



Making the Most of MANURE

by Jennie Kramer

A few years ago, as part of my continuing effort to “go green,” I decided to try my hand at composting household kitchen waste. I’ll be the first to admit my effort was a bit half-fast, but how hard could it be, right? So I formed my little pile. And I turned it. And I added a-bit-of-this and a-bit-of-that. And I turned it some more. The following spring, I graciously bestowed the (semi)decomposed organic matter on my garden, working it into the soil. And I grew... tomatoes. More tomatoes than I had planted and more tomatoes than I thought my little garden could ever produce. And so I ate tomatoes. And I cooked with tomatoes. And I gave tomatoes to my family, friends, neighbors, and anyone else who would take them. And, finally, much to my husband’s dismay, I mashed them and stashed them in the freezer, like a squirrel – “for the winter.”

In retrospect, I realize my “compost pile” was undersized, and therefore incapable of achieving and sustaining the temperatures necessary to kill (tomato) seeds. Read on to better understand the composting process, avoid some common mistakes, and ensure an optimal return on your efforts.

WHAT IS COMPOSTING?

The practice of composting dates to the early Roman Empire. More recently, composting was introduced to America by individuals such as J.I. Rodale (founder of the Rodale Organic Gardening Experimental Farm, circa 1940), E.E. Pfeiffer (who developed scientific processes in biodynamic farming), and Scott and Helen Nearing (who inspired the back-to-the-land movement of the 1960s).

Compost is derived from organic matter that has been broken down by micro-organisms, usually for use as plant fertilizer and as a soil amendment.

Perhaps you’re wondering what differentiates a traditional “stacked” manure pile from a compost pile. Simply stated, small amounts of stacked manure will (eventually) turn into compost, but a true compost pile requires several inputs (listed below) and will, ultimately, produce a valuable resource.

WHAT’S IN IT FOR ME?

Now, I’m sure you’re wondering why any sane person would voluntarily take on the responsibility of caring for a compost pile in addition to the myriad of other obligations that characterize the equestrian lifestyle. As it turns out, successful composting means benefits not just for you, but for your horses and the environment as well.

FOR THE HORSE KEEPER:

- **REDUCED ODOR:** A properly managed, aerobic compost pile will produce less of an odor than semi-decomposed manure.
- **REDUCTION IN OVERALL VOLUME:** A fully-composted pile of organic matter will show a weight and volume reduction between 40 and 60%!
- **WEED CONTROL:** An internal temperature of 145 degrees Fahrenheit will kill most weed seeds, even those from the more hardy species.

MORE EVEN GRAZING PATTERN:

Horses will graze a pasture spread with compost more evenly than one spread with manure, thereby resulting in less wasted grazing space.

•**SAVE (OR MAKE!) MONEY:** As if saving money on fertilizer, lime, de-wormers, and antibiotics wasn't enough, consider that many garden centers, landscapers, and homeowners will pay for your finished compost!



Consider bagging and selling your finished compost to local gardeners and landscapers.

FOR THE HORSE:

- FEWER FLIES:** As most of us are probably aware, traditional manure piles provide ideal breeding habitat for flying, biting insects. Unlike a manure pile, however, a properly managed compost system can reach temperatures high enough (approximately 150 degrees Fahrenheit) to kill fly eggs and larvae. (Seriously, who wouldn't love this?)
- IMPROVED GRAZING:** Unlike manure or store-bought fertilizer, compost – when applied in the correct amounts – can improve the overall health of a pasture by supplying micro-organisms, retaining and slowly releasing essential nutrients, providing ideal conditions for beneficial soil life, increasing aeration and water retention, and adjusting soil pH. *Remember, healthy soil is the basis for a productive pasture!*
- NATURAL PARASITE AND PATHOGEN CONTROL:** The heat from a compost pile will destroy worm eggs and larvae as well as disease and infection-causing pathogens (such as bacteria, fungi, and viruses), thereby reducing reliance on chemical de-wormers and antibiotics. (*Note: This is especially important if you spread in a vegetable garden or where your horses graze!*)

FOR THE ENVIRONMENT

- PROTECT WATER QUALITY:** Valuable nutrients exist in unstable forms in fresh manure and are frequently lost to the air and water. These same nutrients become increasingly stable during the composting process and are therefore less likely to leach into nearby water supplies.
- IMPROVED HABITAT FOR MARINE LIFE:** Healthy soils that have high organic matter content with good soil structure built by the soil life are able to absorb precipitation that would otherwise flow overland, carrying soil particles and other contaminants with it. Such contaminants, upon reaching surface water, compromise living conditions for fish and shellfish.
- CONSERVATION OF NON-RENEWABLE RESOURCES:** Approximately 2% of annual natural gas usage in the United States is dedicated to production of nitrogen fertilizers.

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Pastures treated with compost exhibit greater stability and increased vitality making them less susceptible to environmental stressors (such as overgrazing or temperature extremes) and chemical imbalances that might otherwise trigger high sugar concentration and an increased risk of laminitis.

GETTING STARTED: LOCATION, LOCATION, LOCATION...

Proper placement is critical to the success of your compost system.

DOS:

- Choose a level site within reasonable distance of stalls and paddocks.
- Have water available to maintain moisture within the compost pile(s).
- Plan to cover your compost pile – even a secured tarp will serve this purpose.

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A simple tarp limits nutrient leaching and helps keep “clean rainwater clean.”

- Check with your township or municipality to ensure your compost system is in compliance with local zoning codes prior to building. Generally, allow 50 to 100 feet between your compost site and property line and 100 to 200 feet between a compost bin and any potable water source or wetland.

DON'TS:

- Don't build in low-lying areas in which water will collect or flow.

- Don't place your system under the eaves of a barn or other outbuilding – clean runoff from these structures may be directed into the compost and become contaminated.
- Don't place your compost pile where it will interfere with lawn care or outdoor activities.
- Don't build your bin against trees or wooden structures – the decomposition process may rot these as well.
- Don't use treated lumber to build your bins. Instead, use naturally rot-resistant wood like red cedar, black locust, or redwood.

SIZING

The size of your composting system will be largely dependent on the amount of space you have available and the amount of waste you wish to compost. Ideally, the pile will be large enough to maintain high temperatures within (no less than one cubic yard), but small enough (no more than 5 feet high and 5 feet deep) to be aerated throughout.

Although your compost may be completed sooner, allowing room for 4 to 6 months' worth of manure is recommended when planning your system.

CARBON:NITROGEN RATIO

Organisms that decompose organic matter require carbon as an energy source and nitrogen to support cell structure; maintaining a balanced carbon: nitrogen ratio of 25:1 to 30:1 will maximize microbial activity within your compost system. Conveniently enough, horse manure alone represents this ideal with a carbon: nitrogen ratio of (approximately) 25:1.

While it is possible to compost “pure” manure, a variety of materials will promote a wider array of microorganisms, provide a greater assortment of nutrients, and promote aeration within the pile. Remember, these supplementary ingredients may necessitate some adjustments to maintain

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the carbon: nitrogen ratio. Sawdust, wood chips, and straw, for instance, will provide carbon. Manure, blood meal, and hay will increase nitrogen. A link to an equation for more accurately determining the ratio of carbon to nitrogen in your system is provided at the end of this article.

AERATION

Adequate oxygen is necessary for microbial respiration during the decomposition process. Turning your pile with a shovel or tractor (especially during the first few weeks) will help to aerate the material. If this is not possible, consider inserting lengths of perforated PVC pipe into the pile to provide passive aeration.

Note that piles containing large amounts of sawdust may become compacted and anaerobic. To prevent this condition, consider adding “bulking materials” such as hay, straw, leaves, or pesticide-free lawn clippings.

MOISTURE

Water content between 50 and 60% will provide necessary moisture for the execution of chemical and biological processes within the composting pile. To better understand this, imagine a damp (but not dripping wet) sponge. A pile that contains too much moisture is in danger of becoming anaerobic and should be turned to allow excess moisture to escape. A lack of moisture can be remedied by wetting organic matter as it is added to the pile. (*Note: To prevent leaching, compost piles and composting materials should not be exposed to rain.*)

TEMPERATURE

Achieving and maintaining proper temperatures within your pile will accelerate the decomposition process. Elongated compost thermometers, available at your local garden center or online, will allow you to more accurately monitor the temperature within your pile. Generally, expect fresh manure and bedding to take several days to begin warming, with temperatures initially ranging between 50 and 110 degrees Fahrenheit. After a few weeks, internal temperatures will rise into the 110 to 160 degree range. While higher temperatures (135 to 150 degrees) are ideal for killing eggs, larvae, and weed seeds, temperatures above 160 degrees should be avoided due to their negative impact on beneficial micro-organisms. Turning and reducing the size of an overheating pile will help to lower temperatures.



THE FINISHED PRODUCT...

As the saying goes, “all good things take time.” The production of quality compost is no exception. Expect 3 to 6 months to pass before your compost is “finished.” The final product will be fine, crumbly, and have an “earthy,” but not unpleasant, odor. If you plan to spread your compost, consider performing both standard and biologic soil tests of your fields – and your compost – prior to doing so. Also, contact your local conservation district or agricultural extension office for applicable rules and regulations regarding compost application in your area.

PARTING THOUGHTS...

Let’s face it – your horse is going to produce manure whether you compost it or not. Why not take advantage of the great returns associated

with a properly managed compost system? True, the endeavor requires a commitment of time and effort – but isn’t that commitment, ultimately, what defines us as natural horse keepers? That said, please take this opportunity to invest in the environment – for a happier, healthier tomorrow for you and your natural horse.



ADDITIONAL RESOURCES:

- Plans for constructing your own compost bin:
http://panutrientmgmt.cas.psu.edu/pdf/rp_ss_composting.pdf
- A list of additional materials you can/ cannot compost:
<http://www.compostinstructions.com/what-you-can-and-cannot-compost/>
- A simple equation to accurately assess the nitrogen and carbon content of your compost pile:
<http://www.sbprojectcleanwater.org/Documents/Brochures/Guide%20to%20Composting%20Horse%20Manure.pdf> ♡

About the author:

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