

Cleaning, Sanitization, and Disinfection on the Produce Farm

What's the difference, and why does it matter

FOOD SAFETY PRACTICES

There has never been a more important time than now to review food contact surface and high touch surface cleaning, sanitization, and disinfection procedures. Food safety systems on produce farms should always be given the attention to detail we apply to our other farm systems. New federal food safety guidelines from the FDA and the emerging SARS-Cov-2 virus (cause of COVID-19) give farmers new pause to consider how robustly they have built out their food safety practices.

“You cannot clean a dirty surface” is drilled during produce safety training. The idea is simple: **before a sanitizer is effective on a surface, the surface must be cleared of dirt and organic debris that renders sanitizer less effective.** Cleaning and sanitizing is a four-step process:

- Remove obvious debris
- Clean with a detergent
- Rinse
- Apply a sanitizer application to a surface and allowed to air dry

This procedure for food contact surfaces should be repeated as a part of your normal operation.

GENERAL COMPARISON OF THREE COMMON ANTI-MICROBIAL PRODUCTS ²

| Product | Active Ingredients | Labeled Concentration for Wash Water Treatment | Labeled Concentration for Sanitizing Hard Surfaces | Labeled Concentration for Disinfecting Hard Surfaces |
|---|---|---|--|---|
| Tsunami 100** | 15.2% Peroxyacetic Acid (PAA) and 11.2% Hydrogen Peroxide | 30-80 ppm PAA 2.5-6.7 fl oz per 100 gallons of water | 150-270 ppm PAA 1.0-1.8 fl oz of product per 8 gallons of water. 1 min contact time. Air Dry | Not Labeled! |
| Sanidate 5.0** | 5.3% Peroxyacetic Acid (PAA) and 23% Hydrogen Peroxide | 27-96 ppm PAA 59.1-209.5 fl oz per 1000 gallons of water | 147-500 ppm PAA 1.6-5.4 fl oz of product per 5 gallons of water. 1 min contact time. Drain. | 230-1000 ppm PAA 0.5-2.2 fl oz per gallon of water. 10 minutes contact time |
| Ultra Clorox Brand Regular Bleach*** | 6% sodium hypochlorite | 25 ppm free chlorine ½ cup per 75 gallons and 2-minute submersion time | 200 ppm free chlorine 1 tbsp per 1 gallon of water. 2 minutes contact time. Air Dry. | 2700 ppm free chlorine ¾ cup per gallon of water. 5 minutes contact time. Rinse with potable water. Air Dry. |

*Always consult product labels for EPA registration confirmation and proper labeled usage for a given situation. Based on review of EPA labels for educational reference. Always confirm your label and wear proper personal protective equipment. Confirm products with organic certifier.

Product NOT listed on [EPA List N](#) | *Product listed on [EPA List N](#) |

DEFINITIONS

The terms **cleaning** and **sanitizing** are likely well understood by produce farmers; however, an often overlooked aspect of maintaining food-safe environments needs new attention in the age of SARS-CoV-2: **disinfection.**

The difference between sanitization and disinfection is primarily in the concentration of the anti-microbial applied and when the event takes place. Look at these definitions and a table comparing three common anti-microbial products:

CLEANING

“removes germs, dirt, and impurities from surfaces and objects using soap (or detergent) and water to physically remove [them].”

SANITIZING

“lowers the number of germs on surfaces or objects to a safe level, as judged by public health standards or requirements.”

DISINFECTING

“kills germs on surfaces or objects. Disinfecting works by using chemicals to kill germs on surfaces or objects. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.”¹



SANITIZE VS. DISINFECT

The decision to sanitize or disinfect should be based on the probability of the presence of a known hazard. For instance, during normal washing and packing of produce where typical levels of outside food borne pathogens are possibly present, then routine cleaning and sanitizing guidelines in your produce safety plan should be followed.

However, if you have a known or highly probable hazard present, (e.g. visible feces on produce, blood, or an employee is found to be or is suspected of being ill with a communicable disease) then cleaning and disinfecting is appropriate. The cleaning and disinfecting step would typically be used on specific surfaces with visible contamination. However, considering SARS-CoV-2's uncertainty when it comes to surface survival and its inability to be seen, growers may want to consider cleaning and disinfecting certain "high contact surfaces" in and around the farm. These surfaces may vary from farm to farm, but could include frequently used items, such as door handles, equipment, bins, point of sale equipment, chairs, tables, and other heavily touched surfaces.

From the previous page's table, concentration of the active ingredient will vary significantly depending on the labeled use. Currently, **there are no labeled sanitizers or anti-microbial products labeled for SARS-CoV-2.** Some products may be labeled for other coronavirus or similar hard to kill viruses. The EPA is currently providing "[List N](#)" which highlights disinfectants currently approved for use against SARS-CoV-2. Cross reference your current products with List N. Only products on List N can legally be used against SARS-CoV-2. Even if a product on List N has a similar formulation to your product, it cannot be used unless it is on the list. Be sure to follow the labeled instructions carefully as they pertain to the indicated virus on List N.

FINAL CONSIDERATIONS

The high concentrations of a sanitizer product used for disinfecting are not meant to remain in contact with food contact surfaces. After cleaning the surface, apply the disinfectant. Follow labeled instructions on the amount of time the wet solution should remain on the object. After the indicated contact time, it is recommended that the food contact surface be rinsed with water, then re-applied with a normal sanitizer rate solution and allowed to air dry. This seems counter-intuitive after you have disinfected a surface, but it is a current best practice recommended by sanitizer product manufacturers.

There is still much to learn about the new, current public health situation. Building on the existing food safety procedures you may already have in place will help maintain a safe work environment and provide quality produce to your customers.

SOURCE:

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Laurie George, University of Illinois Extension, Local Foods and Small Farms Educator, Peer-review.

REFERENCES:

1. U.S. Centers for Disease Control and Prevention. 2020. *How to Clean and Disinfect Schools to Help Slow the Spread of Flu.* <https://www.cdc.gov/flu/school/cleaning.htm>
2. Callahan, Chris. "A Guide to Cleaning, Sanitizing, and Disinfecting for Produce Farms". *UVM Extension Ag Engineering*. 3/30/2020. <https://blog.uvm.edu/cwcallah/2020/03/30/clean-sanitize-disinfect/>

FOR MORE INFORMATION:

[Cornell FAQ for the Food Industry](#)

[Sanitizers and Disinfectants: The Chemicals of Prevention](#)

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