

## Antibiotic Alternatives for Promoting Animal Growth

**Antibiotic use in animals is creating concerns related to possible drug resistance in humans that eat the animal products. Learn out more about antibiotic alternatives from veterinarian Aaron Tangeman.**

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By Dr. Aaron Tangeman

**Q:** We purchased a small beef operation just before hay and grain prices increased and profit margins are now extremely tight. Are there alternatives to feeding antibiotics that will improve productivity and lower our costs?

**A:** Antibiotics have been used since the 1940s to promote and enhance animal growth and improve meat-production efficiency.

Anything that can kill bacteria or inhibits their growth or multiplication, such as antibiotics, is classified as an antimicrobial.

Scientists and producers are debating whether drug resistance in humans can develop by consuming the meat and dairy products of animals that were fed antibiotics.

There is also a concern that resistance can be passed to humans by companion animals such as dogs and horses. Resistant bacteria may be excreted through the feces and urine of animals, inhabiting the soil and contaminating water resources.

A ruminant stomach has four compartments: the rumen, the reticulum, the omasum, and the abomasum.

Foraging ruminants lack the enzymes necessary to break down the plant carbohydrates they consume, relying upon fermentation that occurs primarily in the rumen.

The combination of food and water with body heat in the rumen results in an anaerobic chemical reaction that feeds bacteria, which in turn provides by-products that can be utilized by the ruminant.

The presence and growth of microbes can be affected by drugs administered to the animal, environment, or stress.

Resistance concerns are leading producers to seek antibiotic alternatives that benefit digestion, while limiting the growth of undesirable bacteria that can overwhelm normal intestinal microorganisms when an animal is stressed or undergoing a dietary change.

Although the responses are varied, you could consider: Prebiotics – indigestible carbohydrates that stimulate the growth of beneficial bacteria in the gut. Enzymes – dietary enzymes that assist in breaking down complex carbohydrates. Probiotics – live microbial feed supplements, such as Lactobacillus, Bacillus, and some yeasts. Coccidiostats – additives to commercial calf starters, such as decoquinate, marketed as Deccox®, can help prevent the entrenchment of coccidiosis on many farms. You should be aware that some coccidiostats, such as lasalocid, marketed as Bovatec®, and monensin, marketed as Rumensin®, are ionophores, classified by the USDA as antibiotics. Ionophores, toxic to horses, promote propionic acid within the rumen, improving feed efficiency. Growth hormone implants – can increase growth rates, improve feed efficiency, and develop lean meat.

Your first-line defense to improving herd health and meat production is your animal husbandry skills. Consider: Taking advantage of educational seminars will keep you informed of changes in livestock management. Hygienic and sanitary conditions promote herd health. Provide adequate amounts of fresh water. Consider using all-in all-out production. Consult your local nutritionist or extension service to determine which feeds, supplements, and forages are most advantageous for your individual operation.

Keep in mind that if you are planning on marketing your products as natural or organic, you need to be very careful about what goes into your animals.

Partner with your local veterinarian, who can advise and update you about herd health, including vaccinations, and forge a strong veterinary-client-patient relationship (VCPR).

Soaring grain and hay prices are certainly challenging for meat producers, but good farming practices, including a sound

business plan, will help maximize your financial return.

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Dr. Aaron Tangeman received his Doctorate of Veterinary Medicine from the Ohio State University in 1998 and practices in Northeast Ohio.

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