

Tools ease animal composting

University Insight

By DALE ROZEBOOM



OVER the past few years, Michigan State University has been working hard to help farmers find tools to ease the burden of composting animal mortalities. Both the Spartan

Compost Sizer and the Spartan Compost Optimizer were created as Microsoft Excel spreadsheets and can be easily used on most computers.

Spartan Compost Sizer

There are four general methods for composting animal tissues: bin, open pile, windrow and in-vessel. Each method requires an appropriate location and the orderly formation, identification and management of composting batches. Spartan Compost Sizer can determine the proper size and number of bins, open-pile pads, or windrows to help optimize composting of animal tissue generated by a farm.

The program takes several factors into account, including the length of time it will take to complete the composting process. This is determined using animal inventory, the greatest mortality rate or death loss in any one season, and average animal weight.

Another important factor when sizing composting methods is the volume factor (also called the volume coefficient or bulking agent to animal tissue ratio).

Research data indicate that mortality composting works well when there is up to 10 pounds of animal tissue per cubic

Key Points

- MSU has two new tools aimed at making animal tissue composting easier.
- One estimates the size of the composting facility needed with a given method.
- The other creates the compost recipe to meet performance and cost constraints.

foot of composting space. This is the most important factor in determining composting volume. This density has been determined through experimentation, and animal tissue composting has been successfully accomplished using densities varying from 0.05 to 15 pounds per cubic foot. When compost density exceeds 10 pounds of animal tissue per cubic foot, however, excellent management is necessary.

Lastly, size may also depend on the size of the equipment available to mix and move the compost.

When bins are used in the composting process, it's important to construct a solid structure. Reinforced concrete floors that are impervious to moisture and can bear the weight of equipment are a must. Floors also need to be able to support static and dynamic frost loads. Bins should be constructed with rot-resistant materials and have at least three side walls that are at least as tall as the highest point of any composting material to be contained within the walls.

Also, a roof may cover any area used to compost dead livestock to prevent seepage, runoff and windblown movement of compost. Make sure the facility is strong enough to resist mechanical forces generated when turning a pile.

A pad or liner is useful with open pile and windrow composting because it ensures adequate environmental pro-

tection. This method also provides for year-round driving of large equipment despite freezing, thawing and precipitation.

Spartan Compost Optimizer

Spartan Compost Optimizer is used to plan compost mixes. It allows the user to automatically or manually optimize a compost recipe to meet performance and materials constraints while minimizing cost. The spreadsheet simplifies the planning of a compost mix by allowing users to optimize a compost recipe to meet percent moisture, carbon-to-nitrogen ratio and bulk density criteria.

Excel's solver is used to automate finding an optimal solution. Existing spreadsheets force the user to manually set amounts for materials in a compost mix. This trial-and-error process can be time-consuming and confusing, and does not provide the user with adequate information to reduce material costs. Leveraging the power of Excel's solver increases the efficiency of composting by saving users' time, simplifying planning and allowing users to better manage materials' costs.

In addition, the user may also manually change a compost recipe at any time. This spreadsheet contains a library of materials that can be used in a compost mix. You may add new materials to the library or permanently change the composition of a material.

For details about availability and cost, visit the MSU Animal Ag and Environment Web site at www.animalag.team.msu.edu or call 517-355-8396.

Rozeboom is an associate professor of animal science at MSU and a member of the MSU Extension Animal Agriculture and the Environment team. You can reach him at rozeboom@msu.edu.

Beef Briefs

Livestock producers urged to take FMD survey

The University of California-Davis is surveying livestock producers to build a computer simulation of how foot-and-mouth disease would spread in the U.S. According to Tim Carpenter, the primary investigator for the study, the more responses from producers, the better able they will be to determine the best containment strategy. Carpenter urges producers to take the five to 10 minutes required to answer the nine questions in the survey. The information provided will only be used for modeling purposes and will be kept confidential. Find the survey at www.fmdsurvey.com.

Give feeder calves time to rest after travel

For every hour feeder calves spend in transport, give them at least that much time after they arrive before you start vaccinating, according to Mitch Blanding, DVM, Pfizer Animal Health. He says this allows them a chance to rest before the additional stress of processing. That way, vaccines have a better chance of bolstering immunity. In high-risk cattle, it isn't unusual for some animals to not respond to the initial vaccination. Many operations may revaccinate these animals after initial processing in hopes of starting an immune process in more of the animals and enhancing the group's overall immunity level.

Scholarships offered for beef studies

The National Cattlemen's Foundation will begin accepting applications in February for the Fort Dodge Animal Health Legacy Scholarship program. Five scholarships of \$5,000 will be awarded. Three will go to veterinary school students with an emphasis in beef production. Two will go to undergraduate students in animal science. Winners will be announced at the Cattle Industry Summer Conference in Denver on July 15-19. More information about scholarship criteria and how to apply can be found at www.nationalcattlemensfoundation.org.

MSU Animal Science adds 3 members

THREE new hires in Michigan State University's Department of Animal Science will contribute to the poultry, beef and reproductive biology expertise of the century-old department.

Darrin Karcher joined the animal

science staff Aug. 1 as the outreach poultry specialist. Karcher received a doctoral degree in developmental physiology from Purdue University, a master's degree in poultry genetics from Wisconsin University and a bachelor's in agriculture education from Ohio

State University. Karcher says he looks forward to teaching and working with the poultry industry.

"I want to educate the industry about potential issues and educate the public about the poultry industry," Karcher explains.

Ashley Bushman started in September as the beef management coordinator for the two-year Agricultural Technology program. She holds a master's degree from Iowa State University in breeding and genetics, and a bachelor's degree from OSU in animal science.

Bushman will teach courses in animal and product evaluation along with livestock and carcass judging, coach the MSU livestock judging team, and coordinate the beef management clerkship.

"MSU has a great Ag Tech program, and I look forward to helping it grow," Bushman says.

"My goal is to help guide students and equip them with the tools to be better stock people and judges. If they are able to do that, I will feel I've done my job," she says.

Jason Knott joined the department in August as an assistant professor. Knott holds bachelor's and doctoral degrees from the University of Massachusetts.

He completed postdoctoral research at the University of Pennsylvania and EMD Serono, a biotechnology company that develops treatments to overcome human infertility.

Knott will teach both reproductive and developmental biology, and will conduct research in early embryonic development.

He says he was attracted to MSU because of its diverse animal science department.

"I hope to establish a strong research program here at MSU and contribute to the training of students and postdoctoral fellows with the skills they need to address pertinent biological problems," Knott explains.

The MSU Department of Animal Science has a 100-year tradition of educating students, providing in research and engaging communities through Extension activities. For more information, call 517-355-8383 or visit www.ans.msu.edu.

Your Michigan Farmer Livestock Sales Representative

GRANT CONOVER

10668 W. 64th Street N

Baxter, IA 50028

Home: (641) 227-3068

Cell: (515) 419-1004

Fax: (641) 227-3431

gconover@farmprogress.com



REACHING 4,359
BEEF PRODUCERS!!

**We work everyday...
not just sale day!**

To place your livestock ads and for all your Livestock Needs,
contact Grant or visit our web site

www.michiganfarmer.com