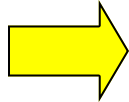




MANURE MANAGEMENT OVERVIEW

All services provided by the Skagit Conservation District are free and without obligation. We are a non-regulatory, non-enforcement agency.



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



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Why Manage Manure?

Regular collection of manure from stalls and confinement areas is essential to the health of your animals and your land. Good 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 seed and beneficial organisms that improve the soil.

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.



- **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 Skagit Conservation District for more info.
- **Manure Storage Structures**—There are many different options and designs, choose the one that fits your needs. Contact the Skagit Conservation District for specifics on location and sizing for your property.
- **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 systems.

Store Manure

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



Covered four- section manure storage



Three bin manure storage

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.



Raw manure and finished compost

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. 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 degrees and does not reheat upon turning, the material has become biologically stable and is completed compost.

Use a compost thermometer to monitor your pile. If the pile reaches 165 degrees, continue to monitor it closely. Immediately turn the pile if it reaches 185 degrees. High temperatures can kill of 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.



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

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 early spring, early summer and fall.

