

# Beef Cattle Research Update

United States Department of Agriculture, University of Arkansas, and County Governments Cooperating

## Long-Term Outlook

*CattleFax*

### What's Inside

Page	Topic
2	• Supplemental trace minerals for shipping-stressed cattle
3	• Influence of reproductive tract score on pregnancy in Angus heifers • Cow and calf performance while grazing tall fescue pastures with toxic or nontoxic novel endophyte • Growth performance and immune function of fall-born beef calves
4	• Effects of on-arrive versus delayed modified-live virus vaccination of newly-received calves • Comparing fecal egg count reduction, weight gain and product safety in stocker cattle treated with moxidectin or ivermectin
5	• Effect of region of origin on feedlot performance and carcass traits • Effect of percentage Angus on feedlot performance and carcass traits
6	• Combating endophyte-infected tall fescue • Long-yearling vs. a calf-fed feeding system performance and economics • U.S. beef production per cow
7	• Across-breed expected progeny differences • Returns for U.S. cow-calf producers
8	• Americans dining out less • Burgers are going upscale • Four new beef products

**Long-term cattle supplies – little to no growth:** Cattle supplies will be nearly identical in 2008 with 2007. Beef cow numbers remain stagnant following several years of market volatility and uncertainty as well as drought. Beef and dairy cow numbers are expected to grow slightly during 2008, but it will likely take several years before cattle supplies are significantly larger.

**2008 cattle and beef supplies – flat with 2007 supplies:** Fed cattle slaughter totals are expected to increase by less than 1% during 2008, while cow slaughter totals are expected to decline by nearly 5%. Fed cattle imports from Canada and feeder cattle imports from Canada and Mexico are all expected to increase in the coming year. Average carcass weights are forecast to increase rather significantly, leading to a 1.5% increase in domestic beef production for the year. Carcass weights are expected to average 788 pounds in 2008. The substantial increase is due to heavier placement weights, high fed cattle breakevens, increased usage of beta-agonists in the feedyard and few cows in the slaughter mix.

**Beef demand – another solid year:** During 2008, beef demand is expected to be impacted by forecasts of a weaker economy, continued high energy prices and the ongoing mortgage and credit crisis. For the year in total, beef demand is expected to remain relatively flat with 2007 levels. Per-capita beef spending was record high in 2007 at \$247, an increase of over \$9.50. Demand during 2008 is forecast to be near 2007 levels.

**Grain prices – continue to increase:** Annual average cash corn prices were nearly \$1.25 per bushel higher in 2007. The grain and oilseed markets are facing a major acreage battle into the spring. U.S. corn ending stocks-to-use levels are expected to tighten due to decreased production in 2008 and increased demand, resulting in higher prices. Corn acreage is projected to decline over 6 million acres to 87 million, while soybean acreage increases 6.3 million acres and all wheat acreage jumps 5.6 million acres. While corn production is expected to decline in 2008, total corn usage is projected to rise above 13 billion bushels for 2008/2009.

**Trade – imports and exports to grow:** Expedited exports access to South Korea and Japan is expected to boost U.S. beef exports in 2008 by more than 40% compared to 2007. A weak dollar stimulates exports and stifles imports. The weak U.S. dollar also makes other countries' beef more expensive.

**Cattle and beef prices – average prices to mirror 2007:** Cattle and beef prices are expected to average close to 2007 levels during 2008. Fed cattle prices are expected to average \$92 to \$94 for the year, with the highest prices coming late in 2008. On average the cattle-feeding segment of the industry lost between \$20 and \$30 per head in 2007. Swings in profitability ranged from \$150 per head losses in January to \$50 to \$75 per head profits in the spring. Breakevens for the first quarter of 2008 are in the upper \$90s, and many cattle marketed during this time frame will generally lose money.

*Arkansas Is  
Our Campus*

Visit our web site at:  
<http://www.uaex.edu>

Feeder cattle and calf prices are expected to average close to 2007 level as well, assuming corn prices remain in check during the year. The annual average U.S. price for a 750-pound steer was \$106.50/cwt. compared to \$107 in 2006. During 2008 U.S. average feeder steer prices are expected to average \$106 to \$107/cwt. The strongest prices are anticipated to be in the late summer or early fall as tighter supplies are anticipated and premiums in the deferred live cattle futures are projected.

U.S. calf prices averaged \$119.75 basis a 500-pound steer in 2007, down \$5.75/cwt., compared to 2006. Sharply higher corn values and higher energy costs were the major factors behind the softer trend. The 2008 forecast is for cow-calf profitability to narrow. Calf prices are expected to average \$118 to \$120 in 2008, and production costs are expected to increase. Price spreads will remain wide with premiums associated with pre-conditioned/weaned healthy calves, source/age verification and superior genetics. Price discounts will continue for mismanaged cattle. Profitability in 2008 is expected to decline by \$25 to \$30 per head but still remain profitable to the tune of \$75 to \$80 per head.

In 2008 both beef and dairy cow slaughter levels are expected to decline 4% to 5%, while prices are forecast to increase about 7% and average near \$55/cwt. for Utility cows. Demand for bred females is not expected to increase during 2008.

The spread between Choice and Select graded product averaged about \$9.50 in 2007, which is down from \$14.04 during 2006. In the coming year, the spread is anticipated to widen and average near \$11. The increasing spread will be due to the expected increase in exports, which would positively influence Choice grading beef more than Select. The spread is expected to see a spring and fall peak around \$15, while the summer time frame could see the spread narrow to the \$6 to \$8 range for lows.

**Rising energy and feed costs:** Crude oil, gasoline, diesel and natural gas are all expected to average more than 5% higher in 2008.

**Ethanol's impact on corn prices:** The economics suggest a 50-cent-per-bushel increase in the price of corn can translate to a \$12 to \$14/cwt. decline in calf prices, assuming no change in fed cattle price on calves being placed directly on feed. As a result, it may be difficult for cow-calf producers to get very excited about expansion knowing higher corn prices are expected to remain for the foreseeable future.

**Supply outside of feedlots:** The supply outside of feedlots is forecast to be about 1% larger, totaling 28.5 million head. High grain prices will encourage producers to add more weight outside of feedyards.

**Hay prices record high:** U.S. hay prices remain near record highs with the 2007 all-hay price averaging \$127/ton, up 21% from the 2006 average of \$105/ton. Severe winter weather a year ago set the annual high in May at \$138/ton; however, the last six months of 2007 averaged \$132/ton.

**Developing trends:** Consolidation continues to be seen in all segments of the cattle and beef industry. Fewer and larger cow-calf operators own a higher percentage of the cows. The stocker/backgrounder segment is becoming increasingly tied to specific feeding companies. Feedyards are being forced to own a growing percentage of fed cattle. The packing segment has experienced four consecutive years of poor operating margins, and the lack of herd expansion suggests another one to two years of the same is ahead. The industry is on the cusp of another significant round of consolidation. The large will get larger, and there will likely be some new players and new money entering the business.

## Supplemental Trace Minerals (Zn, Cu, Mn and Co) as Availa®4 or Inorganic Sources for Shipping-Stressed Cattle

Pass et al., University of Arkansas

Male beef calves (n = 288, averaging 527 lb) were obtained from sale barns. During the 42-day backgrounding period, calves were on 1.1-acre paddocks, had ad libitum access to bermudagrass hay and were fed corn-soybean meal supplements that served as the carrier for treatments. Treatments consisted of supplemental zinc (360 mg/d), copper (125 mg/d), manganese (200 mg/d) and cobalt (12 mg/d) from inorganic (zinc sulfate, manganese sulfate, copper sulfate and cobalt carbonate) or organic (zinc amino acid complex,

manganese amino acid complex, copper amino acid complex and cobalt glucoheptonate; Availa®4, Zinpro Corp., Eden Prairie, Minn.) sources.

- Calves supplemented with organic trace mineral sources had a greater final weight (598 vs. 588 lb for organic and inorganic, respectively) and ADG (1.7 vs. 1.5 lb/d for organic and inorganic, respectively) than calves supplemented with trace minerals from inorganic sources.

- Supplementation with organic trace minerals tended to reduce the percentage of calves that received a second antibiotic treatment.
- When calves that had initial antibodies to infectious bovine rhinotracheitis virus (IBRV) were removed, there was an effect of dietary

treatment in the naive calves. Calves supplemented with inorganic trace minerals had a greater antibody response to IBRV vaccination.

Organic trace mineral supplementation improved growth performance of shipping-stressed calves compared to those fed equivalent levels of inorganic sources.

## Influence of Reproductive Tract Score on Pregnancy in Angus Heifers

Powell et al., University of Arkansas

The objective of this study was to determine if the use of reproductive tract scoring influences pregnancy status in Angus heifers (n = 104). Reproductive tract scoring (1 = immature to 5 = cycling) was accomplished with transrectal ultrasonography. At the time of scoring and breeding, heifers were approximately 65% of their mature body weight (BW = 764 lb). All heifers were exposed to fertile bulls and bred by natural service over a 63-day period. Pregnancy status was determined with the use of transrectal ultrasonography after breeding.

- The pregnancy rate of heifers with a reproductive tract score of 1 (immature) was 33%.
- The pregnancy rate of heifers with a reproductive tract score of 2, 3, 4 and 5 was 88%, 63%, 93% and 82%, respectively.

This study identified a difference between the pregnancy rates of Angus heifers with a low reproductive tract score and those with a higher reproductive tract score.

## Cow and Calf Performance While Grazing Tall Fescue Pastures With Either the Wild-Type Toxic Endophyte or a Nontoxic Novel Endophyte

Coffey et al., University of Arkansas

Fescue pastures are common in northwest Arkansas, but cattle performance has declined due to the toxicity caused by the wild-type endophyte *Neotyphodium coenophialum* in the fescue plant (E+). Our objectives were to compare performance by spring-calving cows grazing E+ tall fescue with that of cows grazing a nontoxic endophyte-tall fescue (HM4). Gelbvieh x Angus crossbred cows (n = 134; 1,078 lb initial BW) were allocated randomly by weight and age to one of four 25-acre pastures in 2005 and one of eight 25-acre pastures in 2006. The pastures were allocated randomly such that half contained E+ and half contained HM4. Cows confirmed as pregnant began grazing the experimental pastures on October 15, 2004, and November 30, 2005. Cows remained on their assigned pastures until weaning in 2006, but were removed from HM4 in the summer of 2005 because of low forage availability from extremely dry summer conditions.

- Cow BW and pregnancy rate were greater and hair scores were lower at weaning from HM4 than E+ pastures.
- Cow BW at the end of the breeding season tended to be greater from HM4 than E+ pastures.
- Calf birth date and birth weight were not different between forages.
- Actual and adjusted weaning weight and calf gain from birth to weaning were greater from HM4 compared with E+ pastures.

Therefore, replacing toxic tall fescue pastures with nontoxic novel endophyte-infected tall fescue may improve calf growth and cow reproductive performance.

## Growth Performance and Immune Function of Fall-Born Beef Calves Weaned From Endophyte-Infected Tall Fescue Pastures on Different Dates in the Spring

Caldwell et al., University of Arkansas

Fall-born calves grazing infected tall fescue should benefit from early weaning because of reduced exposure to fungal toxins, but our earlier work did not support this theory. A total of 238 Gelbvieh x Angus calves were used in a three-year study to determine the optimal time to wean fall-born calves grazing E+ tall

fescue. Cow-calf pairs were assigned to one of four weaning dates: 1) March 16 (177 ± 4.7 d of age, MarW); 2) April 13 (204 ± 4.7 d of age, AprW); 3) May 11 (236 ± 4.7 d of age, MayW); and 4) June 8 (264 ± 4.8 d of age, JuneW).

- Body weight on the June weaning date, actual weaning weight, ending BW (14 days following the June weaning date), daily gain between birth and the ending date and BW change between the March and June weaning dates increased linearly with delayed weaning date.
- Antibody titers to bovine virus diarrhea (BVD) and infectious bovine rhinotracheitis (IBR) at the time of weaning decreased in a linear manner, and bovine respiratory syncytial virus (BRSV) antibody titers tended to increase cubically across weaning dates.
- Response to BVD and IBR vaccination measured 14-day post-weaning increased linearly and that of BRSV increased linearly and quadratically across weaning dates.
- Antibody titer changes for BVD and BRSV between weaning and the end of the study increased linearly and that for IBR increased linearly and quadratically.

Therefore, delaying the weaning of fall-born calves grazing infected fescue pastures until early June may be beneficial for calf growth and immune function.

## Effects of On-Arrive Versus Delayed Modified-Live Virus Vaccination on Health, Performance and Serum Infectious Bovine Rhinotracheitis Titers of Newly-Received Calves

Richeson et al., University of Arkansas

Stress commonly associated with weaning, marketing and shipment of feeder cattle can temporarily compromise immune function, thereby reducing the effective response to vaccination intending to control bovine respiratory disease. Two vaccination timing treatments were used to evaluate the effect of timing of a multivalent modified live virus BRD vaccine on health, performance and IBR antibody titers of newly-received stocker cattle. Crossbred bull and steer calves (434 pounds) were assigned to modified live virus vaccination treatment:

- 1) vaccination upon arrival or
- 2) vaccination delayed 14 days.

- Days to first treatment, total treatment cost, percentage death loss and pasture average daily gain after the 42-day receiving period did not differ.
- Positive IBR titer seroconversions were greater for the delay-vaccinated calves on day 42 of the study, and 28 days and 42 days equivalent post-vaccination basis.

Delaying vaccination 14 days may increase average daily gains during the receiving period compared to vaccination upon arrival. In addition, seroconversion to IBR was greater in delay-vaccinated calves, indicating a possible improvement in acquired immune response when MLV vaccination is delayed.

## A Field Study Comparing Fecal Egg Count Reduction, Weight Gain and Product Safety in Stocker Cattle Treated With Either Moxidectin or Ivermectin With Clorsulon

Yazwinski et al., University of Arkansas

This study was conducted to assess effectiveness, safety and benefit of injectable moxidectin compared to an injectable ivermectin-clorsulon combination. A total of 2,022 stocker calves were assigned to either the moxidectin or ivermectin-clorsulon group. Naturally infected mixed breed bull, steer or heifer calves weighing from 241 to 810 pounds on day 0 were used. On day 0, each animal was weighed and fecal samples were obtained from 20% of the animals for determination of fecal nematode egg counts and copreculture larvae identification.

- Weight gains from day 0 did not vary significantly between treatment groups.
- On day 0, no differences were found between treatment groups for strongyle eggs per gram of feces counts or copreculture larvae percentages.
- For days 50 and 100, eggs per gram counts for moxidectin-treated calves were lower than those from ivermectin-clorsulon-treated calves.

Although there was no difference between products relative to average daily gain or total weight gain, greater nematocidal effectiveness of moxidectin relative to ivermectin in regard to egg count reduction was clearly demonstrated in this study.

## Effect of Region of Origin, Southeast Versus Midwest, on Feedlot Performance and Carcass Traits in Beef Calves

Busby et al., Iowa State University and Certified Angus Beef LLC

Calves (n = 27,538) from 15 states fed at ten Iowa feedlots through the Iowa Tri-County Steer Carcass Futurity over six years (2002-07) were used to evaluate the effect of origin of calves on feedlot performance and carcass traits. A common diet was fed and similar implant and health programs were administered to all calves. Five Midwest states (n = 9,310) and ten Southeast states (n = 18,228) were represented. Calves were sorted and harvested when they were visually evaluated to have one centimeter of fat cover.

- Delivery weight (lb), delivery age (days), final weight (lb) and ADG (lb/day) were 640, 324, 1,176 and 3.18 and 630, 253, 1,183 and 3.22 for Southeast and Midwest calves, respectively, and were different for each pair of values.
- Morbidity rate (%), treatment cost (\$/head) and mortality rate (%) for Southeast and Midwest calves were 15, 5.01 and 1.4 and 21, 7.38 and 1.8, respectively, and were different for each pair of values.

- The percentage of Prime, Choice, Select and Standard carcasses for Southeast and Midwest calves were 1.1, 67.9, 28.3 and 2.6 and 1.0, 69.3, 27.2 and 2.5, respectively.
- A significantly higher percentage of the Southeast versus Midwest calves (21.6% and 19.0%, respectively) of the black-hided Angus calves eligible for the *Certified Angus Beef*<sup>®</sup> Program (CAB<sup>®</sup>) were accepted.
- When considering feedlot and carcass traits and all associated costs, the Southeast calves had a profit/head of \$48.63 versus \$37.31 for Midwest calves.

Southeast calves had fewer health problems, higher CAB<sup>®</sup> acceptance rates and more profit/head, while Midwest calves tended to have better feedlot performance.

## Effect of Percentage Angus on Feedlot Performance and Carcass Traits in Beef Calves

Busby et al., Iowa State University and Certified Angus Beef LLC

Calves (n = 18,250) from 15 states (ten in the Southeast and five in the Midwest) fed at ten Iowa feedlots through the Iowa Tri-County Steer Carcass Futurity (2002-07) were used to evaluate the effect of percentage Angus in each calf on feedlot performance and carcass traits. A common diet was fed and consistent implant and health programs were administered to all calves. Each calf was categorized into four classifications [Low Angus (L) (n = 4,767), Half Angus (H) (n = 3,684), Three-quarter Angus (3/4) (n = 3,460), and Straight Angus (S) (n = 6,339)] based on the breed information of its dam and sire. Calves were harvested when visually evaluated to have one centimeter of fat cover.

- Percentage Angus, arrival weight (lb), final weight (lb) and ADG (lb/day) were 9.5, 640, 1,188 and 3.11; 48.9, 635, 1,186 and 3.24; 73.5, 635, 1,176 and 3.20; and 98.8, 630, 1,168 and 3.29 for L, H, 3/4 and S, respectively.
  - Percentage Angus and ADG for each classification were different from all other classifications.
  - Morbidity rate (%), treatment cost (\$/head), and mortality rate (%) for the L, H, 3/4 and S calves were 22.8, 7.74 and 1.9; 15.7, 5.44 and 1.3; 15.7, 5.48 and 1.4; and 14.8, 4.60 and 1.5, respectively. Morbidity rate and treatment costs were different between high and low percentage Angus calves.
  - The percentage Prime, Choice, Select and Standard quality grades were 0.3, 52.5, 42.2 and 5.1; 0.5, 69.5, 27.9 and 2.1; 1.1, 71.9, 25.3 and 1.8; and 2.3, 81.7, 15.4 and 0.7 for the L, H, 3/4 and S calves, respectively.
  - Acceptance rates for black-hided calves eligible for the *Certified Angus Beef*<sup>®</sup> Program were 9.5, 17.7, 19.0 and 29.6 percent for the L, H, 3/4 and S groups, respectively.
  - Yield grades for L, H, 3/4 and S carcasses were 2.56, 2.80, 2.90 and 3.00, respectively.
- Feedlot performance, health and carcass merit were positively influenced by the percentage of Angus in the calves.

## Combating Endophyte-Infected Tall Fescue

Fisher et al., University of Tennessee

The objective of this trial was to evaluate Endo Fighter™ mineral (ADM Animal Nutrition, Inc.) for use when beef cattle are grazing endophyte-infected tall fescue. The study was conducted near Dandridge, TN, from April through Sept., 2006, using 125 beef steers (604 lb) in a 126-day grazing period. Steers were allotted to one of two treatments: 1) control (Master Gain® mineral) and 2) treatment (Master Gain® with Endo Fighter™). Mineral mixtures were formulated for consumption of 0.25 lb/head/day. Recorded cattle behaviors were grazing (shade or no shade), lying (shade or no shade) and at water. Maximum temperature reached at least 85°F on 72 days of the trial.

- Treatment steers had a significantly higher average daily gain than control steers (1.76 vs. 1.52 lb/day).
- More treatment cattle were observed grazing than controls (761 vs. 200 occurrences, respectively).
- More control cattle were located in shade than treatment cattle.

The authors concluded that offering a mineral product containing Endo Fighter™ resulted in greater gains and increased grazing behavior by cattle grazing tall fescue pasture during the summer.

## Performance and Economics of a Long-Yearling vs. a Calf-Fed Finishing System

Griffin et al., University of Nebraska

Research data from 1996 to 2004 was analyzed to compare the performance and economics of calf-fed vs. long-yearling feeding systems. All calves in these trials were spring-born and purchased the subsequent autumn. The heaviest calves (644 lb) were placed directly into the feedlot and fed an average of 168 days (calf-fed), whereas the lighter calves (527 lb) were grazed on corn residue followed by summer grazing before entering the feedlot and fed an average of 90 days (long-yearlings). At the start of the finishing period, long-yearlings were 317 lb heavier than calf-feds (959 vs. 642 lb). Following is a summary of results.

- Daily dry matter intake was significantly greater for long-yearlings, but calf-feds consumed more total dry matter during finishing.

- Long-yearlings had significantly greater average daily gain during finishing than calf-feds, but calf-feds were 18.7% more efficient.
- At harvest, long-yearlings were 84 lb heavier and had carcasses that were 53 lb heavier than calf-feds.
- Quality grades were not significantly different, but calf-fed carcasses had significantly greater fat thickness than long-yearlings (0.53 vs. 0.47 inches) and higher numerical yield grade (2.71 vs. 2.60).

Long-yearlings were more profitable than calf-feds due to their lower feed cost, yardage, initial animal cost and greater final body weight.

## U.S. Beef Production Per Cow

USDA

The table below shows that beef production per cow has increased dramatically over the past 41 years. Compared to 1965, U.S. cow-calf producers have increased their output by 70%.

Year	Pounds/Cow
1965	363
1970	447
1975	435
1980	449
1985	480
1990	530
1995	565
2000	625
2006	620

## Across-Breed Expected Progeny Differences

U. S. Meat Animal Research Center, Nebraska

U.S. MARC scientists presented their annual across-breed expected progeny differences (AB-EPDs) at the 2007 Beef Improvement Federation annual meeting (see table below). The AB-EPDs enable commercial producers to compare bulls of different

breeds on the same EPD scale by adding the appropriate adjustment factors to EPDs produced in the most recent genetic evaluations for five British, eight Continental and three Brahman-influenced breeds.

Adjustment Factors to Add to EPDs of 16 Different Breeds to Estimate Across-Breed EPDs				
Breed	Birth weight	Weaning weight	Yearling weight	Maternal milk
Angus	0.0	0.0	0.0	0.0
Hereford	2.7	-3.1	-12.7	-15.7
Red Angus	2.5	-4.7	-0.7	-5.1
Shorthorn	7.0	32.5	46.1	16.1
South Devon	5.8	23.1	41.7	8.0
Braunvieh	6.3	30.3	17.4	24.5
Charolais	9.6	40.9	48.7	3.5
Gelbvieh	4.4	7.0	-21.2	6.2
Limousin	4.0	-1.3	-24.0	-12.6
Maine-Anjou	7.1	-2.9	-31.9	-6.2
Salers	4.2	30.7	43.5	12.8
Simmental	5.7	24.4	17.0	13.7
Tarentaise	3.0	31.9	18.3	20.0
Beefmaster	9.0	42.2	43.7	-4.1
Brahman	12.1	38.5	2.6	26.7
Brangus	5.0	24.3	26.5	-3.1

## Returns for U.S. Cow-Calf Producers

USDA and James Mintert, Kansas State University

As shown below, net returns for most cow-calf producers have been generally profitable over the past 22 years. Only for 1994-98 were profits negative or barely break-even.

Year	Net Return (\$/head)	Year	Net Return (\$/head)
1986	25	1997	5
1987	88	1998	-30
1988	40	1999	30
1989	60	2000	40
1990	75	2001	45
1991	76	2002	15
1992	58	2003	85
1993	47	2004	147
1994	7	2005	135
1995	-45	2006	50
1996	-85	2007 (projected)	49

## Americans Will Be Dining Out Less

Meatingplace.com

More than half of Americans say they will be eating out at restaurants less due to rising economic concerns, according to a recent survey by RBC Capital Markets. Out of 1,000 people surveyed, 54% said that their dining habits will be affected by concerns such as volatile stock markets, declining home values and

higher energy costs. The survey revealed that even 35% of those with higher incomes (\$50,000 or more annually) plan to eat out less due to budgetary reasons. Of those respondents who earn less than \$25,000 annually, 62% said they will dine out.

## Burgers Are Going Upscale

Meatingplace.com

Fine-dining chefs are competing with one another to see who can introduce the most outrageously upscale burger for the most outrageous price. A New York chef, Daniel Boulud, invented the "DB Burger," consisting of 8 ounces of house-ground sirloin stuffed with red-wine-braised short ribs, foie gras, root-vegetable mirepoix and preserved black truffles. It's priced at \$32, and some days accounts for as much as

40% of the restaurant's entrée sales. The Fleur de Lys restaurant in Las Vegas offers the "Fleurburger," which combines 8 ounces of American Kobe beef with seared foie gras and shaved black truffles. The burger sells for \$75, accounting for about 15% of entrée sales. The Old Homestead restaurant in Boca Raton unveiled a \$100 tri-beef burger consisting of American Prime, Japanese Kobe and Argentine Free Range.

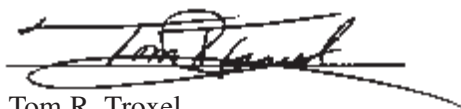
## Four New Beef Products Created

Four new hand-held beef snacks for children have been created by The Beef Innovations Group, an affiliate of the National Cattlemen's Beef Association. The process began with more than 100 concepts resulting in 19 products, four of which made it through testing by more than 200 young consumers ages 5 to 18. The new products include the following items:

- **Beef Snackwich:** a self-contained bun stuffed with a beef and sauce filling.
- **Steak and Egg Breakfast Bites:** steak, egg and cheese in a potato crumb coating.

- **Breakfast Pancake Flip:** beef sausage, egg and cheese in a pancake.
- **Standing Beef Sandwich:** a hollowed-out bun, turned upright and stuffed with beef and other ingredients.

The Beef Innovations Group said that it plans to launch two new products in 2008, "Cheeseburger on a Stick" and "Mini Burger."



Tom R. Troxel  
Professor and Associate Department  
Head - Animal Science

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Arkansas Cooperative Extension Service is implied.