Composting!

Summary of

"Horse Manure Composting"

Webinar presented on October 30, 2020 by the Maryland Department of Agriculture-Nutrient Management, the Maryland Horse Industry Board, the University of Maryland and the Maryland Horse Council

By Jane Thery, Chair,
Maryland Horse Council
Farm Stewardship Committee

Maryland has more horses per square mile than any other state in the USA. There are about 16,000 horse farms and 100,000 horses with 55 pounds of manure produced each day. Managing this manure in an environmentally-sound way is good to the horses and for the watershed of the magnificent Chesapeake Bay. Healthy soil is a long-standing goal of the agricultural community and a key element of regenerative agriculture for carbon capture as noted by the environmental community. There is renewed interest in composting and recycling horse manure into the soil for plants through on-farm and commercial composting. The Maryland Horse Council Farm Stewardship Committee promotes composting horse manure.

In 2017, Maryland Governor Larry Hogan signed House Bill 171 entitled "Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure" which required the Maryland Department of the Environment to engage stakeholders in a study on how to better use these materials. The Maryland Horse Council was represented at the meetings of the study group and the final recommendations included workshops on composting horse manure. This workshop, in the form of a webinar, responded to this recommendation. Over 200 people registered and about 150 participated in the live webinar.

The Horse Manure Composting Webinar was introduced by John Sullivan, Program Manager, Maryland Department of the Environment, and, from the Maryland Department of Agriculture, Dwight Dotterer, Nutrient Management Program Manager, and Ross Peddicord, Executive Director, Maryland Horse Industry Board. Emileign Lucas, Specialist, University of Maryland Agricultural Nutrient Management Program, managed the webinar technology.

Gary Felton of the University of Maryland presented the science of composting. Composting manure is easy, just add air, water and time to produce a fine compost product with a good carbon to nitrogen ratio of about 30 (carbon) to 1 (nitrogen). Composted horse manure is far superior to raw horse manure as the weeds and pathogens are eliminated in the composting process.

Manure can be hauled off for composting if using wood product bedding or for mushroom substrate if using straw bedding.

Basic horse manure and wood product composting principles:

Horse manure and wood product from stalls are piled with access to air and water, either in shallow bins with an open front or in windrows. Within seven days, microbes begin aerobic digestion, raising the pile temperature to over 100 degrees. Over the next 150 days, with enough air and moisture, the temperature rises to 140-160 degrees. Turning the pile and adding moisture helps the microbes do their job. More moisture is usually the best solution if the temperature is not rising enough. Use a long-stemmed thermometer to test how the compost is maturing. These high temperatures kill weeds and pathogens in the pile.

In about 150 days, the pile will cool to about 100 degrees and be finished breaking down. The pile size will be about half of its original size. The whole process takes about ten months, depending on the size of the pile and access to air and moisture. Tubes and blowers can be used to add the air for aerobic digestion by the microbes. Check out the O2 Composting Company products at www.o2compost.com

If you are concerned about the presence of persistent herbicides (which is rare) that could be in your hay and therefore in your compost, you can take two steps – confirm with your hay supplier that they are not using these herbicides and plant some bean seeds in a cup of the compost. If the leaves are healthy and not twisted, you do not have persistent herbicides in your compost.

For more on the science of composting, contact Gary Felton at the University of Maryland at gfelton@umd.edu

Windrow composting can be done on a small scale on a concrete pad or on a larger scale on a compacted dirt lot. Equipment needed includes a front-end loader and a spreader. A dump truck is useful for moving the compost for storage or sale. "Work smarter, not harder", says Steve Darcey, a horse-farm owner and composter who made the second presentation. For large windrows, keep the piles 6-7 feet high and 10-12 feet wide. Keep 15 feet between the rows to allow for the tractor to move between the rows. When composting on compacted land, do not use the equipment when it is wet to avoid ruts. Steve Darcey is a specialist in windrow composting. He also sells his compost for pick up or delivery. He is available to provide advice on how to do this on your farm. His email is pgscd@verizon.net

The third presentation was on a smaller scale windrow operation, composting on a concrete pad with on-farm use on fields by Charles Mess at Brooke Grove Farm.

Brooke Grove composts on a 60 by 60-foot concrete pad near the stables. The 13 stalls are cleaned each day and the manure and sawdust bedding added to the first of three windrows along the pad. The middle pile is composting and the final pile finishing the process. The finished compost is spread on the pastures, especially in the areas with poor soil. Any run-off from the piles on the concrete pad goes into a grassy area and is absorbed into the soil. Samples of the compost

are analyzed each year and the pasture soil is sampled and tested every three years.

No time or space for composting? Hauling services are available. In the third presentation, Katrina Weinig of Meadowbrook Stable discussed the challenge of managing an active riding stable with 50 horses on 11 acres. To handle manure in a "green" way, the farm has a covered building for a large dumpster. The dumpster is filled and hauled off 5-6 times per month. The manure is from stalls bedded with wood product and from the riding rings and turn-out paddocks. The manure hauler also delivers bedding.

An important step taken by Katrina Weinig was to shop around for a hauler with the best price AND a company putting the manure to good use. She found Frey Agricultural Products, a certified compost facility in Mt. Airy, www.freyagriculturalproducts.com, and reduced her costs by almost half while supporting a company which composts and sells to garden centers and landscapers. She looks forward to sharing her experience in "greening" Meadowbrook Stable and can be reached at katrina@meadowbrookstable.org

What about mushrooms?

Katy Voss sends the manure from Chanceland Farm off to grow mushrooms. In the fourth presentation, Kay Voss described how she takes advantage of the fact that the majority of mushrooms produced in the US are grown in northern Maryland, southern Pennsylvania and Delaware. The mushrooms grow best in a substrate that included horse manure and straw. Chanceland Farm has 50-70 racehorses in training and breeding stock and about 60 stalls. The stalls are bedded in straw and the manure and straw dumped in a manure pit near an easy-access road. The hauler, Fastrak Express, www.fastrakexpress.com, in Rising Sun, Maryland, uses a truck with a claw attachment to empty the pit 4-5 times a month. Fastrak Express PAYS the farm $180 per truck load and sells the material to mushroom substrate companies. Laurel racetrack also beds on straw and sells the manure for mushroom substrate.

Eileen Beard, Maryland Department of Agriculture Equine Planner, closed the webinar with guidance on receiving technical and financial support for horse farms. She noted that your best first contact is with the Soil Conservation District office in your county. There are 23 of these offices across the state. They are

managed by a Board of Supervisors which holds monthly meetings which are open to the public. The District staff will advise you on the best practices for managing the water and soil on your farm. The advice is free and confidential. This can help you with farm upgrades which you can do yourself or use contractors to complete. For financial support, there are cost-share programs including for the items listed before. They are supported by a variety of national, state and county agencies and your District official can be your guide to requirements, standards, deadlines, conditions and paperwork. Reimbursement of a percentage of costs is provided after the project is completed.

- Loafing areas
- Rotational grazing fencing
- Fencing
- Automatic waters in pastures
- Roof run-off management
- Forage and biomass plantings
- Manure storage
- Manure haul-off pads and retaining walls
- Composting facilities

Eileen Beard will be glad to direct you to your local District office to follow up on this type of assistance for your farm. Eileen.beard@md.nacdnet.net

Here are the links to the webinar and presentations:

Presentation slides (recordings at https://go.umd.edu/ANMPyoutube):

- Dr. Felton's slides: The science of composting stable waste
- Katrina Weinig's slides: Meadowbrook stables
- Eileen Beard's slides: Cost share and technical assistance

Additional contact information:

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Information on the House 171 Task Force is here:

phttps://mde.maryland.gov/programs/LAND/RecyclingandOperationsprogram/Pages/House-Bill-171-%E2%80%93-Organic-Materials-Diversion-and-Infrastructure-%E2%80%93-Study.aspx