Ensuring Food Safety in School Gardens

Chef James Porter

Importance of safe handling and storage of school-grown vegetable

Health and Wellbeing: Without sticking to food safety practices, there is a risk of contamination that can lead to foodborne illnesses among students and staff.

Food Quality and Taste: School-grown vegetables are a source of pride for the entire school community. Their taste and quality are directly impacted by how they are handled and stored.

Waste Reduction: Inadequate storage practices can lead to significant food waste, as vegetables spoil prematurely-wasting time, effort, and resources.

Educational Opportunities: A school garden is not just about growing vegetables; it's also about teaching valuable life skills and fostering a love for nature.

Community Reputation: A school garden is often a point of pride for the school and its surrounding community.

The Safety Net: Food Safety Fundamentals

Food safety refers to the practices and measures in place to ensure that food is safe for consumption and free from harmful contaminants, pathogens, or toxins. Teachers play a vital role in ensuring food safety in school settings by teaching students about safe food handling practices and hygiene.

Setting Examples: Modeling proper food safety behaviors and practices.

Supervising Activities: Monitoring students during cooking or gardening activities to ensure compliance with safety guidelines.

Identifying Risks: Recognizing potential food safety hazards and taking corrective actions.

Promoting Awareness: Encouraging students and colleagues to prioritize food safety to prevent illness and promote a healthy learning environment

Food Safety involves a set of guidelines and procedures to prevent foodborne illnesses and maintain the quality and integrity of food products.

Key Hygiene Practices

- Handwashing
- Personal Hygiene

Proper handwashing technique: Emphasize the importance of thorough handwashing with soap and water for at least 20 seconds, covering all surfaces of the hands.

When to wash hands: Highlight critical times, such as before handling vegetables, after using the restroom, and after touching potentially contaminated surfaces.

Clean clothing and aprons: Stress the need for clean, dedicated clothing and aprons to prevent soil and contaminants from transferring to vegetables.

Avoiding jewelry and nail polish: Encourage teachers and students to remove the jewelry and avoid nail polish to minimize the risk of foreign substances coming into contact with vegetables.

Key Hygiene Practices

Cleaning tools and surfaces: Teach the importance of regularly cleaning and sanitizing tools and surfaces used in vegetable handling to prevent the buildup of harmful bacteria.

Safe use of cleaning agents: Use water and soap as cleaning agents for your tools. A wire brush is a great tool to help remove the hard, stuck mud. Mud traps moisture causing rust and corrosion.

Selection and maintenance: Selecting food-safe utensils and containers and maintaining them in good condition to prevent contamination.

- If you are unable to fix your tools then you should throw them out.

Avoiding cross-contamination: Stress the importance of keeping utensils and containers separate for raw and cooked vegetables to prevent cross-contamination and foodborne illness.

- Wash your tool after pruning or cutting contaminated plants

- Cleaning and sanitizing
- Food-safe utensils and Containers

Harvesting Secrets: The Art of Timing

Best Times to Harvest: Vegetables should be harvested when they are at their peak of ripeness. This often means they are mature but not overripe.

- The best time to harvest may vary depending on the specific vegetable. For example, tomatoes are best when fully red and slightly soft, while lettuce should be picked when the leaves are tender and crisp.
- Regular harvesting is essential to encourage continuous production throughout the growing season.

LOUISIANA HARVEST CALENDAR

Here are the best times to buy your fruits and vegetables at Louisiana farmers' markets and roadside stands. All harvest seasons are approximate because weather conditions can speed up or delay crop maturity. Produce availability will vary at each market depending upon the harvest season, location within the state and number of farmers participating at each market.

Acorn Squash	June-early Nov.
Acorn Squash	Jan.-March (storage)
Apples	late June-late Sept.
Artichokes	late Feb.-early June
Arugula	Oct.-April
Asparagus	Feb.-early June
Banana Peppers	June-early Nov.
Beets	late Oct.-May
Bell Peppers	late May-July/Oct.-Nov.
Blackberries	mid May-late June
Blueberries	May-June
Broccoli	Oct.-May
Brussels Sprouts	late Oct.-May
Butter Beans	late June-early Nov.
Butternut Squash	June-Oct.
Butternut Squash	Jan.-March (storage)
Cabbage	late Oct.-May
Cantaloupes	late June-Nov.
Carrots	late Oct.-May
Cauliflower	late Oct.-May
Celery	Nov.-Feb./April-May
Chinese Cabbage	Oct.-May
Collards	Sept.-June
Cucumbers	late May-Nov.
Cushaw	late June-early Nov.
Cushaw	Jan.-March (storage)
Eggplant	late May-Oct.

English Peas	April-May
Figs	late June-mid Oct.
Garlic	March-July
Grapefruit	Dec.-early March
Grapes (Bunch)	mid June-early July
Hot Peppers	late May-Nov.
Irish Potatoes	late May-July/Nov. (new)
Irish Potatoes	Jan.-March (storage)
Kale	Nov.-May
Kohlrabi	Oct.-May
Kumquats	Nov.-early March
Lemons	late Nov.-Feb.
Lettuce	late Oct.-May
Mandarines	late Nov.-Feb.
Mayhaws	mid April-mid May
Melons	late June-Nov.
Mushrooms	Fall-Spring
Muscadines	early Aug.-early Oct.
Mustard Greens	Sept.-June
Nectarines	mid May-June
Okra	late June-Nov.
Onions	March-July
Oranges	Dec.-Feb.
Persimmons	mid Sept.-late Nov.
Parsley	Oct.-May
Peaches	early May-early Sept.
Pears	mid July-late Sept.

Pineapple Guava	mid Oct.-mid Nov.
Plums	June-mid Aug.
Pomegranates	late Sept.-early Nov.
Pumpkins	late June-Nov.
Pumpkins	January-March (storage)
Radishes	Oct.-May
Rutabagas	late Oct.-May
Satsumas	late Sept.-early Feb.
Shallots	Oct.-May
Snap Beans	late May-July/Oct.-Nov.
Southern Peas	late June-Oct.
Spinach	late Oct.-May
Strawberries	Feb.-May
Sweet Corn	late May-July
Sweet Potatoes	Aug.-Nov. (uncured)
Sweet Potatoes	Nov.-June (cured)
Swiss Chard	Oct.-May
Tangelos	late Nov.-Feb.
Tangerines	late Nov.-Feb.
Tomatoes	June-Nov. (field)
Tomatoes (Hot House)	mid Oct.-Jan. and
Tomatoes (Hot House)	late Feb.-early June
Turnip Greens	Sept.-June
Turnip Roots	Sept.-June
Yellow Squash	late May-Nov.
Zucchini Squash	late May-Nov.
Watermelons	late June-Nov.

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
MIKE STRAIN DVM, COMMISSIONER

Correct Methods for Washing, Handling, and Storing Freshly Harvested Vegetables

Washing Freshly Harvested Vegetables:

Importance of Washing: freshly harvested vegetables. It will explain that even if vegetables appear clean, they can still carry contaminants like dirt, bacteria, and pesticides.

Proper Technique: Correct technique for washing vegetables, including the use of cold, running water. This helps remove surfac dirt and contaminants effectively.

Special Attention: When washing leafy greens, root vegetables, and delicate crops ensure thorough cleaning without damage.

Handling Fresh Produce:

Gentle Handling: freshly harvested vegetables gently to prevent bruising, which can lead to faster spoilage.

Selection and Sorting: vegetables for harvesting and sorting them based on size, ripeness, and quality.

Storing Freshly Harvested Vegetables

Herbs	Refrigerator crisper: 2 to 3 days	Herbs may be stored in plastic bags or place upright in a glass of water (stems down). Cover loosely with plastic bag.
Lettuce, spinach and other delicate greens	Refrigerator crisper: 5 to 7 days for lettuce; 1 to 2 days for greens	Discard outer or wilted leaves. Store in plastic bags in the refrigerator crisper. Wash before using.
Cabbage	Refrigerator for up to 2 weeks.	Store, after removing outer leaves, in perforated plastic bags.
Chard	Refrigerator crisper: 2-3 days.	Store leaves in plastic bags. The stalks can be stored longer if separated from the leaves. Wash before using.
Collards	Refrigerator crisper: 4-5 days	Collards store better than most greens. Wrap leaves in moist paper towels and place in sealed plastic bag. When ready to use wash thoroughly. Greens tend to have dirt and grit clinging to the leaves.
Berries (Blackberries, Raspberries, Strawberries, Blueberries)	Refrigerator crisper: 2-3 days	Before storing berries, remove any spoiled or crushed fruits. Store unwashed in plastic bags or containers. Do not remove green tops from strawberries before storing. Wash gently under cool running water before using.

Appropriate Harvesting Tools:

- Using the right tools for harvesting can help minimize damage to the vegetables and reduce the risk of contamination.
- Common harvesting tools include hand pruners, shears, scissors, and garden knives.
- It's important to keep these tools clean and sharp to ensure clean cuts.
- For delicate vegetables like greens, teachers can use scissors or a sharp knife to avoid bruising or tearing.
- Tools should be sanitized regularly to prevent the spread of diseases between plants.
- Encourage teachers to provide proper training to students on the safe and effective use of these tools.

Handling Fresh Produce

Properly Picking Vegetables:

- Harvesting vegetables properly is crucial to maintain their quality and safety.
- When harvesting, teachers and students should use clean, hands or gloves to avoid transferring contaminants to the produce.
- Vegetables should be gently handled to prevent bruising or damage.
- Leafy greens, such as lettuce and spinach, should be harvested by cutting leaves near the base of the plant with clean scissors or a knife.
- Root vegetables like carrots and radishes should be carefull pulled from the soil to avoid breaking or damaging the roots
- Berries and delicate fruits should be plucked carefully to prevent crushing

Using Clean Containers for Transportation:

- After harvesting, it's important to transport the vegetables in clean and food-safe containers.
- Containers should be made of non-toxic materials, such as food-grade plastic or stainless steel.
- Inspect containers for cleanliness before use and wash them with hot, soapy water if necessary.
- Ensure that containers have tight-fitting lids to prevent contamination during transportation.
- Avoid overfilling containers, as overcrowding can lead to damage or bruising of the produce.
- Encourage the use of breathable containers or perforated plastic bags for vegetables that benefit from ventilation, like greens.

Storage Best Practices

Choosing the Right Containers: Use food-grade containers, which are safe for storing edible items.

- Different types of containers suit various vegetables; for example, breathable containers for produce like potatoes, onions, and tomatoes, while airtight containers are ideal for leafy greens.

Airtight vs. Breathable Storage

Airtight containers help retain moisture and freshness, while breathable containers allow for air circulation.

- For instance, airtight containers are excellent for berries and cut fruits, while breathable bags work well for mushrooms and root vegetables.

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Optimal Storage Temperatures

- Maintaining the right temperature is crucial for preserving the freshness and safety of school grown vegetables.
- Different vegetables have specific temperature requirements; understanding these is essential.

For example, leafy greens typically thrive at temperatures between 32°F to 40°F (0°C to 4°C), while tomatoes do best between 50°F to 55°F (10°C to 13°C).

Refrigeration and Its Benefits: It slows down the growth of bacteria, ensuring vegetables stay fresh longer

Labeling and Rotation

- Proper labeling ensures that you can easily identify the contents and their freshness date.
- Encourage using labels with the date of harvest or storage to facilitate FIFO (First In, First Out) rotation.
- The FIFO method is essential to prevent food waste and ensure that older vegetables are used before newer ones.
- Use waterproof markers or adhesive labels, that won't smudge or wash off.

Importance of Cleaning & Sanitizing Tools:

- Cleaning refers to the removal of visible dirt and debris from surfaces and utensils while sanitizing involves reducing the number of harmful microorganisms to a safe level.
- Proper cleaning and sanitizing help maintain a safe food preparation environment, reducing the risk of contamination.

A Clean Start: Washing to Wipe Out Contaminants

Cross-contamination is the transfer of harmful microorganisms (like bacteria, viruses, or parasites) from one surface or food item to another.

Cross-contamination can happen through direct contact, such as cutting vegetables on a contaminated cutting board, or indirectly, like when juices from raw meat drip onto other foods in the refrigerator.

Troubleshooting Common Issues

Identifying signs of spoilage or contamination:

- **Understanding Signs**: These signs may include off-putting odors, unusual colors or textures, mold growth, and slime formation.
- **Safety Measures**: The importance of immediately identifying and isolating contaminated vegetables to prevent the spread of issues.
- **Disposition**: Disposal methods for spoiled vegetables, including composting when possible and proper disposal when not.

What to do if a vegetable shows signs of disease or pests:

- Strategies to prevent the spread of diseases and pests within the garden, including practicing crop rotation, using natural remedies like neem oil, or introducing beneficial insects.

Addressing storage challenges:

- **Recognizing Challenges**: Identify common challenges related to storing school-grown vegetables, such as limited storage space, temperature fluctuations, and seasonal variations.
- **Creative Solutions**: This may include designing space-efficient storage solutions, creating a cool storage area, or using root cellars.
- **Food Preservation Techniques**: Such as canning, freezing, and pickling, as ways to extend the shelf life of harvested vegetables.
- **Record-Keeping**: Maintain records of their storage practices and adapt them as needed to improve long-term success.

Questions and Answers

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