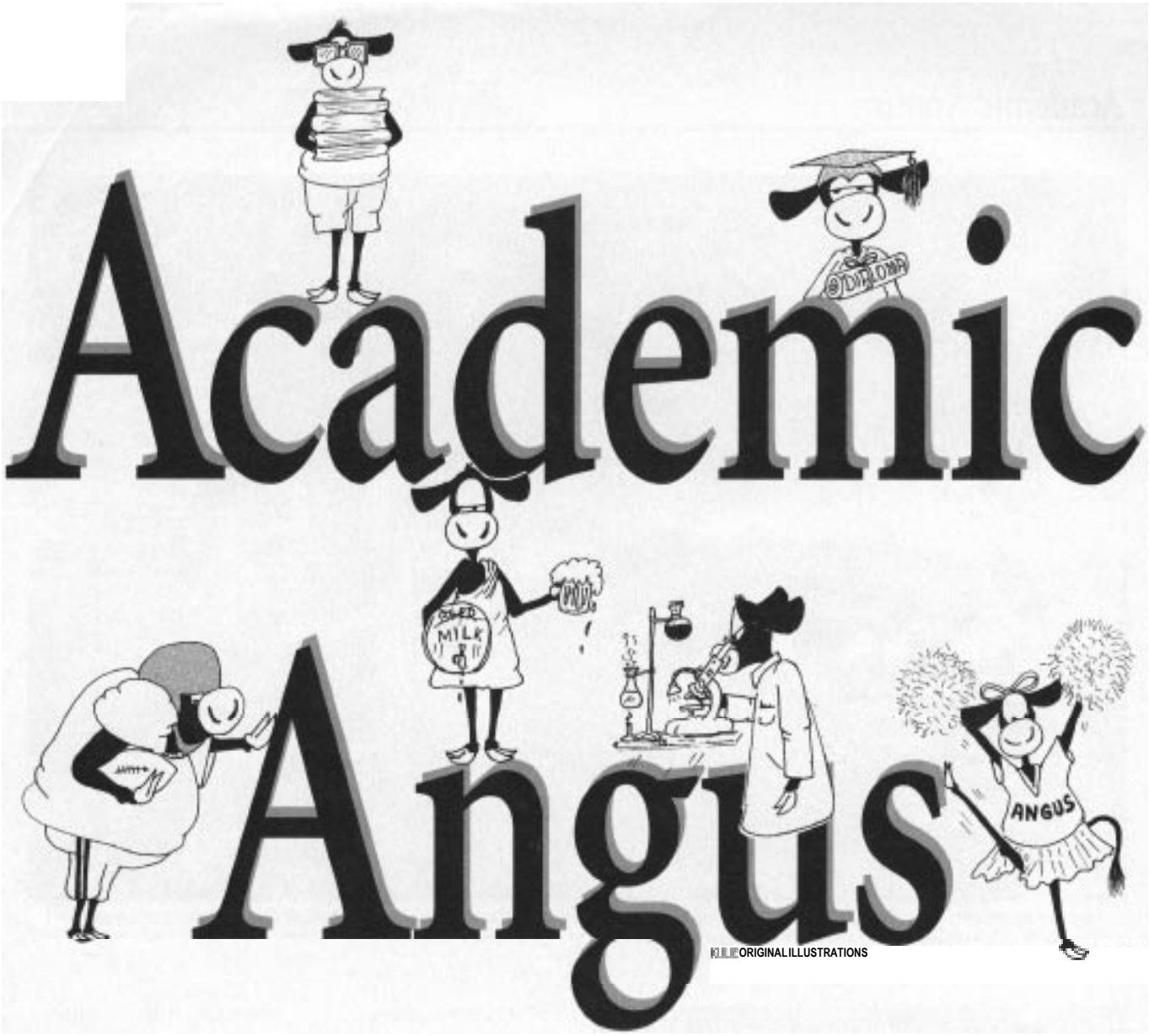
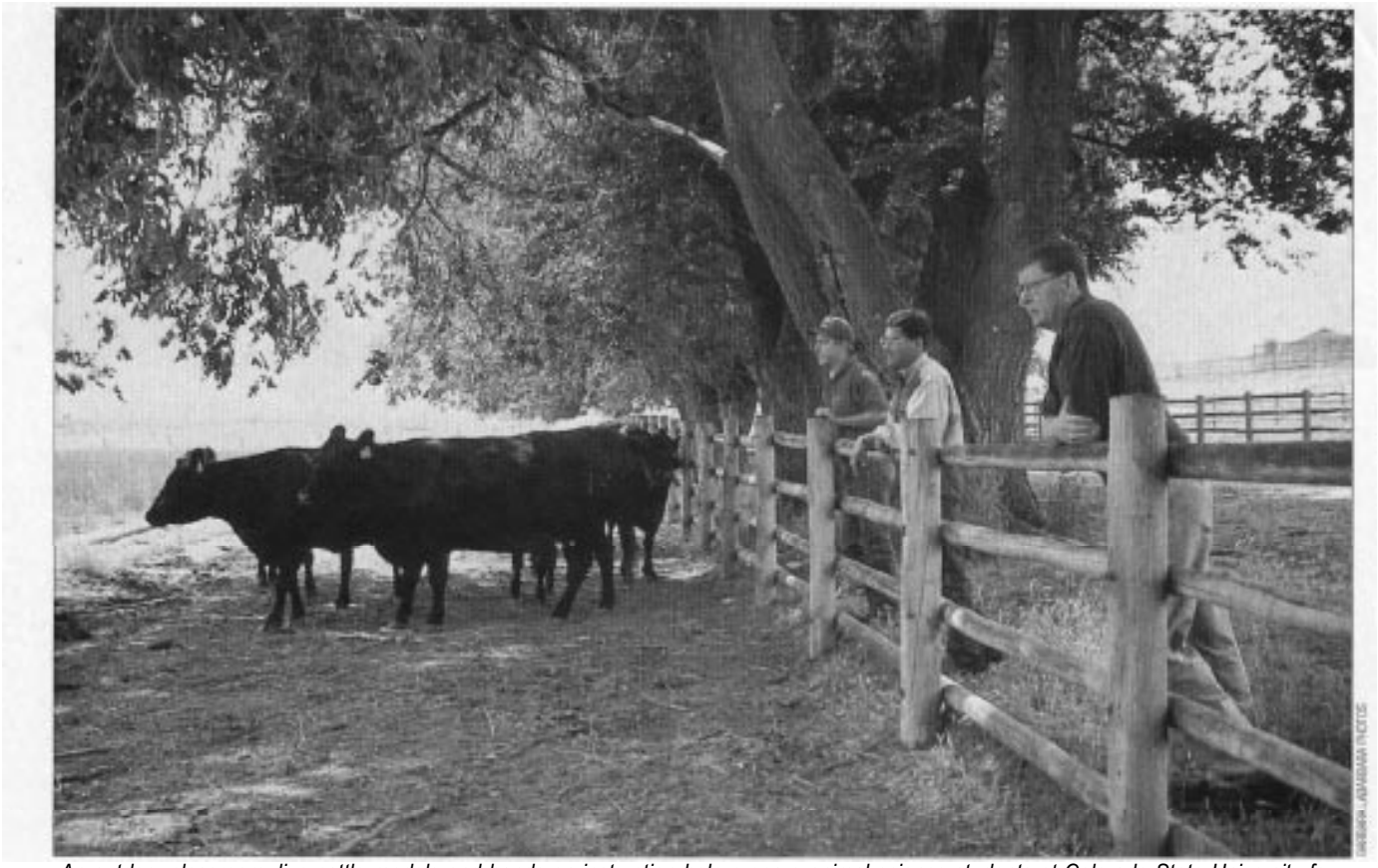


Angus herds and genetics play an important role in teaching, research and beef production at major land-grant universities across the country.
In part I of our series we feature the beef programs of Colorado State University, South Dakota State University and Virginia Tech.



An outdoor classroom, live cattle models and hands-on instruction help prepare animal science students at Colorado State University for careers in the beef industry. Graduate students Jason Ahola and Julian Garcia join professor Tom Field (right) at the CSU beef unit,

COLORADO STATE UNIVERSITY

Fort Collins

Colorado State University lies at the foot of the majestic Rocky Mountains 62 miles north of Denver. Founded in 1870 as a land-grant university, it has an enrollment of 22,000 students, including 1,300 agriculture students of which 740 are animal science majors.

The main purpose of the beef program is research with a teaching component of practicum courses such as artificial insemination (AI), facility design and cow-calf care.

Tom Field, associate professor and beef cattle management specialist, Robert Taylor and other members of the animal science department administrative staff take a team approach to herd management. Day-to-day management of the herd is the responsibility of a graduate student, Bryan Weech, who will participate in the program for two years. Graduate students help make decisions concerning the herd. Each year CSU sends a group of students to Australia for an agriculture study program.

A herd of 200 beef cows reside on the CSU campus — 150 are Angus; Herefords and a cross of Red Angus, Hereford, and Gelbvieh make up the balance of the herd.

CSU uses two grazing systems. The Angus are in a high intensity, short duration system on seven paddocks. The Herefords are in the foothills on a traditional pasture system. Bulls develop on a silage-based ration, while cows and heifers use a nearly 100 percent forage based system for development and maintenance.

The beef program is self-supporting. The land and cattle are state owned and staffs are state employees. To keep the system alive, the beef herd has to make money. An annual student-managed yearling bull sale has been conducted each spring since 1978. There is a bred and open cow sale in the fall.

"Our customer base is small to medium-size cattle enterprises," Field says. "Their goals are to have no problems. They want easy calving cows that breed back and costs they can control. Eighty percent of our cattle go to repeat buyers."

Selection criteria for sale bulls include:

1. **Top performance** — Evidence that each bull performed in one or more low-cost commercial cow-calf operations where the calves have been feedlot and carcass evaluated. Performance specifications in these low-cost herds include a weaning break-even price below 65 cents per pound (lb.).

Feedlot performance of calves — minimum rate of gain of 3.2 lb. per day from 500 to 600 lb. to slaughter weight 1,100 to 1,300 lb. by 15 months of age.

Carcass performance of calves —700- to 800-lb. carcass weights with 70 percent Choice, Yield Grade 2.0 to 3.5 with satisfactory tenderness.

2. Longevity of daughters— a high percentage remains in the herd beyond 10 years of age. This is highly related to fleshing ability and early rebreeding of two- and three-year-old cows under low-cost production.

3. Individual performance — Expected progeny differences (EPDs) are Angus based birth weight EPD: maximum of + 1.5; actual birth weights of heifers' calves 65 to 80 lb., and cows' calves 75 to 90 lb.; weaning weight EPD: +1.5 to +25; milk EPD: under + 15; yearling weight EPD: +30 to +50.

Scrotal circumference, yearling frame score and pedigree are also noted.

CSU does not have a show herd but heifers from the herd are exhibited in the Little National Western, a livestock showmanship contest organized by students. The livestock judging team, which has successfully competed in contests across the United States, practices with the animals selected from the herd. Junior college, 4-H and FFA judging teams use those cattle for contests. Extension programs and producer education programs benefit from them as well.

Veterinary school students manage herd health and the herd is available for their use.

CSU has a packing plant and a fabrication center from which they sell beef, lamb and pork at retail. The Certified Hereford Beef Program had its beginning at CSU two years ago.

Seven years ago CSU beef scientists embarked on a study to track predictability of maternal traits, calving ease and milk. Carcass performance data has been a by-product of that research.

Fort Collins urban development surrounds CUS's beef unit. Plans are already underway to build a new facility by 1998.

"We have had amazing success with feedlot conversion in terms of carcass traits; says Field. "For example, of 15 steer calves we fed all were Yield Grades 2 and 3. Five were Quality Grade Prime or better, eight were Choice and two were Select."

Field forecasts a stable future for CSU's beef program. There is enough money to pay the bills, there is enough volume to function in different markets, and there are enough cattle to train students and do research. Cooperation with producers in the area and surrounding states makes research easier and more successful.

The CSU beef program will move to a new facility within two years. Urban development surrounds the present facilities. In addition, CSU alumnus John Rouse recently donated his cows and ranch at Saratoga, Wyo., to the university for research and study.

Colorado State created a unique continuing education program for its outstanding animal science students five years ago. The Beef Industry Leadership Masters Program focuses on beef industry issues as a whole rather than on specific issues such as nutrition, genetics or breeding.

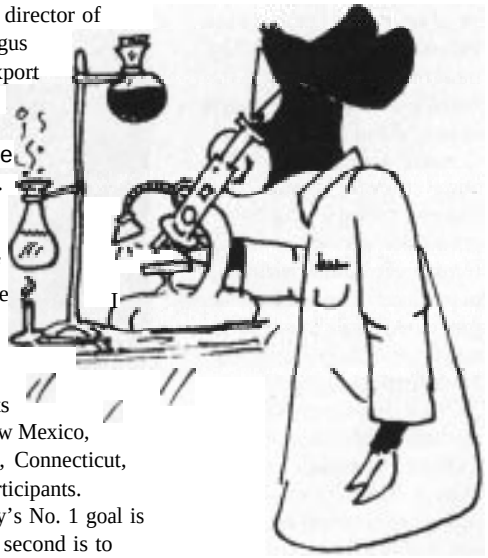
The program trains students to become leaders in breed associations, feeder and packer organizations, branded beef programs, and similar, forward looking beef institutes throughout the United States. Tracey Erickson, director of the Certified Angus Beef Program export division is a graduate of this program and one prime example.

Only two to three students from a variety of backgrounds are chosen for the program each year. Graduate students Julian Garcia, New Mexico, and Jason Ahola, Connecticut, are this year's participants.

This university's No. 1 goal is to train students, second is to conduct vital research, third is to have effective outreach programs using the herd as a model, and fourth is to be a player in the seedstock industry.

The mission statement says it all: Produce seedstock that contribute to low-cost production, higher profits and increased consumer market share.

— *Barbara LaBarbara*



SOUTH DAKOTA STATE UNIVERSITY

Brookings

Angus influence is strong on the Northern Plains. The evidence is apparent on the farms and ranches of South Dakota. Angus cattle play a vital role in agricultural studies and research conducted by South Dakota State University (SDSU) at Brookings. That's true of many of this country's agricultural colleges. It just seems particularly fitting for SDSU, the alma mater of numerous prominent Angus breeders and even American Angus Association staff members Richard Spader and Dean Hurlbut.

In addition to notable alumni with Angus connections, several SDSU staffers have Angus histories. Some have been active breeders. Some still are.

Personal involvement means close ties to production agriculture and SDSU's Jim Males believes that enhances the faculty's ability to fulfill its mission.

The head of the animal and range sciences department says that mission is three-fold. The most obvious part is the training of students for careers in animal and range sciences. Certainly as important, however, are the research to address problems faced by production agriculture and the transfer of resulting technology to producers through Extension programs. Kinship with land and livestock helps Males and his staff reach their goals.

"Our department's faculty (including Extension personnel) includes 24 people, says Males. "And considerably more than half of them live on acreages and maintain livestock of their own. Our close ties to production come across in our teaching and research. I think it helps in student recruitment." Males himself is a fourth generation purebred breeder.

SDSU's current enrollment is about 8,700 undergraduate students. Males' department now boasts record numbers with 325 students seeking degrees in animal or range sciences.

Now in his 30th year of teaching and research at SDSU, Dick Pruitt directs the breeding program for the college's teaching herd which includes 60 purebred Angus cows.

"The Angus herd was established right after World War II," says Pruitt. "Today, the Traveler and Bando 155 bloodlines are most prominent in the females. Prominent AI sires include Dividend, Bando 598 and Hi Flyer. We do, however, use a wide variety of sires while concentrating on moderate birth weight, maternal traits and above average growth."

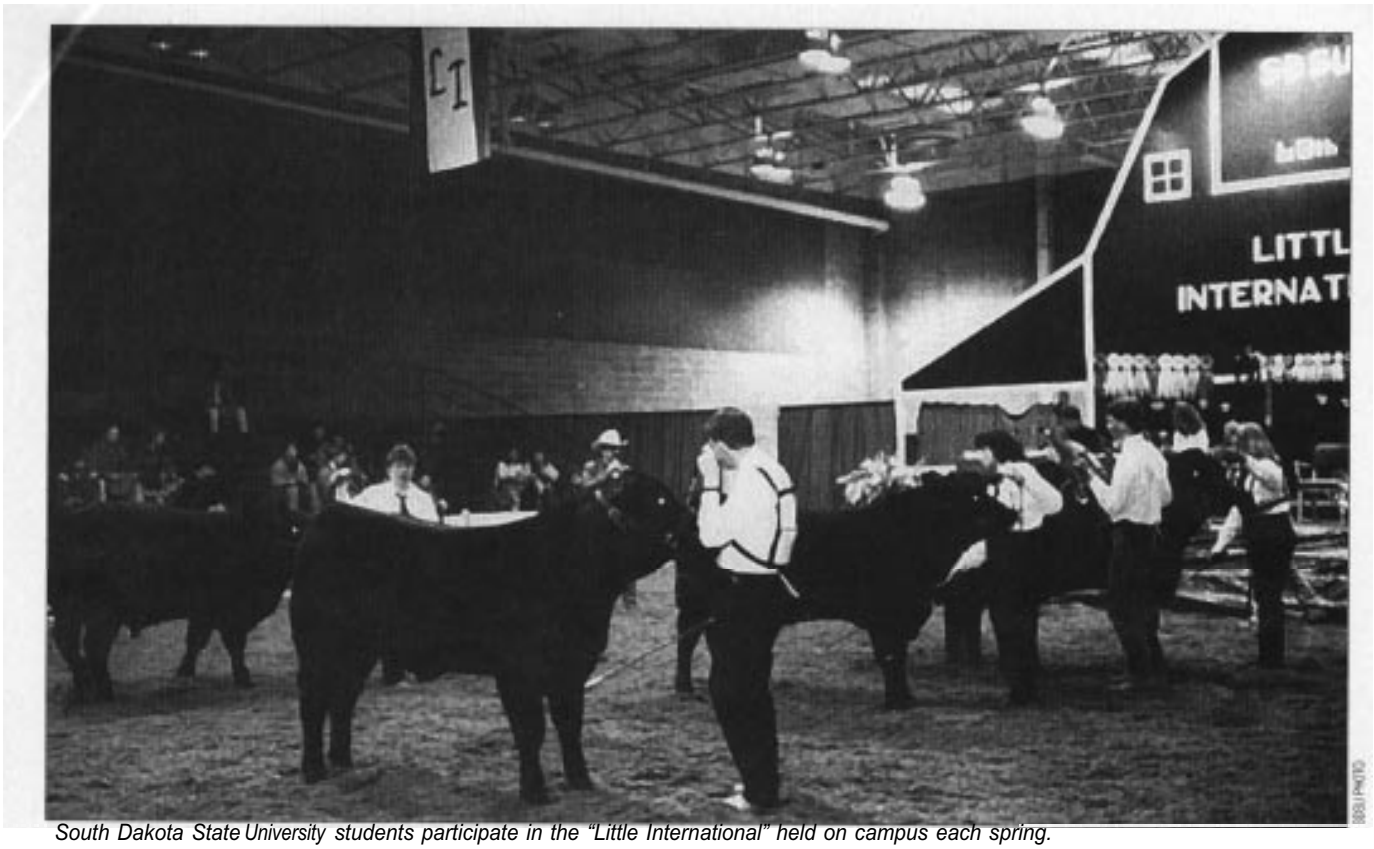
Along with beef production and nutrition courses, Pruitt teaches a seedstock merchandising class. The class offers students hands-on experience at marketing both bulls and heifers produced through the SDSU cow-calf unit. A unique aspect is the "limited" auction sale which has been held during each of the last four years.

Students prepare information for advertising and sale catalogs. Students also fit the cattle and group them for display on sale day.

Pruitt explains that the limited auction works by assigning individual cattle with a minimum price which is published in the catalog. On sale day potential buyers fill out a buyer's card for animals in which they are most interested. Animals attracting the most interest sell first. Bidding starts at the minimum price and proceeds in $100 increments but is limited to those people who filed a buyer's card on that particular animal. If only one person files a card on an animal, that person gets it for the minimum price.

Pruitt says the limited auction format serves the merchandising class goal of maximizing interaction between students and producers. In addition, sale expenses have been lower than with traditional auctions, and net income has increased. "That keeps the

The SDSU beef education team includes seated (l to r): Steve Goodfellow and Jim Males. Standing (l to r): Don Boggs, Rob Pritchard and Dick Pruitt.



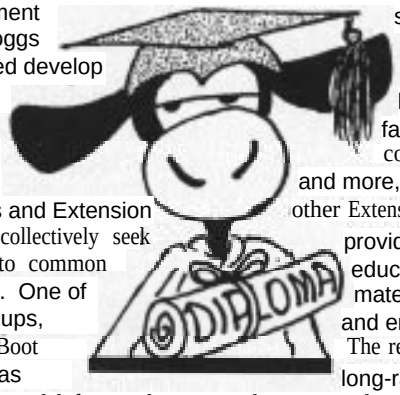
South Dakota State University students participate in the "Little International" held on campus each spring.

administration happy," Pruitt adds.

Also involved with the teaching herd was Steve Goodfellow. Though recently retired, Goodfellow worked in the cow-calf unit for 10 1/2 years, serving six years as manager. Working with SDSU's Angus herd was pleasant duty for Goodfellow, an alumnus who has been raising his own Angus cattle since 1956. Always a strong supporter of youth activities and the university, Goodfellow numbers among producers who have donated heifers to the teaching herd. He now concentrates on his own herd of 40 cows.

Don Boggs says being in the cow business, even in a small way, helps him monitor the pulse of the industry. Keeping his hand in it forces him to stay current with regard to costs and effectiveness of management tools and products.

That's important to Boggs in his role as an Extension beef specialist. SDSU's Extension education programs are aggressive, particularly in the area of Integrated Resource Management (IRM). Boggs has helped develop regional focus groups where producers and Extension personnel collectively seek solutions to common problems. One of these groups, dubbed "Boot Straps" has become a model for similar efforts across the country.



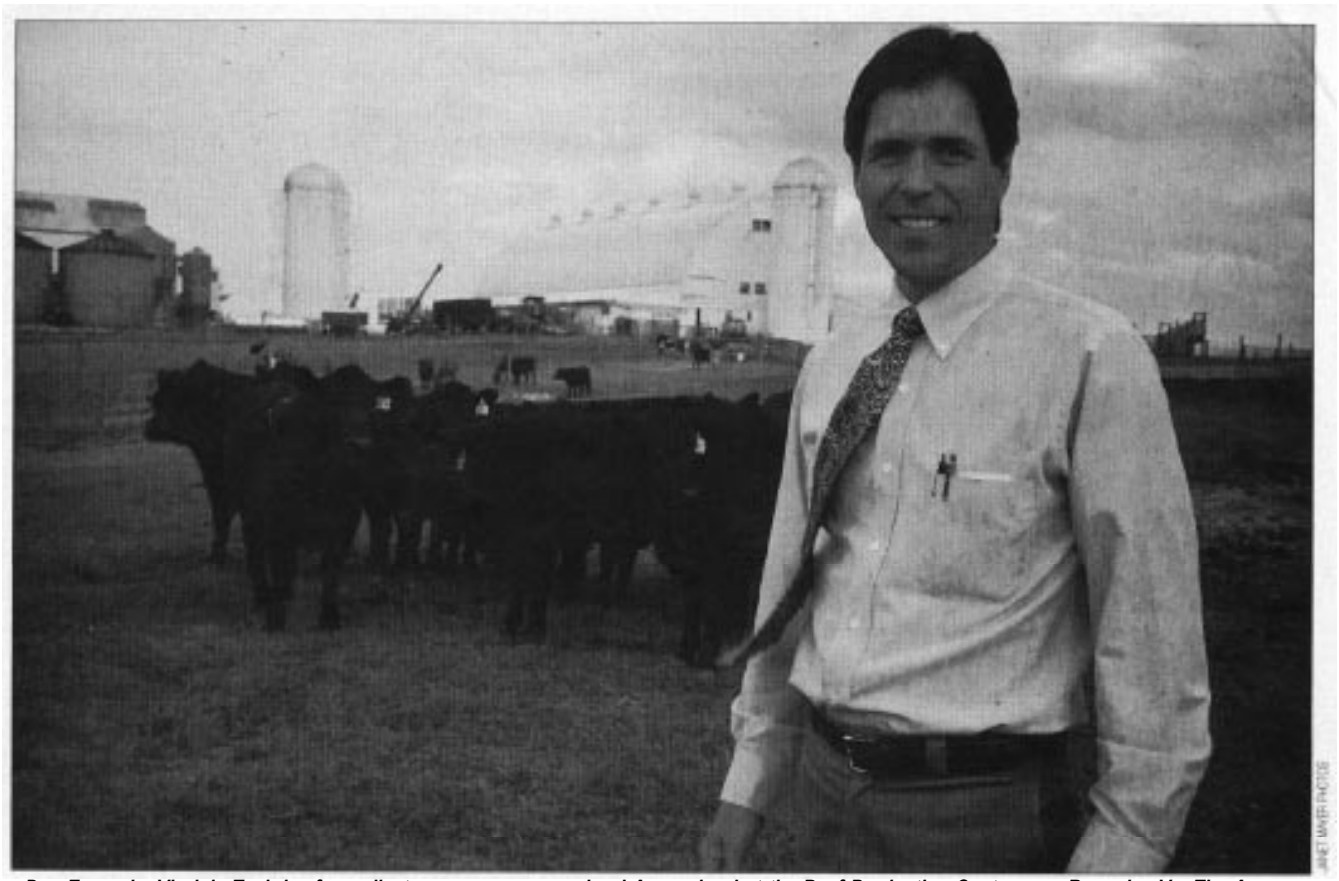
Actually, the Boot Straps group was initiated by local producers from two counties in the south-central part of the state," explains Boggs. "It started with about 26 ranch families who had common resources, faced common problems and sought common answers."

The group set their own curriculum for studying optimum use of resources, budgeting, family communication and more, Boggs and other Extension personnel provided educational materials, counsel and encouragement. The results came as long-range ranch plans personalized to suit each individual operation.

"The success of Boot Straps has made us very proactive. We're working hard to stimulate development of similar grass-roots groups. Different groups or communities may have different problems and goals, but the collective effort approach still applies. We just try to enhance the format, provide resource materials and generally help these locally-driven efforts become more successful," adds Boggs.

Through formal classes on the Brookings campus, research studies there and out-state, plus continuing education through Extension Service, SDSU is striving to do its part in meeting industry challenges.

— *Troy Smith*



Dan Eversole, Virginia Tech beef coordinator, oversees a purebred Angus herd at the Beef Production Center near Roanoke, Va. The Angus herd, first introduced in 1923, now numbers 67 cows of modern breeding.

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

Blacksburg

Established in 1872 and most often referred to simply as Virginia Tech or VPI, this land grant university is a wondrous blend of beautiful old stone buildings and modernistic structures that seem to be in keeping with this historic, scenic state.

It's the largest university in the state with an enrollment of close to 23,000 students. Virginia Tech's department of animal and poultry sciences is the largest department in the College of Agriculture with an enrollment of 450 undergraduate students. Heading the department is Gary Minish, with associate professor Dan Eversole serving as purebred beef coordinator and livestock judging coach.

"I feel our department has one of the strongest undergraduate programs east of the Mississippi River," Eversole says. "That's one of the reasons I came here. You will find the number of purebred livestock operations in this state is large, and there is adequate support for a university teaching herd, much more so than in some other state schools. To me this was a big drawing card."

The Virginia Tech herd is described by Eversole as a beef teaching research herd primarily doing studies with an applied flavor. None of the animals involved are sacrificed as they might be in other research projects.

The beef herd is also an important teaching tool for the livestock judging team. "I think this is exemplified by the way our judging teams perform in national competition," Eversole says. "I think one of the strengths in having purebred livestock at the university is that the students observe the cattle and it helps them in collegiate competition.

All of the Virginia Tech cattle are housed at the Beef Production Center located on a 2,600-acre campus just west of Roanoke. The herd consists of 67 registered Angus cows, 40 registered Polled Hereford cows, eight registered Gelbvieh cows and three purebred registered Limousin cows.

The total herd of 118 cows is managed as one unit by two Virginia Tech graduates. Christie McAvoy began her employment with the university in 1977, transferring to the beef center in 1985 and working her way up to herd manager in 1990. Chad Joines has held the position of herdsman since 1993. Both he and McAvoy are graduates of Virginia Tech.

"We employ about six students to help Christie and Chad with the herd," Eversole says. "We also rely on student volunteers to help out with the herd, and, believe me, there is

no shortage. All of our students value the experience they gain from working with the cattle."

Viiginia Tech has been breeding beef cattle since 1913. The Angus breed was not introduced until 1923, when one bull and three females were purchased from E.L. Hampton of Nashville, Tenn. The cattle were selected by a committee of Virginia cattlemen and professor R.E. Hunt. The herd was entered into the American Angus Association's Angus Herd Improvement Records (AHIR) in 1976.

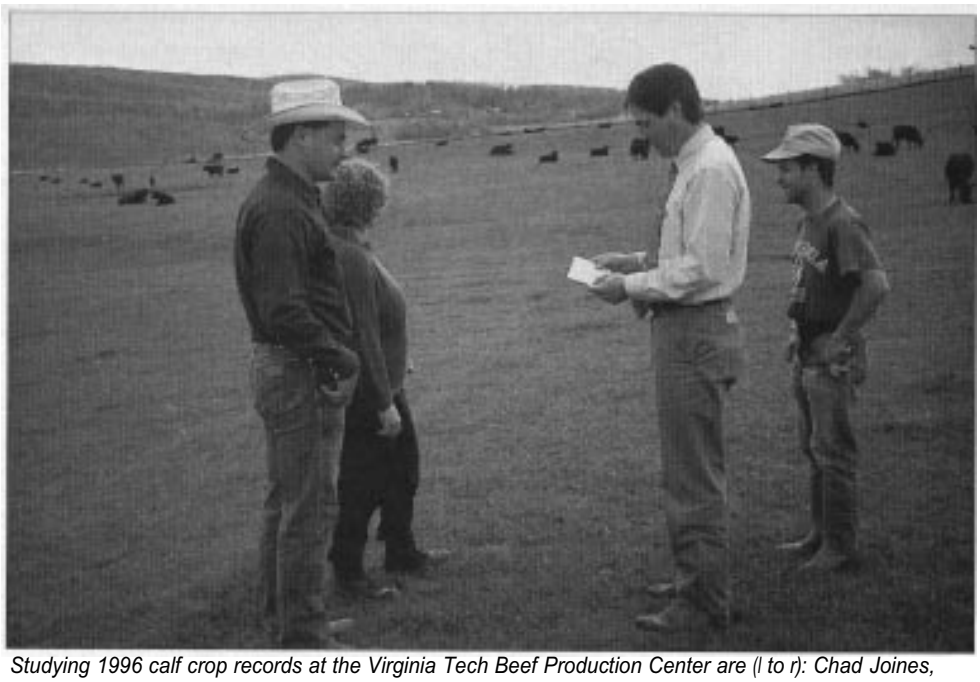
Producing functional cattle with balanced traits is the objective of the Angus breeding program. The average expected progeny differences (EPDs) of the Angus herd is +4.3 birth weight, +29 weaning weight, +12 milk, +49 yearling weight.

Although Eversole says there is no one outstanding cow family in the herd, there have been seven Pathfinder cows in the last five years. "I predict we are going to have more in the next several years," he says. "A tremendous group of two- and three-year-olds are just coming into production after getting off to a good start their first year."

Eversole feels their Angus herd's strongest selling point is their age — an average of 3.3 years. He also feels careful selection of sires is important to produce consistent calf crops. Females in the current herd are by Rito 9M9, RR Traveler 5204, Ginger Hill Duster 89, Stone Gate Eurloch, N Bar Emulation EXT and Pine Drive Big Sky. He credits the use of Pine Drive Big Sky for three consecutive years in the mid 1980s for improving the genetics of the herd.

The beef herd at Virginia Tech is managed for spring and fall calving. The main season begins in the middle of January through the end of March and a smaller number of cows give birth in the fall. Eversole says the breeding seasons are very narrow, only about six weeks, because he wants the births to coincide with his beef production classes.

"The students are each assigned a pregnant cow, and it's their responsibility to calve that cow and process the calf — doing the vaccinating, tagging and so forth," he says. "The students really like this exercise, and actually it's a two-fold project because it relieves Christie and Chad after hours and also gives a student that hands-on approach."



Studying 1996 calf crop records at the Virginia Tech Beef Production Center are (l to r): Chad Joines, herdsman; Christie McAvoy herd manager; Dan Eversole; and animal science student Carter Marsh.

Most of the breeding is done by artificial insemination (AI) by Christie and Chad. The sires are chosen by Eversole, who feels Al speeds up genetic progress, which is preferable in a teaching facility.

"We buy semen and AI certificates from the various bull studs just like any other breeder," Eversole explains. "I don't feel I would sleep well at night if we had everything given to us and then went out in the market competing against other breeders at test stations and consignment sales. We do things just the same as they do."

The majority of the bulls are tested at the university farm and sold through private treaty at the center. One or two bulls are sent to bull test stations in the state, where they are sold.

Females and cow-calf pairs are sold private treaty and through consignment sales such as the Virginia Beef Expo Sale and the spring and fall sale of the Southwestern Virginia Angus Association.

A new marketing concept was born in October of 1995 with the Hokie Harvest Sale held at the University Beef Center. Solely organized and managed by students enrolled in the ANSC 4984 class of Livestock Merchandising, a new class taught by Eversole, the livestock sale offers quality lots of beef cattle and horses from the University herds.

The Livestock Judging Pavilion was full to the rafters at that first sale, with about 500 prospective livestock buyers from the East Coast. The Block and Bridle Club fed 405 people a complimentary barbecue dinner, and 224 registered to buy livestock

The sale of 31 lots of cattle, which included registered Angus, Polled Hereford and Gelbvieh, grossed $35,400, with a sale average of $1,143. The top selling lots in the sale were both from the University's Angus herd.

The majority of income generated from the student-managed sale went directly back into animal science teaching and research programs.

For Eversole, the merchandising class was a dream come true after trying to implement it for the past 12 years. "Like all agriculture schools, we do really good at teaching beef production to our students," he says. "Still, I feel we fall sadly behind in marketing, and this is something you just can't teach out of a textbook."

To educate the class on a broad spectrum of subjects pertaining to merchandising livestock both from a purebred and commercial standpoint, Eversole invited guest speakers such as Bill Powell, regional manager for the American Angus Association, to lecture.

In addition to the lectures, the class received hands-on experience in salesmanship, sale management, advertising, photography, cataloging and budgeting, and also working the cattle in and out of sales.

"Overall I feel they gained tremendous insight into the marketing of beef cattle and horses," Eversole says. "This was also a great way of getting the general public to come in and to showcase our products — meaning both our animals and our students."

-Janet Mayer