



CEDAR GROVE VETERINARY SERVICE NEWSLETTER



MAY 2017

HISTORY AND FUTURE OF ANTIBIOTIC TESTING BY DAIRY PROCESSORS

Did you know there was a time when all milk that was shipped for use in the food industry wasn't checked for antibiotics? Did you know that the testing of antibiotics has changed and evolved with new research and changing technology? Finally, are you aware of the most recent change in the industry in terms of antibiotic testing?

The history of milk testing for antibiotics began after World War II. At that time, farmers were desperate to rid their milk of a major adulterant: bacteria. The bacteria they were concerned with most were those associated with mastitis and were a result of the wide spread use of milking machines. To accomplish this, they turned to another adulterant: antibiotics.

Farmers first turned to penicillin to treat mastitis in the 1940's. It did not take too long before farmers were also using preparations involving streptomycin, chlortetracycline, oxytetracycline, neomycin,

polymyxin, subtilin, supromycetin, and chloramphenicol. By 1959, agricultural officials estimated half of the 204 tons of antibiotics used in veterinary medicine were being used in mastitis treatment.

It soon became obvious that all of these products were lingering in the bodies of cows and in their milk. By 1951, FDA officials decided to require that dairy farmers hold all milk from treated cows for at least 72 hours before sale. In 1960, officials banned all drugs that persisted in milk beyond 96 hours.

At first, the antibiotic residues were only a concern for cheese and yogurt makers since the antibiotics rendered their cultures useless. However, with the release of William Longgood's book *Poisons in your Food*, consumers became very concerned about the dairy products they were consuming.

In the early days of antibiotic testing of milk, the responsibility of enforcement

DO YOU KNOW YOUR ANTIBIOTICS?

Baytril

Use: Baytril is on label to treat:

- Bovine respiratory disease due to *M. haemolytica*, *P. multocida*, *H. somni*, and *M. bovis* in **Non-Lactating Dairy Animals and Beef Animals**
- Swine respiratory disease (SRD)
- Colibacillosis in weaned piglets

Dose: Single-Dose Therapy (BRD Treatment): Administer SQ a single dose of 3.4-5.7 mL/100 lb

Multiple-Day Therapy (BRD Treatment): Administer daily, a SQ dose of 2.5-5 mg/kg of 1.1-2.3 mL/100 lb. Treatment should be repeated at 24-hour intervals for three days. Additional treatments may be given on Days 4 and 5.

Special Notes:

- 28-day meat withhold
- Do not use in female dairy cattle 20 months of age or older
- It is highly **ILLEGAL** to use Baytril extra-label for any reason (species, indication, dose, etc.)

was placed squarely on the milk processors. Very few state or local health departments checked milk for any impurities. In fact, when a Wisconsin milk control official fined a dairy producer for antibiotic-laden milk, the arrest was unusual enough to merit national attention. It would take both economic and cultural changes to allow FDA officials to enforce regulations regarding antibiotic contamination in milk.

First, consumers were beginning to hear more horror stories about the risks of antibiotics in milk and their potential to cause allergic reactions in those sensitive to certain antibiotics. On the economic front, the FDA realized that if they required all milk that crossed state lines to be antibiotic free, they could highly encourage farmers to embrace the antibiotics regulations.

These regulations utilized changing technology that could accurately and rapidly detect antibiotics in milk. As a result, the PMO (Pasteurized Milk Ordinance) established the requirement that all tank loads of milk should be tested for beta-lactam type antibiotics (penicillin, ampicillin, amoxicillin, ceftiofur) before they are

offloaded at the processing plant. In the event of a positive load, the individual samples from individual farms that make up the load will be tested for the offending producer. The sensitivity of many of these tests detect the drug at a level of 5 parts per billion or 0.008 IU. To put that in to perspective, the amount of penicillin G that is normally infused in a quarter is 100,000 IU.

This practice of careful testing has caused the incidence of positive antibiotic tests to decrease markedly to less than one in 1,000 samples. However, consumer preference is once again driving the industry. The next step in the journey of antibiotic testing in milk will begin July 1st, 2017. At that time, 1 of every 15 milk tankers will be tested for tetracycline adulterants in addition to the typical beta-lactam antibiotic testing. Currently, the tolerance level for tetracycline is 300 parts per billion. However, some of the tests being used can detect tetracycline at lower levels.

This is important to be aware of because certain uses of tetracyclines, such as in foot wraps and footbaths, may induce a positive test even though they have

traditionally had zero withhold time. Gerard Cramer, a veterinarian and hoof care specialist, says that applying 2 grams or less of tetracycline per lesion for a maximum of two lesions per cow will not cause a violative residue in individual cows. It is still unclear how this may affect smaller herds who may have milk samples that show up positive for tetracyclines but are still below the legal limit. This is most likely to occur on days where the hoof trimmer has been present.

So, what should a producer take away from all this information? First, consumers will continue to be a driving force in the industry. Second, the best way to follow the regulations and maintain the ability to sell milk is to work closely with a veterinarian to ensure that all milk remains saleable and all withholds are observed.



