

HOW

HORSE OUTREACH WORKGROUP



Composting Horse Manure



A 1000-pound horse produces 40-50 pounds of manure *every day*. That translates into nearly one TON of manure *a month*! Add bedding to this and the amount of stable waste you have to deal with only increases. What many horse owners don't realize is that horse manure is a very valuable and underutilized resource. Composting is the transformation of organic material (i.e., the plant material in your horse's manure) into a nutrient rich soil-like material through decomposition. Compost can then be used to enrich your pastures and gardens by improving soil structure, texture, aeration, and water retention. Compost helps to lighten clay type soils and increase the water retention capacity of sandy soils. Compost may also help control erosion, increase soil fertility, and balance pH! And it all comes from what you might normally *pay* someone to haul away!

Composting is not for everyone, however. It takes time, energy and space to compost correctly. Although the composting process will occur naturally over several months or years, with human help the entire process can be completed in as little as 4-6 weeks. Four essential ingredients are needed: oxygen, moisture, and a proper Carbon:Nitrogen ratio. When these components are present, the compost will heat up naturally to approximately 130-140° F. This heat will kill most internal parasites and many weed seeds present in the manure.

Oxygen

The decomposition process takes place when particle surfaces come in contact with air. To increase oxygen intake, turn your compost piles/bins as often as possible (anywhere from 3 times per week to a few times per month). The more you turn, the faster you reach the end result. Turning the pile can be done by hand or with a front-end loader. Increase the surface area by chopping, shredding, or breaking up the material speeds up the composting process. If the compost lacks oxygen, it will have a bad odor.

Moisture

Your compost pile should be about the consistency of a well wrung-out sponge. You don't want it too wet and you don't want it too dry. If the compost appears too wet, turn it or add dry materials such as leaves or straw. If it's too dry, simply add some water. Maintain moisture levels by covering your compost piles with either composting fabric or plastic tarps.

Carbon:Nitrogen

Carbon and nitrogen are the two fundamental elements in composting. The bacteria and fungi that break down the manure and turn it into compost are fueled by carbon and nitrogen. The bulk of your compost pile should be carbon with just enough nitrogen thrown in to aid in the decomposition process. Carbon is found in leaves and nitrogen is available in straw and grass clippings. If you have

too much nitrogen, ammonia gas will be produced and you'll notice a foul odor. The ideal C:N ratio is 25-30:1. Below are some examples of materials that might be added to your compost and their corresponding C:N ratios.¹

Source	C:N ratio	Source	C:N ratio	Source	C:N ratio
Horse manure	15:1	Dry Weeds	90:1	Weeds (fresh)	25:1
Grass clippings	17:1	Vegetable waste/produce	11-19:1	Dry Leaves	54:1
Sawdust	500:1	Wood chips	700:1	Straw, cornstalks	60-80:1

As you can see, you'll need to add things such as leaves, weeds, or bedding to your manure to produce the ideal C:N ratio. Be careful not to add too much used bedding. This will lead to the production of ammonia (from urine) and foul odors from your compost.

Be sure that your compost piles are located in a flat area (to reduce runoff) away from any water sources, including wells, streams, and ponds. It is best to locate your compost away from horse housing areas to reduce fly problems. A concrete base will help reduce nutrient losses due to leaching and makes the piles easier to turn. A 2-3 horse operation will need approximately 1000 square feet for composting. Larger operations will require larger areas.

To reach the proper temperatures, a compost pile needs to be at least 3 feet square by 3-4 feet high. Composting in a bin decreases the size required for adequate temperatures, but involves more cost initially.

Compost piles are combustible. Keep your pile away from housing facilities, and just like hay storage facilities, don't allow smoking near your compost piles! If a pile smells like alcohol, the conditions are ripe for combustion. DO NOT add water at this time; instead, turn the pile to aerate it.

How do you know when the compost is "done?"

Your compost pile will cool off on its own and will be approximately 1/2 its original size. Finished compost will smell and look like rich soil!

¹ Spokane Regional Solid Waste System website. <http://www.solidwaste.org/comcn.htm> and [On-Farm Composting Handbook](#), Northeast Regional Agricultural Engineering Service, Cooperative Extension, 152 Riley-Robb Hall, Ithaca, NY 14853-5701 607-255-7654

For more information on horse manure management and other soil conservation and water quality practices, contact your local Soil Conservation District. For more information contact your local Soil Conservation District/ Natural Resources Conservation Service/ (SCD/ NRCS) office or county Maryland Cooperative Extension (MCE) office. Addresses and phone numbers can be found at http://www.mda.state.md.us/resource_conservation/technical_assistance/index.php, <http://www.md.nrcs.usda.gov/contact/directory> or <http://extension.umd.edu> or check the listing County Government for SCD/MCE or US Government, Department of Agriculture for NRCS of the phone book blue pages. The Horse Outreach Workgroup was established to provide information to horse owners on pasture and manure management issues. Technical assistance is available from local county Soil Conservation Districts/Natural Resource Conservation Service and the Maryland Cooperative Extension office. The workgroup consists of representatives from local Soil Conservation Districts, Maryland Department of Agriculture, Natural Resource Conservation Service, Cooperative Extension, University of Maryland, the Equiery, and the Maryland Horse Council. The Maryland Department of Agriculture's Office of Resource Conservation provides coordination for the workgroup. January 2003, revised January 2007