

SAFE USE OF ANTIBIOTICS AND DRUGS IN  
HERD HEALTH PROGRAMS

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Public concern over adulterants in human food is increasing. This concern is likely to involve milk if purity of the products is not maintained. Milk found to contain adulterants such as antibiotics must be condemned as unfit for human consumption. Although this results in economical loss to the producer and processor, an even greater loss would be caused by undue public fear of contaminated milk.

Rapid and more sensitive tests are now being used to detect antibiotics and other residues in milk. One part of antibiotic in 100 million parts of milk can now be detected. This is like finding one bad apple in one million bushels. The well-intended dairyman can get into trouble if he does not pay close attention to the proper use of drugs in the treatment of mastitis and other diseases.

Concern over antibiotics in milk is based on allergy to drugs and development of resistant bacterial organisms. Continued exposure to certain drugs, particularly penicillin, produces allergy in a significant number of people. For example, an estimated 5 to 6 percent of our population is sensitive to penicillin. Another possible hazard is the resistance developed by disease-producing germs when frequently exposed to small amounts of drugs.

Sources of Antibiotics

The cause of antibiotic residues in milk in probable order of importance include: 1) persistence of antibiotics in milk for more than 72 hours after intramammary infusion; 2) failure to identify treated cows properly and withhold milk for the required period; 3) persistence of antibiotics in milk following intramuscular injections; and other routes of administration; and 4) possible absorption and transfer of antibiotics from treated to untreated quarters and failure to withhold milk from all 4 quarters.

Before antibiotics are administered to lactating cattle, the period of time antibiotics will persist in milk must be known. However, this varies with different products depending on the particular antibiotics, the carrier or vehicle, and the dosage. Generally, the withholding time is about 72 hours. Recently, the Food and Drug Administration (FDA) has initiated action to extend the withholding period on some penicillin preparations to 96 hours or 8 milkings to correspond with experimental evidence. Also, FDA is recommending

that certain preparations that resulted in milk residues more than 96 hours after treatment be discontinued. In any event, the label directions or advice of a veterinarian should be followed closely. Do not use any antibiotic that does not have clear, specific directions on the length of time milk from treated animals must be withheld from the market supply.

Antibiotics will persist in milk for 36 hours to 6 days following intramuscular, intravenous, or subcutaneous injections. Be sure to follow specific instructions for the product used.

In some mastitis cases antibiotic is apparently absorbed into the blood stream from treated quarters and finds its way to untreated quarters of the udder. Therefore, milk from all four quarters of a treated cow should be discarded.

Antibiotics or sulfonamides given by mouth for the treatment of disease may be excreted in milk. When antibiotics are fed to lactating cattle in sufficient amounts to produce a detectable blood concentration for treatment value, traces of the drug can be found in milk. However, chlortetracycline is approved for feeding at a dosage of 0.1 mg per pound of body weight and the antibiotic is not found in milk. The drug is sometimes used in treatment of respiratory infections, foot rot, anaplasmosis, and bacterial diarrhea. If chlortetracycline is fed at a level of 0.5 mg per pound of body weight, the antibiotic is found in milk. Care must be taken not to exceed recommended dosage levels.

Another possible source of drugs in milk is from intrauterine absorption. Research information is limited on this subject. There is evidence to indicate that when sulfamethazine, sulfamerazine, sulfapyridine, sulfathiazole, sulfanilamide, sulfacetamide and possibly other sulfas are placed in the uterus, sufficient movement across the uterine membrane occurs to cause these drugs to be found in milk for up to 72 hours, depending on the length of action of the sulfa. Uteri absorption of the sulfonamides was greater during proestrus and estrus phases than in the diestrus phase. Nitrofurazone and nitrofurantoin have been found in milk in low concentrations for up to 24 hours after intrauterine administration. Information to date indicates that antibiotics such as penicillin, dihydrostreptomycin, and oxytetracycline do not move from the uterus into the milk. This information suggests the use of antibiotics in the uterus and to avoid the use of sulfa drugs and the nitrofurans in lactating cows because of the possibility of drug residues in milk.

The best way to identify treated cows is to segregate them and milk them separately until the period of discarding milk is past. A good cattle dye or cattle marker may be used on the hip or thigh for identification. Also, close supervision of milkers is sometimes necessary to avoid carelessness and "convenient forgetting."

Summary

Millions of dollars have been saved by our livestock industry through the use of antibiotics. When properly used, these drugs are safe. However, to prevent residues of antibiotics in milk, the dairyman should carefully follow the directions on the label of the product, the directions of a veterinarian, and recommendations made by local regulatory agencies which pertain to the withholding of milk from treated cows. Let's maintain Florida's reputation for good quality milk.

Warning! Strict enforcement of Florida's milk quality laws will result in condemnation of any milk containing antibiotic or drug residues.