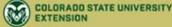


Cleaning, Sanitizing and Disinfecting Strategies for Your Produce Farm

Guidance for Limiting the Spread of COVID-19

12:10 pm -1:00 pm

Based on data and information as of April 21, 2020.

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COVID-19 Webinar Series for Produce Growers

- ✓ April 14, 2020 – Part 1: Worker Health and Hygiene Best Practices
- April 21, 2020 – Part 2: Cleaning and Sanitizing Best Practices
- April 28, 2020 – Part 3: Point of Sale Best Practices

All webinars are recorded and will be posted on www.coproductsafety.org and <https://coloradoproduce.org/covid-19/>



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Today's Presenters



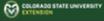


Martha Sullins
Extension Specialist – Agriculture, Business Management Food Systems



Cristy Dice
Extension Specialist - Produce Safety

Thank you Michele Ritchie for helping us answer participant questions!

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What are we going to cover today?

- Updates on COVID-19
- Types of surfaces pertaining to farm activities and how sanitation applies to each
- Differences between cleaning, sanitizing and disinfecting
- Resources are available to support new practices and strategies
- Questions and answers from audience



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Review of COVID-19 facts



COVID-19 is a respiratory illness that is transmitted:

- Through respiratory droplets produced when an infected person coughs, sneezes, or talks
 - When these droplets land in the mouths or noses of people who are nearby, they could possibly be inhaled into the lungs.
 - Preliminary research has found that respired droplets can land anywhere within a minimum of 6 feet of the person releasing them.
- Virus is spread person-to-person, not through food
 - When people are in close contact (within about 6 feet), can inhale aerosolized particles
 - May then be transferred from hands to eyes, nose or mouth
- COVID-19 may also be spread by people who are not showing symptoms (asymptomatic)
 - Reason why social distancing is so important



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Why should we be concerned about surfaces?

- COVID-19 appears to persist on surfaces for a period of a few hours to a few days
- The virus' ability to survive may be influenced by temperature, humidity and type of surface
- Heat, high or low pH, sunlight and common disinfectants (such as chlorine) all facilitate die-off of coronaviruses
 - Structure of coronaviruses makes them particularly susceptible to soaps and sanitizers which means good sanitization practices will help reduce the incidence of the virus
- Currently, no evidence of food or food packaging materials being associated with transmission of COVID-19 (FDA, CDC, USDA)
 - The main goal is to prevent the spread of COVID-19 to employees by cross-contamination
- PSA from Frank Yiannis of the FDA: <https://www.fda.gov/news-events/fda-voices-perspectives-fda-leadership-and-experts/fda-offers-assurance-about-food-safety-and-supply-people-and-animals-during-covid-19#PSA>



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Food contact surfaces, non-food contact surfaces, and thinking in zones

Food contact surface (FCS): any surface that comes into direct contact with food

- Hands, harvesting tools, tables, spinners, bins, food bags, carton.

FCSs should :

- Not leach or chemically react with foods to produce substances that are toxic or impart colors, odors, or tastes
- Resist corrosion upon repeated contact with caustic or corrosive chemicals or food ingredients
- Not absorb water that will support microbial growth
- Be finished to a smooth polish so that soils and microorganisms cannot accumulate
- Be resistant to pitting, chipping, scratching, scoring, distortion, and decomposition under normal processing conditions



Food contact surfaces

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Food contact surfaces, non-food contact surfaces, and thinking in zones

Non-food contact surface: any surface that produce will not touch in normal operations.

- Floors, walls, sides of flumes, pallets
- New term: **high-touch surfaces**=doorknobs, touch screens, control panels, time clocks, tabletops, breakroom/cafeteria facilities, handrails, handwashing stations, restroom facilities, steering wheels, vehicle door handles and controls

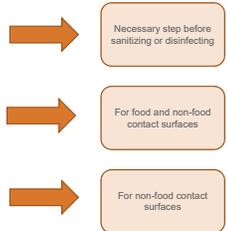


Zones 2, 3 & 4 are typically non-food contact surfaces

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A few definitions

- **Cleaning** removes germs, dirt, and impurities from surfaces and objects...often includes 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. Tested on bacterial pathogens only.
- **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. Tested on bacterial pathogens and viruses.



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Cleaning

- Goal is physical removal of soil to prevent microorganism persistence and growth (may be either wet or dry)
- Choose the right product for soil that is present
- Follow 3-step process
- **You cannot sanitize or disinfect a dirty surface**
- Note: no cleaners are listed in USDA organic regulations because guidelines require complete removal of any cleaner from food contact surfaces and equipment. If you are properly removing the cleaner, no residue should be in contact with organic foods.



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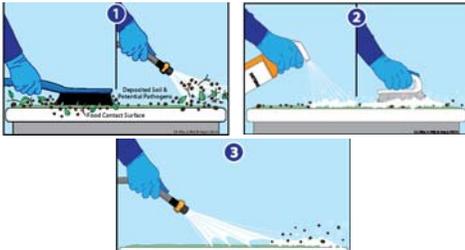
Choose detergent to be effective on soil you need to remove

Food or Soil	Solubility Characteristics	Recommended Cleaning Procedure
Sugars, salt	Water soluble	Rinse with hot water followed by mildly alkaline detergent if necessary
High protein foods (Meat, poultry, fish)	Water soluble Alkaline soluble Slightly acid soluble	Alkaline detergents, chlorinated alkaline cleaners
Fats and oils (fat, meat, butter, margarine, oils)	Water soluble Alkaline soluble	Mildly alkaline detergent. Strong alkali if necessary
Stone-forming foods, mineral scale (Milk products, beer, sprouts)	Water insoluble Alkali insoluble Acid soluble	Chlorinated cleaner or mildly alkaline cleaner; alternate with acid cleaner once per week
Permanent water hardness scale	Water insoluble Alkali insoluble Acid soluble	Strong acid cleaner for heavy buildup, regular mild acid to prevent accumulation
Starchy foods, fruits, vegetables	Partly water soluble Alkali soluble	Mildly alkaline detergent

Source: Penn State University, https://learn.extension.psu.edu/asset/v1/PennStateExtension+FoodSafety101+FSO1+type@asset/block/3_1_Soil_ID_Chart.pdf. The University of Florida Extension also has a fact sheet that reviews soils and detergents in detail: <https://edis.ifas.ufl.edu/pdffiles/FS/FS07/00.pdf>.

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How to clean in 3 steps



- Step 1:** Remove any obvious dirt and debris from the food contact surface.
- Step 2:** Apply a detergent and scrub the surface.
- Step 3:** Rinse the surface with clean water, making sure to remove all of the detergent and soil.

Download fact sheet: <https://producersafetyalliance.cornell.edu/sites/producersafetyalliance.cornell.edu/files/shared/documents/Cleaning-vs-Sanitizing.pdf>

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Sanitizing

- Reduces the number of microorganisms of public health significance to a safe level within 1 minute
 - 99.999% reduction for food contact surfaces
 - 99.9% reduction for non-food contact surfaces
- Many products available:
 - For food contact surfaces and non-food contact surfaces in your produce operation, consult: <https://producesafetyalliance.cornell.edu/sites/producesafetyalliance.cornell.edu/files/shared/documents/PSA-Labeled-Sanitizers-for-Produce.xlsx>
 - Spreadsheet helps you locate important information quickly. Read the label carefully for allowed uses.



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Produce Safety Alliance
Single Product Sheet

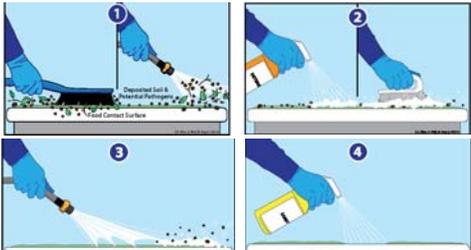
Back to MAIN PAGE

Product Name	Alternative Brand Names	Active Ingredients	EPA Label				EPA Registration Details				Contains Effluents Subject to Control Public Health Regulations?	Organic Matter Residue Inhibits (OMRI) List
			EPA Registration Number	Link to EPA Label	EPA Accepted Date	Labelled for Use on Non-Food Contact Surfaces?	Labelled for Use on Food Contact Surfaces?	Labelled for Use in Irrigation?	Contains Effluents Subject to Control Public Health Regulations?			
AgriStar 330	AgriStar 330F		2790-62	Label PDF	5/23/2012	Yes	Yes	Yes	Yes	Yes	Yes	Not Listed
AgriStar 82	AgriStar 82 Surface Sanitizer		74224-1	Label PDF	3/7/2009	Yes	Yes	Yes	Yes	Yes	Yes	Not Listed
Amphium Disinfectant	Amphium Disinfectant	Quaternary Ammonium Compounds	9130-2	Label PDF	10/27/2009	Yes	Yes	Yes	Yes	Yes	Yes	Not Listed
Antimicrobial Fruit and Vegetable Treatment	None		5877-234	Label PDF	10/27/2009	Yes	Yes	Yes	Yes	Yes	Yes	Not Listed
Aspirin	Aspirin		10195-4	Label PDF	1/18/2011	Yes	Yes	Yes	Yes	Yes	Yes	Not Listed

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How to clean and sanitize in 4 steps



- Step 1:** Remove any obvious dirt and debris from the food contact surface.
- Step 2:** Apply a detergent and scrub the surface.
- Step 3:** Rinse the surface with clean water, making sure to remove all of the detergent and soil.
- Step 4:** Apply a sanitizer approved for use on food contact surfaces, rinse as necessary, and let the surface air dry.
- Note:** not all materials can be sanitized but all surfaces can be cleaned.

Download fact sheet: <https://producesafetyalliance.cornell.edu/sites/producesafetyalliance.cornell.edu/files/shared/documents/Cleaning-vs-Sanitizing.pdf>

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Disinfecting

- Destroys or inactivates all infectious organisms (bacteria and viruses) on **hard, non-food contact surfaces** within 10 minutes, as well as:
 - **high touch surfaces** (areas that employees/visitors/customers come into contact with)
 - **surfaces that a person positive for COVID-19 has been in contact with**
- EPA List N – products approved for use against viruses and other emerging pathogens:
 - <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
 - EPA List N FAQs: <https://www.epa.gov/coronavirus/frequent-questions-related-coronavirus-covid-19>
- You may be able to adjust your current sanitizer to disinfecting levels:
 - requires a higher concentration of and contact time with active ingredients
 - refer to label on your existing sanitizer for directions about whether and how to use it for disinfection against viruses

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EPA List N

EPA Registration Number	Active Ingredient	Product Name	Company	Follow the directions, dilutions and preparations for the following uses	Contact Time (minutes)	Amplification Type	Surface Types	Use Site	Emerging Viral Pathogen Claimed	Date Added to List N
19998	Quaternary ammonium	Lysol Brand All Purpose Cleaner	Reckitt Benckiser	Human contact surfaces	1	SPC	Hard nonporous	Healthcare, Institutional, Residential	No	03/13/2020
19992	Quaternary ammonium	Lysol Brand Disinfecting Bleach/Alcohol Cleaner	Reckitt Benckiser	Human contact surfaces	10	SPC	Hard nonporous	Healthcare, Institutional, Residential	No	03/13/2020
19996	Quaternary ammonium	Lysol All Purpose Antiseptic Cleaner	Reckitt Benckiser	Human contact surfaces	2	SPC	Hard nonporous	Healthcare, Institutional, Residential	No	03/13/2020
040012	Hydrogen peroxide, Peracetic acid	Peridic	Carbor Inc	Human contact surfaces	2	SPC	Hard nonporous	Healthcare, Institutional	No	03/13/2020
040014	Hydrogen peroxide, Peracetic acid	Peridicly (Brand) One Step Sanitizer Wipes	Carbor Inc	Human contact surfaces	0.5	Wipe	Hard nonporous	Healthcare, Institutional	No	03/13/2020
04003	Phenolic	Spicillin (Brand) Disinfectant Solution Spray	Carbor Inc	Human contact surfaces	5	SPC	Hard nonporous	Healthcare, Institutional, Residential	No	03/13/2020
04007	Phenolic	Spicillin (Brand) Disinfectant Wipes	Carbor Inc	Human contact surfaces	5	Wipe	Hard nonporous	Healthcare, Institutional, Residential	No	03/13/2020

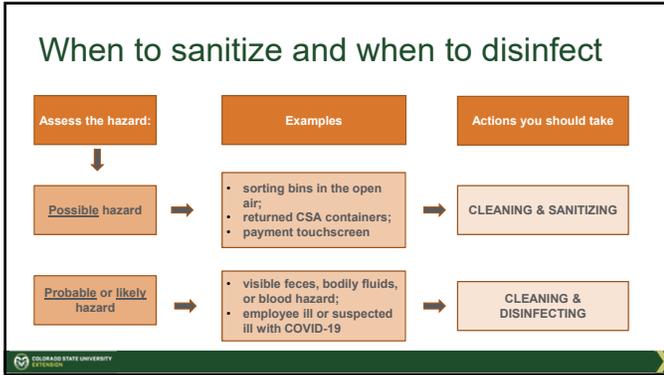
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Sanitizers vs. disinfectants

Sanitizers	Disinfectants
EPA-registered	EPA-registered
Food contact surfaces (and non-food contact surfaces)	Non-food contact surfaces
Reduce bacterial load 99.999% on food contact surfaces, 99.9% on non-food contact surfaces	Destroy/inactivate 100% of certain infectious microorganisms (such as bacteria and viruses) and fungi; exception includes bacterial spores
Lower concentration and shorter contact time (within 1 minute)	Higher concentration and longer contact time (within 10 minutes)
Cannot have artificial scents or perfumes for use on food contact surfaces	May include artificial scents and perfumes
Tested against bacterial pathogens only (<i>E. coli</i> , <i>Salmonella Typhimurium</i> , <i>Staphylococcus aureus</i>)	Must be effective against bacteria, viruses, and fungi; must be tested against every organism the label claims to kill
Used throughout the food industry	Typically used in hospitals, nursing homes, hotels

Source: North Carolina State University. <https://hcfreshproducefoodsafety.ces.ncsu.edu/wp-content/uploads/2020/03/Novel-Coronavirus-Considerations-for-Small-Farms-R40320.pdf?wdt=600>

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Suggested frequencies of cleaning, sanitizing and disinfecting

Clean	Sanitize	Disinfect
All surfaces	<ul style="list-style-type: none"> • Food contact surfaces • Non-food contact surfaces 	Non-food contact surfaces – 1) high touch surfaces; 2) incident with infected person
Frequency ↓	↓	↓
Every day and before sanitizing or disinfecting surfaces	<ul style="list-style-type: none"> • Food contact surfaces: once per day • Non-food contact surfaces: daily, weekly, monthly, etc. 	At least twice per day for high touch surfaces

Source: North Carolina State University, <https://hncfreshiproducesafety.ces.ncsu.edu/wp-content/uploads/2020/03/Novel-Coronavirus-Considerations-for-Small-Farms-040320.pdf?wdrno>

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What product should I use?

Considerations for choosing the appropriate sanitizer or disinfectant products:

- Are you responding to an incident or doing regular sanitation?
- What surface are you going to be working with?
- How frequently will you be applying a chemical product to it?
- Are you an organically certified or practicing operation? (OMRI certification):
 - The product must be registered with the EPA and registration in Colorado is also required
 - National Pesticide Information Retrieval System can help answer registration questions, and is searchable by state: <http://npirspublic.ceris.purdue.edu/bpis/>

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Surface materials

- Think equipment, tools and packaging, floors, walls, etc.
- To properly clean and sanitize, or clean and disinfect a surface, it should be "hard" and non-porous
 - Hard metal: stainless steel
 - Soft metals: aluminum, aluminum alloys, brass, bronze, copper, tin, or mild steel
 - Nonmetallic surfaces: plastics or rubber
 - Hard wood (maple or equivalent) or sealed wood surfaces
 - Glass
 - Sealed concrete, ceramics, paint and enamel surfaces

Any surfaces that are pitted, corroded, or absorb water cannot be adequately cleaned.



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Surfaces that are difficult to clean

- Wire mesh or grating (many angles and nooks to try to clean sanitize well)
- Carpeting, padding, open cell foam (cannot clean adequately)
- Waxed cardboard (cannot clean adequately, brush off)
- Concrete (may become pitted, where surface is smooth and/or coated can be cleaned and sanitized/disinfected)
- Cloth, nylon and plastic bags (see strategies on next slide)



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Packaging materials

- Only use new or clean materials to hold, package and sell produce
- Store packaging away from customer accessed areas
- Do not accept returned packaging from customers unless you can clean and sanitize it
- Examples:
 - Materials you cannot sanitize – cardboard
 - Materials you can sanitize – reusable plastic crates



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Reusable bags

Plastic & nylon bags:

- Clean inside and outside of the bag with soapy water and rinse.
- Spray or wipe down the bags inside and out with diluted bleach solution or recommended disinfectant.
- Allow bags to air dry completely before storing and using.

Cloth bags:

- Wash in warm water with normal laundry detergent.
- Dry on the warmest setting possible.
- See CDC guidelines on laundry.

Sources: North Carolina State University https://foodsafety.ces.ncsu.edu/wp-content/uploads/2020/03/Reusable-bags_COVID-19_Flyer.pdf?d=ino; CDC, https://www.cdc.gov/coronavirus/2019-ncov/prepare-getting-sick/cleaning-disinfection.html?CDC_AA_reNVainthps%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fcleaning-disinfection.html

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Create a Sanitation SOP

Sample SOP: Cleaning and Sanitizing Surfaces, Tools, and Equipment
 Revision: 1.0
 Date: 07/22/2014

1-Purpose
 Describes how food contact surfaces, tools, and equipment are to be cleaned and sanitized.

2-Scope
 Applies to farm and packinghouse personnel including farm owners and workers.

3-Responsibility
 Farm owners and food safety managers are responsible for training the workers on proper technique, providing necessary resources such as tools, detergents and sanitizers, and making sure the cleaning and sanitizing steps are followed correctly.

4-Materials

- Detergent name, brand, and concentration (labeled for use on food contact surfaces) (Provide name here)
- Sanitizer name, brand, and concentration (Provide name here)
- Container(s) as needed for mixing and using detergent(s) and sanitizer(s) or for washing tools
- Brushes, sponges, or towels for scrubbing tools and equipment
- Clean water (microbial equivalent to drinking water)

5-Procedure

1. The surface should be brushed or rinsed to remove visible dirt and debris.
2. Prepare the detergent (Add detergent mixing or preparation instructions here)
3. Apply the prepared detergent solution and scrub the surfaces moving in the direction top to bottom for large pieces of equipment. Detergent should be mixed according to the product instructions.
4. Rinse the surface with clean water until all soap suds are rinsed away moving in the direction top to bottom for large pieces of equipment.

What is going to be cleaned, sanitized, disinfected? → 1-Purpose
 Who will complete the process? → 2-Scope
 What do you need to complete the process? → 4-Materials
 How will the process be performed? → 5-Procedure

<https://gaps.cornell.edu/sites/gaps.cornell.edu/files/shared/documents/opsheets/Postharvest%20Sanitation-SOP-Cleaning.docx>

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Create a schedule for your sanitation practices

Sample Sanitation Schedule		
Equipment/Area	Cleaning Frequency	Person Responsible
iPad in payment area	Every 1 hour	Robert Smith
Fork-lift steering wheel	Every 4 hours	Eli Packer
Table in packing area	Daily	Emily Jones
Hydrocooler	Daily	John James
Packaging area walls	Weekly	Emily Jones
Inside delivery trucks	Monthly	Eli Packer

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Additional resources

- Centers for Disease Control COVID-19 information: <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
- CSU Extension produce safety resources and tools: <http://freshproduce.colostate.edu/covid-19-resources-and-information/>
- FDA Food Safety and COVID-19: <https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19>
- USDA coronavirus information for foods: <https://www.usda.gov/coronavirus>
- Colorado Department of Public Health and Environment: <https://covid19.colorado.gov/>

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Contact Information



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<https://www.cdc.gov/handwashing/images/keepcalm.gif>

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- Tell us what you thought of this webinar!
- Q & A



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