

Composting Livestock Manure

Using Composted Livestock Manure Safely in the Garden

Pathogens (microorganisms which cause disease) can be transferred from animal manures to humans. The pathogens salmonella, listeria and E.coli 0157:H7, as well as parasites, such as roundworms and tapeworms, have been linked to applications of manure to gardens.

Publicity about illnesses due to E.coli 0157:H7 has made people more aware of the potential risk of foodborne illness from manure contamination. As a result, many are now asking whether it is safe to use manure on their gardens.

In August 1993, *The Lancet Medical Journal* reported on a small E.coli 0157:H7 outbreak that appeared to be the result of manure applications to a garden. The gardener ate eggs and milk products, but no meat, and her diet relied heavily on vegetables from her garden. She fertilized the garden all summer with manure from her cow and calf. No E.coli 0157:H7 bacteria were isolated from fecal samples taken from the cow and calf; however, the animals did have antibody counts for the pathogen, suggesting they had been previously infected. E.coli 0157:H7 was isolated from the manured garden soil.

So, how risky is the use of manure in gardens and compost piles? If you use fresh manure in the garden, there is a small risk that pathogens which cause disease may contaminate garden vegetables. The risk is greatest for root crops, like radishes and carrots, and leafy vegetables, such as lettuce, where the edible part touches the soil. Careful washing and/or peeling will remove most of the pathogens responsible for the disease. Thorough cooking is even more effective.

To reduce the risk of disease, we suggest these precautions:

1. Wait 120 days from the time of applying fresh manure to the time of harvest of high-risk crops (those where the edible part is in contact with the soil: such as root and leaf crops and strawberries) if those crops are not always cooked. Wait at least 90 days for other crops. If you apply manure within 60 days of harvest, use only aged (for at least a year) or hot-composted manure.
2. Never apply fresh manure after the garden is planted.
3. Thoroughly wash raw vegetables before eating.
4. Do not use cat, dog or pig manure in gardens or compost piles, because some of the parasites which can be found in these manures may survive and remain infectious for people.
5. People who are especially susceptible to foodborne illnesses should avoid eating uncooked vegetables from manured gardens. Those who face special risks from foodborne illness include pregnant women, very young children, and persons with chronic diseases, such as cancer, kidney failure, liver disease, diabetes or AIDS.

For more information on animal manure and food safety, refer to "[Food Safety Begins on the Farm](#)", produced by the Cornell University Good Agricultural Practices Program.