

Range Cow Logic

PART 1

The Range Beef Cow Symposium XIX offered practical insights on topics ranging from a chef's view of animal ID to determining the best time to wean.

Uncooperative weather didn't prevent more than 500 producers from attending the 19th Range Beef Cow Symposium (RBCS) Dec. 6-8, 2005, in Rapid City, S.D. The biennial symposium is sponsored by the Cooperative Extension services and the animal science departments of South Dakota State University, Colorado State University (CSU), the University of Wyoming and the University of Nebraska.

Hosted on a rotating basis by the four universities, the symposium has a reputation for being an excellent educational program, steeped in practical

production and management information. The two-and-a-half-day event was divided into sessions focused on industry issues, beef and the consumer, genetics, reproduction, range and nutrition, animal health, management, and business and marketing.

In Part 1 of our published coverage, we provide overviews of the presentations for the industry issues session and the beef and the consumer session. For Angus Productions Inc.'s (API's) online coverage of the event, which includes summaries of all sessions, log on to the newsroom at www.rangebeefcow.com.

INDUSTRY ISSUES

Factors & Policies Affecting the Cattle Industry



Jim Weisemeyer

PHOTOS BY LYNN GORDON

The future of international trade and domestic farm policy look pretty promising to Jim Weisemeyer, vice president of trade policy at Informa Economics' Washington, D.C., office. At the opening session of the 19th RBCS, Weisemeyer outlined policy issues — ranging from free-trade agreements (FTAs) to animal identification (ID) — affecting the cattle industry.

Trade resumption. Noting that Japan was expected to announce its conditions to allow U.S. beef imports within the next week, Weisemeyer said, "It will take years for us to even get back to the 50% market share that we used to have."

He encouraged cattle producers in the audience to root for the new FTAs with South Korea. "You will expand your beef exports to South Korea significantly once they settle their BSE (bovine spongiform encephalopathy) issues with us. And, that 40% tariff on your U.S. beef will drop significantly once we have an FTA."

However, trade with Canada doesn't look as optimistic. Weisemeyer said Canada is quickly approaching self-sufficiency in

marketing live animals. By the end of December 2005, he said its herd capacity was to have increased 35%. An increase of 45% would put Canada at full self-sufficiency.

"They can no longer, and will no longer, trust U.S. trade policy," he said. "We have helped build a competitor that won't look back."

World Trade Organization (WTO) negotiations and the Farm Bill. "Budget deficits are driving policy in the future years," Weisemeyer said. "The next Farm Bill will be leaner and greener," he added, citing House Agriculture Committee Chairman Larry Combest.

Weisemeyer said he predicts the WTO Doha round negotiations will mesh with the new Farm Bill, and he encouraged cattle producers to support the trade agreements. Both the Doha negotiations and the next Farm Bill are expected to be completed by December 2007.

"In the beef sector, you have a lot to gain because you have a very competitive product," Weisemeyer said. "You should all root for the trade agreements, because you have the competitive advantage."

Livestock policy issues. Country-of-origin labeling (sometimes referred to as COOL or COL) continues to be a hot topic. However, Weisemeyer does not foresee implementation or repeal in the near future.

"Extension is easier than repeal. As long as the Republicans are in power, we're not going to have mandatory COOL," he said. "Most people I have talked to that have been in these issues over 30 years say that animal ID should come first. Then you ask the significant question — 'Can you parlay that into country-of-origin labeling?'"

Weisemeyer said he believes the livestock industry should have

implemented a national animal ID system several years ago.

State of the nation. The U.S. economy is actually in good shape, though you may not feel it, he said. "We had a 4.3% increase in gross domestic product (GDP) in the third quarter. That's very good, and the economy looks not too bad for next year — about 3%-3.5% growth. You may not feel it, but it's still pretty good."

The control of both the Senate and the House during the next two major elections is going to be very close, but Weisemeyer said the rural sector's voice — and cattle producers' voices — will continue to be heard. "Your issues are going to be listened to with 'Dumbo ears' by the Senate, the House and the White House. ... The rural sector votes consistently as a group, so that's why your issues will be heard."

— by Meghan Soderstrom

Animal Disease & Trade Effects on our Markets



Jim Robb

During Tuesday's industry issues session, Jim Robb of the Livestock Marketing Information Center gave what he called an "economist's

perspective" on the trade picture. Robb acknowledged that trade is complex and full of interrelationships. He added that as we've seen with the incidence of BSE, disease can have a huge effect on trade.

"We've lost \$4 billion per year. That's the economic impact," he said, of the United States' closed border for exporting beef due to BSE.

Robb cited BSE, avian influenza and foot-and-mouth disease (FMD) as the "big three" diseases that can influence the future of the beef industry. As an example, he said if avian influenza were identified in this country, borders would likely be closed to poultry. Thus, the U.S. would have to absorb its domestic production. Beef chuck and round prices could be negatively affected because of excess poultry available for domestic consumption.

Robb recommended that the U.S. prepare for disease outbreaks. As one solution, he suggested the beef industry be able to regionalize. By regionalizing, the entire industry might not be closed to exports. Brazil did this in managing FMD outbreaks. Robb explained that areas with the disease are closed to exports, but the remainder of Brazil is still able to maintain markets and trade.

"Maybe ID is the answer to regionalization," Robb suggested.

"Traceability and verification programs are something beef producers have to be part of down the road," he continued. "It takes a long time to build export markets, and we can lose it quickly due to disease."

In learning from BSE, Robb said, "We've learned it takes longer to fix export markets than we think. If we did it over, I think we'd test every animal immediately and not lose those export markets."

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He added, "If disease outbreak happens again, we need to do things differently."

For more about the Livestock Marketing Information Center, visit www.lmic.info.

— by Kindra Gordon

Foodborne Pathogens: Control Through Management



Terry Klopfenstein

The food industry has seen significant advances in the prevention of foodborne pathogens such as *E. coli* O157:H7 during the last few years; however, the pathogen is still a concern for the food industry, said Terry Klopfenstein, professor of ruminant nutrition at the University of Nebraska-Lincoln (UNL).

Klopfenstein presented findings from UNL research projects measuring *E. coli* prevalence and intervention strategies.

"We believe we have the safest food in history, so what's the problem?" Klopfenstein asked. According to *Meat & Poultry* magazine, he noted, *E. coli* O157:H7 cost the cattle industry approximately \$2.7 billion from 1993 to 2003. In addition, a breakout of the pathogen has the ability to bankrupt processing facilities and cause illness or, in fewer than 61 cases annually, death.

Undercooked hamburger is the primary culprit for *E. coli* contamination; however, it is also a potential threat in needle-tenderized beef, Klopfenstein said, adding that contamination occurs when the outside of an affected carcass contacts the meat.

According to UNL research conducted during a seven-year period, feedlot cattle have surfaced as the primary reservoir for *E. coli* O157:H7. A study conducted in five commercial feedlots found that 23% of cattle tested at reimplant time were shedding the pathogen, including at least one affected animal in each pen. In another study, 43% of tested pens were positive for *E. coli*.

Klopfenstein said *E. coli* prevalence was higher in muddy, wet conditions as opposed to dry, dusty lots. Conditions seem to worsen in summer months, researchers found, and Klopfenstein estimated that the worst periods for contamination are spring and summer. Most recalls have been due to meat

processed in the May-June time period, he said, when pen conditions allow for a lot of manure buildup. In fact, Klopfenstein said approximately 15%-20% of feedlot cattle going to harvest carry the pathogen.

On the other hand, *E. coli* prevalence in cow herds doesn't seem to be much

of a problem, Klopfenstein said, noting literature from studies conducted at the Roman L. Hruska U.S. Meat Animal Research Center (MARC) in Clay Center, Neb. Studies there found 7.4% of calves at weaning time tested positive, with about 83% indicating they had been exposed to *E. coli* at some time.

"Prevalence is fairly low in our cow herds. It's probably out there, it's just that prevalence is low," he said. "This is primarily a feedlot problem."

However, it's not clear how cattle become inoculated. Therefore, no best management practices (BMPs) can be

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recommended, Klopfenstein said. But, he added, two intervention strategies — vaccination and direct-fed microbials — show promise in reducing the shed of *E. coli*.

Feedlot steers fed direct-fed microbials were 35% less likely to shed the pathogen in feces, and similar results

have been shown in other studies, he said.

Vaccination against *E. coli*, which is still in the approval process, also showed promise. In a series of studies, vaccinated cattle were much less likely to shed the bacteria, demonstrating that the product is effective in reducing colonization, he explained.

As cattle are loaded for transportation to packing facilities, *E. coli* prevalence rises. Although vaccination reduced the bacteria's prevalence on the hide by 44%, Klopfenstein said, "Contamination of the hide during transportation is an issue we're going to have to deal with.

"We've made excellent progress,"

he continued, attributing most of the progress to preventive measures implemented by the packing industry. "We can make progress ... by adding cleaner cattle to the packing plant."

— *by Crystal Albers*

The Future of the Beef Industry



Gary Smith

"The future of the beef industry is great," Gary Smith told the nearly 500 beef producers and industry representatives in attendance at the 2005 RBCS. Smith, who occupies the Monfort Endowed Chair in Meat Science at CSU, focused his remarks on the future of the beef industry.

Smith said he is optimistic beef export markets will open shortly. "We're going to get our markets back, and we'll become competitive in the world market again," he said.

Smith told attendees the trend toward consolidation will continue because of advantages in production costs. Driving this change, he added, is concentration in the supermarket industry.

In five years, the top seven supermarkets will control three-fourths of food sales, Smith predicted. "That's power, and it means you don't want to work with very many suppliers."

Smith said he looks for branded beef products to continue to grow in popularity. He cited a prediction that they will represent 60% of industry sales by the end of the decade.

How can producers react to these continuing trends? "The producers who will be successful are those who can reduce costs and maintain or improve quality," Smith said. To that end, he suggested that to share in what's happening in the industry, producers either need to buy a packing plant or join an alliance, partnership or integrated program.

"You need to ask, 'Where do I fit?'" Smith advised. As examples, he suggested natural beef, "story" beef or regional supermarkets.

"Small-scale cow-calf producers can control their own destiny either by changing genetics and management or by developing markets for their own beef," he added.

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Smith challenged producers to consider starting their own meat marketing business. He shared examples of Oregon Country Beef, Lasater Grasslands Beef and others, saying, "I'm for every one of these programs. Let's do more to get those who may not eat beef eating more of it and adding value to our products."

He also pointed out that no matter where a producer fits in the beef industry, future market access hinges on ID, traceability and source verification. "We must move forward as rapidly as we can with ID. The developing countries will consume 42% more meat by 2030. Let's be ready," he concluded.

— by *Kindra Gordon*

To prevent those losses, instituting a good vaccination plan and keeping track of treatment can be a huge advantage to a producer. And, as export markets begin to reopen to U.S. beef, he noted that keeping records of animal age can prevent problems caused by sometimes-unreliable dentition (dental examination) methods.

The bottom line, Coakley emphasized, is that documentation both saves and makes money. "All that stuff goes back to money in your pocket," he said.

He closed by reviewing the growing trend of third-party audits by retailers — of both the producer and the packer. From humane treatment to animal nutrition, it's

all crucial, he said. Having a "story" behind your operation can be the key to success. "People endorse what you do by buying what you raise," Coakley noted.

— by *Brooke Byrd*

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New Demands on Beef Products



Jim Coakley

Jim Coakley of Coleman Natural Beef provided a packer's perspective on challenges and changes within the natural beef industry. Giving an overview of Coleman Natural Beef as a company and its practices, Coakley emphasized the importance of having a plan to deal with future challenges, not just sticking with a wait-and-see mentality. "Let's make sure that we have a road map set out for ourselves," he said.

Much of the natural foods industry depends on the ultimate customer, the consumer. Coakley noted that Coleman focuses on making its customers — the retailers — happy. At the same time, retailers focus on finding out what their own customers — the consumers — want. The idea of natural or organic beef, he explained, is that it makes consumers feel the product is safe and the animals were treated humanely.

Everyone down the line, from the producer to the packer to the retailer, is trying to separate themselves from the competition, Coleman noted. Niches such as natural or organic products can fulfill that need, but each competitor must distinguish itself from the others.

"What happens to something when it loses its distinction? It loses its value," Coakley stated.

Coakley repeatedly stressed the importance of keeping records and documenting treatment and age.

"When you doctor one in the natural program, you lose it," he said.

BEEF AND THE CONSUMER

Making Animal ID Work

During the 2003 RBCS, presenters predicted the coming of a national system

for individual animal ID. One speaker likened it to a train that had already left the station and was rolling down the track. Two years later, the train is gaining speed, but beef producers still debate whether

the industry should get on board or try to derail the locomotive.

During Tuesday afternoon's session, a panel of producers shared their perceptions of the strengths and

weaknesses of a national ID system. Buffalo, S.D., producer Linda Gilbert said she believes many producers still question whether it is really needed, particularly if cattle owners already use hot-iron branding as proof of ownership. She also questioned if it could be implemented practically, and who would pay for it.

"It needs to be of benefit to the industry as well as the consumer. Will it be a profit generator for the industry, or just an added cost?" Gilbert asked. "And who stands the cost — the producer, the feeder or the packer?"



Linda Gilbert

Antioch, Neb., cattleman Allen Bright, who serves as animal ID coordinator for the National Cattlemen's Beef Association (NCBA), said there really are two primary issues of concern. The first is the intent of a national ID system, and the second deals with cost and benefit.

Bright urged producers to remember that the proposed National Animal Identification System (NAIS) is not about regulating producers or trying to bolster food safety.

"It's about disease surveillance," Bright stated. "The discovery of BSE [in the U.S.] got us in a hurry to establish an identification system, but it's really about having a way to deal with diseases — like brucellosis (Bang's disease), tuberculosis (TB), anaplasmosis, vesicular stomatitis (VS) and foot-and-mouth disease, and a host of diseases — that we don't currently have."

Bright said the NAIS should provide a means of tracking movement of cattle in the event of a disease



Allen Bright

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outbreak and trace the disease to its source. It is not intended to serve as proof of ownership. It would be a mistake to throw away state brand laws, he added.

"If you wonder who is going to pay for it, just look in the mirror," Bright said, explaining that much of the estimated \$33 million cost will be borne by beef producers. "But, if it only represents an added cost to us, let's quit now."

Producers can choose to make it work to their benefit, he said, alluding to opportunities to use the NAIS to enhance marketing of source- and age-verified cattle. He warned, however, that the program must be developed so it functions with the speed of commerce and does not hinder marketing.

Bright said producers must decide whether NAIS will be driven by the industry or the government.

"We'll have to work together with our neighbors or it will be taken out of our hands. Then it will be just a cost," he insisted. "We have to choose to make it work, or let it go."

— *by Troy Smith*

Matthews calls it a revolution of information. Ten years ago, he said, few people asked questions about food. Now, nightly in his restaurant a half-dozen patrons will ask questions about

everything from the beef to the wine.

"I think this is good, and it is an indicator of the need for ID and the information it can help provide," Matthews added.

"I appreciate what you do," Matthews said, acknowledging that what farmers and ranchers do daily to produce food is undoubtedly a difficult challenge. "Thank

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A Chef's View

Chef Victor Matthews Jr.

Chef Victor Matthews Jr., who owns and operates the Black Bear Restaurant near Colorado Springs, Colo., offered RBCS attendees a candid look at what his restaurant patrons want from beef. In short, Matthews said, consumers want information.

"Customers want to know what they are eating and where it came from," said Matthews, who has conducted more than 1,000 blind taste tests to help identify which beef is best. He's found that consumers like marbling. They like flavor. But, what they like best of all is information.

"If you can tell them a story about their food, what it's about, they appreciate that," he said, adding it applies both to wine and to beef. "The number one selling point for food products is information — the story of where the food came from."

you for giving us the information and quality.”

He added, “You can tell the difference in a piece of meat on your plate that someone cared about and [one] someone didn’t. You can tell when someone is doing the right thing.”

Matthews revealed that from the 1,000 taste tests he’s conducted with consumers, the winner was the beef produced by small-scale American farmers or ranchers. “So, you win,” he told the audience.

In his quest to help educate other chefs about where quality food products — particularly beef — originate, Matthews has started the Paragon Culinary School to train other chefs.

“Keep up the good work,” he concluded. “Every year there’s going to be more people who appreciate what you’re doing. They didn’t appreciate you a few years ago, but I’m going to fix that,” he said of his efforts with his school.

For more about Matthews’ restaurant and school, visit www.blackbearrestaurant.com or www.paragonculinaryschool.com.

— by Kindra Gordon



Marketing for Black Ink

What do restaurateurs want from the beef industry? Chad Stine, a senior vice president of merchandising with Georgia-based Buckhead Beef, a specialty meat company of Sysco Foods, shared his company’s perspectives with participants



Chad Stine of Georgia-based Buckhead Beef shared some insights on capturing market premiums.

of the “Marketing for Black Ink” seminar hosted by Certified Angus Beef LLC (CAB) Dec. 5, 2005, in Rapid City, S.D. The event was a kick-off to the 19th Range Beef Cow Symposium (RBCS) being conducted Dec. 6-8.

Stine shared that his company is always seeking to market a premium product. He defined premium as “opportunities to sell a product for more money.”

But, he added, that premium may not always be what one thinks. For instance, USDA

Prime and branded beef are premium products. However, USDA Select can also be a “premium product” at times during the year because of supply and demand.

Stine stressed that premium is really determined by the customer and if there is a market for a product for which they are willing to pay more. For instance, he said he doesn’t

see Yield Grade (YG) 4 and 5 animals in his cutshop because they request the packer trim the carcasses and assume the trim loss.

“I need more high-quality products, specifically Prime,” he explained, “so I’m willing to make the trade-off.”

As an example of creating a premium product, Stine pointed to the flat-iron steak created from the chuck. He also gave examples of cutting the short rib into a new cut called the Tomahawk and dry-aging beef as a means to create premium products.

“Our chefs are looking for solutions. So, we can’t just focus on quality. We need to give them more solutions, and that means more unique premium products,” he said.

Stine said another area for which he is seeing demand is portion size. He explained that restaurants want smaller ribeyes — not 16- to 18-ounce (oz.) rib steaks — because of plate presentation.

“Less is more. Twelve-ounce ribeyes are ideal,” Stine told producers in the audience. “So, ribeye size needs to be controlled, and that’s correlated to carcass weights.”

Looking ahead, Stine said premium programs will continue to grow as restaurants and foodservice drive the demand. He said he anticipates natural beef programs will be particularly popular. “We see this as our largest category for the next five years,” he concluded.

— by Kindra Gordon

Range Cow Logic

PART 2

Genetics and reproduction take center stage.

In Part 2 of our published coverage of the 19th Range Beef Cow Symposium (RBCS), we provide overviews of presentations during the genetics and reproduction sessions. The Dec. 6-8, 2005, symposium in Rapid City, S.D., was sponsored by the Cooperative Extension services and the animal science departments of South Dakota State University (SDSU), Colorado State

University (CSU), the University of Wyoming and the University of Nebraska (UN). For Angus Productions Inc.'s (API's) online coverage of the event, which includes summaries of all the sessions and a link to audio/video coverage, log on to the newsroom at www.rangebeefcow.com.

GENETICS

Improving Feed Efficiency Through Genetics



Mark Allan

PHOTOS BY LYNN GORDON

While improved feed efficiency is desired by most cattle producers, and it is considered a moderately heritable trait, there has been minimal progress in understanding the genetics of feed efficiency. However, according to geneticist Mark Allan, technology has been developed to better implement genetic selection for energy efficiency.

A researcher at the Roman L. Hruska U.S. Meat Animal Research Center (MARC), Clay Center, Neb., Allan told RBCS attendees that previous attempts to select for feed efficiency frequently resulted in unintended increases in mature female body size. Bigger cows generally mean higher production (feed) costs. Another correlated, but unfavorable response, was increased calf birth weight.

The reason, Allan said, is that the most common measure of feed efficiency has been feed conversion ratio. When heavy selection pressure is placed on reducing the feed-to-gain intake ratio, increases in mature weight and birth weights should be expected.

Presently, however, residual feed intake (RFI) is the trait of choice among most researchers. This measure of feed intake is not directly correlated with traits like growth rate and mature size, allowing selection for favorable feed efficiency without detrimental effects on other important traits. The

downside is that no data currently exists to analyze the long-term consequences of selection for RFI.

Allan said experiments have been initiated at MARC to gather this much-needed data. The project includes a study of the variation in nutrient utilization in finishing steers and in breeding females.

In the short term, Allan said, the industry will see the development of feed efficiency expected progeny differences (EPDs), most likely from RFI. The first EPD for RFI will most likely be for the finishing phase. Allan warned producers that feed efficiency EPDs should be used with care. Extreme selection pressure for feed efficiency by using such an EPD without knowledge of correlated responses or long-term effects on fitness and adaptability could possibly lead to a less efficient cow herd.

"My gut feeling is that the most efficient feeding animal might not make the most efficient cow," Allan explained. "That is the reason for the female production efficiency experiment."

A primary objective of the steer and female experiments is development of tools needed to create EPDs and identify gene markers to assist selection. Application of genetic markers should allow opportunities to improve the profitability of beef production through genetic selection for feed efficiency without measuring feed intake directly. If differences exist between cow efficiency and finishing efficiency, markers would allow producers to improve a specific phase of production.

— by Troy Smith

Using New Selection Tools

CSU's Mark Enns and his fellow geneticists have long said that if you can measure a genetic trait, they can produce an EPD for it. Enns told RBCS attendees that EPDs have been the best tools for producers to use in



Mark Enns

making genetic selection decisions.

During the years, the number of trait EPDs available has grown from five to 15 or more. With so much information to sift through, however, the process of making selection decisions has become a daunting task for many producers.

"How does a producer decide which traits have the greatest influence on income and expenses?" Enns asked.

Fortunately, there are ways to help ease the process of selecting for cattle that are more profitable. The first process, Enns said, is to sort for economically relevant traits (ERTs) vs. indicator traits. Distinguishing between the two will reduce the number of EPDs to be considered for selection.

Enns described ERTs as those traits that directly relate to cost or revenue from production. If performance in these traits is changed one unit, there is a direct effect on either expense or income. Indicator traits are not directly related to profitability, he explained, but can add accuracy to the calculation of EPDs for economically important traits.

For example, decreasing birth weight by 1 pound (lb.) is not likely to have a direct effect on costs or revenue. However, increasing calving ease by 1%, meaning 1% fewer heifers requiring assistance at calving, can lower labor costs and increase the number of calves for sale.

ERTs can reduce the amount of

information to be considered and help combine the economics of production and genetic improvement; however, the concept does not completely evaluate each EPD's effect on profitability, Enns said. "To put a dollar value on EPDs, producers can use a selection index suited to their operation. ... The best indexes account for costs as well as income."

For example, a producer might determine that increasing weaning weight is worth a certain amount of added income due to increased pay weights. But, the index would also account for an accompanying increase to mature weight of females and potential increases to feed costs. A number of breed associations have developed generalized indexes for producers to use in the process of assigning values to EPDs.

"The next step beyond the selection index is the decision-support system," Enns said. "This tool allows producers to tailor the selection system to his specific operation, taking into account current production levels, costs of production and the marketing program."

As part of the National Beef Cattle Evaluation Consortium (NBCEC), CSU is developing a Web-based decision-support tool to simplify the process of selecting breeding stock that produce more profitable offspring.

— by Troy Smith

Utilizing Carcass Traits in a Breeding Program

Through the use of artificial insemination (AI) and a disciplined focus on carcass traits, Blair Bros. Angus, near Sturgis, S.D., has moved its cow herd from producing calves that grade 65% USDA Choice to calves that consistently grade 98% Choice. Rich Blair, who operates the family Angus ranch with his brother, Ed, and their sons and a son-in-law, shared the story of their success with RBCS attendees.

Range Beef Cow Symposium XIX, Part 2**REPRODUCTION****Reducing Embryonic Loss**

Embryonic loss may represent the single greatest economic loss for

cow-calf producers, Tom Geary, U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS), told producers at the 2005 RBCS.

“With 40 million beef cows and heifers

exposed to breeding each year in the U.S., annual losses exceed \$1.2 billion. ... If we could prevent embryo wastage in just five out of every 100 cows, we would

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Rich Blair

The Blairs began using AI sires in 1989. “Our matings were geared toward what would build a good cow herd for us,” Blair shared. “We want cows that are efficient on grass and will produce calves that perform in the feedlot and produce a desirable consumer product.” He added that they’ve always kept an eye on calving ease and have never selected for extreme growth.

In 1998, they sent their first set of steers to U.S. Premium Beef (USPB) to be marketed on the grid. At that time, the cattle went 65% Choice and earned a \$5-per-head premium. Blair said they were pleased with the results, but recognized there were greater premiums to be had, particularly for USDA Prime.

“We recognized it starts with genetics,” he said. “I knew I could change birth weights, weaning weight and calving ease through genetics, and I found out marbling score and ribeye area are even more heritable.”

As the Blairs used more AI with a selection focus on marbling and retained the second generation of AI-sired females, they began to see more expression of desirable carcass traits in their herd. They’ve had some groups of calves achieve 100% Choice with an 80% or higher *Certified Angus Beef*[®] (CAB[®])-acceptance rate. One set of heifers fetched a premium of more than \$200 per head.

Blair attributed their success to the focus on cow herd genetics. “That’s what happens when you stack a couple generations of marbling on top of each other,” he said.

Regarding premiums, he added, “I think raising pounds is great, but if you’re selling on a grid, pounds isn’t everything. It’s often said packers don’t want Yield Grade (YG) 4, but if that animal goes Prime, the premium is worth it.

“Sometimes in selection there are tradeoffs in traits, but I haven’t seen a tradeoff in our pursuit of marbling,” Blair said.

“Without good data,” he concluded, “it’s hard to make good progress in breeding. The American Angus Association has done a good job of providing data. Their sire data is our bible, and I think the recently developed indexes are going to make even more of a difference in enhancing trait selection.”

— by *Kindra Gordon*

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wean an additional 2,100 pounds per 100 cows.”

Geary reviewed the estrous cycle and stages of pregnancy, noting the differences between early embryonic mortality (EEM; fertilization to Day 27), late embryonic mortality (LEM; Day 28 to Day 42) and fetal mortality

(after Day 42). The majority of losses are EEM. Geary then divided the causes of embryonic loss into four categories: genetics, nutrition, environment and miscellaneous.

Genetics. Genetic abnormalities account for approximately 10% of embryonic losses, with the most common

defect being an abnormal number of chromosomes resulting from polyspermy (fertilization by more than one sperm). Polyspermy is more common when AI occurs closer to ovulation. Although the fertilization rate is lower when insemination occurs closer to the onset of estrus, the embryonic survival rate is

higher. Geary recommended AIing 12 hours after the onset of estrus.

Nutrition. Embryonic losses due to nutritional factors represent approximately 32% of losses, Geary said. Cows bred when they are gaining weight have higher pregnancy rates than cows bred when they are losing weight. He recommended determining cow body condition scores (BCSs) shortly after calving and adjusting diets accordingly.



Tom Geary

He cautioned producers against selecting for excess milk, since all lactating cows have a negative energy balance. “Use early weaning at the start of the breeding season. You can go from a negative energy balance to a positive energy balance in just two days,” he said, which will have a positive effect on fertility.

Some studies show feeding fishmeal suppresses oxytocin-induced prostaglandin secretion in heifers with low progesterone concentrations. Geary explained that this suggests fishmeal “may improve an embryo’s ability to signal maternal recognition of pregnancy.”

Environment. Environmental factors influence approximately 15% of embryonic losses. Geary cited heat stress and handling stress as the most common environmental culprits.

He explained that gathering and handling cattle through working facilities is perceived as being more stressful by heifers than cows. Thus, injectables designed to inhibit prostaglandin production and increase pregnancy rates are often less effective in heifers than in cows. Geary said the stress caused by handling alone is enough to counteract the possible benefit of such an injection in heifers.

Miscellaneous. “Progesterone is obligatory for the establishment and maintenance of pregnancy,” Geary said. The use of a CIDR®, gonadotropin-releasing hormone (GnRH) or human chorionic gonadotropin (HCG) may increase progesterone concentrations, but Geary cited several studies showing their inconsistent ability to improve embryo survival and pregnancy rates.

— by Meghan Soderstrom

Range Beef Cow Symposium XIX, Part 2**Factors Affecting Breeding Success****George Perry**

SDSU's George Perry discussed management factors affecting breeding success.

"Reproductive failure costs the beef and dairy industries over \$1 billion annually," Perry said. The major place for error, he explained, is in cows not getting pregnant — fertility problems. Perry spent time discussing the advantages and disadvantages of AI and natural service, as well as management tips and possible problems for each.

AIing cows is a popular choice, he said, partly because there is a reliable source of quality semen. "The limitation is, you have to get out and detect estrus," he noted. One solution for that problem is estrus synchronization.

Perry compared the benefits of synchronizing to not synchronizing. He pointed out that some benefits appear only within certain time windows. In most cases, he said, if calves are bringing 50¢ per pound, 41 lb. will pay for synchronization protocols, and everything else is profit. He also emphasized the importance of following protocols exactly — not just regarding synchronization, but also regarding all other management decisions.

Perry then discussed the pros and cons of using natural service. He began by noting that a study of cows bred AI and natural service showed no difference in pregnancy rates between the two measures — if the bull used in natural service was healthy and fertile. To judge a bull's fertility, Perry said a breeding soundness exam (also referred to as a BSE) is an absolute necessity.

A breeding soundness exam measures three main things about the bull in question: physical health, scrotal circumference (SC) and semen quality. Perry emphasized the importance of a bull's physical health in breeding cows. "Especially in range situations, vision is very important," he said, since many bulls detect cows in estrus by watching cows mount one another.

Structure is also crucial, he noted, explaining that the bull needs to be physically able to mount the cow.

Semen quality, measured through both volume and semen motility, is also

a necessity. "Just collecting the semen is not enough to know how well that bull can breed," Perry said. If sperm are not moving forward, they can't get the job done.

Other issues producers should consider when deciding which bull to use include service capacity and social dominance. How many cows will that bull be able

to breed? Perry suggested producers carefully consider bull-to-cow ratios. If running several bulls in one pasture, does one bull dominate the others? In a multi-sire pasture, up to 90% of the cows can be bred by only one bull (if running several bulls) if that bull is dominant, Perry said. If the dominant bull is not fertile,

pregnancy rates can drop dramatically.

Perry closed by noting the huge amount of information available regarding factors affecting breeding management, and he encouraged participants to seek further information.

— by Brooke Byrd

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Heifer Development Strategies

When it comes to developing replacement females, Trey Patterson of the Padlock Ranch, Ranchester, Wyo., suggests there are different ways to do things. At the 2005 RBCS, the former

SDSU Extension beef specialist suggested it might even be OK to sell open heifers.

The goal with heifers is often to get as many bred as possible. Patterson suggested producers consider costs and shift that goal to an optimum level of reproduction. "Spending more money to get [the] maximum [number of] females

bred can actually decrease profits on the ranch," he explained.

In moving toward optimum reproduction as a more cost-effective goal, Patterson suggested producers rethink having heifers at 60%-65% of their mature weight by breeding season. Instead, he suggests keeping heifers smaller and getting them to 50%-55% of mature weight. "Cattle have changed so much since that initial target was set," he explained.

Patterson said there is no denying that weight influences puberty, and age of puberty is also affected somewhat by breed. A 910-lb. heifer is possibly necessary for maximum reproduction, he added, but not for optimum reproduction.

Patterson shared recent research showing a heifer group with an average weight of 638 lb. can still have a 90% pregnancy rate. In another study where heifers were fed to 50% of their mature weight, the group had an 87% pregnancy rate.



Trey Patterson

Patterson concluded by saying there is more risk of reproductive failure if heifers are developed at smaller weights, but there is also less development cost. In those scenarios, he pointed out, it may be a paying proposition to sell the open heifers. Smaller development weights may mean smaller cows, he said. "That's a plus, because it means lower maintenance requirements, which translates to less feed."

Patterson said the Padlock Ranch will be producing its crossbred females with this new concept of smaller development weights, and they believe it will be a success.

"We think we can build a better young cow that will have lower inputs," he said.

— by Kindra Gordon

