Toolkit: Food Safety in School Gardens

A Guide for Assuring Fresh Produce Food Safety from the Garden to the Cafeteria, Classroom, and Community
For WHO?

This Toolkit is intended for the use of teachers, garden teachers and volunteers, school food-buyers, cafeteria staff, and, anyone who will ‘gift’ (donate) fresh foods to institutional kitchens.

WHO are WE?

Farm to Table is an organization that believes that food is a basic human right. We also affirm that access to regionally grown healthy and culturally significant food is paramount to the wellbeing and sustainability of communities. Our programs focus on Farm to School Education, Farm to Cafeteria, Farm to Restaurant, and Policy Council network development. The core thread that runs through all of this is capacity building. Farm to Table focuses on community capacity-building strategies that empower individuals, families, enterprises, and groups to effectively address place-based solutions in support of access to affordable, nutritious, and culturally relevant foods while creating livelihood opportunities for farming families and strengthening the economic viability of communities.

The Farm to School Program at Farm to Table serves as a resource to a multitude of programs throughout the southwest, partially through association with the National Farm to School Network (see their seminal work in Appendix 2). We have been commercial farmers, classroom trainers, garden developers, and community collaborators. Full qualifications are available upon request. If you see any substantial information here that needs correcting, please do not hesitate to contact our organization so that we can make corrections.

Please complete the short Survey about this Toolkit. For more information, contact: Le Adams, 505-473-1004, x10, or Le@farmtotablenm.org.
WHAT is this topic?

This Toolkit showcases information from an array of sources researched and reviewed by Farm to Table’s staff in which the topic of Safe Foods from the Garden To the Cafeteria, Classroom, and Community are addressed. Including:

- How do you plan and incorporate ‘food safety’ into all aspects of your Farm to School program and school garden?
- What are some of the concerns?
- What are some myths and barriers?
  ... And, how to address these?

The issue of food safety is of paramount importance. As such, it is a topic that should be at the forefront when planning and implementing Farm to School programs, including school gardens.
The IMPORTANCE of GARDENS

Farm to School is the practice of sourcing local food for schools or preschools and providing agriculture, health and nutrition education opportunities, such as school gardens, farm field trips and cooking lessons.

Farm to School programs can serve to improve the health of children and communities while supporting local and regional farmers. These activities are proliferating throughout the nation. In fact, currently there are thousands of school gardens all around this country. Why?

Studies have shown that teaching students about the food that they eat along with the availability and eating of less familiar and healthier foods really helps to make those changes in lifestyle choices ‘stick’. If a young person has the ability to grow the food that he/she gets to eat, then the desire to try it and like it is enhanced.

While gardens tangibly showcase the source of many foods and entice kids to try new tastes, gardens are also portals to much more. For instance, gardens require kids to be physically active in growing and caring for the plants and their environment. Getting kids moving around—digging, weeding, building water saving, and pollinator friendly zones—engages them physically and mentally and raises awareness of the natural environment.

Projects that incorporate gardens as part of their learning show that gardens are a wonderful way to use outside recreational areas as a hands-on exploratory classroom. As evidenced by the creativity and range of projects, gardens integrate several subjects, such as science, math, art, health and nutrition, physical education, with social studies, story-telling, creativity, and visioning.

Although, this is a simple formula to get kids to eat their vegetables, engage in many types of learning and physical activity, it is not always easy to make happen, especially in a school setting.

“... the garden furnishes abundance of subject matter for use in the composition, spelling, reading, arithmetic, geography, and history classes. A real bug found eating on the child’s cabbage plant in his little garden will be taken up with a vengeance in his composition class. He would much prefer to spell the real, living radish in the garden than the lifeless radish in the book. He would much prefer to figure on the profit of the onions sold from his garden than those sold by some John Jones of Philadelphia.”

George Washington Carver (1864-1943)
F.A.Q.s

Is Food Safety for School Garden Food regulated or not?
Some of the scholarly and legal research on this question has been done by Public Health Law and Policy and according to them, “There is nothing explicit or implicit in USDA Regs….” See Appendix 1 for all the details. There are places (not New Mexico) that have established more detailed guidelines. For example, in Arizona, see Appendix 3.

What is written in your School or District Wellness Policy? Is there language there that either supports or regulates school garden policy?
Locate the Wellness Policy for your school and/or district and review it. The writers of that policy may have already looked at this issue and provided guidelines. Incorporating recommendations from the Wellness Policy are a first crucial step. If the issue of food safety is not covered, consider establishing new policy, in a written form, in the school’s wellness policy.

You can also ask whether there are established protocols?
Ask the teachers that have the most experience with the garden. Perhaps the teachers are already teaching these safety standards. If so, they might need assistance with sign-making or some other detail that will make the information more publicized? See Appendix 5 for two reproducible posters to use at school.
Ask the food service/cafeteria staff directly whether they have a policy about the use of these foods? Invite them to share this information with you.

If you do not have policies established in your school or district on this, please use the remainder of this Toolkit to:
(1) establish the policies,
(2) develop your team,
(3) implement a plan, and
(4) use any of the resources from the organizations that have done this work before you.
“Participating in the Farm program with Taos Academy changed the lives of some of my students. I had high risk students from families with low income that completely flourished by going to the greenhouse and to the farm. One student, a selective mute, was talking by the end of the school year. Another student who was afraid of touch was leading the group at the farm by the end of the year. We had to walk to both Taos Academy and Tierra Lucero Farm from our school. The walk was approximately a quarter of a mile and took half an hour at the beginning of the year. By the end of the year, it took us 10 minutes. The walk, along with the produce, taught healthy habits in a way no textbook could!”

From Mrs. McPartlon,
Teacher at Taos Middle School, New Mexico
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MYTHS about School Gardens and School Garden Foods
...And Myths BUSTED!

Farm to Table receives many questions related to food and garden safety. We also come across many creative Farm to School programs that incorporate best practices to ensure safety. Although it is important to address all concerns related to food and garden safety, it is also important to bust some myths regarding the two. For instance, the examples below are questions that can act as barriers to building garden projects. These statements, expressing some extreme views, can all be addressed by good sensible practices.

“The students might get dirty out there. I don’t want to expose them to that risk.”

“... things - like tools, bugs and sunburn could all hurt the kids. It’s just too risky!”

“Did that carrot grow in the dirt? No way am I going to let our kids eat that!”

Is food dirty and is there too much risk in a garden?
Yes, food is grown in the dirt and growing that food can be a dirty process. All food that comes from farms and gardens should be handled – during harvest, after harvest, and in the storage phase – by washing, keeping at an appropriate temperature, and with techniques that minimize any food safety risks. Using the garden produce is the same as using any other fresh product in the cafeteria’s kitchen. Be sure to label the container appropriately and deliver to the kitchen or the classroom at the agreed-upon time.

Examples of other questions we often hear and how we address them (next page):

“The food that comes out of the garden is not ‘certified’. They should not eat it. All of the food that we get in our kitchen is certified. This school garden food is not, so we can’t use it or have it in our kitchen.”

“I am locked into a contract with my distributor. There is no way that I can buy or serve any other foods than what I get from them.”

Keep in mind that while this Toolkit shares some best practices, we encourage you to explore the many resources available on this topic. Review the links and appendices provided here and visit our and others’ website (some noteworthy ones are noted in this Toolkit) so that all gardens and Farm to School programs can be successful.
What is ‘CERTIFIED’ food?

When fresh produce comes from a distributor and from several states away, it has been in transit for some time, and that distributor certifies that he has kept the produce at the appropriate temperature during its journey. The most common form of food safety certification, is obtained by following Good Agricultural Practices’ (GAPs). However, GAPs certification is not required in most markets for farm produce. All growers that sell into institutions such as schools do have product liability insurance in place.

In New Mexico, for instance, school districts can and do purchase fresh produce that has not been ‘GAP’ certified. GAP certification is voluntary and it is not very common for New Mexico farms to hold this certification, though there are a few. Currently, this and other forms of food safety certification for farms is being renovated by the FDA, USDA, State Health Departments and Cooperative Extension units throughout the country. In New Mexico, a food safety training program is in process and proofs of this training are being issued.

...And, those contracts? Does it really say that (no other food is allowed) in the contract?

We often hear that existing food vendor contracts do not allow food from others. Ask, and/or work with, your school’s food service buyer that question and review the contract’s fine print. There may be a way to either re-interpret or to alter any blocking language that is in the contract. Ask for clarification (and even for an exception, if the language you find is prohibitive) from the food service personnel or from the vendor.

...Who needs attitude? “Teaching our students about farming and growing plants? Isn’t that just taking us backwards, to a life of hard labor and poverty?” or We can get all we want from the grocery store. Why will this garden thing help our students live a better life?”

Benefits to students in the garden—What are the benefits to giving K-12 students the opportunities inherent in school garden activities?
1) Children will truly ‘get’ where food comes from and appreciate veggies and other cafeteria foods that much more.
2) They learn about the cycles of life firsthand.
3) They experience the natural world – the good, the bugs, and the ugly too!
4) They get to use some of the physical energy that all young people have and need to express.
5) All parts of the Common Core curricula can be taught in a garden setting – PE, Health, Art, Social Studies, Language Arts, Music, Math, and Science – (see the Garden graphic on the last page); and,
6) They do it all in a hands-on fun way which is most appropriate for some learning styles.
TIPS and Great IDEAS Worth Sharing...

As you create your school garden, create a set of common rules and guidelines that are applicable to all users of the garden and of the garden produce. The following Tip Sheets are designed as models (many gleaned from several groups).

They are organized by where the food (and the action) is as we follow the product from seed to a food we can eat. Please change the information to the points that are most germane to use in your garden. As you create your Rules List identify activities and actions that are appropriate (or not) for students, teachers, and community volunteers.

As mentioned, the basics of food safety for school gardens have been researched and presented by a number of groups from throughout the country. A number of them are included in the Appendices to this document. See Appendix 4 for the USDA and NFSMI version.

No need to re-invent the wheelbarrow— So, please take advantage of this existing community informed research work and resources to develop YOUR program.

To summarize this material, use the following Tip Sheets:

- **In the Garden, Tip Sheet for Best Practices**
- **Harvesting and Storing Fresh Garden Produce Tip Sheet**
- **Preparing and Serving Fresh Garden Produce Tip Sheet**
IN THE GARDEN, Tip Sheet for Best Practices

Select and Prepare the Garden Site

● Create a plan. Who are the volunteers and helpers who have access to the garden? List the classes involved, the schedule of classroom visits, the volunteers, parents, and students, all of whom are subject to the rules of the garden.

● Be aware of your school’s rules and regulations and how they pertain to your garden project.

● Test soil for contaminants, particularly lead, prior to planting. Soil testing can be done each year (as part of science education).

● Be familiar with the quality and safety of the water source you use in your garden. Avoid areas where water collects.

● Choose a level site. Sloped ground can lead to soil erosion and nutrient run-off.

● Locate vegetable gardens away from manure piles, well caps, garbage cans, dumpsters, septic systems, run-off from any potential sources of contamination, and any area where wildlife, farm animals, or pets roam freely.

● Work with the maintenance staff at the school to ensure that safe practices on the school grounds near the garden are used, such as no use of chemicals near the garden, and that a source of potable water is available, etc..
Working In and Maintaining the Garden
Create a set of rules and post it for everyone to see and use. Incorporate review of the rules as part of your routine (and revisit regularly).

Here are a few basics to incorporate in your list:

- Students should not eat anything from the garden unless they are sure it is an actual food. Students - check with an adult if you are not sure.
- Students should learn which plants have both edible and poisonous parts. For example, only the tomato and not the tomato leaves should be eaten.
- Have all parents sign permission slips that list potential hazards and that allow students to work in the garden.
- Record all allergies, including food and insect, and provide a first aid kit and drinking water.
- Be aware that exposure to the sap, leaves, and stems of certain plants (such as squash or tomatoes) can cause mild skin irritation or contact dermatitis in sensitive individuals.
- Students - wear proper shoes to protect your feet from cuts and stings. Bare feet or flip flops are not allowed.
- Encourage students to wear hats while gardening, and to apply sunscreen to exposed skin if they expect to be in the garden for more than 15 minutes.
- Encourage students to walk on pathways when available.
- All produce MUST be washed before being eaten, brought to the kitchen, or sold.
- All participants MUST wash hands, using proper hand washing techniques, after being in the garden. See Appendix 5 for reproducible signage.
The Use of Tools and Materials
As with rules, create a list related to the Use of Tools and Materials and post it for everyone to see and use. Incorporate review of the rules as part of your routine (and revisit regularly).
Here are a few basics to incorporate in your list:

- Closely monitor students using sharp tools, such as spades, trowels, clippers, and scissors. Identify which tools are for adult use only.
- Instruct students using tools to stay an arm’s length plus the tool length away from the next person.
- No tools should be held above waist level.
- Students should not run or play around while using or holding tools.
- All long-handle tools should be leaned against a wall or fence when not in use. Never lay a metal rake on the ground.
- Some gardening materials – such as fertilizers and soilless growing media – may be dusty when poured or applied to the garden. Handling and using these materials should be reserved for older students and adults who are equipped with a dust mask. Wetting the material before use will reduce dust.
- Monitor the garden for tripping hazards, especially tools and hoses.
- Children are to be provided with gardening gloves. This is specially important if exposed to thorns or other dangerous plant or soil material.
- Children must be supervised when gardening.
- Participants who do not follow safety rules will not be allowed to engage in gardening.

Soil and Compost Safety
The following can be used as a basic reference list (share and revisit on a regular basis).

- Instead of using chemical herbicides, control weeds by using mulch or by pulling them out.
- No use of chemical fertilizers or pesticides in the vegetable garden.
- No use of raw manure as fertilizer.
- Compost improves soil quality and should be added every year with these recommendations:
  - Use compost safely. Compost is the natural breakdown product of leaves, stems, commercial manure products, and other organic materials--and also a source of pathogens. To be safe for gardening, your compost must reach a temperature of at least 130°F. Check the temperature with a compost thermometer. Do not use any animal waste, including pet waste, meat scraps or dairy product waste in your compost bin. Wear gloves when handling compost. Wash hands after handling compost.
  - Blood meal and dried blood are commercial garden products that are safe to use as a natural fertilizer or animal repellent.
Weeds, Insects, Pests, and Other Critters

As in all farming and gardening, there are helpful critters and not so helpful ones. A weed can be just a plant that is parked in the wrong location! Sometimes weeds, or other ground covers, can serve as a valuable mulch to conserve water in a garden. Here is a list to consider:

- No synthetic herbicides, fungicides, or insecticides should be used in the garden, or within 25 feet of the garden.
- There are hundreds of species of insects living naturally on school grounds. The vast majority are benign or beneficial ones that pollinate crops or attack other insect pests. The small minority that feed on vegetable crops can usually be controlled successfully using organic pest management techniques.
- Weeds are controlled with mulches, hand-pulling, and weeding implements – never with herbicides.
- During the gardening season, keep cats, dogs and other pets out of the garden, as animal waste can be a source of bacteria, parasites and viruses.
- Curtail nesting and hiding places for rats and mice by minimizing vegetation at the edges of your fruit and vegetable garden.
- Don’t feed birds, pets, or wild animals near your garden. Wild bird feed can attract rodents.
- Don’t leave standing water in or near the garden. Mosquito larvae thrive in small amounts of stagnant water.
- Deer, rabbits, and groundhogs can devastate vegetable gardens.
- Birds, squirrels, mice, and raccoons can also become troublesome pests.
- If possible, secure permission, funding, and assistance to erect a fence with a gate. Many types of woven wire and vinyl netting fencing materials are available. A fence will reduce injury to crops, and the risk of harvesting contaminated crops (animal droppings are a potential source of pathogens that cause foodborne illnesses).
- Create areas, away from the garden, that are safe harbors for birds.
Harvesting the bounty of the garden can be the most exciting part of gardening. Here are some suggestions to follow:

- Harvest produce regularly and pick up and remove rotting vegetables.
- Use clean containers that are made from materials designed specifically to safely hold food. Examples include paper grocery bags, 5-gallon food-grade buckets (that held pickles or other food products), colanders or plastic kitchen bowls.
- Plastic garbage bags, trash cans, and any containers that originally held chemicals such as household cleaners or pesticides are not food-grade and should NEVER be used for the purpose of holding or transporting food.
- Wash hands before and after picking produce.
- Use clean gloves (that have not been used to stir compost or pull weeds) or clean hands when picking produce.
- Brush, shake or rub off any excess garden soil or debris before putting the produce into the harvest container or bringing produce into the kitchen.
- Do not work in the garden when suffering from vomiting and/or diarrhea.
- All tools used in the garden must be used solely in the garden and cleaned regularly.
- If you eat produce in the garden just after picking it, be sure it is washed first.
Storing Garden Produce

This is one of the most important times to remember and adhere to food safety. You want to keep all produce harvested safe and fresh until it is time for tasting and sharing with others.

- For some foods, it is not recommended to wash fruits and vegetables before refrigerating, but to wash them immediately before eating or preparing for cooking. Refrigerating fruits and vegetables with moisture from washing can encourage microbial growth.
- If you choose to store food without washing, shake, rub or brush off any garden soil with a paper towel or soft brush while still outside. Store unwashed produce in plastic bags or containers. Be sure to label the container in a way that makes it clear to others that it must be washed prior to use.
- If you choose to wash them before storing, use cool, running tap water and be sure to dry the food thoroughly with a clean paper towel or air dry. Produce with thick skins, like potatoes, can be scrubbed with a vegetable brush to remove excess dirt and bacteria. Wash berries immediately before eating or cooking. Berries that are washed and then stored in the refrigerator will soon become moldy.
- Keep fruit and vegetable bins in the refrigerator clean.
- Bruised or damaged parts of fruits and vegetables should be cut away before eating or preparing. Throw moldy produce away.
- When washing produce fresh from the warm outdoors, the rinse water should not be more than 10 degrees colder than the produce. If you are washing refrigerated produce, use cold water.
- Fresh fruits and vegetables needing refrigeration (melons, cut leafy greens, and cut tomatoes) can be stored at 45° F or less.
- Fresh fruits and vegetables stored at room temperature (onions, potatoes, whole tomatoes) should be in a cool, dry, pest-free, well-ventilated area separate from household chemicals.
PREPARING and SERVING Fresh Garden Produce Tip Sheet

- Delicious garden produce is often eaten raw so it’s important to prepare raw fruits and vegetables with food safety in mind.
- Always wash hands before handling raw fruits and vegetables.
- Rinse fresh fruits and vegetables under cool, running, clean tap water even if you don’t eat the skin or rind.
- Never use soap, detergent, or bleach solutions to wash fruits and vegetables. These products are not meant for washing produce and may not be safe to ingest. They can also adversely affect the flavor.
- Avoid cross-contamination when preparing fruits and vegetables. Clean work surfaces, utensils, and hands before and after handling fruits and vegetables. Diluted household bleach (1 teaspoon in 4 cups of room temperature water) is safe and effective for sanitizing work surfaces.
- Let utensils and surfaces air dry.
- Be sure to wash your hands (as well as the knife and cutting surface) before preparing any ready-to-eat foods such as salad, fresh fruit or a sandwich.
- If you have leftover produce that has been cut, sliced, or cooked, store it in clean, airtight containers in the refrigerator at 45°F or less.
- To be safe, do not use fresh, cut-up fruits and vegetables if they have been held longer than 2 hours at room temperature or longer than one hour at temperatures above 90 degrees F., unless you intend to cook them.
When the Kitchen Manager receives the garden vegetables, he/she needs to wash them and refrigerate the vegetables to below 41°F prior to serving:

1. Kitchen Manager or foodservice worker fills a sanitized vegetable prep sink with tap water and scrubs the produce in the sink with a brush to remove all visible dirt.
2. The vegetables are removed from the sink, rinsed again and drained in a colander.
3. The vegetables are placed in a separate clean and sanitized storage container (kitchen staff can use any of their existing food grade storage containers) that is labeled “School Garden Vegetables” and the date of harvest.
4. The vegetables are stored in the cooler/refrigerator for one day to reduce their temperature to below 41°F if required.
5. The vegetables can be used in the salad bar or at lunch service if the temperature of the produce is below 41°F. This temperature will be recorded on the menu production forms under the recipe that the produce was used in.
6. Produce grown by a school garden will be used only in that school kitchen and not be transported to other school’s kitchens.

Is there too little produce to include your school garden ingredient into all meals as part of your school cafeteria to be served to the entire student body?? Here are some ideas:

• Include in a salad bar.
• Include as a portion of the same product used in a dish.
• Prep as a snack (share between grades if necessary).
• Prep an afternoon snack for Afterschool, or just for the ‘Garden Club” or perhaps a specific classroom (the classroom that focused on the garden, take turns between several classrooms), for teachers only, or for administrators only, or assist in the washing of the foods for the students to take home and share with their families.
THANK YOU, THANK YOU, THANK YOU!

These guidelines were adapted from many sources and would not be possible without the formative work of many organizations, agencies, and groups, as well as the programs highlighted in the Appendices, and WE THANK:


**The Oregon Department of Education** has many good resources for garden development and safety. Here is one, with checklists for your use: ODE School Garden Food Safety Training & Documentation Manual, 29 pages. [http://www.ode.state.or.us/wma/nutrition/snp/entire_binder_10_31_2013.pdf](http://www.ode.state.or.us/wma/nutrition/snp/entire_binder_10_31_2013.pdf)
OTHER RESOURCES:

A few helpful books:


Other good websites:

- California School Garden Network: [www.csgn.org](http://www.csgn.org)
- The Center for Ecoliteracy: [www.ecoliteracy.org](http://www.ecoliteracy.org)
- The Edible Schoolyard Project: [www.edibleschoolyard.org](http://www.edibleschoolyard.org)
- Life Lab: [www.lifelab.org](http://www.lifelab.org)
- The National Gardening Association: [www.garden.org](http://www.garden.org) and [www.kidsgardening.org](http://www.kidsgardening.org)
- School Garden Wizard: [www.schoolgardenwizard.org](http://www.schoolgardenwizard.org)
- Slow Food USA: [slowfoodusa.org](http://slowfoodusa.org)
ANOTATED APPENDIX LIST:

The Appendices to this Toolkit contain other helpful guides that you can use to develop your gardening and local foods procurement endeavors.

**Appendix 1:**
Public Health Law and Policy, National Policy and Legal Analysis Network to Prevent Childhood Obesity – “**Serving School Garden Produce in the Cafeteria**”, April 2011. “..from a legal standpoint, there are no federal impediments to using school garden produce in school lunch meals. On the contrary, current federal policy encourages such programs.” [http://changelabsolutions.org/publications/school-garden-produce](http://changelabsolutions.org/publications/school-garden-produce)

**Appendix 2:**

**Appendix 3:**

**Appendix 4:**

**Appendix 5:**

**Appendix 6:**
“**Notes from the Field**” - Stories from several gardens that illustrate the importance of school gardens to students of all ages and to the overall school community.
SURVEY: How helpful was this Toolkit? How might we improve it? Share your feedback and questions about this Toolkit with us. Please complete this short Survey. Your anonymous responses will assist to inform a growing learning community. Thank you!

DISCLAIMER:
This Toolkit should not be used as a substitute for codes & regulations.

A NOTE ON THE PHOTOS:
The photos in this document show some of the fun activities throughout New Mexico that received support from Farm to Table’s Farm to School Education program (made possible by the Nirvana Mañana Institute). The photos are reproduced here with permission. While we readily encourage the sharing of the information in this Toolkit, we ask that photos not be copied nor used without being part of this Toolkit.