh 1,200 pounds.

When selecting replacement females Borrer does not discriminate against weight but does on size. "If you do (select against weight), you are selecting against the performance traits of capacity, fleshing ability, muscling and length of body," he says. "I've never seen a cow too wide or too deep."

DAVE DUNCAN of High Valley Ranch, Ellensburg, Wash., manages 140 registered Angus and 100 commercial Angus-based females. Ranchers in central Washington can experience excellent spring, summer and fall forage with long, hard winters.

In a normal year his cattle graze from April 10 to the first of the year. This past year snow covered the ground by Nov. 15.



"My cows function well in our forage environment," he says. "They go into the winter retaining excellent flesh and survive on minimal, poor-quality hay."

Duncan weighs, measures and body condition scores his cows at calf weaning time. His herd currently averages a FS 5.5, 1,450 pounds and BCS 6+.

"Cattle of the same genetics tend to be larger in my environment than in most other environments," he says. "However, in my opinion, they are too big when put on the scale."

JOE ELLIOTT'S family has been in the Angus business since 1935. Located near Adams, Tenn., he says extremely tall or small cows don't work in his environment. His area receives an average rainfall of 48 inches and with this amount of moisture the cows have to survive on wet, low-quality forage.

Elliott's operation includes 100 registered Angus females. The cows graze without supplementation from April to November.

His cows are also weighed at calf weaning time. He does not believe in measuring cow height.

"When measuring frame you are measuring one dimension; you sell mass and mass is a function of three dimensions," he says. "Females that function will do so from their production. Frame score will follow. Form follows function."

STEVE HARMON of Harmon Angus Ranch, Lavina, Mont., says his environment is not conducive to a dairy herd. With less than 8 inches of rain per year, Harmon's 300 Angus cows don't have a lot of extra feed.

With the philosophy that frame is a cheap form of weight, Harmon says, "In our environment a little bigger cow will pay off. They winter easier and growth alone gives us an advantage."

Body condition is a big factor in his environment. "Cows that are able to maintain a constant condition throughout the year tend to be the most functional," Harmon says.

BILL HODGE, Pine Mountain, Ga., says the type of cows which do the best job in his environment are FS 5.5 to 6, which weigh 1,100 pounds.

"We try to optimize instead of maximize traits," Hodge says. He describes his herd of 25 registered Angus females as moderate, balanced, optimum-trait cows that can work anywhere.

Located in west-central Georgia, Hodge's cows thrive on an all-forage diet, in a high humidity, wet grass environment. Along with the registered females, he also manages 25 recipients for his embryo transfer program.

Commercial Angus producer **MIKE KASTEN** of 4-M Ranch, Millersville, Mo., is a low-input producer. Located in southeast Missouri, Kasten's cows average 1,100 pounds and a FS 4.5.

Kasten tries to keep his cows moderate-sized because he doesn't like buying feed for cows. He says cow flexibility is important. "At a time when there are high feed prices and low feeder cattle prices, I can't afford cows that can't do it on grass with very little supplement," he says.

Kasten retains ownership on all male progeny and collects carcass data. He has found that his moderate-sized cows produce steers that finish between 1,100 to 1,200 pounds with a large percentage meeting *Certified Angus Beef*[™] product standards.

BILL RISHEL of Rishel Angus, North Platte, Neb., manages 260 breeding age females in the Sand Hills.

Rishel has been carcass testing for more

than a decade and has found that many sires with +50 to +60 yw EPD can produce steers that weigh 1,150 to 1,200 pounds at 14 months of age.

"We've watched those steers and took a look at their half-sisters to see when they reach puberty, then assessed their fertility, longevity and udder soundness. We've used those criteria as a determining factor as to the kind of females we want to build our herd," he says.

SETH WATKINS of Pinhook Angus, Clarinda, Iowa, manages 60 purebred Angus cows and 300 commercial Angus-based females.

Watkins says southwestern Iowa is one of the most economical places to raise cattle but also the most weather variable. Temperatures can range from 40 below to 115 degrees.

His cows graze from mid-April to Feb. 1 on forages and grain residues including fescue, brome, switchgrass and corn stalks. With his available resources, he tries to maintain his cows without supplementation.

"Our focus is moderate-framed cows that can wean 600-plus pound calves," Watkins says. Currently, his cows average 1,100 pounds and FS 5.

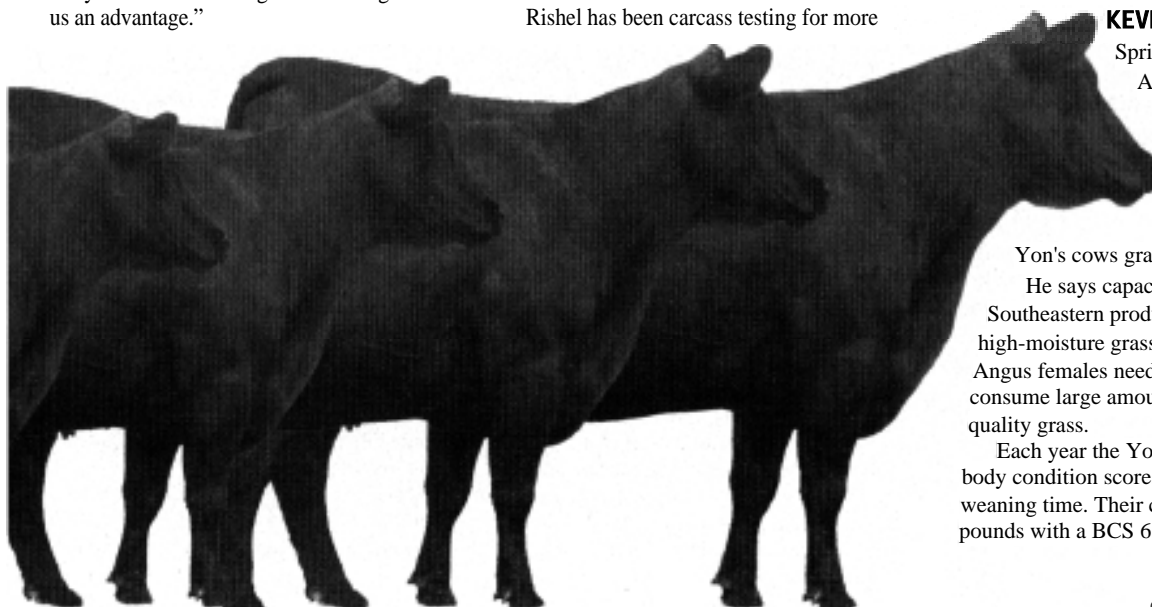
"I can't justify going bigger," he explains. "My estimates show that a 1,500-pound cow compared to a 1,100-pound cow would need 25 percent more feed and land. This would require nine more pounds of dry feed per day."

Watkins says his smaller cows convert forage and keep easier than his neighbor's bigger framed females. "If bigger is better, why is the dinosaur extinct and the ant still here?" he asks.

KEVIN YON, Ridge Spring, S.C., manages Angus cattle in the mild climate of the south-central part of the state. Because of a long growing season, Yon's cows graze year-round.

He says capacity is important to Southeastern producers because of the high-moisture grass cows graze. His 150 Angus females need to have the ability to consume large amount of the lower-quality grass.

Each year the Yon Family weighs and body condition scores their cows at calf weaning time. Their cows average 1,300 pounds with a BCS 6.



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Many factors can affect cow size -both natural and man-made. Frame and weight vary from region to region and farm to farm. Cattle producers should recognize this when planning and implementing their breeding programs.

Rishel says the same frame cattle can vary in weight by 250 pounds. A cow's weight can vary depending on length of body, capacity and amount of muscling.

During the past 12 years, Rishel's herd has not increased in frame size but has increased in weight due to increased mass and capacity.

Harmon says mature cow size is hormone related. When selecting sires Harmon looks for bulls that won't pass on too much femininity or masculinity to his offspring.

"Picture a cow as a box. That box can be expanded several different directions and not be any taller," he says.

Your environment

The way you think is conditioned by your environment. Harmon asks, who determines what size is right for your environment? He says cow size is a personal preference and that he threw away his measuring stick in 1987.

"We've found with bigger cows we can get more production. When we pencil it out, the larger framed females produce more pounds per acre," he says. "In this country a FS 5 cow will wean about a 500-pound calf, a FS 6 will wean a 600-pound calf."

In his experience it doesn't take that much more feed for a FS 6.5 than a FS 5. "Our feed dries up in mid-July, so we don't get much benefit from high milk EPD cows," Harmon says. "Females with a lower milk EPD tend to lactate longer than a high milk EPD female, thus we benefit from more frame than is currently popular."

Rishel says cow size is important in relationship to environment and feed resources. Still, he says the right kind of cow can weigh more than most scientists suggest.

"Cow-calf producers should let reproduction rates determine cow size and weight," Rishel says.

Duncan also recognizes the importance of cow size. The largest single cost for Northwest cattle producers is supplemental feed. "In order to be profitable, the cow has to fit the environment and available feed resources of the ranch. It's unprofitable to try to make the environment and feed resources fit a high-maintenance cow herd," Duncan says.

Fleshing ability is the difference between

low maintenance and high maintenance females. Duncan says high ratio females with high fleshing scores in the same herd with the same treatment are a biological type. They have more volume, capacity and exhibit more muscle and thickness throughout.

Feed resources and the environment do affect the growth of a female. Elliott says the same genetics in one part of the United States fed the same total digestible nutrients (TDN) will grow differently in different environments. A female born in the Southeast could be 1,250 pounds and FS 5.5, but the same female in Montana might be a FS 6.2 and weigh 1,350 pounds.

Hodge says the difference in frame score between states like Georgia and Montana is due to demands on reproduction and fertility.



"Yes, I believe there is an ideal Angus cow, however I don't think my ideal cow would work for my friend in Kansas or Oregon or even for my neighbor down the road."

— Kevin Yon, Ridge Spring S. C.

Meeting customer demands

"My cow herd size is important in relation to my customers' feed resources and environment. I could raise elephants here, but my customers demand cattle that will survive range conditions," Borrer says.

His customers are commercial cattle producers who may not have irrigated land. Their cows have to survive most of the year on dry, lower-quality grass.

Abrahamson strives to meet his customers' demands and produce seedstock which will perform in their environments. He says it's important to realize every customer has a different environment and different management levels.

"You can compare a seedstock producer

to a seed corn salesman; everyone's needs are not the same," he says. You have to offer bulls that will perform in many different environments.

To fit these demands Abrahamson will use some higher yw EPD bulls.

"Once in awhile I will use a bull that is not in the parameters of my fellow breeders. Sometimes I stray if a bull has a combination of traits that I can't find in another bull," he says.

Elliott agrees with Abrahamson. His customers play an important part in his breeding decisions. Some of his customers have the management and resources to use +20 milk EPD bulls; some don't need more than a +12 milk EPD.

"We need to listen to what the customers want instead of trying to tell them what they want," he says.

YW EPD effects on cow size

Today, cattle are still mostly sold by the pound. Because of this, some producers seek out the highest yw EPD bull, not realizing the possible consequences.

Rishel says most sires with high yw EPDs will increase mature cow size. He points out there are a few outlier sires that can increase yearling weight to a point without increasing mature size.

"The need to increase yearling weight beyond a certain point may become a mute question when we see our industry place a greater amount of emphasis on value of end product," Rishel says. "For a cow-calf producer fertility will always reign as the No. 1 performance selection trait, but carcass merit and the need for some maturity in cattle may offset extreme yearling growth."

Borrer says it's a recipe for disaster if producers have two-year-old females still growing, nursing a calf and trying to breed back. To stop this from happening Borrer uses the height EPD as a check and measure. He will not use a bull with more than a +.5 height EPD. He says this eliminates a lot of bulls with a +70 yw EPD.

"We've got to fight the antagonism between frame size and growth. There is no need for FS 7 or bigger females in this industry," Borrer says.

He does admit there are some bulls with high yw EPDs which don't have extreme height EPDs. He says these bulls' daughters tend to mature earlier.

Yon agrees, saying, "Some of these bulls bend the growth curve, grow rapidly, gain efficiently and mature at a fairly optimum size."

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Washington cattleman Duncan seeks out and uses proven, balanced trait bulls. Like Borror, he has set a maximum EPD for mature daughter height that he will use.

"In an average herd of cattle, if we continually stack high yearling weight EPD bulls, with very few exceptions, this is what will happen — birth weight will go up, yearling weight will go up, yearling height will go up, mature daughter weight and height will go up, and milk, efficiency and fertility of your mother cows will go down," Duncan says.

Effects on other traits

Hodge says the more you select for higher yearling weight EPDs the more reproduction efficiency will be effected. He cites a National Cattlemen's Beef Association report at a recent Beef Improvement Federation meeting which said if producers continue to select for higher yearling weights they'll experience calving interval slippage.

"If we continue in the direction we're headed, we're in for a collision course," Hodge says.

Rishel says there is plenty of evidence to indicate using extremely high yearling weight EPD sires will adversely affect fertility and reproduction in the bulls' daughters.

"This doesn't mean there isn't a place for terminal-type sires. You should select and use those sires for what they are," he says. "Research shows if you select too much for yearling weight it will have adverse effect on the most important production trait — fertility."

Yon agrees that beef producers need to be concerned about the end product and consumer acceptance.

"It sure would be easier if it (the beef industry) was more like the poultry industry" — producing a uniform product. "But it's not that simple, because our national cow herd comes in all shapes, sizes and colors. It takes herd bulls of different frames and conformations to produce the carcass specifications our industry is demanding," Yon says.

As a beef producer you need to examine how your environment, feed resources and genetics affect your herd's mature cow size. It's not as simple as 36-24-36.

"Mature cow size is a balancing act between reproductive performance in a cow herd and carcass weight of progeny," Yon says. "As an industry we've got to find a way to balance the two."



IS THERE A PERFECT ANGUS COW?

Bill Rishel, North Platte, Neb., says we need to stop trying to find the perfect cow. It's a question beef producers and industry media have tried to address for the last 100 years.

He suggests producers select females that reach puberty at an early age; conceive at the first opportunity, calve unassisted; develop a strong, well-attached udder; have longevity and wean a steer calf heavy enough to be backgrounded for 60 days after weaning and then put on full feed for 120 days to finish at 1,150 to 1,200 pounds at 14 months of age with a Yield Grade 2 Choice or better carcass.

"If a female does these things her size and expected progeny differences (EPDs) will seek their own level within your environment and resources," he says. "I wouldn't necessarily designate her as perfect, but she'll make me a good living."

California Angus breeder Aaron Borror says he has never seen or been around the perfect cow. In his mind the perfect cow would have a yw EPD in the 50s, be a FS 6 at one year of age and a frame 5 at two years; by the time she is two years old she'd quit growing and be more able to start raising a calf; she would breed back the first time every year; wean a calf weighing 60 percent or more of her body weight; and she would never need any extra attention because of a poor udder or feet.

Philip Abrahamson agrees the perfect female does not exist. "She's a moving target that is different in different environments," he says.

"In our program since most of our revenue is from bull sales our perfect female would have EPDs of bw 0 yw +60, ww +35, milk +15, height +.2, mature weight 0 to +15, marbling 0 or greater, ribeye 0 or greater, backfat 0 or less, retail product 0 or greater and a positive scrotal circumference," Abrahamson says.

In comparison, Joe Elliott from Tennessee wants a female with EPDs of bw -2.5, ww +30, milk +15 and yw +55. He wants her to weigh 1,100 pounds at calf weaning time, raise a calf that at weaning weighs 65 percent of her body weight and that calves every 375 days.

Missouri commercial producer Mike Kasten says the perfect cow is a FS 4.5 to 5, weighs 1,100 pounds, has a perfect udder, calves every 365 days, maintains a BCS 6 no matter what feed she receives and lives until she's 20.

Longevity is also important to Montana Angus breeder Steve Harmon. He says his perfect Angus cow is 14 years old, a Pathfinder, has just weaned off a 700-pound calf, been bred back, and is sound and ready to do it again. This cow's EPD ranges would be: milk 0 to +10, bw +3 to +5 and yw +40 to +50.

"The beef industry needs to nail down the perfect steer and the perfect end product. As producers if we know what our target is, then we will know what kind of cow we need to maintain to achieve that product," Harmon says.

The perfect cow for Washington breeder Dave Duncan would be economically efficient for the producer, efficient for the feedlot operator and have the carcass quality desired by the consumer.

No matter what she looks like, ultimately the perfect Angus cow is the one that is profitable to her owner, produces progeny profitable to other segments of the beef industry and produces beef pleasing to the consumer.