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BEEF MEASLES

Over the last few months I have had several inquiries about "measles" in beef carcasses. Questions such as, "What is beef measles?", "Can people catch measles from beef?", "What can be done to prevent measles?" have been common. In this column, I will answer some of the common questions regarding this condition.

What is beef measles? "Beef measles" is the visible damage to muscle tissue (meat) in the carcass at slaughter, caused by the larvae of a tapeworm. Although the tapeworm is sometimes referred to as the "beef tapeworm", cattle are not the host of this tapeworm! Humans are the host and the organism, *Taenia saginata*, is a tapeworm that inhabits the small intestine of man. Therefore, the larvae of this human tapeworm causes "measles" in beef.

How does this larva get into beef? The tapeworm inhabits the small intestine of humans, more commonly in developing countries and only sporadically in the U. S. and Canada. The tapeworm usually does not cause symptoms of disease in humans. It grows to a length of more than 15 feet. This tapeworm has a long life span, usually as long as the person it infects. These adult tapeworms release about 6 to 9 eggs packets (proglottids) each day. Each of these egg packets contain 100,000 to 150,000 eggs. These egg packets are passed in the feces of the infected humans. These eggs do not survive dry conditions very well; however, they do survive in manure (human manure in this case) or moist pastures for 60 to 70 days at 75 degrees and 6 months at 40 degrees. When carrier humans defecate on pasture or in feeds consumed by cattle, the eggs can be ingested (eaten) by cattle and measles can occur. The eggs swallowed by cattle hatch in the small intestine of cattle and circulate throughout the animal's body. The eggs develop into a larval stage and mature as cysts, or "measles", in the tissue of cattle. These cysts are about the size of a large pea and are easily seen in the muscle tissue. A "measly" carcass can contain thousands of these cysts which remain infective for about 2 years. Carcasses identified to be severely affected are condemned. Other carcasses less severely affected must be processed by freezing (for 15 days) or by cooking, before being passed by inspectors.

Can people catch measles from affected cattle? No! The diseases in people we call Measles are caused by viruses that are unique to humans. These viruses do not cross the species lines between cattle and man. However, the problems with measles in beef comes directly from humans and contamination of cattle feed or pastures by human feces. If humans eat undercooked beef with the cysts (measles), they can become infected with the tapeworm that could again generate the tapeworm eggs that cause measles in beef.

How do outbreaks of measles occur? Large outbreaks may occur when the feed or pasture for cattle becomes contaminated with human feces. Use of raw sewage for fertilization on pastures or sewage contamination of irrigation water can account for large problems in this regard. Several thousand beef carcasses are found to contain these cysts each year in the U. S. Sporadic cases can also occur; however, the underlying cause in all cases is infective human excrement that finds its way into cattle feeds, grain silos, or onto pastures.

How can beef measles be prevented? The bottom line is the elimination of human feces from pastures or feeds used for cattle production. Humans that are infected with the tapeworms can be identified by a number of diagnostic tests. There are safe and effective drugs for treatment of infected humans. Additionally, preventing human feces from coming into contact with cattle feeds or pastures is central to the prevention of this problem. Use of human sewage as fertilizer or irrigation water cannot be routinely recommended because of the potential of this serious problem. The problem of measles in beef can be a very complicated. The key to prevention lies in understanding the source and circumstances under which it can develop.

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