

Food Safety in the Garden

Safe garden produce begins well before harvest -- with food safety practices to prevent pathogens from entering the garden or getting onto vegetables. *Pathogens* are microscopic organisms that cause disease, such as bacteria, viruses, and parasites. From garden siting to water sources, soil amendments, and harvesting practices, there's a lot that gardeners can do to reduce their exposure to pathogens and prevent disease-causing critters from contaminating the harvest. School and community gardens should take extra precautions to ensure that it's safe for children to be in the garden and eat the produce it yields.

Safe Site: Locate gardens away from (and on higher ground than) potential contamination sources, including garbage, animals, areas susceptible to flooding, septic systems, and bins with unfinished compost. This will prevent runoff from carrying pathogens into the garden.

Safe Irrigation Water:

- Use a treated water source that meets drinking water standards.
- If you use another source, such as a rain barrel, have it tested for generic *E. coli* bacteria. For more information and a list of labs in NC, see: <https://tinyurl.com/GAPNC-WaterTesting>.
- To reduce water and soil splash onto edible parts of crops, water at the base of your plants using drip irrigation or a watering-wand attached to a hose. Do not spray the leaves or fruits.



Water at the base of plants using drip irrigation or a watering-wand. Photo: wollertz, bigstockphoto.com 97548404.

Safe Soil Amendments:

- Legume cover crops, plant-based compost, and commercial organic fertilizers are all good soil amendments/fertilizers and have very low risk of microbial contamination.
- Raw manure should *not* be used in school and community gardens due to the risk of pathogens.
- Composts made with manure from herbivores (e.g., cows) can be used *if* the composting process meets state standards, which ensure that all parts of the pile reach temperatures above 130°F for 5 days (sufficient to kill most pathogens). Such composts are generally produced in facilities with solid waste composting permits and the equipment to manage and monitor compost temperatures.

Safe Compost

- Use only plant materials in school and community garden compost, such as fall leaves, garden trimmings, and fruit and vegetable waste.
- Avoid manure and waste with animal products. These materials may contain dangerous pathogens (e.g., *E. coli*), and it is unlikely that compost in school, community, or backyard garden setups will reach sufficient temperatures for long enough to kill the pathogens.
- Monitor the temperature of your compost using a long-stemmed thermometer. To kill as many pathogens as possible, maintain



Use only plant materials in school and community garden compost. Photo: Graham Corney, bigstockphoto.com 185437090.

compost above 130°F for 5+ days, then turn the pile. For more information, visit: <http://tinyurl.com/FCGHealthySoil> and scroll down to “Composting.”

Clean Hands & Surfaces:

- Before harvesting, gardeners should wash their hands with soap and clean running water. Garden groups can construct an inexpensive handwashing station with a clean water jug that has a spigot, a 5-gallon bucket to catch water, a soap dispenser, and paper towel dispenser. For design ideas, see: <https://tinyurl.com/HandwashingStations>.
- Be sure to place produce in clean, sanitized containers.

Exclude (non-human) Animals:

- Use fencing to keep out domestic pets and wild animals. All animal manure can carry pathogens, such as *E. coli*. Feces of cats and dogs may have parasites that are particularly dangerous to humans, such as *Toxoplasma*.
- Domestic pets can also carry and shed pathogens such as *Salmonella*, so it’s best to keep pets out of contact with food-producing plants.



A garden handwashing station, including a clean water jug with a spigot, catch bucket, soap, and paper towel dispenser. Photo: M. Gregory.

References & Further Resources:

Food Safety for School & Community Gardens, by A. Chaifetz, L. Driscoll, C. Gunter, D. Ducharme, and B. Chapman. North Carolina State University & N.C. Cooperative Extension, 2012. <https://tinyurl.com/FoodSafetyinGardens>.

Food Safety Tips for School Gardens. Institute of Child Nutrition, University of Mississippi, 2016. Linked from: <https://tinyurl.com/USDA-F2S-FoodSafetyResources>.

La Seguridad Alimentaria en el Huerto Familiar [Food Safety in the Home Garden, Spanish-language resource], by P. Geisel & D. Seaver. University of California Publication #8366-S, 2009. <https://tinyurl.com/SeguridadAlimentariaHuertos>.

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Note: *This factsheet focuses on reducing the risk of pathogen contamination in the garden. Other aspects of food safety include preventing or reducing exposure to heavy metals, organic contaminants, and pesticides. For more information on these topics, visit: <http://tinyurl.com/FCGHealthySoil> and scroll down to “Managing Soil Contaminants.”*

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