

Beef Cattle Research Update

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Manure Can Be More Than Fertilizer

Michigan State University and USDA researchers are investigating a method to make fiberboard from processed and sterilized cow manure. The process could eventually take the place of sawdust in making fiberboard, which is used to make everything from furniture to flooring to store shelves. The scientists hope it could be part of the solution to the nation's 1.5- to 2-trillion pound annual farm waste disposal problem. As dairy and other livestock operations have grown larger, they often find themselves with too little land for the manure they produce.

As with the wood-based original, the manure-based product is made by combining fibers in the manure with a chemical resin, then subjecting the mixture to heat and pressure. So far, the fiberboard made in this manner seems to match or exceed the quality of wood-based products (SOURCE: David Goodman, Associated Press).

Feeding Low-Test Weight Corn to Growing Steers Did Not Reduce Performance

North Dakota State Univ. researchers conducted a trial to evaluate the effect of low-density (low-test wt.) corn, resulting from insufficient growing degree days, on the performance of growing steers. A total of sixty beef steers

(633 lb) were allotted to one of four dietary treatments in which low-density corn replaced 0, 33, 67, or 100 percent of high-density corn in a growing diet, which consisted of 42% dry-rolled corn, 35% corn silage, 15% mixed hay, and 8% supplement. The high-density corn weighed 56.0 lbs/bu., whereas the low-density corn weighed only 39.1 lbs/bu. The steers were fed individually once a day for 96 days.

Low-density corn inclusion in the diets did not significantly affect dry matter intake, average daily gain, or final weight. However, increasing the percentage of low-density corn significantly improved feed conversion. Dietary NEg also increased significantly as the percentage of low-density corn increased in the diet. The authors concluded that low-density corn is an excellent substitute for high-density corn in a growing diet for beef cattle (Larson et al. 2006. North Dakota State Univ. Beef Cattle and Range Report).

Effect of Implant Dosing Patterns on Finishing Steer Performance and Carcass Traits

South Dakota State Univ. researchers used a total of 192 yearling steers (820 lb) to compare the effects of implanting with 24 mg estradiol 7B and 120 mg trenbolone acetate one time versus spreading the same dosage over two or three

times during a 133-day finishing period. In addition to these three treatments, there was a non-implanted control group.

All implanted treatments had significantly greater avg. daily gains, heavier final weights and carcass weights, and improved feed conversions compared to the control group. In addition, they had significantly greater ribeye areas than control cattle. There were no differences among treatments in ribfat thickness, marbling score, quality grade, or yield grade. The authors concluded that the implant dosing pattern had no effect on performance or carcass quality characteristics (Parr et al. 2006. South Dakota Beef Report).

Numerous Factors Affect Marbling in Beef

In a recent article, Dr. Daryl Tatum, Colorado State University meat scientist, reviewed various aspects of beef marbling (intramuscular fat) deposition (SOURCE: David Bowser, Livestock Weekly).

* Research has shown that marbling is highly correlated with a pleasurable eating experience.

- Marbling is the key element in providing taste.
- The flavor components that are characteristic of what consumers like in grain-fed beef reside in intramuscular fat.
- Marbling also enhances juiciness in the cooked product.

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- Research has identified compounds in grain-fed beef that are not present in grass-fed beef. These components affect the taste of the meat, and it takes about 80 to 100 days on feed to acquire that.
- Research at Colorado State revealed that consumers will pay more for well-marbled steaks. Compared to the base price, a \$2.47 premium for Prime, \$0.89 for Premium Choice, and \$0.51 for Low Choice.
- The amount of marbling is dependent upon both the number and size of fat cells.
- Intramuscular fat deposition begins at an early age at a relatively slow but steady rate, contrary to the long-held belief that it is a late developing tissue. As cattle fatten, marbling increases at an almost constant rate relative to total fat deposition.
- A restrictive ration early in life can have a negative effect on marbling. Later, during the finishing phase, this can result in the animal depositing more external fat relative to marbling.
- Genetics determine the upper limit for marbling, but a number of environmental factors can affect an animal's ability to reach its potential, including sickness, weather, diet, etc.

Ultrasound Measurements of Body Composition Were Highly Correlated With Carcass Measurements

An Iowa State University study compared ultrasound measurements of body composition of 145 heifers to their subsequent carcass measurements. The measurements were made on five separate harvest groups during the period of 2002 through 2004.

Overall results showed that ultrasound technology can accurately estimate ribfat thickness, ribeye area, and marbling prior to harvest. Correlations between live and carcass measurements were remarkably high for ribfat thickness and ribeye area at 0.80 and 0.66, respectively. The correlation for marbling score was lower at 0.48, but still significantly high ($P < 0.001$). The authors concluded that real-time ultrasound is an accurate tool to measure body composition and can be used very effectively as a selection or sorting tool in the feedlot (Ribeiro et al. 2006. Iowa State Univ. Animal Industry Report).

Beef Carcass Trends

Randy Blach, executive vice president of Cattle-Fax recently reported on carcass trends in the beef industry. Following is a summary.

- Days on feed now average slightly more than 150 days compared to 15 to 20 years ago when it was 125 to 130 days.
- Weight put on in the feedyard averaged 409 lbs in the 1980s compared to 575 lbs in 2006.
- Average weight of fed cattle increased from 1085 lbs to

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almost 1265 lbs between 1985 and 2006.

- Carcass weights have increased 6 lbs per year for the past 25 years.
- 30 to 40% of cattle today are yield grade fours.
- In spite of the significant increase in days on feed and carcass weights, quality grades are slumping.

Dry, Hot Summer Predicted for Much of Corn Belt

According to meteorologist Dr. Art Douglas, Creighton University, the forecast for 2007 summer growing weather is not good. He predicts that from June through August, nearly the entire Corn Belt from east to west will be dryer and warmer than usual. This outlook comes at a time when the high use of corn for ethanol production is driving corn prices to historic and possibly permanent higher levels, thereby pushing up feed costs for livestock and poultry producers

and food costs for consumers.

Analysts have said that the U.S. needs to plant an additional 10 to 12 million acres of corn this year in order to make up for the acres lost to ethanol and temper the increase in corn prices. However, a poor growing season would work against a needed 2007 corn harvest even with additional acres; furthermore, a possible active hurricane season would lead to higher energy prices for producers and even more support for ethanol production.

Douglas further noted that although we have not experienced an outright drought, a large portion of the U.S. has been in "drought-like" conditions since 1998, a pattern he said could persist for the next 10-20 years (SOURCE: Rod Smith, Feedstuffs).

Minimal Change in 2007 Cattle Inventory

The U.S. cattle inventory

increased by only 300,000 head in 2006, totaling 97.00 million on Jan. 1, 2007, compared to 96.70 million on Jan. 1, 2006. The nation's cow herd was down slightly at 42.02 million, compared to 42.06 million a year ago. Feeder cattle and calf supply was similar to Jan. 1, 2006 at 28.31 million compared to 28.21 million a year ago. Cattle-Fax(r) analysts noted that the impact of sharply higher corn prices and limited forage supplies will continue to hamper the rate of expansion in the current cattle cycle as significantly lower feeder cattle and calf prices cut into the profitability of cow-calf producers. The profit incentive to expand was apparent in 2006, but Mother Nature intervened and consequently the expansion phase of the cycle may be stretched out over more years at a very slow growth rate (SOURCE: Tod Kalous, Cattle-Fax Update).

Kansas State University agricul-

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tural economist, Dr. James Mintert, reported that domestic retail beef demand may be weakening. Using 1980 as a base year (1980=100 for Beef Demand Index), the demand index spiraled downward for nearly two decades, hitting a low of 53 in 1998. Beef demand started to improve in late 1998 and early 1999. By 2005, the index had increased to 67. However, during the last half of 2005, demand began to weaken significantly. Compared to 2004, beef demand indexes declined, 7 and 6 percent, respectively, during the 3rd and 4th quarter of 2005. The downward trend continued during the first half of 2006, when it averaged only 60.

Mintert discussed why these shifts in demand have probably occurred. During the late 1990s and early 2000s, consumer interest in low carbohydrate diets was growing rapidly. An increase in beef demand coincided with the low car-

bohydrate boom, so it seems reasonable that this boom played a major role in affecting beef demand. But it appears that low carbohydrate diets have turned out to be another consumer fad that is rapidly running its course. The recent decline in beef demand coincides with the downturn in consumer interest in high protein/low carbohydrate diets. In addition, a decline in chicken exports in early 2006 pushed domestic chicken supplies above those of 2005, contributing to beef's demand decline. Furthermore, energy prices increased significantly, which likely reduced money available for consumer's discretionary spending. Mintert concluded that it appears we can expect continued weakness in domestic retail demand for beef (SOURCE: Feedlot magazine).

Long-Term Projections for Per Capita Meat

Consumption

The USDA has projected that annual per capita consumption of meat and poultry will decline from 223 lbs in 2007 to a low of 213 lbs in 2012. The report indicated that this drop will largely be the result of reduced meat and poultry production due to higher feed costs caused by increased ethanol production. Growth will resume after the low in 2012, but at approximately 219 lbs in 2016, consumption will remain lower than in recent years. Other forecasts were as follows (SOURCE: Tom Johnston, Meatingplace.com).

- Per capita beef consumption will decline through the first half of the projection period. From 2013-2016, production and consumption will increase due to the increased use of distillers grains in cattle diets and reductions in corn prices.
- Further limiting domestic per capita beef consumption will be the assumed rebuilding of U.S. exports

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to Japan and Korea.

- Strong demand for high quality beef will continue in the hotel and restaurant market, and increasingly in the retail market. Beef export markets will also primarily demand high-quality beef.

Outlook for Cattle and Beef

At its 2007 Outlook and Strategies Seminar, Cattle-Fax® analysts made the following projections.

- The U.S. cattle inventory in 2007 is up about 0.7% compared to Jan. 1, 2006.
- Total beef production for 2007 is projected to increase by 2% over 2006.
- Carcass weights are expected to average 774 lbs in 2007, flat with 2006, and then increase through the end of the decade at a rate of 4 lbs per year.
- Beef demand growth at retail and wholesale peaked in 2004. At the

retail level, demand was softer in 2005 and 2006. At wholesale, beef demand was softer in 2005, but slightly stronger in 2006. With larger supplies of competing proteins expected in 2007, along with a slowdown in the high protein diet craze, demand will likely remain flat to softer in 2007.

- Per capita beef consumption is expected to decrease slightly in 2007 (65.5 vs. 65.9) and remain mostly flat through the end of the decade.
- 550-lb steer calves are forecast to average \$110/cwt in 2007 compared to \$126 in 2006.
- 750-lb steers are projected to average \$97/cwt in 2007, compared to \$108 in 2006.
- Utility slaughter cows will average \$46/cwt compared to \$49.50 in 2006.
- Bred cow prices are expected to average \$150/head lower in 2007.
- Fed cattle prices are forecast to average \$84/cwt in 2007 compared to \$86 in 2006. The Choice/Select

spread is expected to average \$13/cwt.

- Average corn price for 2007 is projected to be about \$3.50/bu. compared to \$2.15 for 2006 and \$1.78 for 2005.
- 2006 marked the eighth year of significant cow-calf profitability. In 2007, profitability will decline to \$95/head from \$170/head in 2006. It is projected to decline further to about \$20/head in 2008.
- Fed cattle profitability peaked in 2003 at \$145/head, and then declined significantly but was still profitable in 2004 and 2005. In 2006, cattle feeders lost an average of \$15/head and are projected to lose an average of about \$20/head in 2007.
- Summer stocker grazing programs have been profitable during each of the past four years (2003 through 2006). Profit margins are expected to decline compared to the previous four years, but still average around \$40 to \$50/head. ■