



Produce from flooded areas: ***Considerations for growers, packing houses, and processors***

Wisconsin Department of Agriculture, Trade and Consumer Protection

The following information applies to vegetable crops grown both for the fresh market and for freezing/canning.

Generally speaking, state and federal food safety regulations do not cover flooding situations. Regulations governing manure and pesticides also do not address flooding. The only absolute is:

Produce that has come in contact with flood water is considered adulterated and cannot be sold for human or animal consumption.

Beyond that, we can offer guidelines based on research and on U.S. Food and Drug Administration advice. ***As growers, packers and processors, you need to consider these guidelines and your liability and decide what action you want to take.*** Growers and packing houses that have GHP or GAP certification should consult with Tim Leege, the certifier in Wisconsin, phone 715-345-5212. Growers with organic certification should consult with their certifier.

Sales

- Leafy greens touched by flood water cannot be sold and should not be consumed by humans or animals. Any other edible parts of the plant that were already developed and touched flood water cannot be sold and should not be consumed by humans or animals.
- Crops *near* flooded areas or that were flooded without the edible part of the plant coming in contact with flood water need to be evaluated case by case:
 - What is the source of the flood water? Could human pathogens or chemical contaminants be present in the water? ***Note: flood water almost certainly contains pathogens and/or chemicals.***
 - Was the crop exposed to prolonged periods of moisture and stress that could promote fungal growth or molds that could produce mycotoxins?
 - Is the edible part of the plant developing and how far above the water does the lowest edible portion grow?
- Crops in which the edible portion develops after flood waters recede are ***not*** automatically considered adulterated. It is your decision whether to sell them.
- Root vegetables including potatoes, carrots and beets may be sanitized by rinsing in clear water to remove soil residue and soaking two minutes in a chlorine bleach/water solution with 25 ppm available chlorine. It is your decision whether this is practical and acceptable to consumers.

Replanting

It is best not to replant flooded areas for 30-60 days after the water recedes. While this time is probably long enough for fecal contamination to decline, ***note that chemical contamination may remain.*** You might consider testing soil for the presence of indicator organisms such as coliform bacteria, which indicates fecal contamination, and/or common pathogens such as E. coli, salmonella, and listeria. It is virtually impossible to test for chemical contaminants, because of the multitude of possibilities, although you may be able to narrow it down to pesticides commonly used in your area. Again, it is your decision whether to conduct these tests prior to selling your products and you will need to find a private laboratory to do the tests.

Allow soil to dry sufficiently to be reworked before replanting. Prevent cross-contamination by cleaning and disinfecting equipment and vehicles used in flooded areas before working in non-flooded areas. Don't drive across flooded areas to plant or harvest in non-flooded areas. Be sure that workers don't transport contamination on boots, gloves, or tools.

Organic producers

While the factors discussed above are mostly judgment calls for conventional producers, organic producers may have requirements included in their organic certification. Contact your certifier.

For more information

- Wisconsin Department of Agriculture, Trade and Consumer Protection, Division of Food Safety
608-224-4736
(You may be referred from the Division of Food Safety to other sources at DATCP who work with pesticide, manure, organic and GAP/GHP issues.)
- GAP and GHD certification: Tim Leege, 715-345-5212
- University of Wisconsin-Extension: <http://www.uwex.edu/ces/ag/issues/ExtensionResponds-Flood.html>
- U.S. Food and Drug Administration: <http://www.cfsan.fda.gov/~dms/fsdisas1.html>
- For organic growers, information from the University of Minnesota: <http://organicecology.umn.edu/wp-content/files/impact-of-flooding-on-organic-food-and-fields.pdf>