

## GROWTH PROMOTANTS IN MEAT PRODUCTION: THEIR USE AND SAFETY

The meat industry uses certain growth promotants to help provide consumers with a wholesome, affordable and increasingly healthful meat supply. Like other technologies currently used by the U.S. meat industry, the use of growth promotants is backed by an overwhelming body of scientific evidence proving its safety and effectiveness.

Two types of growth promotants are used in meat production: hormones in cattle and beta-agonists in cattle and pigs. The three synthetic hormones used in livestock production mimic three naturally occurring hormones. The synthetic hormone zeranol mimics estradiol; the synthetic hormone trenbolone acetate mimics testosterone; and the synthetic hormone melengestrol acetate (MGA) mimics progesterone. These hormones have been safely used in the United States for decades.

Beta-agonists such as ractopamine and zilpaterol are nutrition supplements added to animal feed to assist with muscle development, which is very similar in many respects to certain human supplements that people consume to encourage muscle development. They have been safely used for nearly 20 years.

Small amounts of growth promotants enhance animal growth by increasing the efficiency with which feed is converted to muscle. An animal given growth enhancers gains weight more rapidly and produces a leaner product. By reaching market weight sooner, the cost of meat production goes down, which can mean lower prices to consumers.

### Benefitting Producers and Consumers

The use of growth promotants in meat production has several benefits throughout the supply chain. Consumers want leaner meat and they want it at a price they can afford. Growth promotants are one tool that helps meat producers satisfy that demand by helping animals make the most of the nutrients found in the food they eat and convert it to more lean muscle.

These sustainable technologies allow producers to reduce the natural resources needed to produce meat. For example, since 1977 U.S. cattle farmers are producing 31 percent more beef with fewer animals, feed, water and land. This increased efficiency has significant environmental benefits and reduces prices for consumers as well.

### Regulatory Control in the United States

The safety of growth promoting products used in meat production is assured through several layers of requirements that are enforced by multiple government agencies. First, growth promotants are subject to a comprehensive, multi-step scientific review process conducted by scientists at the Food and Drug Administration's Center for Veterinary

Medicine (FDA-CVM) to ensure animal health and human food safety. More than 500 different studies have been conducted on growth promoting products and submitted as part of this stringent approval process. If approved, these products are then re-evaluated by FDA annually and only remain in the marketplace if they are continually proven safe.

In addition, meat packing and processing plants are required to address any potential chemical concerns, such as growth promotant residues, as part of their facility's government-mandated Hazard Analysis and Critical Control Point plan.

Under the Federal Meat Inspection Act, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) tests for residues of growth promoting products at harvest that exceed FDA-established safe levels. FSIS has conducted testing since 1967 and in 2011, the most current year data, reported zero residue violations for growth promotants in cattle and pigs.

### Internationally Recognized Safety Record

There is a clear worldwide scientific consensus to support the use of these approved and licensed growth promotants when used according to good veterinary practices. This consensus is reflected by many government agencies and groups worldwide, including: the European Economic Community Scientific Working Group on Anabolic Agents; the International Codex Alimentarius Committee on Residues of Veterinary Drugs in Foods; the European Agriculture Commission Scientific Conference on Growth Promotion in Meat Production; and the Food and Agriculture Organization (FAO)/World Health Organization (WHO) Joint Expert Committee on Food Additives (JECFA). The world's scientific community has agreed that these products are safe when used according to label directions in food-producing animals. FDA and other scientific bodies also have concluded that there is essentially no difference between meat from animals raised using growth promotants and those raised without their use.

### International Controversies

Although the European Union (EU) banned beef from hormone treated animals in the early 1980s, the move has been widely acknowledged as an unscientific trade barrier. After the U.S. filed a case with the World Trade Organization (WTO), a WTO Panel upheld the U.S. position and ruled that there was no scientific basis for the EU's hormone ban and that the EU's hormone ban is inconsistent with WTO principles. The EU appealed the ruling, but an appellate decision upheld this ruling, the EU was given until May 13, 1999, to bring its measure into compliance. Years later, and after much back and forth between the U.S., the EU and the WTO, the EU is still in the process of coming into compliance.

Similar trade battles have arisen over the FDA approved beta-agonist Ractopamine, but in July 2012, the safety of Ractopamine, used appropriately, was affirmed. The Codex Alimentarius Commission adopted maximum residue limits for the amount of the drug allowed in the tissues of pigs and cattle. The decision was made after a rigorous

process of scientific assessment to ascertain that the proposed levels of residues have no impact on human health. This assessment was carried out by the Joint Expert Committee on Food Additives, a group of independent experts convened by the FAO and WHO that provides scientific support to Codex.

### Beef Hormones in Perspective

FDA and USDA cooperate to provide consumers with a safe food product by ensuring the proper use of hormones in cattle. FDA regulations have very specific instructions for the proper use of hormones. Hormones are primarily administered as small pelleted implants that contain a specific, legally authorized dosage of the hormone inserted into the ear of the animal and discarded at slaughter. The hormone is released into the bloodstream very slowly, ensuring that the concentration remains relatively constant and low. The prescribed dosage is the level that will produce optimal results. In fact, when it comes to hormones, there is no benefit to using more – only additional costs – thus eliminating the incentive for farmers and producers to exceed permitted levels.

The hormone levels in beef produced using growth hormones are well within the range of naturally occurring levels of these hormones in beef cattle. For example, beef from an uncastrated bull not administered hormones contains testosterone levels more than 10 times higher than the amount in beef from a steer (which is castrated) that has received hormones for growth promotion. According to USDA the amounts of synthetic estradiol, progesterone and testosterone in animals raised using hormones as growth promoters are extremely low compared with their production in humans. To put it in perspective, if you compare beef from cattle raised using hormones and beef from cattle raised without their use, the difference would be comparable to one blade of grass on a football field. About one pound of beef raised using synthetic estradiol contains about 15,000 times less of this hormone than the amount produced daily by the average man and about nine million times less than the amount produced by a pregnant woman.

| Food 3 oz. serving        | Estrogen (in nanograms) |
|---------------------------|-------------------------|
| Soybean Oil               | 168,000,000             |
| Milk                      | 11                      |
| Potatoes                  | 225                     |
| Peas                      | 340                     |
| Ice Cream                 | 520                     |
| Wheat Germ                | 3,400                   |
| Beef with Hormone Implant | 1.9                     |

A 3oz. serving of beef from a steer treated with growth promotants contains 1.9 nanograms of estrogen.

A 3oz. serving of beef from a steer raised without growth promotants, such as certified organic beef contains 1.3 nanograms of estrogen.

One serving of beef from an implanted steer has nearly 20 times less estrogen than FDA permits, not to mention a fraction of what is present in many other foods such as soybean oil, cabbage and grains.

### Beta-Agonists in Perspective

Beta-agonists are used as feed ingredients similar to nutrition supplements humans often take. They are sometimes called repartitioning agents because they direct nutrients into muscle rather than fat. They are used in a very targeted way based upon years of experience and research to ensure the animals receive the proper doses and do not exceed approved tolerance levels set by FDA. Beta-agonists are water soluble so they are quickly processed and excreted by the animal's metabolism. An analysis of many studies shows beta-agonists have little impact on meat color, firmness, water-holding capacity, marbling or intramuscular fat.

Tests done on pork samples in 2012 by Consumer Reports to detect the FDA-approved beta-agonist Ractopamine found none in 80 percent of pork samples. While there was some detectable Ractopamine in 20 percent of samples, the levels found were well below the limits set by FDA.

Currently Ractopamine is approved in 26 countries including Canada, Mexico, Australia and Brazil. In July 2012, the Codex Alimentarius Commission, developed in part by the World Health Organization, confirmed Ractopamine's safety by establishing a maximum residue limit for Ractopamine. The Codex decision provides a worldwide standard.

### Final Note

Growth promotants are used in meat production to sustain a high quality and affordable meat supply. Careful federal regulation and oversight of the use of growth promotants should assure consumers that meat from animals raised with approved promotants is safe and wholesome.

**HELPFUL LINKS**

*American Meat Institute*

[www.meatami.com](http://www.meatami.com)

[www.meatsafety.org](http://www.meatsafety.org)

*Foreign Agricultural service*

A Primer on Beef Hormones

*Food and Drug Administration*

<http://www.fda.gov>

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**THIRD PARTY EXPERTS:**

*Joseph D. Tatum, Ph.D.*

Professor

Department of Animal Science

Colorado State University

(970) 491-6530

[j.daryl.tatum@colostate.edu](mailto:j.daryl.tatum@colostate.edu)

*Guy Loneragan, Ph.D.*

Professor

Department of Animal

and Food Sciences

Texas Tech University

(806) 742-2805, ext. 268

[guy.loneragan@ttu.edu](mailto:guy.loneragan@ttu.edu)

*Brad Johnson, Ph.D.*

Professor

Gordon W. Davis Regent's Chair in

Meat and Muscle Biology

Department of Animal and Food

Sciences

Texas Tech University

(806) 742-2805, ext. 224

[bradleyjohnson@ttu.edu](mailto:bradleyjohnson@ttu.edu)

*Rhonda Miller, Ph.D.*

Professor, Meat Science

Department of Animal Science

Texas A&M University

979-845-3901

[rmiller@tamu.edu](mailto:rmiller@tamu.edu)