

Balancing Food Safety and Organic Requirements for: Land Use History and Neighboring Impacts

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Introduction

Organic producers are well versed in NOP regulations that prohibit synthetic fertilizers, most pesticides, sewage sludge, and other banned substances from being used on the land for three years prior to harvest. The NOP also requires that growers take steps to prevent prohibited substances on neighboring land from

contaminating their operations (which can be achieved by using hedgerows and diversion ditches, for example). The NOP and FDA require that pathogens on the farm not contaminate crops and water, and FDA's requirement for a comprehensive assessment means examining risks from the surrounding landscape.



Photo by Carlo Fanti

Requirements for Each Regulation

National Organic Program

- Organic operations must not have had prohibited substances applied to the land for three years before harvest of the crop.
- Operations must have distinct boundaries and buffer zones to prevent contamination from adjacent land not under organic management.
- Organic crop producers must manage animal materials in a manner that does not contribute to contamination of crops, soil, or water by pathogens, heavy metals, or residues of prohibited substances.
- Organic livestock operations must manage manure, pastures and other outdoor access areas in a manner that does not contribute to contamination of crops, soil, or water by pathogens.
- Organic preventive livestock health care practices must include sanitation practices that minimize the occurrence and spread of diseases.

FDA FSMA Produce Safety

- FDA recommends an operational assessment which identifies potential risks to the farm. This comprehensive assessment includes land use history and neighboring impacts.
- FDA only requires that biological hazards be addressed, not chemical or physical hazards.
- FDA requires that a farm with flooded fields assess the extent of flooding and not harvest crops that are reasonably likely to be contaminated.

Frequently Asked Questions

Why should growers be concerned if their field floods, and what should they do about it?

Flooding can move contaminants over large areas from sources such as upstream sewage or septic systems, and livestock operations. Since edible portions of crops that come in contact with floodwaters are considered adulterated by the FDA, whether or not pathogens are detected, those crops should not be sold for human consumption. NOP likewise does not allow the sale of contaminated crops. Caution should also be taken when selling or using flood-contaminated crops as animal feed, since livestock can be harmed by biological agents and can be vectors for human pathogens. Edible portions of the crop that were NOT in contact with flood waters should be evaluated for possible adulteration.

How long to wait before a flooded field can be replanted depends on many factors: the temperature, the weather, if the flood deposited sediment, how long the field was saturated,

how far across the field the water went, and how long it takes a light or heavy textured soil to dry out enough so that the pathogens die off. Because of all these factors, the optimal waiting time required is hard to predict. Mowing the crop instead of tilling it in can reduce the time it takes for the soil to dry and hence shorten the waiting period. If the field frequently floods, it is considered a higher food safety risk than areas not susceptible to flooding. In that case, it may be more cost effective to restore the area to riparian habitat that supports native pollinators, beneficial insects, and raptors.

What is the best location for a crop in relation to the farm's or the neighbor's compost, manure and cull piles, livestock pens, feeding and grazing areas, and travel lanes?

Crop fields and irrigation water ponds should be located upslope as much as possible from these types of piles and livestock uses. Grass filter strips that filter waterborne pathogens and/or diversion ditches that redirect runoff away from crop fields and water should be used.



Photo by Franco68

Luckily this field did not have a crop in it when the flood came, which would have made it unharvestable, but since it did flood that makes it a higher food safety risk. Flooding can bring unwanted pathogens to the farm, so a waiting period between the flood and planting date is recommended.

Additionally, cull piles should be located far enough away that any rodents they attract don't also have easy access to the fields. Dust from compost making, manure applications, and livestock operations can contain living bacteria, including pathogens, so it is best to locate crop fields and water sources upwind and/or install a windbreak or hedgerow in between.

Is it okay for the grower to let their or their neighbor's livestock drink from the farm's irrigation source?

No, FDA requires that the grower keep livestock and other domestic animals out of water sources as much as possible.

Are there places on the farm growers should avoid planting fresh produce?

Don't plant under tree limbs or telephone wires where birds are roosting or nesting. Take wildlife movement into account and don't plant crops in wildlife corridors. These corridors will allow deer and other wide-ranging wild animals to move through the landscape without trampling the crop and will allow predators to hunt both big game and small rodents.

How long do growers need to wait before harvesting a crop on land that previously was grazed?

FDA leaves it up to the producer to determine if there is significant contamination. A prudent approach is to treat this situation similarly to a raw manure application. Current FDA recommendations mirror those of the NOP for manure: a waiting period of 120 days between incorporation of manure and the harvest for edible portions of the crop touching the ground, and 90 days for those edible portions of the crop not touching the ground.

Who requires a land use history and neighboring lands assessment, what does it contain, and how does a grower create one?

Many third-party food safety audits require an affidavit describing land use related to pathogens that FDA's Produce Safety regulation addresses, and also chemical and physical hazards not covered by the regulation. This land use assessment can be created by listing potential hazards that have been or are currently on or around the farm and, for past hazards, the date they were last there.

A more comprehensive land use assessment is made with a map. To create one, first label and date the map. Next show crop fields, irrigation water sources, areas that frequently flood, compost, manure and cull piles, livestock pens, feeding and grazing areas and travel lanes, bird roosting sites, wildlife corridors and neighboring land use. Include windbreaks and hedgerows that serve as buffers and filter airborne pathogens, grass filter strips and wetlands that filter waterborne pathogens, and diversion ditches that redirect contaminated water. For potential chemical contamination, show where gasoline, fertilizers and pesticides are stored and where any industrial activities are or were taking place. Draw arrows depicting water and air movement. Whether or not this type of assessment is required by a food safety audit, producers can make the farm safer by creating one.

Conclusion

FDA requires a more focused assessment of pathogen risk than the NOP. However, most organic producers already use practices that minimize contamination on and around the farm. Growers can take the next step by conducting a land use history and neighboring lands assessment that helps them make decisions about flooded areas, places to plant or avoid, grazing animal issues, and surrounding uses.

Resources

1. Baumgartner, J. A. et al. 2016. Co-Managing Farm Stewardship with Food Safety GAPs and Conservation Practices: A Grower's and Conservationist's Handbook. Wild Farm Alliance. <http://bit.ly/2smBEaF>
2. Baumgartner, J. A. 2017. A Farmer's Guide to Food Safety and Conservation: Facts, Tips and Frequently Asked Questions. Wild Farm Alliance and Community Alliance with Family Farmers. <http://www.caff.org/resources/foodsafety/>
3. US Food and Drug Administration (FDA). Guidance for industry: Evaluating the safety of flood affected food crops for human consumption. <https://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/emergencyresponse/ucm287808.htm>
4. US FDA. Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. <http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm>

References

1. Organic operations cannot apply banned substances for at least three years and have distinct boundary zones to prevent contamination from neighboring lands as described in the National Organic Program parts §205.202b and §205.202c of the Federal Regulations. Full text of the regulations can be accessed here: https://www.ecfr.gov/cgi-bin/retrieveECFR?g-p=&SID=3584be2cb06ab4924905d387cb858223&mc=true&n=pt7.3.205&r=PART&ty=HTML#se7.3.205_1202
2. Organic operations must manage animal materials so they do not cause contamination and livestock health care practices must minimize practices that spread disease as described in the National Organic Program parts §205.203(c), §205.239(e), and §205.238(a)(3) of the Federal Regulations. Full text of the regulations can be accessed here: https://www.ecfr.gov/cgi-bin/text-idx?SID=dc3a2b87bff233bc5fade0f1205d3359&mc=true&node=se7.3.205_1203&rgn=div8
3. The FDA recommends an operational assessment be completed by farms, however the farm only needs to cover biological hazards, not chemical or physical. This topic is covered in comments 45 and 37 of the Preamble to the full regulatory text on the Standards for Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. It can be accessed here: <https://www.federalregister.gov/documents/2015/11/27/2015-28159/standards-for-the-growing-harvesting-packing-and-holding-of-produce-for-human-consumption#p-384>
4. The FDA requires farms with flooded fields to assess crop contamination and not harvest contaminated crops. This topic is covered in comment 37 of the Preamble to the full regulatory text on the Standards for Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. It can be accessed here: <https://www.federalregister.gov/documents/2015/11/27/2015-28159/standards-for-the-growing-harvesting-packing-and-holding-of-produce-for-human-consumption#p-384>
5. The FDA covers irrigation water requirements in Subpart E §112.42. The full regulatory text on the Standards for Growing, Harvesting, Packing, and Holding of Produce for Human Consumption. It can be accessed here: <https://www.federalregister.gov/d/2015-28159/p-2150>
6. Preamble comment 314 of the FDA's Standards for Growing, Harvesting, Packing, and Holding of Produce for Human Consumption addresses grazing requirements. The full text can be found here: <https://www.federalregister.gov/d/2015-28159/p-1229>

Acknowledgments

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