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Drug Residues and Food Safety

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Food Safety

Fact Sheet

Drug Residues and Food Safety

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Complaints and demands from consumers concerning a product usually occur after an incident involving injury, illness, or death. However, this was not the case with the Alar scare with apples and it is not the case with the concern for drug residues in food animal products. There has been no increase in drug residues; in fact the rate of violation has steadily decreased. Neither has there been any outbreaks of illness, allergic reactions, or deaths related to residues, nor has there been a decrease in the quality of food animal products. There has been increased concern among consumers about antibiotic and other drug or chemical residues. There has also been increased emphasis from the regulatory agencies to monitor and prevent residues.

These changes have come about because of an increase in the sensitivity of the tests available and the resultant enforcement actions and penalties for violations by regulator agencies. They are not due to any associated human health problems. There are few, in any, documented cases of illness, injury or death resulting from drug residues in food animal products. One source claims there has "been no evidence of a single serious health effect from residues in meat or poultry in the last 20 years." There have been food borne illness outbreaks but these have resulted from microbiological agents (bacteria, etc.), not from residues of antibiotics or other drugs. But, in the marketplace, perception has greater influence than fact. And the current perception is that if a drug residue can be detected, regardless of what the drug is and even if present in only parts per billion (drops in a swimming pool), it may somehow pose a potential risk to someone, someplace, sometime.

The potential problems associated with antibiotic residues may be classed in two broad categories. First, aesthetics; consumers (all of us) don't like the idea of foreign substances being present in food. The second problem is that of potential health risks. As indicated above, these have seldom if ever been identified, but some claim they are present and are just unrecognized. These potential health problems include allergic reactions, direct toxic effects, and a change in the resistance patterns of bacteria exposed to antibiotics. There is still debate in the scientific community about whether these hazards are real or just theoretical, so it is not surprising that consumers are confused about this issue.

There are a number of safeguards to reduce the risk of problems, both in the animals and in the food processing system. Even with increased surveillance, the rate of detection of residues is small and the actual rate of violation of the permissible levels is very low. Extensive testing has proven the safety and efficacy of approved products. The drug is metabolized in the animal's body and broken down or excreted, within the directed withdrawal time. Organs, such as the kidney and liver, remove residual drug and greatly reduce the content present in the red meat or milk. These organs are the tissues tested for residues but the content in red meat is less by many times. There is also a great dilution factor, either from the mixing of milk from one cow with that of many others, or in the eating of meat products. We do not eat the whole cow at once and most people would seldom get more than one or two servings from the same animal. There is also a reducing effect on many drugs from the processing of the product (washing, freezing, cooking). All of these factors combine to result in a risk factor that is infinitesimally small for any problems of human ill health due to drug residues from good animals.

Each of the food animal industries have responded to consumer and regulatory concerns by establishing quality assurance programs to help their producers insure improved quality of food products. It is imperative that food animal producers utilize these programs to improve their control on the use of antibiotics and drugs. This will help prevent any erosion of confidence in the milk and meat they produce and market. But it is also important to recognize that production agriculture is doing this in response to increased sensitivity of testing, not because there have been human health problems. Wouldn't it be great if other areas of politics, government, industry, finance and society would respond so quickly and positively to their potential problems?

Production agriculture has recognized that it can do a better job in preventing residues. The mistakes detected in the future will be so costly they will put some producers out of business because of one minor error. Contaminated milk from one cow could result in residue detection and cause the condemnation of mixed milk from 1,000 to 60,000 other cows. The regulations could force a producer to pay for that contaminated, discarded milk. Few producers could afford it and they would be forced out of business.

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