Slide 1:
Notes to instructor: Welcome participants to this training session. If this session is part of a larger workshop, tell the participants in this next session, school garden food safety best practices will be presented and discussed.

School foodservice staffs have varying roles and levels of involvement with school gardens. Time permitting; ask the audience who has a school garden, who is currently working on the garden, who does not consider gardens to be a part of their responsibilities?

Slide 2:
Notes to instructor: Review the learning objectives with the participants.

Slide 3:
School gardens have been used to educate students in America since the 1800's. In recent years, there has been a renewed interest in teaching children how food is grown to connect them to their environment. Educators hope students will get excited about growing and consuming healthy foods from the garden leading to better nutritious choices throughout their lifetime. It is a long-term plan for combating our nation's current health and obesity crisis.

To be successful, school gardens require many helping hands from school personnel to community gardeners. Some schools start gardens by slowly growing flowers for students to take home as a thank you to parents or guardians. Remember the ultimate goal: teaching young people about all the great wonders in our environment.

Slide 4:
Note to instructor: If you decide to include the school nutrition funding memo in this training session, tell participants to turn to the school nutrition funding memo handout.

School gardens need startup money for materials and equipment. An Internet search is a good place to look for organizations that provide funding for gardens. If you are interested in finding funding to start a school garden, go to the grants and resources page at www.kidsgardening.org, for current grant opportunities. Other informational resources include National Farm to School (www.farmtoschool.org), and USDA Food and Nutrition Service's Farm to School webpages (www.fns.usda.gov/cnd/f2s/default.htm).

School gardens also cost money to maintain. The school nutrition account can be used for many expenses, but keep in mind that there are some limitations. School nutrition monies can be used to purchase equipment and materials such as seeds, compost, and fertilizer. Basically anything needed to start and maintain the garden can be bought with nutrition funds. But food service funds cannot be used to the detriment of the program if the school food service budget cannot afford these costs. Also, any funds spent on gardens must be specific for gardens. For example, if the school nutrition program buys a shovel, it must only be used in the school garden. It

cannot be used by anyone else for maintenance issues, etc. Money received as part of the fresh fruit and vegetable program must stay within that program and cannot be used for anything else.

If school nutrition funds are used to support the school garden, and produce is sold, all proceeds must accrue back to the school nutrition account.

Slide 5:
Turn to the handout "Food Safety Tips for School Gardens." This document outlines food safety recommendations for school gardeners to apply when growing and harvesting fresh produce. These best practices offer an opportunity to train students, educators, school nutrition personnel, and the community on safe food production and handling.

You can be a leader, even if the garden is not your project or responsibility. If you hear that someone or a group wants to start a school garden, provide a copy of the school garden food safety best practices. Many teachers, nutrition educators, and community volunteers may not even realize that food safety is a concern and something that they need to think about, so be proactive and tell them. You might ask yourself, why would I want to get involved if I don't have to get involved? First, your suggestions may help make the garden safer for students. Second, it probably won't take long for those same teachers, nutrition educators, or volunteers to ask you if you will serve the food they grow.

Slide 6:
The school garden location should be away from all potential contamination sources such as dumpsters, animals, water runoff, and septic systems. It is important to consider any potential sources of contamination before the school garden is built—water, soil, and manure can all be sources of contamination. It is much easier to prevent problems than correct them or move the garden later. Besides obvious sources like dumpsters, even land that is frequently flooded can become contaminated because bacteria can multiply in standing water. If your school has livestock or animals, make sure that rain runoff from animal pastures or pens would not reach the garden.

Look around for any utilities such as gas or electric lines, and always call the utility companies before you dig. Since 2000, the U.S. has a nationwide call center to help connect you to your local utility companies. Simply dial 811 and within 2 or 3 days, the utility companies will respond to your request to dig.

To protect the garden from wild or domestic animals, create a barrier such as fencing or cages.

Slide 7:
Find out the history of the soil before using it for a garden. For example, if the location was near high traffic areas, you may want to test for lead contamination that may have occurred from leaded gasoline years ago. Because it is not cost effective to test for all possible contaminants, check with your local extension agent on recommended soil tests and testing facilities. If you garden is small, or uses raised beds, consider purchasing soil designed for food production. This will also improve the ability to trace the soil in case of a problem.

Slide 8:
Some plants are naturally poisonous when consumed in a raw form, such as rhubarb leaves, red kidney beans, green tomatoes, and eggplant. School garden coordinators may want to avoid planting naturally toxic plants. Plus, children may have severe allergies to plants and plant products. Avoid planting known allergens in school gardens. Discuss this concern with your school and community gardeners.

Slide 9:
Use materials in the school garden that are safe for food production. Select materials that do not leach chemicals or other hazardous substances that could come in contact with the plant or gardener.

Some materials that could work very well include cedar, untreated pine, or fir. Cedar is naturally durable, weather proof, and also resists pests. Terra cotta pots not only are safe, but very eye appealing. Of course the downside of using containers is that watering can be labor intensive unless you have an irrigation system. Concrete blocks and unused livestock water troughs work great for raised beds. Burlap filled with straw is a popular option, because you can create unique layouts and walkways in the garden.

Slide 10:
Pressure treated lumber is of special concern because prior to 2004, this lumber contained arsenic, a known carcinogen. Today, only non-residential pressure treated lumber is produced with arsenic, however avoiding all use of this product in school gardens is recommended. Used tires could leach petroleum, and rail road ties are coated with creosote, a possible carcinogen (Source: Environmental Protection Agency; http://www.epa.gov/opp00001/factsheets/chemicals/creosote_prelim_risk_assess.htm).

Paint prior to 1977 may contain lead.

Slide 11:
Test your water source to make sure it meets the Environmental Protection Agency's (EPA) standards for safe drinking water. All sources, except municipal water, should be tested for organisms, especially fecal coliforms and *E. coli.* An additional step to help prevent contamination from water is to use drip irrigation. Water goes directly into the ground, nourishes the plant, but does not come in contact with the plant or produce.

Water conservation is important, however do not risk produce contamination in a school garden by reusing water that may be unsafe. For example, do not water plants with water that was previously in a fish tank because it has been contaminated by the fish. Use caution when collecting and storing rainwater for use in the school garden because standing water can be contaminated by insects. Mold or algae may also grow in water storage containers. Check with your local Cooperative Extension agent to ensure that the containers and procedures that you are using are appropriate. If transporting water, use a food-grade container that is able to be cleaned and sanitized. If you are planning to use water from sources other than the municipal water supply, talk to an environmental health specialist at your local health department first.

Notes to instructor: For local presentations, identity the environmental health specialist at the health department in advance of this class. Share the contact information with the audience if the specialist gives permission.

Slide 12:
Avoid the use of chemicals and pesticides in the school garden. However at times, pest populations may be high and in need of some method of control. Check with your local County Extension Agent for recommendations. Non-chemical alternatives may exist and are preferable. For example, if tomato plants are suddenly infested with aphids, do not panic. It is important to address the issue immediately upon seeing the bugs. Aphids multiply very rapidly. Aphids can be washed off tomato plants. For major infestations, wash the leaves and stems with water and liquid dishwashing soap or buy lacewing larvae that have a voracious appetite for aphids.

If fertilizer is used, make sure children are not in the garden at the time they are dispensed. Review and follow the manufacturer's directions and Material Safety Data Sheets (MSDS) for use, safety precautions, and disposal. A MSDS contains details of the hazards associated with a chemical, and gives information on its safe use. MSDS information is available from the manufacturer and may even be posted online.

Note: For a review of chemical hazards, refer to Serving It Safe, Third Edition, Chapter 1.

Slide 13:
Compost is rich in nutrients that promote healthy plants. Animal waste, such as manure, is "free compost" but is not recommended for school gardens. Food safety and produce experts consider manure to be very risky because it may contain pathogens. If manure is not composted properly, the pathogens could be transferred to the garden and cause contamination. Commercially prepared compost is a safer alternative because it is tested for pathogens. Use of commercially prepared compost also improves traceability.

If you plan to compost, contact your local Cooperative Extension Office or a composting expert for assistance. Composting is complex and requires strict attention to specific procedures and conditions.

When composting on school grounds, use only plant products, such as fresh fruit and vegetable trimmings from food production, grass, leaves, and twigs. Do not use animal products, animal waste, or any cafeteria waste. Harmful pathogens might be introduced through these sources.

Vermicompost also has become popular in schools and may be an option. Vermicompost is created by worms.

Be sure to wear gloves when handling compost. Also, place compost piles in a secure location away from potential contamination, such as garbage, water runoff, etc. Restrict access by animals as much as possible.

Slide 14:

Everyone involved with growing and harvesting produce from the garden should be trained on basic food safety practices including handwashing, glove use, personal hygiene, cleaning and sanitizing, and handling ready-to-eat produce. Washing hands in warm, soapy water, then rinsing with drinking water goes a long way in keeping ready-to-eat foods safe. School personnel should decide whether single-use disposable gloves will be worn while picking produce during harvest as an extra layer of protection. Although it is not required for harvesters to wear food production gloves, just think about how often produce is touched by ungloved hands before you receive it. Wearing gloves when handling produce as a ready-to-eat food is recommended and mandated in some states, so that you do not contaminate produce after washing.

Harvest containers should be made of materials that can be cleaned and sanitized before and after each garden classroom activity. Do not forget the small equipment. Harvest tools should be cleaned with soap and potable water, and stored in a location that prevents contamination before and after each garden classroom use.

Slide 15:
Good Agricultural Practices (GAPs) should be followed in the school garden. Consider using a food safety/GAP checklist to document safe growing and handling practices, especially if produce will be used in the school meal programs.

Receive and inspect produce harvested from school gardens according to the same procedures used to inspect produce from the district's distributors. Inspect the produce for quality or signs of contamination at the time it is delivered. Reject the produce if it does not meet your specifications and standards. Do not use produce that has been left on the dock or in the kitchen without proper receiving. Refrigerate produce items that should be kept cold immediately, such as lettuce or leafy greens. Remember to store garden produce separate from other produce sources for improved traceability.

Slide 16:
Community gardeners may want to share their bounty with the school meals program to help improve the health status of children. It will be a local decision whether or not donated produce is accepted, but do check local and/or state regulations. School districts are not mandated to take and use donated produce from community gardens. However, try to maintain a positive interaction with stakeholders who view donations as a good deed. If produce is not accepted, explain the concerns with food safety and liability. Community gardeners may not carry product liability insurance in the event of a foodborne illness outbreak. Check with your school board legal advisors. It may be possible that donated produce insurance coverage could be included in your school policy, or local gardeners may band together to obtain product liability insurance coverage.

Slide 17:
School Garden Scenario(s)**,** Team Activity**,** and Group Discussion

Notes to instructor: Handout the school garden scenario(s). Review the answers to the scenarios prior to this activity on the school garden scenario(s) answer sheet. Allow participants at least five minutes to complete this activity.

Read each school garden scenario. Answer the questions at the end of each scenario. You may work in teams or alone on this activity.

Notes to instructor: After participants have finished the activity, ask if a team or individual would like to share their response. Repeat this step for each scenario.

Depending on time, allow a question and answer period for any concerns or best practices of school gardens in their area.