



Growing and Nourishing Healthy Communities Garden Course

Session 3: Raised Beds and Container Gardens

Note to agent/educator

If this is the first year of establishing the gardening programs, constructing beds or setting up container gardens may take several sessions to complete. Wooden beds, 4 feet by 8 feet long by 10 inches high are practical (they provide a comfortable length for reaching vegetables to harvest), but other sizes are also effective options. You can also establish gardens in 10-gallon plastic containers or tubs.

At the end of this session, participants will be able to make “pots” from newspaper and plant seeds or seedlings to begin a garden. They will also understand how to build a garden bed or prepare large containers for planting.

Educator resources

In Praise of Raised Beds, by Dr. William M. Johnson, Extension horticulturist, https://aggie-horticulture.tamu.edu/galveston/in_praise_of_raised_beds.htm.

EHT-075 *Easy Gardening: Planting* (see <https://aggie-horticulture.tamu.edu/ghc/>).

Vegetable Garden: Raised Beds, by Brazos County Master Gardeners, www.brazosmg.com/pdf/dig-vegetable-garden-raised-bed-brochure.pdf.

Handouts needed

- ◆ Session 3 sign-in sheet
- ◆ EHT-078 *Building a Raised Bed Garden* (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-078S *Building a Raised Bed Garden* (Spanish version—*Construcción de Arriates Elevados*) (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-062 *Vegetable Gardening in Containers* (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-545S *Vegetable Gardening in Containers* (Spanish version—*Jardinería de Verduras en Contenedores*) (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ *Easy Gardening* fact sheets for each kind of vegetable to be planted by the participants (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ A copy of the variety selection list from the orientation and the *Vegetable Planting Schedule* for your county that shows specific dates for planting seeds. (Contact your county Extension office for planting guides.)
- ◆ A calendar or notebook to record planting date information.

Materials needed

Paper pot materials

- ◆ Cardboard trays to hold the pots
- ◆ Fertilizer
- ◆ Newspaper pages
- ◆ Potting mix
- ◆ Tape
- ◆ Vegetable seeds
- ◆ Water bottles (to moisten the soil)

For constructing raised beds

- ◆ Purchase pressure-treated lumber in sizes 8 feet by 2 feet by 10 feet or 2 feet by 12 feet by 10 feet. These two sizes allow you to use all the lumber without any waste. Depending on the size of the lumber, you could have two different size beds.
- ◆ 80 3-inch screws or nails (screws are recommended)
- ◆ Drill and screwdriver, a hammer, and a posthole digger or shovel
- ◆ Weed cloth to cover the area under the beds
- ◆ Top soil and compost in equal amounts (One yard each covers two beds. Spread evenly and mix well.)

For containers

- ◆ Examples of containers for growing vegetables (wooden box, trash can, basket, pot)
- ◆ 10-gallon plastic tubs
- ◆ Drill for drainage holes
- ◆ Plastic water bottles, aluminum cans, or Styrofoam pieces (Use as a filler on the bottom of the tub.)
- ◆ Topsoil and compost, mixed evenly half and half; needed only in the top half of the container
- ◆ Seeds
- ◆ Seedlings
- ◆ Trowels for planting

Food demonstration (optional)

- ◆ Equipment and ingredients to demonstrate a recipe with vegetables
- ◆ Napkins
- ◆ Small cups (for a sample of the recipe)
- ◆ Forks or spoons

Make a map of the garden beds, marking each bed with the name of the person assigned to it.

By now, participants should have selected which vegetables and herbs they want to plant in their community garden bed, containers, or home garden. Have the appropriate vegetable fact sheet available for each person.

Anchor

(5 minutes)

Have participants review the soil types from the previous session: clay, silt, and sand and discuss the results of the Soil-Shake Test on soil from their garden beds (if at the community garden) or their home gardens (if they are gardening at home). Then invite each group to share their discussions. Following the soils discussion, review the importance of what compost does to each soil type.

Answer: Clay soil needs compost to create more space for air and water and provides a space for roots to grow easily. Adding compost in clay soils also reduces compaction. **Silty soils** need compost added regularly to improve the soil structure, hold it together, and provide nutrients. **Sandy soil** needs compost to provide nutrients and slow the movement of water so that it is available to the plant roots.

Note to agent/educator

This discussion will serve as a review of the information covered in the last session.

Say:

Add: There are other things to consider when planning a garden.

- ◆ How much room do you have for a garden?
- ◆ How much time do you have to garden? Large gardens take more time than small gardens or plants grown in containers. If this is your first time gardening, you may want to start out small and expand your garden as your skills and confidence grow.
- ◆ How many people will eat from the garden? The garden may need to be larger, depending on how many people rely on it to support their diets.
- ◆ What types of vegetables and fruits do you plan to grow? Some vegetables need a lot of room to grow, while others can grow in small spaces or containers.

Add: Also keep in the mind the three main characteristics of a garden site:

1. Well-drained soil (If the soil is always wet, plants won't grow.)
2. A source of water
3. At least 6 to 8 hours of sunlight daily

Add: When thinking about building a garden, consider raised beds. They are popular for community and backyard gardens—especially in areas where the soil is too compact to till or where drainage is poor. Soils in raised beds tend to warm up sooner and are less likely to be invaded by grass. You still have to weed the beds, however!

There are seven steps in building a raised bed: (Pass out Extension publication EHT-078 *Building a Raised Bed Garden*)

1. Select the spot for your raised bed.
2. Remove any existing vegetation by
 - Using an herbicide
 - Covering the area with clear plastic for 1 to 2 months so the heat kills the vegetation (This will not kill the vegetation as quickly as an herbicide does.)
 - Tilling the soil thoroughly (After the vegetation is killed.)
3. Build the bed using bricks, cinder blocks, landscape timbers, metal edging, or stones. We will be using landscape timbers for our community garden beds.
4. Think about irrigation needs. Install any needed irrigation before adding the soil to the beds.
5. Add newspaper or weed barrier cloth in the bottom of the bed.
6. Add soil to the prepared beds. Use good quality soil that holds moisture but allows for good drainage. A mixture of topsoil and compost is recommended.
7. Plant your vegetables or herbs.
8. Mulch. Mulch reduces moisture loss through evaporation and runoff, decreases weed growth, and keeps the plant roots cool during the hot summer months. Apply mulch after the plants are in the bed. If you are starting your plants from seeds in pots, wait until they are transplanted before adding mulch to the bed.

You can use several types of materials for mulch, including bark, leaves, pine needles, or shredded newspaper. Apply 2 to 3 inches of mulch to the garden beds.

Another option for mulch is black plastic. Place the plastic across the beds, making sure it is anchored down so it doesn't blow away. Cut holes in the plastic to plant the seeds or transplants.

Away: How to make a newspaper “pot” to grow seedlings. Explain how seedlings for many plants, including vegetables and herbs, can be grown ahead of time and transplanted into the garden. Demonstrate how to make a paper pot, using a 16-ounce water bottle and masking tape.

- ◆ Give students a newspaper page and have them tear it in half.
- ◆ Fold that piece in half and roll it into a tube or cylinder shape.

- ◆ Tape the edge to hold the circle together.
- ◆ Next, fold in the bottom edges till they overlap slightly in the middle and tape them together.
- ◆ Pinch the bottom edges that are sticking up and bend them down to the middle also and tape them in place.
- ◆ You should now have a small paper pot to plant a seed in. Fill it with commercial potting soil (for seed propagation) and plant your seed.
- ◆ Take it home and water it until the seed sprouts and is large enough to be planted (either in the ground or in a container). Plant the whole thing—pot and plant!

Note to agent/educator

You can keep the pots at the garden site or Extension office, or let participants take them home to care for them until it is time to plant the seedlings in the ground.

Ask: What questions do you have so far?

Anchor: Ask the following question: What types of plants do you grow in pots or containers at home? Give participants 2 to 3 minutes to discuss the question among themselves.

Say:

Add: Container gardening is a convenient way to grow some of your favorite vegetables when space is limited. Other advantages include:

- ◆ Easier to control diseases and pests
- ◆ Less work (compared to managing a large garden)
- ◆ A good substitute in areas where drainage is a problem
- ◆ An interesting way to introduce children and new gardeners to the idea of growing vegetables

Distribute the EHT-062 Vegetable Gardening in Containers publication (see <https://aggie-horticulture.tamu.edu/ghc/>); give the participants a few minutes to review it.

Say:

Add: When planning container gardens, consider

- ◆ What vegetable(s) to grow (Most vegetables grown in backyard gardens do well in containers. Grow vegetables you and your family will eat.)

- ◆ What containers to use (Use the right size container for your vegetable.)
- ◆ Soil

Note to agent/educator

Refer to the chart in EHT-062 *Vegetable Gardening in Containers* for more information.

Say:

Add: You can use just about any container to grow vegetables—baskets, pots, tubs, wooden boxes, and even trash cans. The key is that they are large enough for the vegetable you want to grow and that they have good drainage. Generally, 6- to 10-inch pots work well for green onions and herbs. Five-gallon containers work well for eggplant, peppers, squash, and tomatoes. One-gallon containers work well for cucumbers, lettuce, and radishes.

Make sure that any container you use drains well. Drill holes along the side of the container, about 1/2 inch from the bottom, to allow water to escape. Place an inch of gravel in the bottom of the container to improve drainage.

If the containers you have are larger than you need, fill the bottom of a plastic tub with plastic bottles or plastic “peanuts,” then fill the rest of the tub with soil. You will need about 10 to 12 inches of soil for planting.

Ask: What questions do you have?

Apply (optional): Show participants different types of containers that can be used to grow vegetables. Ask them to look at the chart in the *Vegetable Gardening in Containers* publication and identify what types of vegetables would grow best in the containers. Allow participants 3 to 5 minutes to complete the activity, and then discuss as a group what they learned.

Say:

Add: Let’s talk about the soil to use in our container gardens. Just like soil in traditional gardens, the soil we use in containers must provide water and nutrients to the plants. Depending on how many containers you plan to have, buying soil at garden centers may be the easiest choice to be sure you get a quality soil free of disease and weed seeds. Another option is to mix topsoil and compost together (similar to what we do for raised beds).

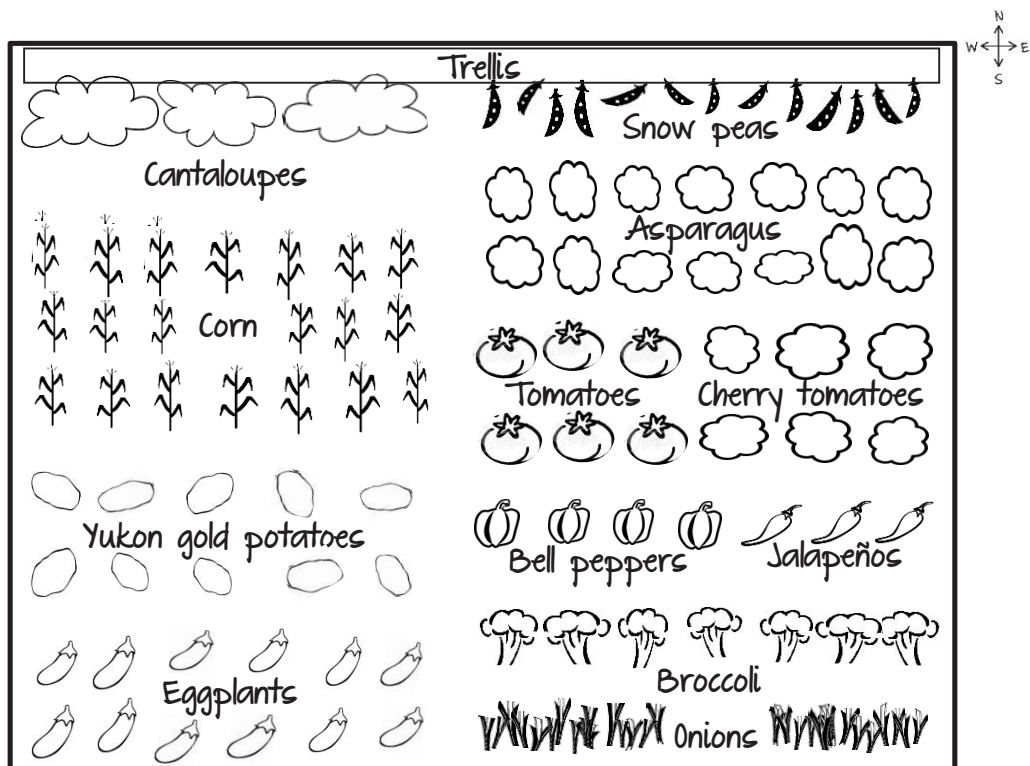
Apply: Give participants the *Extension Vegetable Planting Guide* for their county. Review the approximate planting dates and mark the crops you can plant now. Make a list of those seeds or seedlings available that you would like to plant and encourage participants to try at least one plant that is new to them. Assure them that they will receive information on the planting of all of the crops they are provided. Download the specific vegetable fact sheet from <https://aggie-horticulture.tamu.edu/ghc/>.

Say:

Add: Because vegetable plants need sunlight to produce their food, place them where they will get enough sunlight. When deciding which vegetable to plant, keep in mind how much space each one will need, how tall it will get, and what it will shade. For example, you might plant tall plants, such as okra or tomato, on the north side of the bed and shorter crops, such as radish or carrots, on the south side.

Plan to rotate crops and section off the bed into areas 1 (beans and peas), 2 (onions and roots), 3 (tomatoes and flowering vines), and 4 (cabbage family), with 5 (leafy vegetables) in the very center. Plant family 6 (flowers and herbs) as companions in the other areas. Plant family 7 (other plants) in an adjacent area, in tires or containers, or as companion plants.

Apply: Invite participants to divide into small groups. Give each group a large sheet of paper (a large Post-it® pad works great) and some markers. Ask them to draw a picture of a garden plot (see example below).



If the following plants are available, which ones would they select and how would they arrange them in the plot?

Summer: *Eggplant, jalapeño peppers, squash, tomato*

Winter: *Broccoli, cauliflower, lettuce, spinach*

Allow them to work on this activity for about 5 minutes. Then invite the groups to share their ideas.

Apply: Constructing planting beds. Build a garden bed for planting. Wooden beds 4 feet wide by 8 feet long, by 10 inches high are practical. (Note: Do not make the beds wider than 4 feet to keep plants within arm's length while harvesting.) To prevent weeds from coming up into the beds, weed cloth placed under the beds will keep out all light that might support weed growth. You can also use flattened cardboard boxes in place of weed cloth. Fill the beds with one-half topsoil and one-half compost and mix well.

Note to agent/educator

Mention that before filling the beds, they should till the soil where the raised beds will be placed and remove bermudagrass and weed roots.

Constructing Wooden Beds

To make a simple 8-foot by 4-foot bed,

- ◆ Cut one 8-foot board in half.
- ◆ Cut the 8-foot, four-by-four board into eight 1-foot pieces.
- ◆ Lay the four wall pieces on the ground where you want the bed to be.
- ◆ Put four 1-foot long, 4-inch by 4-inch pieces inside the “walls” where the four corners of the bed will be.
- ◆ From outside the bed, use five 3-inch screws to attach the bed “wall” to the inside 4-inch by 4-inch corner post. Two inches of the corner post will be above the “wall.” Do this twice at every corner until the whole bed is put together.
- ◆ Use the post-hole digger or a shovel to dig down a couple of inches so that the corner 4-inch by 4-inch bed “legs” can sit securely in the holes.
- ◆ Turn the bed over so that the 2-inch legs sit in the corner holes.
- ◆ Put a weed cloth or barrier down to prevent weeds and grass in the bed. Old carpet (turned upside down) or cardboard in the paths between the beds also keeps the weeds from growing. You can cover these with mulch to make them look nicer.

Reminder: Keep the bed area free of grass and weeds or they will be in your vegetable beds.

Apply: Use the remaining time to build the raised beds and fill containers for the community garden.

Away (optional): Demonstrate a recipe that features a vegetable that will be grown in the community garden.

Answer any additional questions. Remind participants that the topic of the next session will be plant maintenance.

Note to agent/educator

If you are meeting weekly, you may want to take an extra week or two between session 4 and session 5 to allow seeds in the pot to sprout (unless you are planting the garden from seedlings and plants). Use the time between session 4 and session 5 to build the community garden.

Thank them for their participation.