

## Composting Horse Manure and Farm Waste

The average 1000-pound horse produces 9 tons of manure per year!!! That's 6 pickup loads!

If the horse lives in a stall with bedding changed once per week, add 64 pickup loads!

All that waste makes wonderful compost and can enhance the fertility of your pasture, lawn, and flower beds!

### Horse manure alone is about the ideal ratio of carbon and nitrogen for composting.

"Composting" is simply the decomposition of wastes by microscopic organisms, or "microbes." These microbes need air, and carbon for energy and nitrogen for growth. The ideal carbon to nitrogen ratio for composting is about 25:1. High-carbon materials include straw, shavings, sawdust, and dry leaves. High-nitrogen materials include manure and any green plant materials. While horse manure is about the ideal ratio, it is good to mix in about 1/3 larger wood chips to help oxygen get in and keep the pile aerobic (oxygenated).

If you add too much bedding to your compost pile, you can end up with too much carbon compared to nitrogen. This slows down the composting process. And, when high-carbon compost is added to the soil, it takes nitrogen from the soil to continue decomposing, making the nitrogen temporarily unavailable to growing plants. The resulting plants usually show a nitrogen deficiency as a yellowing of the leaves.

**Minimize bedding.** You will save money and end up with a manure pile that composts faster. Horses don't need nearly as much bedding as is often used; they just need enough to soak up urine and moisture. Pick stalls carefully and remove only soiled bedding. Replace your bedding with rubber stall mats; they cushion ankle joints and provide a smooth standing surface for horses.

**Consider your bedding options.** Different types of bedding decompose at different rates. Straw and shredded newspaper break down faster than sawdust or shavings.

**Add materials if necessary.** If you have too much bedding in your pile, add high-nitrogen materials such as grass clippings, blood meal, fresh cattle manure or chicken manure to speed up composting. You can also dissolve 25-0-0 fertilizer in water at the rate of about 1 cup per gallon and add it to the pile.

**Keep your pile aerated.** The beneficial microbes need oxygen. Too little oxygen contributes to bad odors, low temperatures, and inefficient breakdown. Allow oxygen into the pile by including some bulking agents such as wood chips and keeping the pile small (5-6' high and 10' wide).

**Keep your pile moist.** Inadequate water is the number one reason for composting failures. A dry pile will compost slowly and may need additional water during dry and hot weather. The water can be applied with a dripper emitter, but a garden hose works too. A waste pile composts best when about 50% water. But, be careful; excess water slows down composting and makes the pile stink. Excess water can also run off the pile and pollute streams, canals, or groundwater. If your pile is wetter than a wrung-out sponge (if you can squeeze water out of a handful of compost), or if you notice puddling, turn the pile and mix in large wood chips to promote aeration. Always cover manure and compost piles in wet weather to prevent saturation and loss of easily-dissolved plant nutrients.

**Keep your pile cooking.** Sustained composting temperatures above 130°F will reduce the threat of weed seeds and harmful bacteria. Turn your pile as needed to maintain pile temperature between 100°F and 150°F, and add water if needed. You can purchase long-stemmed composting thermometers or bury a candy thermometer tied with a piece of plastic baling twine in the compost and retrieve with the twine.

**Keep your pile on concrete and away from running water.** This will best protect ground and surface water from nitrates and bacteria. A concrete surface is also more convenient when turning compost with a front loader or other heavy equipment. The concrete pad should have curbs on at least 3 sides to contain the nutrient-dense liquid that leaches from the pile. Any leachate should be stored and applied with the same care as you store the manure. Also, make sure your pile is out of the path of running water.

**Use your compost!** Your compost should be ready to spread in 6-12 months. You will have about half the volume of waste you started with. Spread it when ground is dry and plants are actively growing. A good guideline is to spread no more than 1/2" of manure or compost at a time, 2-4 times per year.

**Keep informed!** For more information, you can contact:

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Some composting operations may need a permit from DEQ or a composting plan from the Oregon Department of Agriculture (ODA). Contact ODA if you compost more than 20 tons per year and any of the product is used off-site.