



To ensure a safe and well-balanced diet for their animals, livestock producers should consult an animal nutritionist or veterinarian before feeding food waste.

Using food waste as livestock feed

Jonathan Rivin, Zen Miller, and Olivia Matel

The costs of growing livestock feed are increasing due to rising fuel and fertilizer costs and the increasing frequency of extreme weather conditions such as the 2012 drought in Wisconsin. As a result, alternative sources of feed ingredients are needed. Food waste may be one such alternative source.

Every year in the United States more than 40% of edible food—about 34 million tons—is wasted (Gunders, 2012). This wasted food accounts for one-fifth of the municipal solid waste entering the nation's landfills (U.S. EPA, 2011). In Wisconsin alone, landfills accepted 455,000 tons of food waste in 2009 (Recycling Connections Corp., 2010). The cost of disposing of food in the nation's landfills is high, estimated to range from \$750 million to \$2 billion each year (Gunders, 2012). In addition to being costly to deal with, this food waste contributes significantly to global warming, causing almost 20% of U.S. methane gas emissions (U.S. EPA, 2013). Using food waste in livestock feeds can help farmers reduce feed costs and help food waste generators reduce disposal costs while minimizing the environmental impacts of this waste. Many different types of food waste—everything from wheat by-products to candy—are palatable and nutritionally beneficial to animals. Guidelines have been developed for feeding alternative food waste and food by-products to cattle and swine.

Although food waste offers a viable alternative feedstuff for livestock, certain restrictions are imposed by federal and Wisconsin state regulations in order to protect animal and human health, and both sets of laws should be reviewed before feeding food waste to livestock.

Federal regulations

The Food and Drug Administration (FDA) and United States Department of Agriculture (USDA) are the federal agencies that regulate the feeding of food waste to livestock.

Livestock, general

With increased concern for the spread of bovine spongiform encephalopathy (BSE, or “mad cow disease”), the FDA, in 2008, strengthened earlier regulations regarding the inclusion of certain animal parts in animal feed and specifically prohibited certain cattle parts from any animal feed. Cattle parts barred from all animal feed include “the entire carcass of BSE-positive cattle; the brains and spinal cords of cattle 30 months of age and older; the entire carcass of cattle not inspected and passed for human consumption... that are 30 months of age or older from which brains and spinal cords were not effectively removed...; mechanically separated beef [as defined later in the regulation]; and tallow [also as later defined].” (USDA, C.F.R., 2008)

Swine

The Swine Health Protection Act of 1982 (Federal Food, Drug, and Cosmetic Act, FDCA) regulates food waste fed to swine that contains any meat products. Compliance with this Act ensures that all food waste fed to swine is properly treated to kill disease organisms. This law mandates that all food waste must be boiled for 30 minutes by a licensed treatment facility prior to arrival at a site where swine are kept, in order to prevent disease transmission. This requirement does not include the following items: "Processed products; rendered products; bakery waste; candy waste; eggs; domestic dairy products (including milk); fish from the Atlantic Ocean within 200 miles of the continental United States or Canada; or fish from inland waters of the United States or Canada which do not flow into the Pacific Ocean." A 2009 amendment also excludes from the boiling requirement "processed products," or those which are deemed by the Animal and Plant Health Inspection Service (APHIS; USDA) to have undergone satisfactory levels of disease organism inactivation.

Ruminants

Animal proteins, defined as follows by the FDA, are prohibited from ruminant feed: "... any protein-containing portion of mammalian animals, excluding blood and blood products; gelatin; tallow containing no more than 0.15 percent

insoluble impurities ... inspected meat products which have been cooked and offered for human food and further heat processed for feed ... milk products ... and any product whose only mammalian protein consists entirely of porcine or equine protein." (USDA, C.F.R., 2008)

Wisconsin state regulations

Swine

Though it is federally legal to feed to swine food waste containing animal parts that meet the requirements of the Swine Health Protection Act, it is unlawful (with certain exemptions) under Wisconsin State Statute 95.10 (Feeding of Garbage to Swine) to do so, and **Wisconsin state statutes supersede federal law**. According to the Wisconsin regulation, "it is unlawful for any person to feed public or commercial garbage to swine, or to deposit or receive such garbage on any premises where swine are kept, and no swine having fed on such garbage may be sold or removed from the premises." *Garbage* is defined as "putrescible animal or vegetable waste containing animal parts (includes dairy-based products), resulting from the handling, preparation, processing, cooking or consumption of food and which is collected from any source, and includes dead animals... [but] does not apply to private household waste not removed from the premises where produced."

Other Livestock

No state laws govern the feeding of food waste to other livestock.

Other considerations

The regulations cited above only define the legal requirements for feeding food waste to livestock. They do not address the nutritional needs of livestock animals or the nutritional quality of the various kinds of food waste. To ensure a safe and well-balanced diet for their animals, livestock producers should consult an animal nutritionist or veterinarian before feeding food waste.

References

- 2009 Wisconsin Statewide Waste Characterization Study. Final Report.
- 2010. Recycling Connections Corporation. Stevens Point, WI.
- Gunders, Dana. Natural Resources Defense Council Issue Paper, 2012. "Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill" (IP:12-06-B). www.nrdc.org/food/files/wasted-food-IP.pdf.
- U.S. Department of Agriculture. Code of Federal Regulations Title 21. 2008. pt. 589.2000, 2001.
- United States Environmental Protection Agency. Food Recovery Challenge, 2011 data. www.epa.gov/smm/foodrecovery/.
- U.S. Environmental Protection Agency. Reducing Food Waste for Businesses. www.epa.gov/foodrecovery/.



© 2015 University of Wisconsin System Board of Regents and University of Wisconsin-Extension, Cooperative Extension. All rights reserved.

Authors: Jonathan Rivin, waste management specialist, University of Wisconsin-Extension, Zen Miller, dairy/livestock agent, Outagamie County, University of Wisconsin-Extension, and Olivia Matel, student, College of Natural Resources, University of Wisconsin-Stevens Point. Cooperative Extension publications are subject to peer review.

Photo: Zen Miller

University of Wisconsin-Extension, Cooperative Extension, in cooperation with the U.S. Department of Agriculture and Wisconsin counties, publishes this information to further the purpose of the May 8 and June 30, 1914, Acts of Congress. An EEO/AA employer, the University of Wisconsin-Extension, Cooperative Extension provides equal opportunities in employment and programming, including Title IX and ADA requirements. If you have a disability and require this information in an alternative format, please contact Cooperative Extension Publishing at 432 N. Lake St., Rm. 227, Madison, WI 53706; pubs@uwex.edu; or (608) 263-2770 (711 for Relay).

This publication is available from your county UW-Extension office (yourcountyextensionoffice.org) or from Cooperative Extension Publishing. To order, call toll-free 1-877-947-7827 or visit our website at learningstore.uwex.edu.