MICROGREENS

PRODUCE SAFETY REGULATIONS FOR MICROGREENS

Microgreens are considered produce that is commonly consumed raw under the Produce Safety Rule. Therefore, microgreens must comply with the standards for growing, harvesting, packing and holding of produce for human consumption within the Produce Safety Rule.

To determine if your microgreen operation is covered under the Produce Safety Rule regulations, determine your produce sales on average over the past three years, have an understanding of if you sell a majority of your produce to wholesalers/distributors or direct to the consumer, and then utilize the FDA Coverage and Exemptions Flow Chart.

The Produce Safety Rule is a regulation that serves to implement the Food Safety and Modernization Act. The Produce Safety Rule regulations developed a "farm to fork" approach to food safety with a focus on preventing the spread of foodborne illness causing pathogens in fresh fruit and vegetable production.

MICROGREEN PRODUCTION AND FOOD SAFETY

There is a of variety types of and uses for microgreens making them a popular commodity to produce. They are often grown in a greenhouse, high tunnel, or indoors due to their delicate nature. Additionally, the environment is typically kept warm and moist to promote growth. However, these conditions can provide food safety concerns. So, it is important to take food safety precautions when growing microgreens.

- Establish procedures to clean and sanitize food contact surfaces including tools, harvest containers, and equipment, to prevent cross-contamination of microgreens
- Enforce worker health and hygiene practice guidelines to prevent cross-contamination
- Handle harvested microgreens with caution to prevent cross-contamination

MICROGREENS VS. SPROUTS

Sprouts are usually harvested when the cotyledons, seed leaves, are still un- or under-developed and true leaves have not begun to emerge. In contrast, microgreens reach a later stage of growth, typically associated with the emergence of “true” leaves. Microgreens are also typically grown in soil or substrate and are harvested by cutting above the soil or substrate line, where as with sprouts the seed is still attached when harvested and consumed.

CROSS-CONTAMINATION

An example of cross-contamination is when a food item, such as microgreens, is accidentally contaminated with pathogens of concern from a different food item, water, surface, person, or other object.

LEARN MORE ABOUT THE PRODUCE SAFETY RULE

Become more familiar with the Produce Safety Rule regulations by attending a Produce Safety Alliance Grower Training Course offered in collaboration with NC State Extension. This is a one-day course that teaches the importance of produce safety practices, as well as the skills needed to implement those practices on your farm.

After completing the Produce Safety Alliance Grower Training Course, request a free educational On-Farm Readiness Review where someone from the NCDA&CS Produce Safety Program and someone from NC State Extension plan a visit to your farm where they will walk through your farm food safety practices with you.

NCDA&CS PRODUCE SAFETY PROGRAM

The Produce Safety Program within the North Carolina Department of Agriculture and Consumer Services is here to help you understand the importance of implementing produce safety practices when handling microgreens.

Sarah Cope
Outreach Coordinator
Call or text: 919-219-4716
Email: sarah.cope@ncagr.gov

This fact sheet is supported by the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award U2FFD007440 totaling $3,340,512 with 100 percent funded by FDA/HHS. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by FDA/HHS, or the U.S. Government.

MICROGREEN PRODUCTION AND FOOD SAFETY

EMPLOYEE HEALTH AND HYGIENE

It is important that employees handling microgreen production arrive to work clean and wearing clean clothes and footwear, remove or cover hand jewelry that can't be easily cleaned, do not eat, chew gum, or smoke around the microgreens, notify their supervisor if they are ill, wash their hands properly before starting or returning to work, before putting on gloves, before and after eating and/or smoking, after using the toilet, after touching animals or animal waste, and any other instance where their hands might have become contaminated.

AVOID CONTAMINATION FROM PESTS

Domesticated and wild animals as well as pests are a food safety concern because they can carry human pathogens in their excreta and, if they make their way into an area of microgreen production, they can spread those pathogens around as they move. Therefore, for fully-enclosed buildings, you must take measures to exclude pests from your buildings. Additionally, you must exclude domesticated animals from fully-enclosed buildings where covered produce, food contact surfaces, or food-packing material is exposed.

WATER SAFETY AND QUALITY

All agricultural water must be safe and of adequate sanitary quality for its intended use to prevent the contamination of the microgreen crop from the water being used. For example, pre-harvest agricultural water used for irrigation, must be assessed annually to determine if that water is likely to introduce known or reasonably foreseeable hazards into or onto covered produce. Additionally, harvest and post-harvest agricultural water used for humidifying the grow room as well as cleaning hands, tools, work surfaces, and containers that the microgreens contact must have zero generic *E. coli* per 100mL sample.

CLEANING AND SANITATION

Cleaning is the physical removal of dirt, debris, and soil and can be done either using soap and water or by simply using a brush or air without the introduction of water. All surfaces should be cleaned when they become visibly dirty. Sanitation is the reduction of microorganisms to a safe level using an approved sanitizer according to the label instructions and must be done to cleaned surfaces. You must inspect, maintain, and clean and, when reasonably necessary and appropriate, sanitize all food contact surfaces as frequently as reasonably necessary to protect against contamination.

SOIL AMENDMENTS/GROWTH MEDIA

Microgreen growers will often use soil, coco coir, hemp mats, soilless mixes, peat moss or some mix of these. Biological soil amendments are any soil amendment that contains biological materials such as stabilized compost, manure, non-fecal animal byproducts, peat moss, pre-consumer vegetative waste, sewage sludge biosolids, table waste, agricultural tea, or yard trimmings, alone or in combination. These biological soil amendments are typically added to the soil to help plant growth or to improve the capacity of the soil to retain water. When using these things, it is important to avoid contaminating the microgreens with potential pathogens in soil, substrate, or amendments.

HARVEST AND PACKAGING

When harvesting microgreens, cut the stems, leaving the roots behind. The stems should be cut high enough above the growth media to prevent contamination to the harvested crop from the soil or soilless substrate. Additionally, it is recommended to cut by hand just above the soil line using scissors for microgreens grown in soilless media. An electric knife or trimmer can be used to harvest microgreens grown on seeding mats. It is important to ensure cleaning and sanitation of all equipment used at harvest. Use cleanable packaging or packaging that is designed for single use that is unlikely to support growth or transfer of bacteria. Single use slotted clamshells or plastic bags are recommended.

TRAINING AND RECORD KEEPING

Workers must be trained appropriately for their job duties upon hiring with refresher trainings throughout the season, at least annually, or if a problem arises. These trainings should be in depth, easily understood, be supervised by a qualified person, and documented. All trainings should be provided in the worker's native language to ensure it is easily understood. Document the date of the training, the topic covered, and the names of the individuals trained. Additionally, keep records required for agricultural water and for cleaning and sanitizing.

SPROUTS AND THE PRODUCE SAFETY RULE

Sprouts are harvested before true leaves, also known as cotyledons, emerge; they are harvested and eaten whole, with seeds and roots attached; they are typically grown without soil or substrate; and they are usually harvested within one week of germination. Sprouts have additional food safety requirements compared to microgreens. It is pertinent to look into the regulations within Subpart M of the Produce Safety Rule which applies to sprout production. Visit the Sprout Safety Alliance website and FDA Guidance for more information on food safety for sprout production.