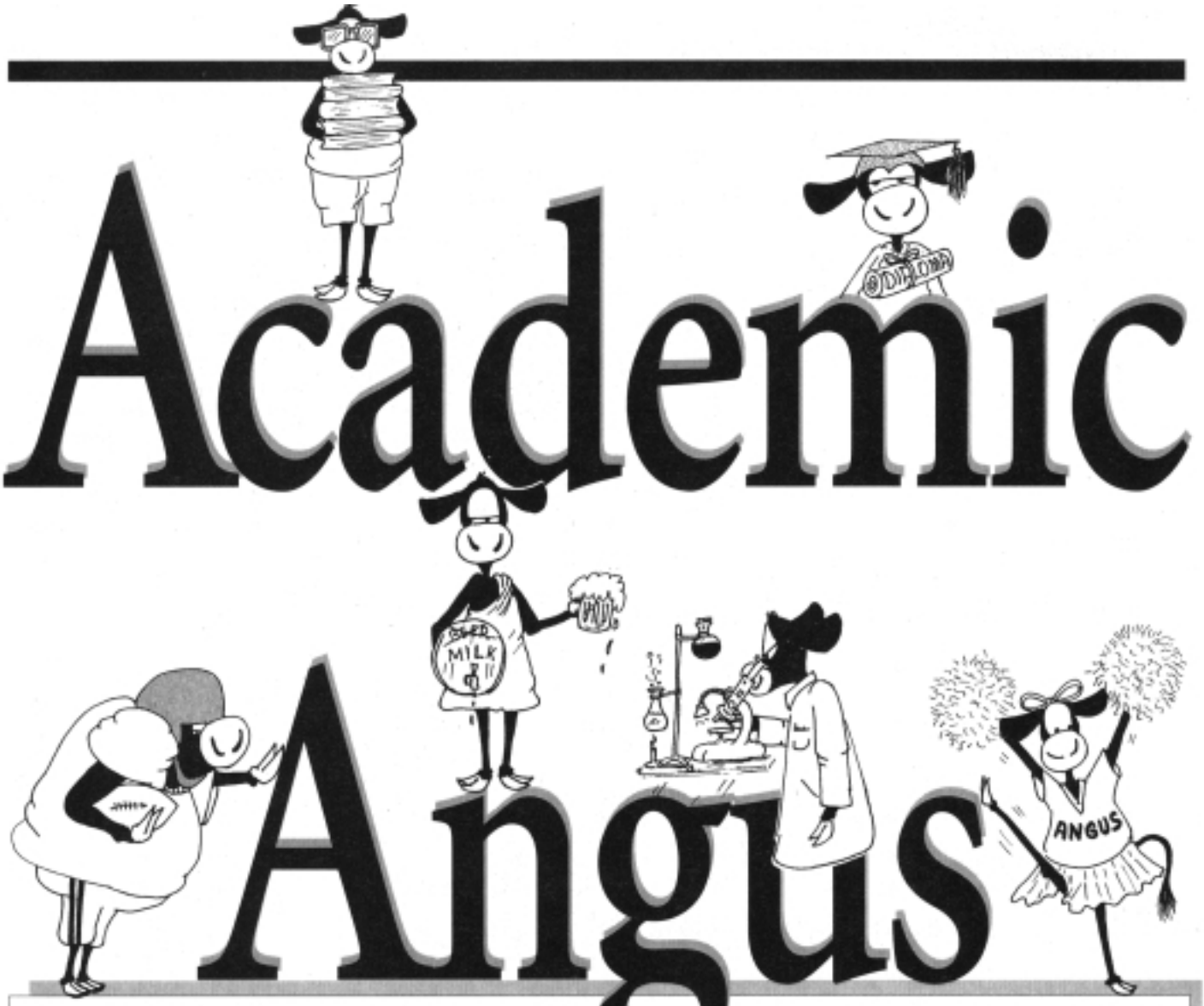
Academic Angus



Angus herds and genetics play an important role in teaching, research and beef production at land-grant universities across the country. In part IV of our series, we feature the beef programs of Angelo State University and Texas Tech University.

BY ANGIE STUMP DENTON

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Angus and Angelo State University have long been associated. Black cattle have been a part of Angelo State's heritage since 1948.

Located in the Edwards Plateau region of West Texas at San Angelo, Angelo State University (ASU) is in the heart of ranch country.

The University, established in 1928, has evolved from a junior college to a four-year institution and has had three name changes — San Angelo College, Angelo State College and Angelo State University. In 1948 an agriculture program was established and in 1973 the four-year animal science program was developed.

Along with the new agriculture program was the establishment of an Angus herd. The foundation herd was a group of five Angus females donated to the University between October 1948 and February 1950 by several local Angus breeders.

Donating several females was H.E. McCullough, who was president of the Texas Angus Association and mayor of San Angelo at the time. Another Angus breeder from near San Angelo donating females was Herman Allen.

Since 1950 ASU has only added raised replacement females to its herd. Today, all 129 ASU females are descendants of three of the five original females — Mustang Erica 4, Prince's Eltheria of Mustang and Blackcap Bertha's Lady.

For the first 25 years the Angus cattle at ASU were strictly used for teaching. In 1973, with the establishment of the four-year animal science program, the herd also became utilized in research.

During this transition, Donald Shelby was hired as a professor and became manager of the Angus herd.

During Shelby's tenure at the University he has made several changes to the herd. His first decision was to reduce the breeding period. When he arrived in San Angelo, bulls ran with the females year round. Today, he has reduced the breeding season to 60 days and calving is targeted for February and March.

Improving the genetics of the herd has been Shelby's focus. To improve herd quality Shelby started using artificial insemination (AI) in 1974. Because it's a closed female herd, ASU tries to AI as many females as possible. Shelby says using AI adds variation to the herd.

The University uses at least 10 different sires a year. Along with the AI sires, Shelby keeps back the best bull calves each year for clean-up service. During the past 23 years ASU has only purchased five bulls.

In 1974, to quantify the herd's progress, ASU started collecting performance data and participating in the American Angus Association's Angus Herd Improvement Records program.

"Collecting performance data is the most important thing we do towards improving the herd," Shelby says. Since 1973 ASU's average weaning weight has increased by 260 pounds.

Along with calf weights, Shelby has also increased cow size. Prior to calving in 1974 ASU's cows averaged 980 pounds and were a frame score (FS) 2.5 to 3. Today the herd averages 1,250 pounds (lb.) and a FS 5.5. The average production of the Angus cows is 82-lb. birth weight, 541-lb. weaning weight and 939-lb. yearling weight.

Over the years Angelo State has had a number of cows named Pathfinders by the American Angus Association. This year 12 cows qualified for the honor.

Another change initiated by Shelby was an identification system. He says a herd's numbering system should do as much as possible in identifying each animal. At ASU all females are given a three-digit number with the first digit representing the year they were born. The bull calves are given a four-digit number, with the year born in front of his mother's number. For example, if a bull born in 1997 was out of cow "523," then his identification number would be 7523.

When registering females each year Shelby uses the next letter in the alphabet. In 1975 all registered animals had names starting with the letter A, and in 1996 all the registered calves have names starting with the letter V.

Shelby says his goal is to raise bulls adapted to the West Texas environment that will perform for production-oriented commercial ranchers. The University markets its bulls through the West Central Texas Angus Association sale, the Mid-Texas Angus Association sale and the bull test sale at Tucumcari, N.M. Shelby usually keeps more than 80 percent of the heifer calves as replacements. Females sold by the University are marketed at the Producers Livestock Auction in San Angelo.

Shelby also enforces a strict culling strategy, "We cull all open cows at weaning just like a commercial herd should do," he says.

The Angus herd is kept at the Management, Instruction and Research (MIR) Center located northwest of San Angelo. The center is part of ASU's Wildlife Management Area, which is 4,645 acres used for management, research and instructional purposes related to animals, plants, wildlife, conservation, restricted agriculture, grazing and recreation. ASU also has a herd of Beefmasters and several breeds of sheep at the MIR Center.

Applied research of nutrition and reproduction of cattle is conducted there. Current research projects include high intensity/low frequency grazing, pasture supplementation and a feed nutrition study.

ASU has two grazing systems — one with cells that can hold 40 cows and 100 ewes and a smaller cell system that can hold 10 cows in a cell. The supplemental feed research is examining the differences of the time of supplementation and its effects on grazing patterns.

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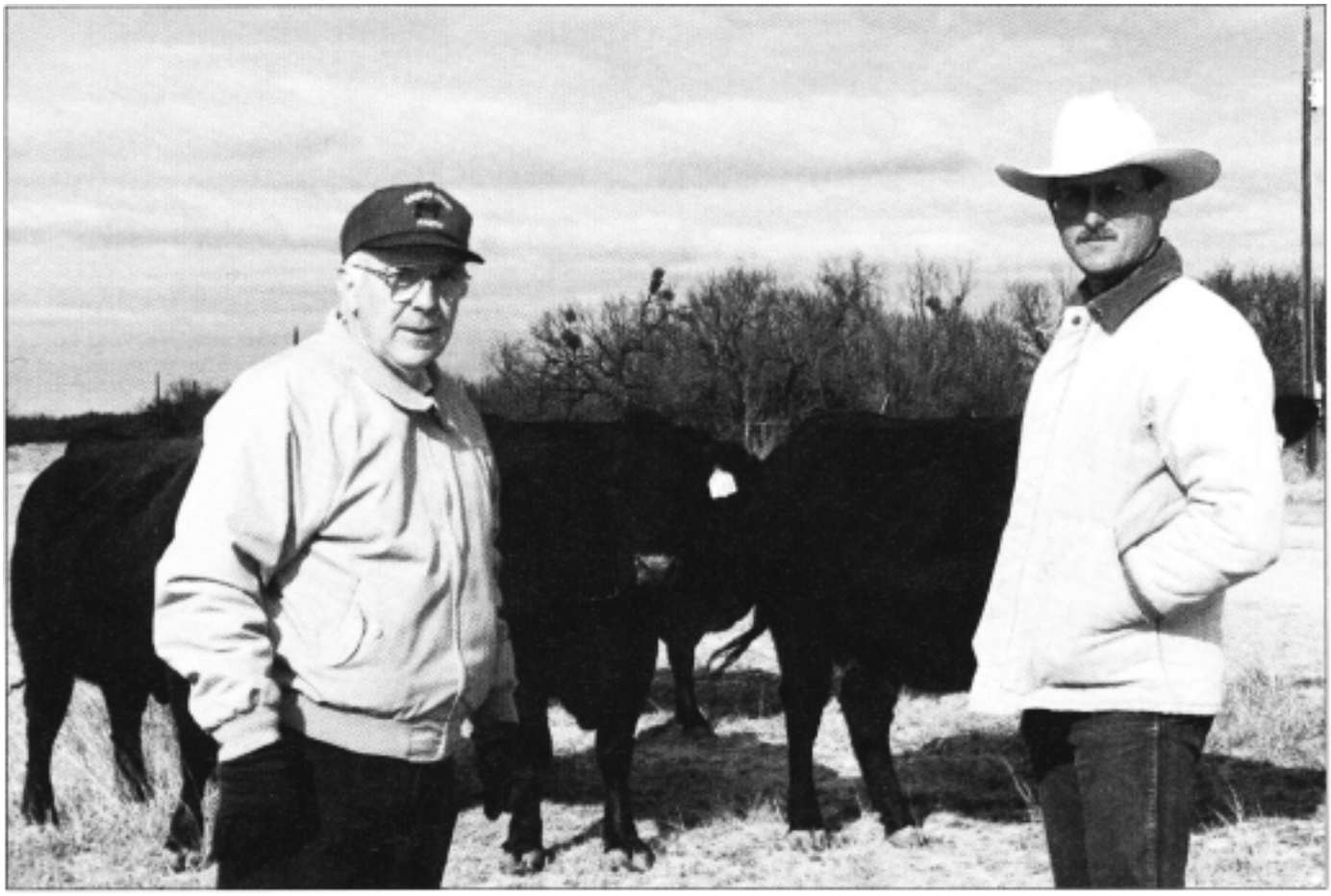

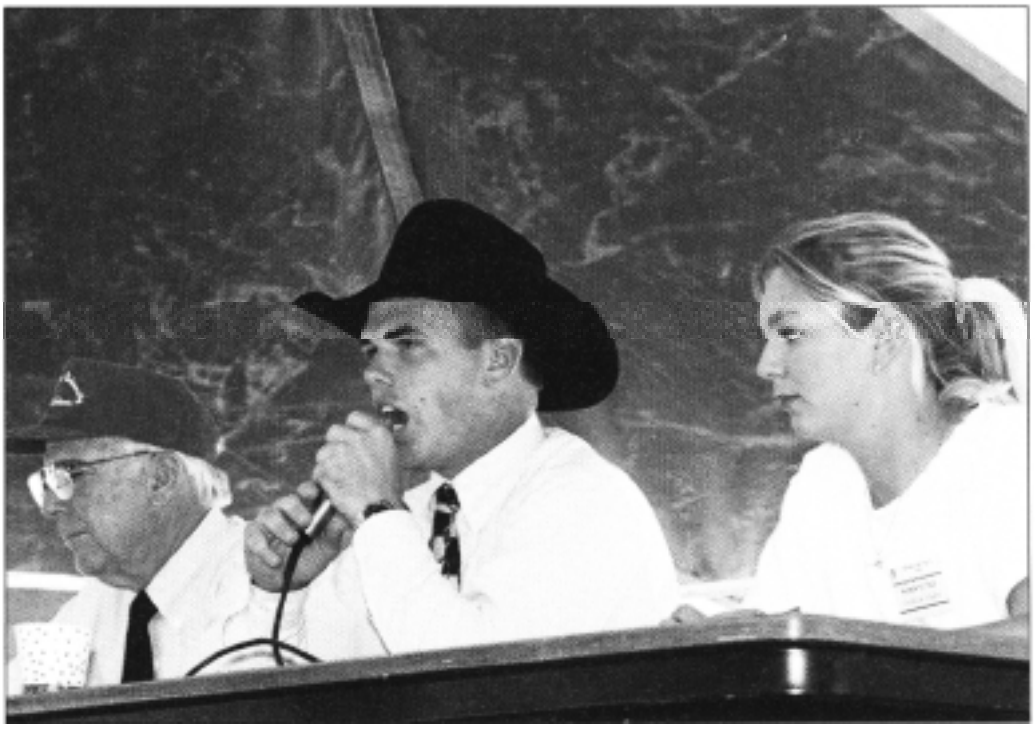

(Above)
Angelo State University's Angus herd is in good hands under the management of Don Shelby, (left) department head and herd manager, and Todd Schafer, livestock technician.

(Left)
"What will you bid?"
Student auctioneer Cory Carrol cried the first Angelo State University field day and production sale. Also in the auctioneer block were student clerk Kim Ball and Donald Shelby, herd manager. (Photo courtesy of Angelo State University.)

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ANGELO STATE UNIVERSITY PHOTO

Angelo State University students help prepare recipient cows for an embryo transfer (ET) program, This is the first time in 10 years Angelo State has participated in an ET program.

Students help organize, prepare and manage the Angelo State University open house and production sale. More than 100 people attended the 1996 event heldat ASU's MIR Center. The bulls averaged $1,825 and the heifers $495. (Photo courtesy of Angelo State University.)

More than 182 agriculture/animal science students hang their hat on the big "A" of ASU. The students take an active part in managing the Angus herd. Every spring students help freeze brand yearling heifers. The herd is also used in teaching artificial insemination classes, pregnancy diagnosis and judging.

Shelby says they are constantly trying to increase student involvement with the herd. This past year ASU hosted its first student managed sale. The students helped plan, prepare and conduct the sale. An ASU student served as auctioneer.

Shelby tries to integrate real-life experiences in his animal science courses. Students in his Genetics of Livestock Improvement and Reproductive Techniques classes are assigned a breeding simulation with the ASU herd. Students are given a list of all breeding age females together with their expected progeny differences (EPDs), performance and production records, and prices of bulls with EPDs and performance from three bull studs. Students are instructed to cull 15 percent of the females and mate the rest to four to eight AI sires using only $2,400 to buy semen for 90 to 100 head. Finally, they have to justify their selections and matings.

"Through this project students learn to make breeding decisions with economic constraints," Shelby says.

Although most of Shelby's time today is spent as department head at Angelo State, he still makes time to remain manager of the Angus herd. "I have the best job — teaching young people and getting to work with cattle. The combination of the two is very pleasing," Shelby says.

TEXAS TECH UNIVERSITY

Students at Texas Tech University in Lubbock are getting their boots dirty while learning about the Angus business.

"You can't teach everything with a slide show," says Andy Herring, assistant professor and supervisor of the TTU Beef Center. "Students get hands-on experience to complement the theory taught in the class room."

Texas Tech's Angus herd is primarily used for teaching and secondarily for research. Using the University's herd as an example, Herring shows his students good Angus cattle. He demonstrates the importance of growth and milk, and encourages them to think more about the end product-beef marbling and yield grade.

He says about half of the lab exercises are conducted at the Beef Center using the herd. Students in his beef production class measure pelvic area in the Angus heifers, learn to body condition score cattle with the Angus cows, evaluate yearling bulls and heifers based on expected progeny differences (EPDs) and visual appraisal, and get exposure to the American Angus Association's Angus Herd Improvement Records (AHIR) program. Herring uses the Angus sire summary along with other breeds' summaries to explain how to use EPDs in a breeding program.

Herring admits he could use other breeds to demonstrate these concepts, but with the use of the Angus herd he can explain the benefits of the Certified Angus Beef Program. He says it's important for seedstock producers to understand beef carcass traits and the value in the type of cattle they produce.

The beef unit is located 25 minutes north of Lubbock near New Deal. Because of the lack of grazing land, Tech's cows spend six months of the year in dry lots. Herring says there are no permanent pastures at the New Deal Farm, therefore, when the cows are not in the lots, they are grazing wheat, oat or haygrazer fields, or grain sorghum stalks.

Depending upon where they are in gestation or lactation, the University supplements the cows primarily with hay and protein supplements of cottonseed meal or soybean meal. If needed, they will also feed corn or grain sorghum for energy.

Lonnie Hughes, Texas Tech's livestock superintendent, has worked with the Angus herd since 1981. He oversees everyday activities at the Beef Center and supervises the student workers.

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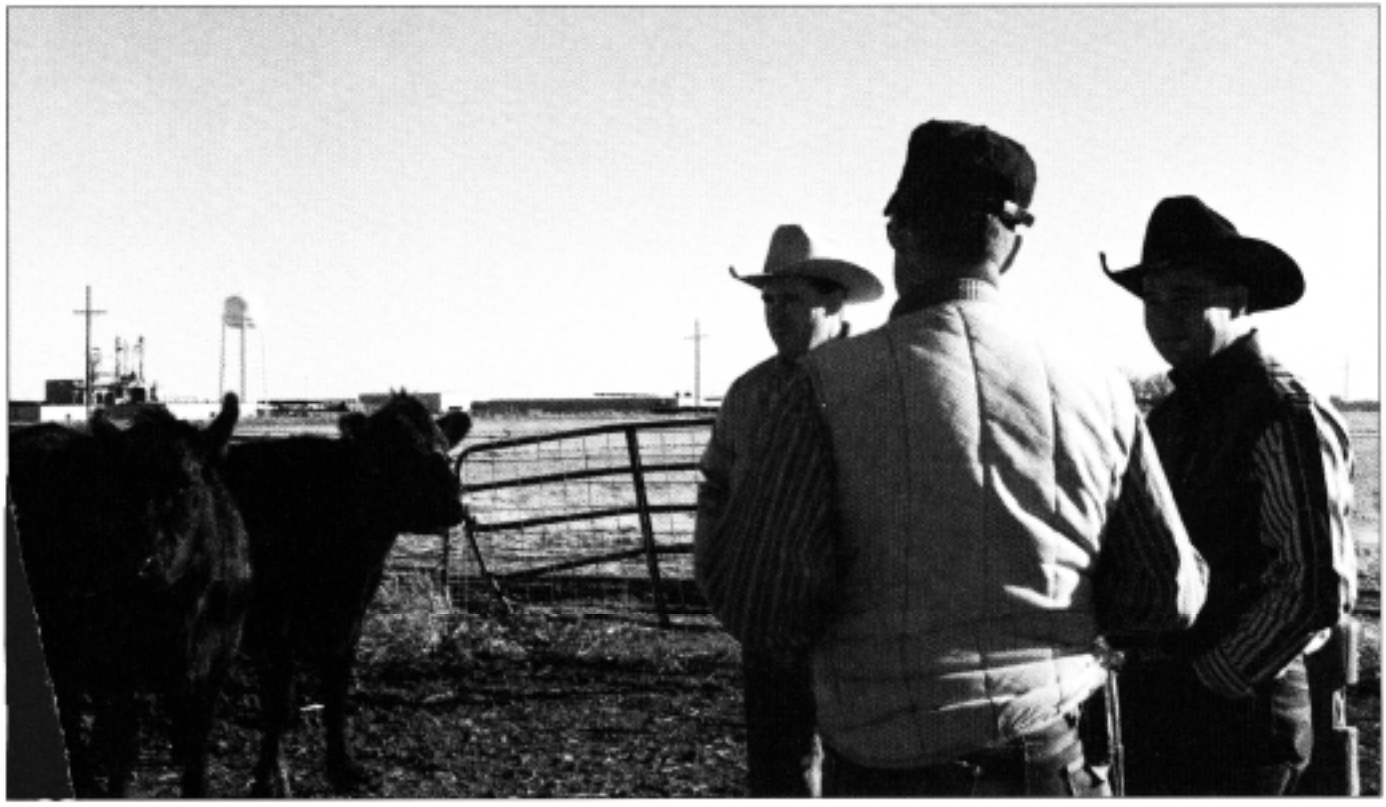
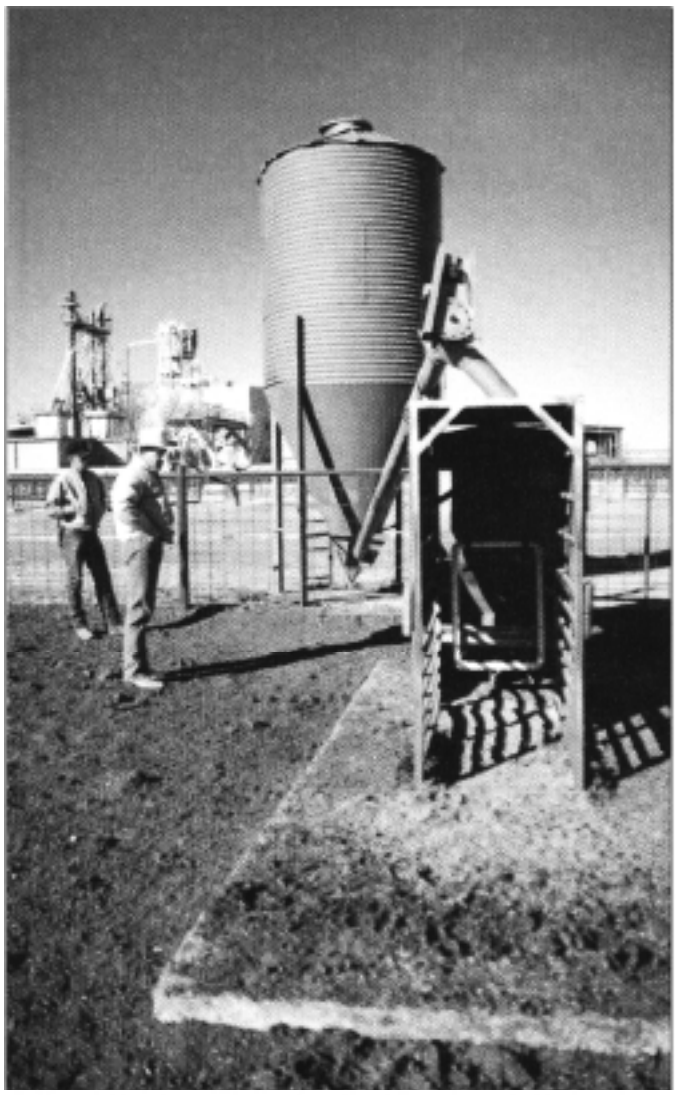


Former American Angus Association Regional Manager Michael Bennett, right, visits with Andy Herring, assistant professor, far left, and Lonnie Hughes, livestock superintendent, about Texas Tech's Angus breeding program.



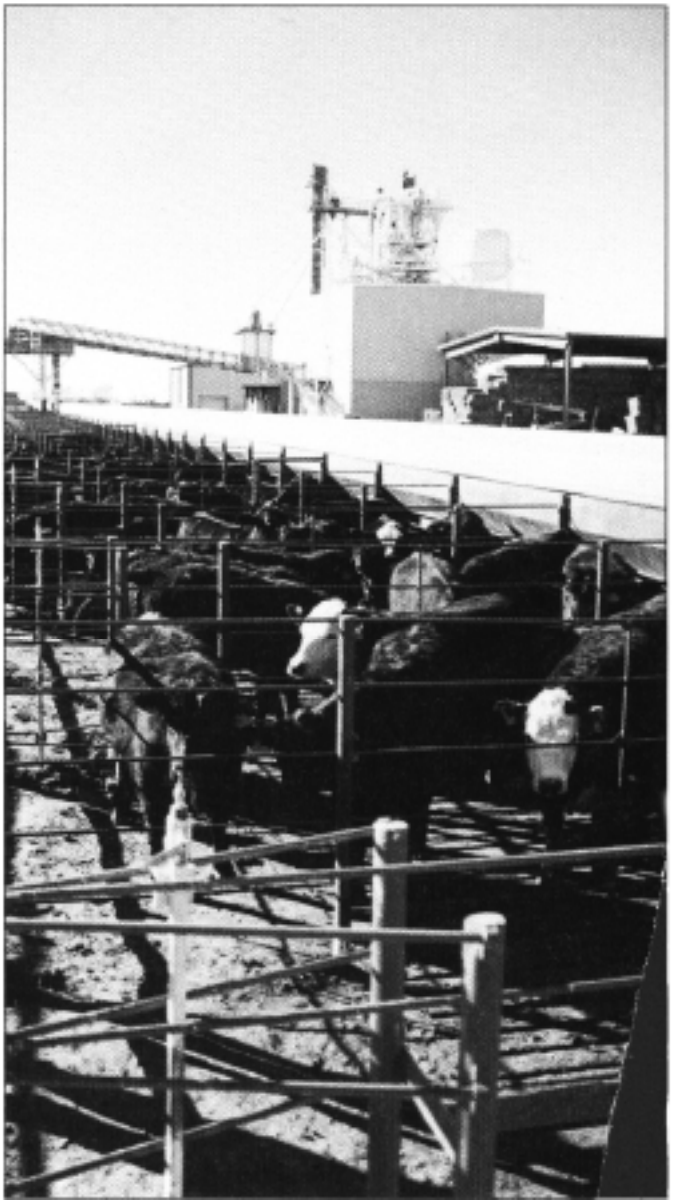
PIN-POINTER FEEDERS

Measuring amount and time of feed intake is the purpose of these feeders at Texas Tech. The feeder has an electric eye which reads a tag around each animal's neck. Each time a calf enters the feeder the number is read and the time and amount of feed consumed are recorded. Andy Herring, supervisor of the Texas Tech Beef Center, uses the feeders in a research project measuring the genetic aspects of individual feed intake and feed efficiency.

"When you feed 100 steers together you only get the average daily feed intake and feed conversion, and there can be really big differences in this among animals," Herring says. With the use of the pin-pointer feeders he can track each individual animal in the project.

BURNETTE CENTER

This 15-year-old ultra-modern feed mill and feedlot at Texas Tech University's Burnette Center minimizes error in experimental projects. The Center has 114 8 x 14 foot pens that can hold six head of cattle. There are also a few larger pens that can hold 25 animals. The feedlot was designed to have as many different pens of cattle evaluated as possible to reduce the experimental variation. The more experimental units, the greater the statistical power in observing treatment differences. In other words, 100 steers in one pen equals one experimental unit.



Texas Tech University has been a member of the American Angus Association since 1976, but Angus cattle have been managed by the University since the 1940s. In 1976 Bob Long joined the University staff. With Long's prior experience with the Ankony Angus Corporation, and with the help from several members of the West Texas Angus Association, the University started a registered herd.

Helping start the herd were Texas Angus breeder Floyce Masterson, who donated six females; Mockison Hollow Farms from Georgia, which donated 24 yearling heifers; Greenway Angus from Florida, which donated semen and females; along with donations from several West Texas Angus members. The foundation of the herd was Emulous breeding.

Long says the purpose of developing the herd was for teaching and research. While he was at the University students assisted in collecting performance data and assigning conformation scores for trimness, muscle, size of frame, soundness of structure, breed and sex characteristics, using the Ankony system.

At one time the University's herd totaled 50 cows. Before Long retired in 1992, he sold a few of the top-producing females to B&L Ranch in Oklahoma and Rolling Meadows Farm in Iowa. Today the University manages 30 mature cows and 14 heifers.

"When Dr. Long was here he built a good reputation for the Angus herd," Herring says.

Over the years the University has sold bulls to commercial and purebred breeders by private treaty. This fall the University plans to sell bulls in the West Texas Angus Sale in San Angelo. In the future Herring hopes to have a beef marketing class, which would include the students planning and hosting a production sale offering University cattle.

Texas Tech's Angus herd spends more than six months of the year in dry lots because of lack of range resources and environmental conditions in northwest Texas

"In my opinion, we have a good but small Angus herd. We just need to advertise it more," Herring says.

When Herring started at Texas Tech in 1994, the University had a split-calving season. Herring is working to get the herd to a 75-day calving period in the spring.

The University uses artificial insemination (AI) to infuse new genetics into its herd. Each female is AI serviced once during the breeding season.

Texas Tech participates in the American Angus Association's AHIR program. Herring relies on the information from AHIR for culling females and selecting AI sires. He also uses EPDs as a tool when marketing cattle.

"All producers need to utilize EPDs along with visual evaluation in their selection decisions," Herring says.

Using the AHIR program as a measurement, Texas Tech has been able to track herd improvement. The 1996 bulls averaged 88 pounds at birth, 585 at weaning and 1,100 at yearling. The females averaged 79 pounds at birth, 535 at weaning, and 800 at yearling.

Herring says the difference in yearling weight is because after weaning, bulls are placed on a four-month gain test and the heifers are developed on a forage-based diet.

Texas Tech's Angus herd is being used in several research projects related to the use of feed additives and feed processing. A new project with several other universities, is studying the correlation between milk, the milk EPD and how they relate to estrus and rebreeding. Texas Tech, along with the other cooperating universities, will be milking Angus cows for this project.

Herring would like to see the herd grow and plans to keep more replacements in the future — if they have good luck selling bulls.

While at the helm of Texas Tech's Angus herd Herring plans to raise structurally sound, moderate-sized females with emphasis on fertility, growth and milk.