**Issue**

Surprisingly, the disposal of animal mortalities and animal byproducts resulting from the production and processing of meat is not uniformly regulated in the U.S. Such materials are unstable and frequently contaminated with viral and bacterial pathogens that may spread to other animals and humans. Disposing of such materials without first processing with heat or chemicals to deactivate conventional pathogens is a danger to human health, animal health and the environment. In addition, as cattle mortalities and specified risk materials (SRM) are unintentionally steered away from the rendering industry by well-intended rulemaking, the incidence of improper disposal will increase, as will the potential for public and animal exposure to pathogens. Regulations to provide uniform standards for traceability, biosecurity and environmental protection are needed. Such regulations would allow only federally licensed or permitted operators to collect, process and dispose of or recycle all animal byproducts and mortalities.

**Background**

The U.S. rendering industry collects and safely processes approximately 50 billion pounds of animal byproducts and mortalities each year. However, economic conditions brought on by feed restrictions (21 CFR 589.2000; the “Feed Rule”) to prevent the spread of bovine spongiform encephalopathy (BSE) and escalating energy costs have made it necessary for renderers to charge for their services. As a result, the amount of animal byproduct and mortalities that are disposed without proper safeguards has increased. For example, the percentage of cattle mortalities processed by rendering decreased from 56% in 1995 to 45% in 2005 to 23% in 20101. Current regulations and economics have not improved this situation.

We agree the FDA’s Feed Rule has been an important and necessary firewall to prevent the amplification of BSE in the U.S. Banning SRM and cattle mortalities from animal feed prevents recapturing significant value from such products making it impractical for rendering companies to collect and process these materials. Many farmers, packers, and meat processors have sought low cost disposal alternatives, some of which are not appropriate or consistent with efforts to protect the environment and public health.

**Role of Rendering**

The rendering industry provides services for the safe collection of animal byproducts and mortalities, transports the materials in biosecure, leak-proof trucks and uses heat (240 to 290º F; 115 to 145º C) to dehydrate and separate the fat and solid materials. Research has shown that the time and temperature used to
process these materials inactivate conventional pathogens and reduce infectivity of the BSE agent by one to three logs (10 to 1000 fold). The rendering process converts raw animal materials into tallow and meat and bone meal, which unless re-contaminated, are free from pathogenic bacteria, viruses and other conventional organisms and stable for prolonged storage.

Timely processing, processing temperatures and the concentration of animal mortalities and other animal tissues at a finite number of locations provides USDA’s Animal & Plant Health Inspection Service (APHIS) with many of the necessary tools needed to prevent disease outbreaks, eradicate diseases and monitor the health status of animal herds and flocks in the U.S. It will be difficult for APHIS to realize its mission if the rendering industry is not utilized to its fullest potential.

**Most Disposal Alternatives Do Not Provide Adequate Safeguards**

As a general rule, the cost of disposing of animal byproducts and/or animal mortalities rises in inverse proportion to the environmental impact of the disposal options chosen. The cheapest disposal methods, including burial, abandonment and low-investment composting, are seldom biosecure because the disposal conditions do little to kill or contain pathogens.

**Composting:** Interest in using on-farm composting for the disposal of animal byproducts and mortalities is growing because the practice is perceived to be simple and economical. However, properly designed and managed compost sites are complex, management intense and require significant capital investments. Contrary to popular belief, simply covering mortalities in manure is not true composting. As a result, most attempts at on-farm composting fail because such sites tend to be poorly managed and are not constructed to prevent or contain runoff and protect the environment. Instead of being composted, the materials become piles of rotting tissues and carcasses that offer no more biosecurity than carcasses that have been abandoned.

**Burial:** Although it is one of the most widely used disposal methods, burial creates the greatest risk to human health and the environment because of the potential for ground and surface water contamination if strict guidelines are not followed.

**Landfills:** Space is the most apparent limitation to disposing of animal materials in landfills. While rendering and incineration dehydrate the materials to reduce volume, amendments such as sawdust must be added to animal materials before landfilling to accommodate their high water content which increases volume. Also, some national landfill operators no longer accept unprocessed animal materials that cannot be used in feed.

**Incineration:** Because of the high temperatures used, incineration is a biologically safe method if done properly in an approved mortality incinerator. However, current incineration capacity is inadequate. Construction of new incinerators requires significant capital investments and is difficult to permit because of air quality issues.
**Alkaline digestion:** Alkaline digestion is an effective and relatively new technology that uses heat and alkaline conditions to inactivate conventional pathogens. Prolonged exposure to these conditions for six or more hours may also inactivate the BSE agent. However, alkaline digesters have limited capacity, produce large quantities of effluent that must be disposed and are limited in number.

**Rendering Compared to Other Disposal Methods:** The rendering process provides a means to break the disease cycle. Typical pathogens are destroyed rapidly by processing at lethal temperatures. For other disease agents, such as the prions responsible for causing BSE, the implicated animal byproducts may be destroyed or disposed after they have been rendered to verify that the disease cycle has been broken.

Following their experiences with BSE and Foot & Mouth Disease (FMD), the United Kingdom Department of Health evaluated various methods of animal mortality disposal for potential risks to public health\(^5\). Compared with landfills and burial, disposal methods that involved heat processing, such as rendering and incineration, were more effective at controlling biological hazards, including food pathogens (such as E. Coli, Listeria, Salmonella and Campylobacter), organisms that cause diseases (such as anthrax, botulism, leptospirosis, bovine tuberculosis, plague and tetanus) and surface and ground water pathogens (cryptosporidium and giardia). Only rendering also minimized the potential health risks to chemical hazards such as dioxins, hydrogen sulfide as well as emissions of SO\(_x\) and NO\(_x\).

**National Renderers Association Position on Animal Mortality Disposal**

We believe appropriate safeguards must be used for the disposal of animal byproducts and mortalities in order to protect animal and human health. Regulations requiring animal byproducts and mortalities to be heat or chemically processed (such as with rendering, incineration or alkaline digestion) will certainly reduce animal and human exposure to conventional pathogens, as well as provide some reduction in BSE infectivity, if the infectious agent is present. Regulation of dead animal disposal would enhance human, animal, and environmental health\(^7\).

References


More information and more detailed papers on this topic are available from NRA.