Questions Pertaining to Large Dairy Enterprises in Ohio: Animal and Human Health

Is it true that animals on big farms are mistreated?

Dairy farmers are concerned about the well-being of their animals. Healthy animals are more productive and result in lower veterinary costs and increased profitability for the dairy farmer. Farmers are genuinely interested in sound animal husbandry practices because they care about the animals. Larger farms often have a more specialized, more skilled labor force to work with the animals, thus animal care can be more specialized. In order to maintain health, animals require comfortable, well ventilated housing, adequate supplies of feed and water, vaccination from certain diseases, and prompt treatment when illnesses occur. Farmers are encouraged to establish a close, professional relationship with a veterinarian, referred to as “veterinarian/client/patient relationship” (VCPR). The VCPR helps to ensure that animals are treated with the correct medications and that withdrawal periods are strictly adhered to so as to avoid residues in milk and meat. Instructional materials are available to farmers on the safe handling of animals, both from the perspective of protecting animals and humans (materials are available from the National Institute for Animal Agriculture: http://www.animalagriculture.org). The Ohio Livestock Coalition has endorsed the Ohio Farm Animal Care Commission Code of Ethics, which describes the general responsibilities of the farmer, and all persons in their authority, for the proper care and handling of animals produced for food and fiber.

Don’t larger farms need to use more hormones that will lead to contaminated milk?

No. The same hormones and medications that may be used on larger farms are also available for use on small farms. All pharmaceuticals and hormones approved for use in dairy cattle in the United States have received rigorous testing by the Food and Drug Administration (FDA) with the safety of the food supply being a major criterion for approval. Therefore, if the manufacturer’s directions are followed by producers and veterinarians, the consumer is assured that violative residues will not be present in their food. In addition, the milk processor samples milk from the bulk tank at each dairy farm to check the quality of the milk. The milk in the tanker truck and in silos (upright storage tanks) is also sampled and tested for bacteria and antibiotic residues by the milk processor. If the raw milk does not meet the quality standards, it is discarded. The FDA inspects dairy processing facilities to ensure that the plant follows quality assurance practices.

What diseases can be transmitted from dairy cows or other livestock to humans?

Although a number of diseases are shared by both man and animals, many of them require specific conditions, such as a mosquito or tick bite, for their transmission. Examples of these would include Lacrosse encephalitis, West Nile fever, and Lyme disease. Fortunately, the number of diseases that are transmitted from animals to man, either directly or by contact with animal manure, is rather small. These diseases are all infections caused by germs classified as bacteria, viruses, fungi, or protozoa. The more important of these diseases are discussed below.

Bacteria

Brucellosis is also known as “undulant fever” and is spread mainly by contact with aborted fetuses and milk. Although it was once a serious problem, brucellosis has been essentially eradicated in the United States through an active testing and monitoring program (http://www.usaha.org/news/news00/pbru2000.txt). If brucellosis should occur in a herd, the infected herd is quarantined until all known infected animals are removed.

Bovine Tuberculosis is spread by aerosols and by contamination of food and the environment. Tuberculosis is also nearly eradicated from the United States. With the recent purchase of some herds in Texas, essentially all infected herds have been identified and eliminated. Active testing and monitoring for this disease will go on for several more years to make sure it has been eliminated. Human beings remain the principle reservoir for this

---

1Abbreviations: EPA = Environmental Protection Agency, FDA = Food and Drug Administration, VCPR = veterinarian/client/patient relationship.
infection in the United States. Pasteurization of milk and meat inspection procedures have virtually eliminated the exposure of people to both brucellosis and bovine tuberculosis.

Salmonella, Campylobacter, and E. coli are bacteria that inhabit the intestines of many animals and human beings. People usually get exposed to these bacteria by contamination of their food through unsanitary food processing or handling practices, contaminated water supplies, or by drinking unpasteurized milk. They are commonly involved in cases of food poisoning and the source of the bacteria may be both infected animals and other humans. Pasteurization of milk, thorough cooking of foods, and routine water treatment procedures usually kills these bacteria, and it is often post-treatment, or post-cooking, contamination that leads to illness in people.

Listeria is a bacterium that lives in the intestines of many types of animals, and occasionally humans. It may periodically be found in the milk of infected cows. Often it causes no harm, but the environment may become contaminated, thus leading to exposure of other animals and people. The bacteria can live in the environment for a long time, including the environment inside food processing plants. Some outbreaks in people have been associated with contamination of food products in the processing plant where Listeria survived on inadequately sanitized equipment or in air handling systems. Other outbreaks have been traced to improperly pasteurized milk or uncooked, or improperly cooked, foods.

Leptospirosis is caused by several species of the Leptospira genus of bacteria. These bacteria live in the urinary tracts of many species of animals, including rats, mice, dogs, raccoons, deer, and muskrats, as well as cattle. Most people get exposed by direct contact with the urine of infected animals or by swimming or wading in ponds or other contaminated water sources.

Viruses

Rabies is the only virus of importance to mention here. It is transmitted by a bite or other direct contact with saliva from an infected animal, and all warm blooded animals are susceptible. The reservoir for the virus in the United States is predominantly in wild animals. Raccoons, skunks, foxes, and bats are the principle species involved. In the past decade, all human cases developing from exposures in the United States have been traced to bats. Livestock species are infected primarily through bites of wild animals, and humans are only at risk when they have close, direct contact with them. (See fact sheet on Rabies at http://ohioline.ag.ohio-state.edu/vme-fact/0001.html).

Fungi

Ringworm is the common name for skin infections caused by a number of fungi. Athlete’s foot is an example of a fungal infection unique to humans. Ringworm is most common in cattle and occasionally seen in horses and sheep. Transmission to humans occurs, but it is not common. The fungi that cause ringworm are spread by direct contact with the infected animal and by contamination of clothing and other objects, such as grooming equipment, with fungal spores. Although people occasionally become infected by contact with livestock, the general public is more at risk by contact with pet animals that may also carry various types of fungi.

Protozoa

Cryptosporidia and Giardia are found in the intestinal tracts of many species of livestock and other domestic animals, as well as human beings and some wild animals. People usually become exposed through contaminated food or water. It was once thought that these organisms were rather freely transmitted between animals and people. Newer scientific techniques have shown us that this may not be the case. Although people can become infected by the strains of cryptosporidia that infect cattle, we now know that some people may harbor a strain transmissible only to other people. Since some of these newer scientific tools have become available, it has been suggested that most cases of cryptosporidiosis in people come from other human sources. Giardia can be found in some surface water supplies. Although chlorination of drinking water does not completely destroy all of these organisms, most water treatment processes make the water safe. Newer processing methods, including filtration technology, are even more certain of clearing surface water of these organisms. Properly sealed and maintained water wells should not be contaminated with these organisms.

How can we be sure our well water will not be contaminated with E-coli?

Well contamination is usually caused by surface water running into the top of the well or problems in the well casing that let contaminated water enter. If the well is properly constructed and is of adequate depth (i.e., to bedrock), it should be safe. Local health departments can check wells for bacterial growth and contamination. The Environmental Protection Agency (EPA) requires municipal water systems to have filtration systems in place, which when functioning properly, will remove cryptosporidia oöcysts. While chlorination will not kill cryptosporidia, it is very effective in killing bacteria, such as E. coli and Salmonella spp.

Do dairy farms increase the risk of antibiotics getting in the water supply?

Antibiotics are used on most dairy farms when they are needed to treat sick animals. However, milk from cows that have been recently treated cannot be sold. As a result, there is a strong financial incentive for dairy farmers to limit their use of antibiotics. Because there is no benefit to farmers, antibiotics are not used extensively or indiscriminately on dairy farms. Thus, dairy farms are unlikely to be a source of water contamination by antibiotics.
Editors:
Maurice L. Eastridge, Professor, Department of Animal Sciences, The Ohio State University
Suzanne Steel, Director of Communications, Communication and Technology, College of Food, Agricultural, and Environmental Sciences, The Ohio State University

Technical contributors
Maurice Eastridge, Professor, Department of Animal Sciences, The Ohio State University
Kent Hoblet, Professor and Chair, Department of Veterinary Preventive Medicine, The Ohio State University
William Shulaw, Professor, Department of Veterinary Preventive Medicine, The Ohio State University
Tom Wittum, Associate Professor, Department of Veterinary Preventive Medicine, The Ohio State University

Visit Ohio State University Extension’s WWW site “Ohioline” at: http://ohioline.osu.edu