

COMPOSTING HORSE MANURE



A 1000-pound horse produces 40-50 pounds of manure every day. This translates into nearly one ton of manure a month! Add bedding to this and the amount of stable waste you must deal with only increases. Many horse owners don't realize 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 something 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 seed present in the manure.

OXYGEN

The decomposition process takes place when particle surfaces come into 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. Increasing 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— not too wet and not too dry. If the compost appears to be 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.



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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. See Table 1 for some examples of materials that might be added to your compost and their corresponding C:N ratios. 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 ration. Be careful not to use too much bedding, as it will lead to the production of ammonia (from urine) and foul odors from your compost.

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

Table 1: Carbon and nitrogen sources and their corresponding ratios.

LOCATION

Be sure that your compost piles are 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, while larger operations will require a larger area.

TEMPERATURE

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 a higher cost initially.

Compost piles are combustible. Keep your pile away from housing facilities, and just like with 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 COMPOST IS "DONE?"

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

For more information on horse manure management and other soil conservation and water quality practices, contact your local Soil Conservation District. Addresses and phone numbers can be found through mda.maryland.gov/HOW.

The Horse Outreach Workgroup (HOW) provides information to horse owners on pasture and manure management. HOW consists of representatives from local Soil Conservation Districts, the Maryland Department of Agriculture, USDA Natural Resource Conservation Service, University of Maryland Extension, and the Maryland Horse Industry Board.

Reviewed By Eileen Beard, Maryland Department of Agriculture. September 2024.

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



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