

### Do You Have Problems Like These:

- Manure piles up in livestock buildings because it is the wrong time of year to spread it.
- Neighbors complain about how the manure smells.
- Manure is too heavy and wet to spread easily.
- Weed seeds in the manure are a problem.
- You don't have enough cropland to spread all the manure



*Compost windrows on concrete pad*

### Composting Manure Can Help

### Benefits of Composting Manure:

- Composting reduces odor and fly problems. Flies can't breed in compost.
- Composting reduces the volume of the manure.
- Finished compost is dry and fairly light, so it is easier to transport and spread.
- Compost can be sold or used on other farms.
- Fertilizer nutrients in compost are released more slowly than from raw manure.
- Composting provides a way to store manure until you are ready to spread it.



*Composting horse manure in a shed.*

<b>Costs:</b>	<b>Hard Surface</b>	Concrete pad, or area Stabilized with lime
	<b>Structure</b>	Shed, bins, hay bale enclosure, or open windrows
	<b>Water</b>	Access to water to add to piles during composting
	<b>Time</b>	Time spent moving manure, turning piles, and using the finished compost

# Composting Manure

## What kind of manure can be composted?

Composting is well suited for manure that contains a lot of bedding material, such as straw, sawdust, wood shavings, or spilled hay. Manure from horses, goats, dairy cows, or beef cows, as well as poultry litter, will compost easily. Wetter or more concentrated manure (from pigs or egg laying hens) will need to have material mixed with it in order to compost properly.



*Outdoor compost bin covered with tarp.*

## Where should compost piles be located?

Composting can be done outdoors or under a roof. Make sure you can easily get to the pile with your tractor in any weather.

### Outdoor composting:

Long piles, called windrows, are built up. You can do this on a concrete pad, or in a well-drained location with firm ground. It must be hard and dry enough for a tractor to work around the pile in all weather.

- The area must drain well, with a slight slope. Don't allow rainwater to run into the compost from the surrounding area.
- Don't locate compost near a well, stream, lake, wetland, or any other place that could be harmed.

- Plant grass (at least a 20-foot wide strip) at the downhill end of the composting area so any water running off the pad can run through the grass and soak in.

### Composting under a roof:

- NRCS has designs for compost sheds. A shed has several three-sided wooden bins, so the compost can be turned from one bin into another using a front-end loader or skidsteer.
- Compost piles can also be surrounded by round bales and covered with a tarp or plastic, when it is not possible to put up a shed.

## What happens inside a compost pile?

- Naturally occurring bacteria do the work in a compost pile. They need air, moisture, some high-nitrogen material like manure, and some high-carbon material like straw.
- Bacteria cause the pile to get hot, up to 160°F. You can see this when you turn over a pile and steam comes out. The heat kills weed seeds and many disease germs in the manure.
- To really work, the pile has to be turned over and mixed several times so the outside parts get into the middle to be heated, and so the pile will get air into it.
- When compost is finished, it will be dark brown and crumbly and will smell like good earth. Depending on how much you mix and turn the pile, it may take anywhere from three to six months for all the manure to turn into compost.

# Composting Manure

## How often should compost be turned over?

At a minimum, turn a pile twice during the composting process. More turning will improve the quality of the compost.

- Turning compost gets air into the pile—this is important!
- When the pile is first built, it will heat up pretty fast. An inexpensive compost thermometer (like a meat thermometer but with a very long probe) helps you know when the pile is hot enough.
- Heating to 145°F for at least three days will kill most weed seeds.
- As soon as the pile cools a bit from that first heating, it can be turned the first time.
- Whenever turning the pile, move material on the outside and top into the inside. Break up big lumps. The second pile will heat more slowly, but should also reach 145°F for three days or more.
- After the last turning, let compost age for a few months to be sure all the fertilizer nutrients are stabilized, and the seeds have been killed. It will now be ready to spread on farm fields, be used for yards or gardens, or sold as a soil improver.

There are ways to force air into a compost pile to make it “cook” faster and more evenly.

- Pipes can be set in the pile to carry air into the middle.
- The pile can be set on perforated pipes or pallets to provide a way for air to get in.

Your NRCS office has information on extra things you can do to speed up composting.



*For small piles, composting against a buck-wall makes turning*

## Maintaining a manure composting system.

- Composting needs attention!
- If large material (woody fragments, branches, long hay) is in the compost, it may have to be chopped before adding it. The smaller the particles, the faster it composts.
- The piles must be turned and kept neat.
- The area around the pad or shed must be kept neatly mowed.
- Water will have to be added to the piles when they get dryer than the “wrung-out sponge” condition.
- Compost piles do have some odor. If this is a problem, cover the pile with straw, sawdust, or a tarp. For small amounts of compost, there are rotating barrel-type containers that will hold in any smell and produce compost quickly.
- Old piles that are ready for use need to be removed so new manure can be composted.
- **Finished compost should be tested for fertilizer value before applying to farm fields, to avoid applying too much.**

## SMALL SCALE SOLUTIONS FOR YOUR FARM

### Technical Help Is Available

Your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can assist you with composting manure. They can also help you develop a Conservation Plan to solve other problems you have identified on your farm.

There is no charge for our assistance. Simply call your local office at the number listed below to set up an appointment and we will come to your farm.

You may also be eligible to receive financial assistance, through a state or federal program. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.



*Helping People Help the Land*

For More Information Contact the:

**Natural Resources Conservation Service**

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