



USING MANURES AROUND VEGETABLE OR BERRY CROPS

Fresh animal manures sometimes contain human pathogens such as *Listeria*, *Salmonella*, and *E. coli*, as well as parasites like roundworms and tapeworms. The potential risk of foodborne illness from manure contamination of food requires that the safety precautions be taken if using manure on garden soil.

When fresh manure is used in a vegetable or fruit garden, there is a risk that pathogens that cause disease may contaminate food plants. Pathogens in fresh manure typically die off in the environment over time, especially when the manure dries or is exposed to freezing and thawing. The rate of pathogen die-off depends on the type of pathogen and manure, and on environmental conditions such as temperature, moisture, and sunlight.

The risk of manure application is greatest for root crops like radishes and carrots, leafy vegetables such as lettuce where the edible part touches the soil, and fruit crops such as strawberries. Careful washing and/or peeling will remove some pathogens. Thorough cooking is most effective at killing pathogens on food crops.

These precautions may reduce the potential for foodborne illness:

1. If fresh (uncomposted) manure is to be used it should be applied before planting and rototilled or dug into the soil. Any manure application **after** planting should be with composted manure.
2. If fresh manure has been applied, wait 120 days from time of application until harvest for crops where the edible part is in contact with the soil (such as root and leaf crops and strawberries). Wait at least 90 days for other crops.
3. Only potable water or water known to meet the bacteriological standards of potable water should be used to water vegetables that are to be eaten raw. This is critically important within one month of harvest.
4. Thoroughly wash raw vegetables before eating.
5. Do not use cat, dog, or pig manures in gardens or compost piles because parasites that can be in these manures may survive and remain infectious for people.
6. People who are especially susceptible to foodborne illnesses should avoid eating uncooked vegetables from manured gardens. They include pregnant women, very young children and those with chronic diseases such as cancer, kidney failure, chronic liver disease, diabetes or AIDS.

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