**Beta-Agonists and Cattle Feed**

Beta-Adrenergic Agonists (Beta-2 agonists) are widely utilized by cattle raisers in the US since the Food and Drug Administration (FDA) approved their utilization in cattle feed in 2003. Beta-2 agonists are estimated to be used in 60-80% of cattle raised in the US. Beta-2 agonists are also licensed for cattle feed in Canada, Australia, Japan and Mexico. However, the usage of beta-2 agonists in cattle feed is prohibited in Guadeloupe, Iceland, Martinique, Monaco, Norway, Switzerland and all European Union countries. This article aims to answer few questions about the beta-2 agonists: First, why are beta-2 agonists used in cattle feed? Second, how these non-hormonal growth enhancers affect human health, and Third, why they are banned in some countries while approved in others?

Beta-adrenergic agonists are non-hormonal medications that work on the cellular level to enhance or reduce physiological responses that mimic the “fight-or-flight” response mediated by the hormone adrenaline. Therefore, these medications are used in the human medical field to manage multiple diseases such as cardiovascular and respiratory disorders.

**What is the role of these medications in cattle raising?**

Beta-2 agonists stimulate cellular receptors on fat cells of the animal, these receptors reduce the production of fat tissue while increasing the protein synthesis and muscle fibers size. Therefore, farmers can efficiently increase the lean body mass of their cattle with less food and water intake. Accordingly, beta-2 agonists are estimated to increase the US meat production by 1.5-2% which equates to 360 million pounds of lean beef a year without a significant increase in the price of production, providing the consumers with more meat for more affordable prices.

**How does the utilization of beta-2 agonists in cattle feed affect consumers’ health?**

Beta-2 agonists have a very short half-life which means that they remain for a short time in the animal body. The animal liver metabolizes them quickly and excretes them with the animal feces and urine. Therefore, no or minimal amounts of residual levels can be detected in the cattle meat. Additionally, meat produced from beta-2 agonist fed cattle are not allowed to be exported if residue limits exceed the maximum set by the Food and Agriculture Organization (FAO) of the United Nations (UN) and World Health Organization (WHO) Joint Expert Committee on Food Additives (JECFA). The FDA which is responsible for regulating food for both humans and animals has approved the utilization of two beta-2 agonists (Optaflexx© and Zilmax©) in cattle feed 20 to 40 days before slaughter.

**Why do some countries prohibit the usage of beta-2 agonists for cattle feeding?**

Multiple studies analyzed the effect of beta-2 agonists on animals’ welfare. A study done by Guy Loneragan, the professor of food safety and public health in Texas Tech's College of Agricultural Sciences and Natural Resources, finds that cattle fed with beta-2 agonists have higher death rates compared to non-fed beta-2 agonists cattle. Other reports raised the awareness of the effect of beta-2 agonists on animals’ mobility and temperature. Therefore, some countries have banned the utilization of such drugs to preserve animals’ welfare. Some companies in the US have stopped temporarily accepting cattle fed with beta-2 agonist Zilmax© until a comprehensive study investigates these concerns.

Packing companies have the option to meet the requirements of the Never Fed Beta Agonists marketing claim under either a USDA Process Verified Program (PVP) or the USDA Quality System Assessment (QSA) Program. The USDA QSVP ensures that the Never Fed Beta Agonists program requirements are supported by a documented quality management system.

Meat and meat products derived from animals that meet the requirements to be labeled as Never Fed Beta Agonists are eligible for customers that require verification of a marketing claim that the meat is derived from animals that were never fed beta agonists and is free of beta agonist residues.

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