

For the best results from antibiotic treatment ...

Avoid Mistakes

by Troy Smith

I can picture my granddad standing over a dead calf that he had fought hard to save. With that ever-present stub of a cigarette dangling from the corner of his mouth, he would shake his head, sigh and mutter, "Well, you can't lose 'em if you haven't got 'em."

As a child, I didn't grasp his meaning, but most livestock producers come to understand it. If they are fortunate enough to have a herd of cattle, they understand that, despite their best efforts to prevent it, some animals will get sick and die. When it comes to curing animal ailments, sometimes you win and sometimes you don't. Unfortunately, producers too often set themselves up for failure.

"Producers make mistakes when handling and using products such as antibiotics that can affect treatment results," says Colorado veterinarian Tim Holt. In practice since 1988, Holt is associated with Town & Country Animal Hospital, serving cow-calf producers in the Gunnison area.

"It's not only producers. Veterinarians can make the same kinds of mistakes. A rancher might keep a bottle of oxytetracycline in his saddlebag, in the 100-degree heat of summer, but I've left a bottle, lying in the sun, on the seat of my truck," Holt admits. "We all need to remember the things that can reduce product efficacy."

Common mistakes

Holt says improper product storage is a common mistake. Many animal health products, including antibiotics, are easily damaged by sunlight and/or temperatures beyond a certain range. Penicillin, for example, is particularly sensitive to temperature, while exposure to sunlight is detrimental to oxytetracycline. Holt advises his clients to read product labels and follow storage instructions.

"Bottle contamination is another common problem. Contaminants can be introduced into a bottle of antibiotic when a used needle is inserted through the stopper, or if the top of the stopper is not cleaned after each dose is drawn," Holt adds.

"It's best to use a new needle every time and to clean the top of the bottle. Not only can contaminants cause deterioration of the product,

making it less effective, but injection of a contaminated product may cause local infections or abscesses, resulting in beef quality defects," he says.

Know how to administer

Similarly, proper dosage and route of administration are important to beef quality assurance and to achieving desired results from treatment. Administering the correct dose of antibiotic by the correct route, whether subcutaneously (sub-Q) or intramuscularly (IM), affects the amount and rate of absorption by the animal's body.

Holt says producers frequently report poor results from treatment with certain antibiotics. If the infection was caused by a virus an antibiotic will have little effect, except as a treatment for secondary bacterial infections. All too often, however, lack of success comes from choosing the wrong product. Holt urges producers to consult their veterinarians to identify products suited to treatment of different infections. Kansas State University (K-State) Extension beef veterinarian Larry Hollis agrees, noting that there are two basic classes of antibiotics, with different modes of action.

According to Hollis, all antibiotics are either bacteriostatic or bacteriocidal. Bacteriostatic antibiotics, such as oxytetracycline, florfenicol (Nuflor®) or tilmicosin (Micotil®), arrest the growth of bacteria and weaken it, allowing the animal's own immune system to fight off the infection.

Bacteriocidal antibiotics actually kill the bacteria and include products like

penicillin, ceftiofur (Naxcel®) and enrofloxacin (Baytril®). It's important, Hollis adds, to know what type of infection is involved in order to choose the appropriate type of antibiotic.

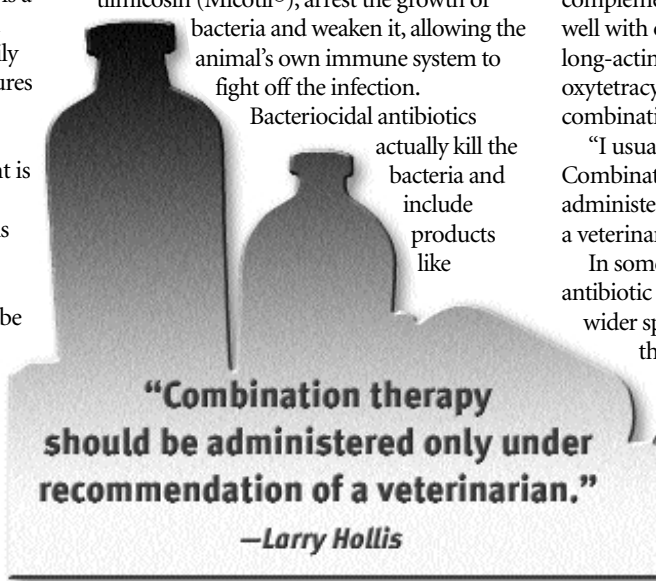
"The immune status of the infected animal is a factor in choosing the right product," Hollis explains. "If the animal is unstressed, with a healthy immune system, a bacteriostatic antibiotic should be effective. A bacteriocidal antibiotic is the best choice for immune-compromised cattle like lightweight stockers coming off a long haul or in a high-stress situation."

Even when the type of infection is diagnosed and an appropriate antibiotic is chosen, Hollis says producers often make the mistake of under-dosing or failing to administer follow-up treatments — usually in an attempt to save money. Another mistake that some producers make, particularly when they don't know what kind of infection they are fighting, involves the use of multiple antibiotics in the same treatment. This shotgun approach can backfire when products, used together incorrectly, render each other useless.

"Some people try to use oxytetracycline and penicillin together, but bacteriostatic antibiotics and bacteriocidal antibiotics are antagonistic and should not be used in combination. Some combinations are complementary. Sulfonamides often work well with other bacteriostatic antibiotics, so long-acting sulfa products and oxytetracycline can make a complementary combination," Hollis explains.

"I usually discourage shotgunning. Combination therapy should be administered only under recommendation of a veterinarian," he adds.

In some situations, Holt does prescribe antibiotic combinations to help control a wider spectrum of bacteria and to amplify the effects of the products used. He also favors the use of anti-inflammatory drugs (such as Banamine®) to complement bacteriocidal antibiotics in the treatment of scours, foot rot, pneumonia or other diseases involving toxin-producing bacteria.



"Combination therapy should be administered only under recommendation of a veterinarian."

—Larry Hollis

“Anti-inflammatory drugs help reduce fever, pain and shock. They make the animal feel better and often reduce time off feed. Other complementary care would include the administration of B-complex vitamins,” Holt adds.

Identify sick animals

Holt and Hollis agree that optimum results from treatment protocols start with the early detection and diagnosis of any infection.

“Careful observation is the key. It’s something of an art, to be able to look at cattle and detect the ADR animals — the ones that ‘ain’t doing right’ — that stand out

from the normal, healthy cattle. You need to be conscious of what is normal to recognize what is not,” Hollis notes.

To spot sick cattle, Hollis and Holt both recommend observing them from a distance. Observe them before your presence prompts a reaction that might hide symptoms. Look at animals that are lying down and reluctant to rise. Watch for an abnormal stance. A sick animal may be hunched up, or stand stretched out with neck extended and head held lower than normal.

Other symptoms of disease may include difficulty breathing, coughing, discharge from the nose or eyes, or diarrhea. Signs of

depression may include loss of appetite.

“When the animal sees you, does it follow you with its eyes? Or is it too depressed to care? Notice the respiratory rate and if its hair looks rough and dull. Is its nose dry? These are some more things to look for. You look at the total animal, both sides and both ends. Sick animals usually show more than one thing wrong,” Hollis says.

“When you have assessed the symptoms, you can consult your veterinarian for a complete diagnosis and treatment protocol,” Holt adds. “Catch the sick ones early and you have a better chance of making them right.”

