

Land Use

Minimizing the risk of foodborne illness from produce begins on the farm itself. Whether you are considering growing fruits or vegetables on a new piece of land or you have been growing produce for many years, it is worth thinking about the characteristics of the land you are using and how it has been used in the past.

Land use – Some land uses may not be acceptable for growing edible fruits and vegetables. These uses may lead to contamination of the produce by disease-causing microorganisms referred to as pathogens. The land uses listed below may need to undergo soil testing or a waiting period before crops are planted.

- ◆ Land with intensive animal use. Areas that have been used for intensive animal production are a good example. Pathogens shed by animals such as certain harmful types of *E. coli*, *Salmonella* spp., *Listeria* spp. and *Yersinia* can survive in the soil under certain conditions for several months to a year. Because the amount of pathogens can be higher in soils where intensive animal production has occurred, do not plant in these areas for several months after the animals have been removed from the site to allow time for die-off.
- ◆ Land with application of human waste. Wait at least three years before planting edible fruits and vegetables on a site that has had septage, biosolids, dissolved air flotation (DAF) skimmings or other organic by-products from sewage treatment applied. Use of human waste on produce crops is not allowed under the Produce Safety Rule unless it meets the EPA regulation for class A biosolids (40 CFR part 503). Human waste by-products can have disease-causing bacteria, viruses and parasites. The number of pathogens in the soil is reduced over time by ultra-violet light, competition from other soil organisms, and fluctuating soil moisture and temperatures. For additional information on use of manures and soil amendments of animal origin, see publication # FDNS-E-168-5, Use of Manure and Other Soil Amendments of Animal Origin.
- ◆ Land in flood prone areas. Floods can bring in pathogens as well as other unwanted debris or chemical contaminants. Areas that flood regularly are not suitable for crop production. If an area floods infrequently, evaluate whether or not crops can be grown in such a way that potential contamination can be minimized. Crops exposed to flood waters should be destroyed and should not be harvested for human consumption.
- ◆ Land adjacent to high risk areas. If fields are close to concentrated animal use areas, land application sites, or flood prone areas, particularly if these areas are higher in elevation than the production fields, be aware of the potential for runoff or windborne soil to move into the crop fields and contaminate the crops being produced.



▲ Runoff from animal holding areas should not be allowed to enter growing areas.
Photo courtesy of Faith Critzer, WSU Extension

What to look for

- ▶ Think about the history of the farm. Did any of the higher risk land uses occur? What is the cropping history? If any higher risk land use conditions have occurred in fields where you are growing fruits or vegetables, either test the soil for pathogens or wait before using those areas.
- ▶ Take a look around the farm. Look for topographic features like ditches, swales or other topography that can channel runoff from nearby areas into your growing areas. Where will that runoff be coming from? If it can come from places with animals, land application sites, manure storage, or even fresh compost piles, the runoff water should be diverted from growing areas using ditches or berms. Consider the land around your farm. Can conditions on your neighbor's farm affect the safety of your produce?
- ▶ Can topographic features channel floodwaters into your growing area? The amount and frequency of flooding that occurs in this area will determine if it is practical to divert or whether you should use another area for fruit and vegetable production.
- ▶ Finally, can dust from high risk areas blow into the growing area? If so, plant a windbreak of evergreen shrubs or trees to block potential contamination and reduce pathogen loads on a given area. Often, breaks with several different types of trees and shrubs or even tall grasses of different heights are the most effective (see Figure 1).

Figure 1. Diagram of how a windbreak can potentially reduce contamination from nearby higher risk areas. Adapted from NRCS Technical Note – Windbreaks.



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