



MANURE MANAGEMENT OVERVIEW

Why Manage Manure?

Regular collection of manure from stalls and confinement areas is essential to the health of your animals and your land. Good manure management can reduce mud; limit parasite reinfestation and fly breeding grounds; prevent nutrients from contaminating surface and groundwater; and improve aesthetics. Collected manure can be composted and applied to pastures, providing essential nutrients for grass and beneficial organisms that improve the soil.

A 1,000 lb horse will produce 50 pounds of manure a day. That's nine tons per year!

TIPS

Collect Manure

Collect manure from stalls and confinement areas every one to three days. Manure does not need to be collected from pastures. Harrow pastures occasionally to break apart manure piles and distribute the nutrients.

Store Manure

A well-designed storage area can make manure management more efficient and prevent polluted runoff from entering surface or groundwater.

Choose the Right Location

Choose a high, level area of your property that's in close proximity to where the manure is being collected. Make sure the area is easily accessible by tractor year-round and dry enough that it won't turn to mud in the winter. Check code requirements—regulations may require that manure storage areas be placed a certain distance from neighbors as well as wetlands, streams and other water bodies. You can contact the King CD for more information.

Two to Three Bin System

If you plan to compost your manure, a bin system can be extremely useful. Two bins is the recommended minimum, but adding a third bin is ideal. Bins can be made of wood or eco-blocks and placed on a concrete slab or the ground. All bins must be covered with a tarp or roofed year-round.



Manure Storage Structures

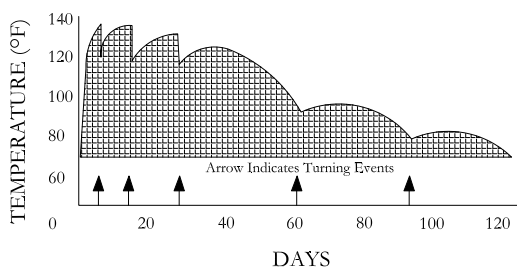
There are many different options and designs, choose the one that fits your needs. Contact the King CD for specifics on location and sizing for your property.

Composting

All organic matter contains microbial organisms; these are the workers that break down manure, converting it into compost. The microbes have specific temperature, moisture and oxygen requirements. Managing your pile for these three variables will help you produce quality compost in a short amount of time.

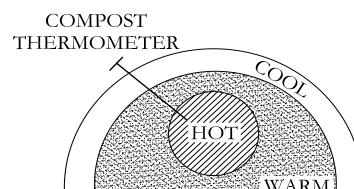
Temperature

The temperature of the pile is directly proportional to the microbial activity within the pile. As the microbes become more active, the pile temperature rises. When the temperature of the pile peaks and begins to level off, the microbial activity is slowing. If you have a tractor available, this is the ideal time to turn the pile to add more oxygen.



Graphic courtesy of Cornell Cooperative Extension

Continue this process of turning, letting the pile sit and heat up, and turning again when the temperature peaks. When the pile drops below 70°F and does not reheat upon turning, the material has become biologically stable and is completed compost.



Graphic courtesy of Cornell Extension

Piles should be kept between 130°F and 185°F for three to four days to destroy weed seeds, fly larvae and plant pathogens.

Use a compost thermometer to monitor your pile temperature. If the pile reaches 165°F degrees, continue to monitor it closely. Immediately turn the pile if it reaches 185°F. High temperatures can kill off beneficial organisms or lead to spontaneous combustion.

Moisture

Composting microorganisms thrive in moist conditions. If the pile is too wet or too dry the microbial activity will suffer. To test moisture, take a handful of material and squeeze. If water drips out, it's too wet. If it crumbles in your hand, it's too dry. If it does not drip water and stays compacted, it's just right. A year-round tarp or roof is necessary to manage moisture content in Western Washington.

Oxygen

Microbes use up oxygen as they metabolize the raw manure. Turning the pile occasionally will stimulate the microbes by giving them more oxygen.

Applying Compost

Once the manure has completely composted to an earthy, soil-like material it's ready to use. This will generally take two to six months, depending on the time of year (manure composts faster during the warmer months) and whether you're able to turn the pile (turning can dramatically increase the composting rate).

Compost can be applied to pastures, lawn, landscapes and garden beds. A general guideline for applying compost to pastures is a half-inch per application and no more than two to three inches per year. Compost should only be applied during the growing seasons in the spring, early summer and fall.



Raw manure and finished compost