



BEEF PRODUCTION AND THE INDUSTRY TODAY

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Beef cattle numbers have been on the decline over past decades, being dwindled by drought, natural disasters, and feedlots holding onto cattle longer before sending them to market. In January 2014, the forecast on beef production in the United States was just over 24 billion pounds, the lowest since 1994. To balance the herd reduction across the nation and meet the public demand for lean beef, ranchers are challenged with seeking progressive feeding practices.

Dr. Bradley Johnson, research project director and Gordon W. Davis Chair of Texas Tech's Meat Science and Muscle Biology Program, is currently working on researching the effects of adding amino acids to the diet of feedlot cattle supplemented with beta agonists. Amino acids are the building blocks for protein synthesis, allowing for the production of muscle fibers. Growth enhancers, such as beta agonists and steroidal implants, increase protein synthesis and promote lean muscle growth.

One of the side effects of beta agonists is an increase in overall toughness of the produced meat. Dr. Johnson's research focuses on "increasing the tenderness of beef cattle that are fed beta agonist growth supplements by adding a more natural approach with selected amino acids." While promoting muscle growth, Dr. Johnson hopes "that by adding amino acids, we can increase the protein synthesis and offset the use of beta agonists." Dr. Johnson has also found an increase in overall marbling, with the help of these pre-selected amino acids. He



Since receiving his doctorate in Animal Science from the University of Minnesota, Dr. Bradley Johnson has focused his research on beef production and lean tissue development. Dr. Johnson currently resides as Texas Tech University's Gordon W. Davis Regent's Chair in Meat Science and Muscle Biology.

believes that adding protected amino acids may counterbalance the use of beta agonists in the future, producing a leaner, higher quality, and more tender meat than what we have seen in the recent past.

Beta agonists increase feed efficiency, reducing the demand on already high grain prices and receding feed lot numbers. By incorporating protected amino acids and beta agonists, cattle require less time and resources to reach market. Increasing feed efficiency allows for a greater profit at market and reduces stress on the animal during the finishing stage as a result of decreased time in the feedlot. All in all, combining amino acids with beta agonists in feedlot cattle may prove a more natural and productive non-traditional feeding method by increasing meat tenderness, overall marbling, and palatability while decreasing time and resources to finish cattle in the feedlots.