K-STATE Kansas State University
Beef Tips
November 2002 Department of Animal Sciences and Industry

Straddling the Fence II
Nov. 12
Hays, KS
785-743-6361
www.oznet.ksu.edu/trego/

Integrating Cattle and Forage Resources
Nov. 21
Chandron, NE
and
December 5
St. Joseph, MO

Contact:
Sandy Johnson
785-462-6281

New Procedure for Receiving Beef Tips Newsletters

In the future, *Beef Tips* will only be available online at www.oznet.ksu.edu/dp_ansi/nletter/beeftips.htm.

To subscribe to this newsletter electronically, send an e-mail message to: mailserv@lists.oznet.ksu.edu. Leave the subject line blank. In the first line of the message, type: subscribe BeefTips. Then press the "enter" key twice to add a blank line following the message. Then press "Send". To unsubscribe, follow the same procedure except in the body, type: unsubscribe BeefTips. When a new issue is available you will receive an e-mail notice containing a Web link for you to access the newsletter. You are encouraged to pass this information on to others in your community who might benefit from this information.

Accessing *Beef Tips* via the Web will allow more timely delivery and ensure availability despite an uncertain budget. If you do not have Web access, contact your local K-State Research and Extension office for options. If you have questions contact Sandy Johnson, 785-462-6281 or skjohnso@oznet.ksu.edu.

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Animal Composting Studied as Rendering Alternative

Joel DeRouchey, NE Area Livestock Specialist

With a decrease in the number of rendering companies and the increased cost of pick-up service in most locations across Kansas, economically disposing of dead animals has become a greater challenge for livestock producers. One solution is on-farm rendering via composting. This practice is popular in the poultry and swine industries, and is being evaluated more and more by beef producers.

In the July 2002 issue of *Beef Tips*, composting of manure as a waste management alternative was described in detail. Composting is the natural decomposition of manure or other organic materials by aerobic (oxygen dependent) bacteria and fungi. Not only can these organisms break down manure, but entire animal carcasses as well.

When selecting a site for mortality composting, there are several considerations. Foremost, the composting area must have a compacted floor of clay or equivalent material one foot thick to prevent leaching to groundwater, or it must be covered by a roof. The site must be constructed so runoff water does not enter the area, and runoff from the site does not discharge into any waterway. Also, the area must be graded so standing water is not present after it rains. If you maintain a mortality compost site of less than one-half acre, you must register your site with the Kansas Department of Health and Environment (KDHE). If you operate a mortality composting area that is larger than one-half acre, a permit must be issued by KDHE. Also, a perimeter structure should be put into place to keep out unwanted animals and vermin.

continued page 3

Potential Aflatoxin Concerns for Beef Producers

Joel DeRouchey, NE Area Livestock Specialist

Mycotoxins are toxins produced by fungi on or in grain (corn, wheat, barley, sorghum, rye, and oats) or other feedstuffs and may cause illness and death if consumed by humans or animals. There are several different mycotoxins that can be present, but aflatoxins are one of the most important and usually the largest concern.

The Food and Drug Administration (FDA) regulates the use of aflatoxin-contaminated grain and considers any grain with aflatoxin levels below 20 parts per billion (ppb) to be safe for immature animals and for dairy animals, or when its destination is not known (interstate commerce). Grain terminals and elevators in northern Kansas indicate a range from only a few total cases up to 15 percent of the total new crop corn being delivered with aflatoxin levels exceeding 20 ppb. Alfatoxins also have been reported in the Nebraska corn crop.

Producers should verify that the grain they raised or are purchasing has been tested if mycotoxins pose a potential risk for their herd.

The FDA specifies that grain with 100 ppb or lower can be fed to breeding cattle, breeding swine or mature poultry. If the aflatoxin levels are 200 ppb or lower, the grain can be used for feeding finishing swine weighing more than 100 pounds. Grain with aflatoxin levels of 300 ppb or lower can be used to feed finishing beef cattle. However, the vast majority of the samples that have tested positive for aflatoxins this fall are in a manageable range (less than 100 ppb) for producers to feed to livestock. The most common symptoms in beef that are fed contaminated feed include depressed growth, lower feed efficiency, infertility, decreased milk production, immunosuppression, liver damage, tremors and death.

Fungal growth can occur before the grain is harvested from the field or during storage. The conditions that promote optimum fungal growth include: humidity above 62 percent; temperatures ranging from 77 to 86° F, (fungi can grow at temperatures up to 98° F); moisture levels that exceed 14 to 15 percent; oxygen availability; and energy and carbon sources for energy (cereal grains optimally provide). In addition, drought-stressed corn is less resistant to fungi, and therefore is at higher risk for contamination.

Producers should not store aflatoxin-contaminated grain in trucks, combine bins or non-aerated bins for more than 4 to 6 hours because these conditions can result in rapid escalation in fungal growth and aflatoxin production. Producers should keep in mind that aflatoxins nearly stop growing when grain moisture levels drop below 12 percent. Aflatoxin production is also reduced when air temperatures drop below 55° F.

If grain has aflatoxin levels above the FDA limits listed above, the grain is technically banned from feeding or being offered for sale. To reduce overall level, producers can clean corn to remove small and broken kernels and other fine particles, which usually contain the greatest concentration of aflatoxin. Although FDA issues guidelines for size and purpose of livestock (market or breeding) fed infected grain, levels below those specified can start to influence performance and should include other feedstuffs to help dilute the overall level on aflatoxin in the diet. Ensiling grain will not reduce levels, and if not done correctly, can promote mold growth that could potentially produce these toxins.

Aflatoxin-infected grain can be used for the production of ethanol. However, the toxins that may be present are not removed during this process and may be present in by-products such as distiller's grains. Ethanol plants monitor levels of aflatoxin on grain they receive and by-products they sell in most circumstances, but check with your supplier to ensure a safe feeding level for your livestock.

Producers should verify that the grain they raised or are purchasing has been tested if mycotoxins pose a potential risk for their herd. Mycotoxin testing can be arranged at the KSU Veterinary Medicine Toxicology Lab by calling 785-532-4331. Contact your local agricultural extension agent for more information or to have your grain tested.

from page 1

To effectively compost animals, mix equal portions of solid manure and a carbon source (straw, wood shavings, newsprint, rotted silage or hay bales). A 1- to 3-foot base is needed to soak up fluids before the carcass is placed in the composting area. After the dead animal is placed on the base of material, an additional 1 to 3 feet of material should be placed around the entire carcass, including legs. If the dead animal is more than 300 pounds, it is suggested but not absolutely necessary, that the animal be laid on its back or side and cut to expose inner organs before covering to prevent bloating and allow easier access of the composting microorganisms.

To promote effective composting, certain conditions need to be maintained. First, the moisture content of compost should be maintained between 40 to 50 percent. As a rule of thumb, the compost is too wet if water can be squeezed out of a handful and too dry if the handful does not feel moist to the touch. Secondly, compost temperature should range from 104 to 150° F for maximum efficiency. Pathogens can be killed from the heat generated during composting (135° F or higher for three days), but temperatures above 150° F can kill microorganisms, and the pile should be turned. A long-probed thermometer can be inserted into the pile to monitor the temperature.

Research from New Mexico indicates that after 2 months of composting dead mature dairy cows, 60 to 65 percent of the carcass was decomposed, with 90 percent of the flesh no longer present. After 4 months carcasses were hard to find and only 7 to 10 bones were remaining from each carcass. Bones that are left after composting generally are soft and will shatter during spreading. Skulls still may be hard, and need to be buried to prevent damage to tillage equipment. Composting time will vary, depending on the size and maturity of the deceased animal.

Actual composting time can be decreased with proper moisture and temperature regulation, and if the pile is turned once to increase the contact time of the manure/carbon mix with the flesh and bone remaining to be decomposed. Offensive odors are not generated when composting is properly managed.

Carcass compost is an excellent source of fertilizer for crops, but compost from decomposed animals should not be given or sold for off-farm use.

At the Kansas State University Waste Management Learning Center, further research is planned to evaluate dead animal composting. We believe this method of mortality disposal is an economically viable and practical management tool for producers.

Hollis joins Beef Group

We are pleased to welcome Dr. Larry Hollis, D.V.M., M.Ag. as our new Extension Livestock Veterinarian. He is a native of the Texas Panhandle and received his D.V.M. from Texas A & M University. Larry has worked in private practice involving feedlot consultation and stocker and cow/calf operations. He also served as head of Diagnostic Services for the Texas Veterinary Medical Diagnostic Laboratory in Amarillo. Larry has worked as a technical service veterinarian for both Syntex Animal Health and most recently, Pfizer Animal Health. Larry brings a great wealth of experience to this position, and we look forward to bringing his expertise to K-State Research and Extension programming across the state.

Larry Hollis

Web Links

Focus on Feedlots
www.oznet.ksu.edu/dp_ansi/nletter/fof.htm

Drought Information
www.oznet.ksu.edu/drought

Kansas Feedlot Performance and Feed Cost Summary*

Gerry Kuhl, Feedlot Specialist, Kansas State University

August 2002 Closeout Information**

Sex/No.	Final Weight	Avg. Days on Feed	Avg. Daily Gain	Feed/Gain (Dry Basis)	% Death Loss	Avg. Cost of Gain/Cwt.	Projected Cost of Sept. - Placed Cattle
Steers/19,812	1,333	151 (139-171)	3.45 (3.32-3.67)	5.97 (5.62-6.20)	1.21	$48.05 (44.89-51.80)	$56.00 (52.00-60.00)
Heifers/26,643	1,184	157 (135-188)	2.98 (2.60-3.16)	6.26 (5.85-7.30)	1.72	$51.94 (49.11-55.97)	$58.00 (54.00-62.00)

Current Feed Inventory Costs: Mid-Sept.	Avg. Prices	Range	No. Yards
Corn	$ 2.87/bu	$ 2.25-3.25	7
Ground Alfalfa Hay	$107.14/ton	$94.99-125.00	7

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