



# Using Manure in the Garden

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For years, home gardeners and farmers have applied manure as a means of conditioning the soil and supplying some fertilizer nutrients. However, with recent concerns about E. coli (*Escherichia coli*) bacteria contamination, come home gardeners are questioning the practice.

Not to worry, states David Robson, University of Illinois Extension Educator, Horticulture, provided you use a little common sense.

E. coli is a bacterium normally found in animal intestines, including humans. However, there are several strains. Encountering a different strain can cause serious health problems, including death, in severe cases. At low levels E. coli is especially dangerous to small children the elderly and those with depressed immune systems.

Most E. coli problems occur for food coming in contact with human or animal feces, particularly through improper butchering, packing and cooking. Recent reports show E. coli appearing on fruits and vegetables.

There aren't many long-term studies on the effects of E. coli and gardening.

According to Cornell University horticulturist Stephen Reiners, E. coli typically is killed by summertime temperatures but remains viable under cooler conditions for as long as 77 days in slurry and for as long as 100 days in manure-fertilized soil.

Fortunately, most gardeners apply manure in the late fall or early spring, giving ample time for the E. coli to die.

Bacteria also need a moist environment to remain alive. Dry conditions hasten their death.

Nancy Pataky, Plant Pathologist with the University of Illinois, questions whether the E. coli bacteria would infect plants. Root surface bacteria and other natural flora (other soil bacteria and fungi) already present on plant roots would compete against the E. coli. E. coli, as non-traditional soil bacteria, would not be an aggressive invader. In fact, the other bacteria and fungi may actually feed on it.

Additionally, no research has indicated that the E. coli bacterium is anything more than a surface contaminant.

**Caution, though, should always be the key word when using manure around edible crops.**

### Keys to safely applying manure in your garden

- ✓ Apply composted manure to the garden soil, preferably in the fall or early spring. Till it in thoroughly.
- ✓ Packaged manure products should be safe as most have been steam treated which kills harmful bacteria.
- ✓ Don't use manure around plants during the active growing season.
- ✓ Mulch the soil thoroughly to keep vegetables and fruit off the ground. Straw, shredded leaves or wood chips limit the produce's contact with the soil, as well as splashing from the soil surface.
- ✓ Wash all produce thoroughly before eating, especially root crops such as carrots, beets, radishes and onions. Do not use soaps unless specifically formulated for produce.
- ✓ Roots that appear rotten should be discarded.
- ✓ Think of the manure more as a soil conditioner than as a plant fertilizer. Manure adds organic matter, which is important for plant growth. However, most animal manures have low nutrient levels, and it takes a large quantity to produce good growth.
- ✓ Buy healthy transplants with strong root systems.
- ✓ Make sure you don't damage roots through improper hoeing and cultivating. Hoes should scrape across the soil's surface, and not dig into soil perhaps injuring roots. Most bacteria need an open wound to enter the plant.
- ✓ Compost manure first. Don't apply fresh manure to the soil. Composting manure before applying to the soil should destroy all E. coli bacteria. An active compost pile will reach temperatures of 140 - 160° F.
- ✓ Don't apply manure fertilizer within two months before harvest.
- ✓ Grow plants on support as much as possible to keep produce off the ground.
- ✓ Wash your hands thoroughly before preparing and eating any food.

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