



Episode Fifteen - Conservation and produce safety

Welcome to episode 15 of Food Safety Bites Brought to you the University of Wisconsin Madison, and funded by the USDA Food Safety Outreach Program, this is your host Harriet Behar. This episode is **managing your farm with conservation and produce safety in mind**. In these podcast episodes, I will identify issues, and provide suggestions for how to reduce various fresh produce contamination risks and keep your customers safe. We will not talk in detail about what is required for a GAP audit or a FSMA inspection. If you want more information on those, please see the links on the website where you found these podcasts.

If you have recently listened to the food safety bites episode on wildlife, you are probably thinking that the less wildlife around your farm, the better! This is not necessarily true, since wildlife and protection of our natural resources are important aspects to having important ecosystem services like pest predation and pollination on your farm. In addition, healthy soils, windbreaks, wetlands, waterways and the presence of wildlife are all important aspects to promote a healthy and diverse environment. Many times, pests and pathogens that originate or migrate onto your farm, can be lessened by cultivating this biodiversity.

Let's look at a variety of activities that could be considered beneficial to animals and wildlife and some of the pros and cons relating to food safety that comes along with these activities. Many activities that support wildlife are also beneficial for food safety on your farm. This concept is known as "co-management". They are listed in no specific order of importance and might not be applicable to every farm.

Windbreaks or hedgerows can be beneficial on edges or through the center of fields to trap pathogen laden dust from adjoining lands. Choosing shrubs and plants that have foliar and structural characteristics to optimize dust interception. Be careful to allow for some air movement, so the interior of the windbreak doesn't provide a warm and moist environment that can allow for temporary pathogen survival. These windbreaks offer homes to birds and insects that can prey upon insects in your fields. Pathogens on leaves which are exposed to sunlight, will dry out and die.

Providing habitat for raptors- Owls, shrikes and kestrels among others can be effective and efficient deterrents to nuisance birds and very good controls for rodents. Trees along edges of the field left for perching, provides all these birds need to monitor your fields. On my own farm, I have placed a few 20-foot-tall saplings I cut from my forest, tied to a steel fencepost throughout my 3-acre squash field, so the raptors could be in the middle of the field as well as the edges. I moved the vines away from the base of these roosts, monitored before harvest and did not pick any squash that was within 6 feet of the raptor poop present at the base of the roost each morning. We had very little rodent damage due to the help of the raptors.

Natural or restored wetlands- These can reduce the movement of pathogens by slowing the water down and allowing for beneficial microbes to lessen pathogen numbers through diverse



plant and microbial community interactions. Wetlands tend to ebb and flow between high water and low, when there is receding water, pathogens present on vegetation desiccates and dies.

Wildlife corridors- providing areas where wildlife can travel through their home territory and give them access to vegetation that provides food and cover, lessens the chance that they will run through your open fields instead. Remember, removing wildlife habitat does not guarantee the wildlife will leave, and in many cases, this removal will drive them into your produce fields looking to for food and protective cover from predators.

Use of cover crops- Improving soil organic matter and increasing soil biological life provide microbial competition to the pathogens and can lessen their numbers. Having cover crops in fields or strips can lessen and trap water run-off and the movement of pathogens from one part of the field to the other. By covering the soil with a green growing crop, there is less dust created.

Strips of native plants and flowering shrubs- Planting these along the edges of your field, or even in strips through the center of your fields, has been shown to offer homes to predatory insects and pollinators as well as providing a wildlife corridor for mammals and amphibians. These provide water filtration and protect the land from erosion and runoff.

Water conserving irrigation practices- Use of drip irrigation uses less water since the moisture is being delivered directly to the plant rows and not to the areas between the rows. There is no splashing or spraying of that water onto the leaves or fruit of the plant, lessening the chances of spreading pathogens possibly present in the soil.

Diversions that redirect water movement can be used to lessen run-off into your fields and roads from adjoining livestock confinement areas, or manure storage. These diversions can also be engineered to slow down water movement and significantly lessen soil erosion. Choosing plants that can handle “wet feet” from that water flow and allow for sunlight and air to penetrate the vegetation, will provide a habitat that lessens the survivability of pathogens.

Watering to control dust- If you are having a dry spell consider sprinkling water to wet down dry dusty manure piles that could spread dust around in the pile and especially when moving it. Wetting down a barnyard used by livestock to lessen dust movement during a that dry spell, especially if nearby to produce fields.

So that's it for this episode of Food Safety Bites, the next episode is pre harvest and harvest practices. This is your host Harriet Behar brought to you by the University of Wisconsin Madison, talk to you next time!