



Dealing with Irrigated Crops

The unpredictable nature of weather makes irrigation a necessity with some crops. How you irrigate can have a dramatic effect on food safety. Where food safety is concerned, a number of considerations must be planned for when irrigating crops.

This guidance document and episode will offer a number of food safety considerations when irrigating your crops. We'll consider how the irrigation type influences the risk of contamination. In addition, the necessary record keeping requirements will be discussed.



The method of irrigation can greatly alter the potential risk of contaminating a crop. With all other risk factors being equal, overhead irrigation poses the most risk of contaminating a crop. Surface irrigation, such as exposed drip tape on top of the soil, is less of a contamination risk. Finally, irrigation delivered in a closed system, such as buried drip tape or drip tape under plastic, poses almost no risk of contamination.

It is also important to remember that the stage of the plant at the time of irrigation can affect the risk. If the plant is in a vegetative state or is more than a month from harvest, then there is a relatively low risk of contaminating the crop. If, however, the crop is within two weeks of harvest, or there are fruit present on the plant, the risk of contamination is increased significantly.

Obviously, the source of the water also influences the risk of potential contamination. Municipal and well water sources are the safest in terms of potential contamination. Ponds are an intermediate risk while rivers and streams pose the greatest risk to contamination.

If each of these factors were independent of one another, it would be easy to determine an individual farm's risk of contaminating a crop from irrigation. The real problem is all of these factors act together to affect the risk of contamination. In addi-



tion, not all risks are created equal. Using a particular irrigation method can all but eliminate other associated risks. For example if a grower employs subsurface drip or drip under plastic, there is virtually no risk of contaminating a crop from the water supply.

It is of particular importance to remember that risk is a reflection of how easily an existing pathogen can get through to the crop after harvest. If no pathogen exists in the water source, then there is effectively no way to contaminate the crop, regardless of the risk associated with the practices employed. Just because a grower utilizes a high risk source, method or plant growth stage, it does not mean that a grower is destined to contaminate the crop. If the water test employed by the grower shows low or no generic E. coli numbers, then there is little chance of contamination.

It's important to keep in mind that just because a particular irrigation method may be deemed high risk and a grower has a contaminated water source, they may be able to employ a mitigation strategy to render the risk low. In some cases, growers use overhead irrigation as a frost protection on nearly ripe fruit. This requires high volumes of water, usually from rivers, lakes or streams to achieve its effect. By chlorinating water prior to irrigation, the grower can irrigate for frost protection without risk of contamination.

Understanding irrigation water risks is complex and very specific to a grower's practices. If a grower has difficulty with understanding their risk, they are welcome to contact the Agrifood Safety Work Group at gaps@msu.edu or (517) 788-4292