



# 5 Easy Steps to Compost

## Turn Your Mountain of Manure into Black Gold

If you care for horses on your own place then you have, no doubt, wondered about what to do with that huge mound of manure and stall waste generated by your horse. In fact, one horse can create a serious pile in no time – one horse produces about 50 pounds of manure per day, over eight tons per year. Add to that the bedding you use each day and in no time at all you have a virtual mountain of manure!

How you manage your horse's manure can affect you, your horse and the environment. When manure isn't picked up regularly and stored away from horses, internal parasites can become a problem. Even if you de-worm your horses, if you allow them to graze near manure they will quickly be re-infested by larvae that hatch from worm eggs. Runoff from soggy manure piles can contaminate nearby surface water such as streams, ponds or lakes. It can also contaminate groundwater, a source of drinking water for many people, especially those in rural areas. And on top of all of that, the odor and fly problems that come with a mismanaged manure pile can become a hassle for you and your neighbors.



Composting horse manure is an excellent manure management technique and has several benefits:

- Heat generated in the composting process kills worm eggs, fly larvae, pathogens and weed seeds.
- A compost pile has little or no odors.
- Compost is a valuable addition to your pastures, garden, and yard. And if you've got any compost left over, your horse-less neighbors will almost certainly be glad to use it!
- Composting reduces the size of your manure pile by about 50 percent!



This Tip Sheet will give you information on how to build and use a horse manure composting system. The system is designed for a backyard or small farm with one to five horses but the same principles can be applied on a larger scale. Additional design help for places with more than five horses is available from local Conservation Districts, USDA Natural Resources Conservation Service, or your local Extension office.





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### Step 1 Select a Location for Your Compost Bins

When choosing a place to put your compost pile, keep these points in mind:

- Don't store manure in pastures or other places where horses might be nibbling on grass nearby (to reduce risk of parasite exposure).
- Look for a dry area that doesn't get muddy, even during the winter. Avoid low-lying areas (like at the bottom of a hill) where water tends to pool when it rains. If you put your compost pile in a muddy spot, it will turn into a big pile of mush, just like the mud around it.
- Choose a flat, level area instead of a hill. You want your compost pile to be in a place where trucks and tractors can easily reach it.
- Find a spot as far away as possible from streams, rivers, lakes or ditches. This will help to prevent the manure pile from polluting water. Also stay away from property lines to prevent problems with neighbors.
- A location that's convenient to your stall and paddock areas will make the chore of cleaning up easier and less time consuming.



### Step 2 Decide How Many Bins You Need

You'll most likely need at least two bins, maybe a third for convenience. A two-bin system works by piling manure and stall wastes in one bin. When that bin is full, allow it to compost and start filling the second bin. Once the first bin is done composting you can start using the composted material.

For convenience, or if you have three or more horses, you may want to consider going to three bins. This allows one bin for daily wastes, another bin that is full and in the composting stage and the third for the finished compost to be removed and used at your leisure.



**Note** Bins are not essential to the composting process; you can simply have two or three large piles of manure that are not in bins. However, what IS essential to the composting process is that the piles are at least three feet high. If manure is spread out on the ground in a pile less than three feet high, it will not be able to build up enough heat to compost. If you prefer not to use bins, you can use a tractor to build manure piles up to a minimum of three feet in height.





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### Step 3 Build Your Bins

After you have decided where to put your compost bins, and how many bins you want, it's time to purchase materials and build your bins. One person can build the compost bin system easily in one weekend. It costs between \$125 to \$200 per bin for materials, depending on the type of wood you use and the prices in your area. A list of materials and tools needed is included at the end of this tip sheet. Feel free to improvise by choosing materials that will work for you and your situation.



### Step 4 Cover Your Compost Pile

Once you've got your bins built and have started filling them with manure, you'll need to keep the bins covered. This will prevent manure from becoming a soggy mess in the winter or too dried out in the summer. If manure becomes too wet or too dry it can completely stop the composting process so covering your manure piles is VERY important. A cover will also prevent nutrients from being washed out of the manure—you want to save those for your garden and keep them out of nearby streams and lakes!



The best (and cheapest) way to cover each of your bins is to use a tarp. You may find that it is easiest to attach one end of the tarp to the back of your compost bin and then weigh down the front by attaching it to a board that can be moved easily whenever you need to add manure to the pile. You can also weigh the tarp down in front by using tires, milk jugs filled with rocks or gravels, or anything else you have that is heavy enough to prevent the tarp from being blown off during a winter storm.



Your compost material should be about as damp as a wrung out sponge, slightly damp but not dripping with water. In the summer you may need to water down manure before adding it to your compost pile. The easiest way to do this is to just hose down the manure in your wheelbarrow before you dump it in the pile.





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### Step 5 Get Air Into the Pile

The bacteria and organisms that break manure down into compost need air just like we do. Air will generally permeate the pile to a depth of about 2 feet, but getting air into the middle of the pile can be trickier. One way to do it is by turning the pile with a shovel or tractor. However, unless you have access to a small tractor or enjoy a good workout, turning the pile can be difficult. An easy way to get air into the pile is to insert a couple of five-foot PVC pipes into the center of the pile (like chimneys). PVC pipes are most effective if they have holes drilled into them spaced a few inches apart. You can either buy them this way or drill holes yourself.



### And You're Done!

If you follow the guidelines above, your compost could be ready in two or three months! You will know when your compost is ready when the material looks dark in color, evenly textured and crumbly like dirt. Keep in mind that the more bedding you have in your compost pile (e.g., shavings), the longer it will take to compost. If you use a lot of shavings, you may want to try reducing the amount you use or try an alternative bedding like wood pellets. Wood pellets are more absorbent than shavings, which means you won't need to use as much bedding. As a result, you'll have less bedding in your manure pile and it will compost much faster. (Using wood pellets can also save you money and storage space!)



Compost is a rich soil amendment that improves the health of both plants and soil and helps to retain moisture. Spread compost in pastures during the growing season at about a 1/4 inch layer at a time, no more than 3 to 4 inches per year. It can be also added to the soil of houseplants, gardens or flowerbeds – or shared with horseless neighbors.

For two 4'x8'x8' bins, the following list of equipment and supplies are needed:

#### SUPPLIES

- 70 - 8' landscape timbers (or similar wood)
- 140 - 5/16" x 5 1/2" lag screws
- plastic sheet or tarp to cover top

#### EQUIPMENT

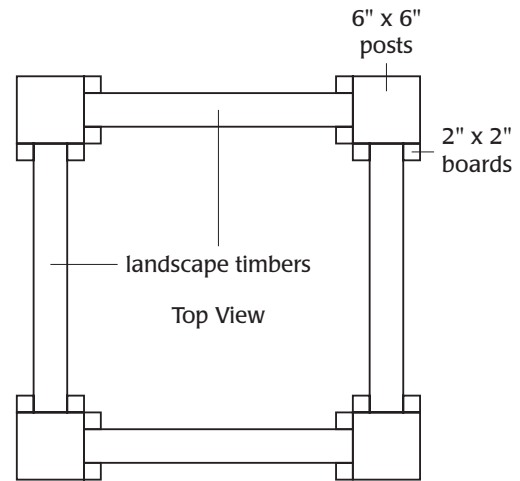
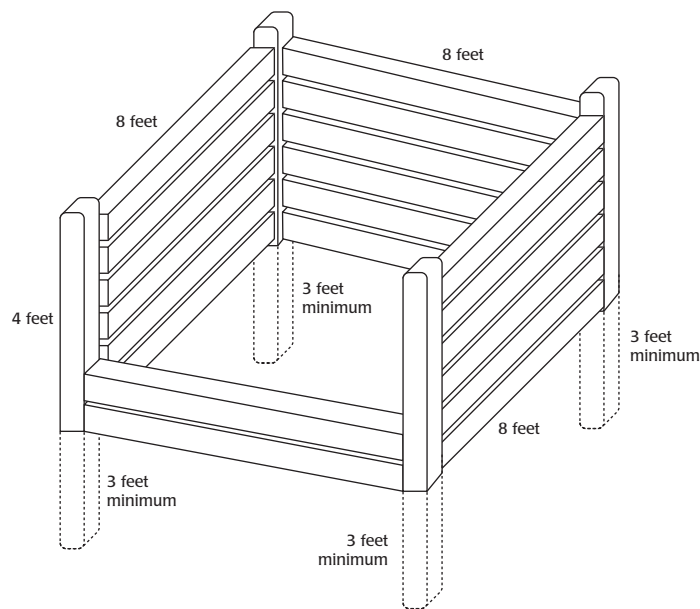
- drill & bit (1/4" - 5" long)
- ratchet & socket set
- power or hand saw
- carpenter's level
- post hole digger
- tamping rod or similar tool

NOTE: number of timbers and lag screws will depend on the width of the timbers you purchase and how tall you wish to make your bins.



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Walls slide in place like a foaling stall.  
Repeat design for 2 or 3 bin system.

## Troubleshooting the Compost Process

| SYMPTOM   | PROBLEM   | SOLUTION   |
|---|---|--|
| The compost has a bad odor.                                   | Not enough air.   | Turn the pile, add more PVC pipes.   |
| The compost has a bad odor and is soggy.                      | Not enough air and too wet.   | Mix in dry ingredients like straw or shavings, add PVC pipes and cover with a tarp.                                    |
| The inside of the pile is dry.                                | Not enough water.   | Add water when turning the pile. Should be as damp as a wrung out sponge.  |
| The compost is damp and warm in the middle, but nowhere else. | Pile is too small.  | Collect more raw material and mix it into the old ingredients. Piles smaller than 3' square have trouble holding heat. |
| The pile is damp and smells fine, but is not heating up.      | Too many shavings, wood chips or bedding (carbon source) and not enough manure (nitrogen source). | Mix in a nitrogen source – straight manure, fresh grass clippings, blood meal or ammonium sulfate.                     |





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### Check Out Your Resources!

If you are interested in additional information on sacrifice areas, designing roof runoff systems, manure composting or pasture management these resources are available to horseowners:

- **Horses for Clean Water** A program run and supported by horseowners promoting environmentally sensitive horsekeeping which offers classes, workshops and farm tours on topics such as mud, manure and pasture management, composting, wildlife enhancement, horse health, preparing your horse farm for winter, and more! HCW also offers educational materials and products for sale and individual farm consultations. For more on HCW educational opportunities, or to be on the listserv to receive information about future educational events contact Program Director Alayne Blickle at 425-432-6116 or [alayne@horseforcleanwater.com](mailto:alayne@horseforcleanwater.com). Visit the HCW website at <http://www.horsesforcleanwater.com> to view the archives of The Green Horse, as well as to sign up to have it delivered directly to your e-mail inbox every month! You will also find links to specific products on Amazon.com that the HCW staff recommends. Purchasing through those links helps to support HCW programs.
- **Natural Resource Conservation Service (NRCS)** Governmental agency which works with farmers and ranchers on issues relating to wise use of the natural resources, such as pasture, manure and mud management. You can find the number for your NRCS office listed in the phone book under federal government, US Department of Agriculture, Natural Resource Conservation Service.
- **Conservation Districts (CDs)** Agencies which work with farmers and livestock owners, often for smaller, non-commercial places on similar land management practices. You can contact your local Conservation District by calling the NRCS office. The NRCS will be able to tell you the name, address and phone number of your Conservation District.
- **Cooperative Extension** Contact your county cooperative extension office to get more information on pasture and manure management for horses, as well as composting. They can be located in the phone book under your state land-grant university (if you have trouble locating them ask for help from your public library's reference librarian).
- **Horsekeeping on a Small Acreage** An excellent book by Cherry Hill which contains information on horse facility design and management. Purchase through the Amazon link on the HCW web site or check your library for availability.
- Your county solid waste department may also be able to help you with more information on composting or other ideas for manure management. Many counties (or city solid waste department) offer Master Composter classes which, although geared towards the backyard gardening type compost bins, will certainly provide you with more information and understanding on the compost process.
- Many books are available in the library on composting. A good source for information on agricultural composting is the *On-Farm Composting Handbook*, distributed by Northeast Regional Agricultural Engineering Service, 152 Riley-Robb Hall, Cooperative Extension, Ithaca, NY 14853-5701. Phone 607-255-7654 or FAX 607-255-4080, or Email at [NRAES@cornell.edu](mailto:NRAES@cornell.edu).





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## Other Composting System Designs

