

*Excerpted in part from:*

BETA AGONISTS

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“Beta agonists” refers to a family of compounds that include synthetic beta-adrenergic agonists which are similar to catecholamines. Beta-agonists, thus, are involved in different metabolic actions. The beta-agonists of interest are compounds that decrease anabolism of lipids and allow greater anabolism of protein. These types of beta agonists are in line with present production goals of producing more lean and less fat.

At the present time, the beta agonists that are of interest are ractopamine, salbutamol, clenbuterol, cimaterol and L-6449,969. Activity of these compounds covers several species, including beef cattle, swine and sheep. While none of these have yet been approved for use commercially, administration has been through the feed in studies conducted.

Early studies indicated clenbuterol was effective in reducing fat and increasing lean in cattle and sheep, but it is no longer being considered as a potential growth regulator.

Recent studies with cimaterol and ractopamine indicate potential for swine with some responses in cattle and sheep. Studies with swine indicate ractopamine and cimaterol are effective means of reducing fat deposition and enhancing lean pork production.

One of the concerns about using products like beta agonists is that they will dramatically increase the quantity of feed, especially protein, required by swine. This cost increase could conceivably offset any benefit from using the products. However, current research has indicated that elevated dietary protein was not necessary to achieve an increase in carcass leanness. Other research has found an increase in efficiency of feed utilization by swine receiving ractopamine, whereas, cimaterol had no effect on feed utilization. Together, this information demonstrates that, at least with ractopamine, the increase in carcass leanness will not require additional dietary protein, and may reduce the total feed requirements to produce a unit of meat by finishing swine.

A summary of six beef cattle trials with ractopamine fed the last 38 to 46

days before slaughter, indicated improved average gain (18.4 percent) and decreased feed to gain (15.7 percent) with a slight reduction of 4.9 percent carcass percent fat and an increase of 2.5 percent carcass percent protein.

Beta agonists allow the restriction of fat during the growing and finishing period of animals. With less production of fat, a more desirable protein product can be produced. The producer of should benefit the most from beta agonists since these compounds should reduce the cost of production.

The consumer, whether at home or at a restaurant, determines what technologies are ultimately used in production of lean red meat. Presently, the consumer prefers lean red meat to higher levels of fat in the meat, but the consumer has equated tenderness to fat levels in red meat. Technologies such as beta agonists offer the potential to produce a quality protein product that meets consumer demands at a lower production cost.