

Container Gardening Manual



A container garden adds enjoyment, visual interest, and opportunities to teach children about food and nutrition.



Cultivating Gardens
for
Improved Health

INTRODUCTION

Incorporating gardening into the classroom provides multiple learning opportunities for the student and teacher. Gardening can easily be connected to various subjects including math, science, English composition and nutrition, and allows children the opportunity to experience planting seeds, caring for plants, harvesting, and tasting the results of their efforts. Gardening can also teach children:

- ◆ Respect for the Earth and its resources
- ◆ Responsibility
- ◆ Nurturing skills
- ◆ Pride in their accomplishments
- ◆ Knowledge of where their food comes from
- ◆ Healthy eating

A container garden is an easy, low-cost method for establishing a garden program. Containers require very little space and can be easily moved from one area to another. Also, with container gardens, there is no need for larger equipment such as rototillers.



What is a container garden?

Container gardens consist of plants grown in containers instead of in the ground. Filling pots or buckets of various sizes with a soil-less potting medium creates an economical, easily maintained garden.

Since you will be growing vegetables from seed to harvest, the container needs sufficient depth and width to accommodate the roots and plant until maturity.

Each child can have his or her own container or a small group can share one. The key to success is to start small and keep the number of containers at a manageable level. You can add more containers as you become more experienced.

MATERIALS & SUPPLIES

What you will need

Most of the items needed are readily available. To get started, collect the following:

- Containers
- Craft sticks
- Disposable gloves
- Drill
- Hand trowel
- Nylon window screen
- Pencil
- Permanent markers
- Ruler
- Safety glasses
- Scissors
- Soil-less potting mix
- Water
- Water-soluble fertilizer
- Watering can



The containers that are easiest to obtain include medium-size plastic pails used to hold ice cream or other food products and five-gallon white plastic containers that can be obtained from restaurants, delis, or bakeries. (Always clean containers with soap and water before using.)

The minimum depth and width of the container will be determined by what you intend to plant. The chart on page 4 will give you some guidelines for container selection.



Helpful Hint: Decorating the container

Children love to individualize their projects. Decorate the outside of the container before filling it with soil-less mix. Include a laminated photo of the child and his or her name in permanent marker for easy identification. Stickers and any other material that is water resistant can also be used. Decorating allows children to take an active interest in the project and they will be more likely to take responsibility for the care of the plants in their own container.

PREPARING THE CONTAINER

How to prepare the container

All containers will need holes in the bottom to allow excess water to drain when the plants are watered. Roots allowed to stand in water are more susceptible to disease and will often rot and die.

Mark three to five evenly spaced holes on the bottom of the container and drill 1/4 inch holes at these locations. (Always wear safety glasses when drilling.) The holes will allow excess water to drain.

Sometimes the potting medium will flow out of the drain holes during watering. Placing a piece of nylon window screen in the bottom of the container can prevent this.

Make a screen by placing the container on top of a piece of nylon window screening. Trace around the outside of the bottom of the container with a marker. Cut out the circle and place it inside the container before adding the potting medium.

The container is now ready to fill with a soil-less potting medium. This medium is light in weight

and contains sphagnum moss, a bog plant that has good moisture retention. It can be purchased at gardening centers in bags and in bulk, and at department stores in smaller quantities. This medium does not contain nutrients, so you need to periodically add a water soluble fertilizer such as fish emulsion. An advantage of soil-less mixes is that they are pasteurized and less likely to carry diseases. Ten quarts of dry mix will fill about three medium-size containers.

The soil-less potting medium can be dusty and messy so it is best to moisten the material well before removing it from the bag. This will require a fair amount of water and vigorous mixing with a clean trowel. If only a small quantity is needed, transfer the desired amount to a bucket or other container before moistening. The moistened mix can then be transferred to the planting container.

Fill the container until the level of the mix is about one inch below the top edge of the container. This extra space allows water to collect before being slowly absorbed by the mix. Pat the surface gently to smooth and even out the potting mix. Now you are ready to plant!

Minimum 6" Container Depth	Minimum 8" Container Depth	Minimum 10" Container Depth	12-18" Container Depth
Beans	Carrots	Cucumbers	Tomatoes
Beets	Chard	Eggplant	Potatoes
Lettuce	Kale	Summer Squash (bush varieties)	Dill
Arugula	Mustard Greens		
Endive	Leeks		
Onions	Peas		
Radishes	Peppers		
Spinach	Most Herbs (except dill)		

WHEN TO PLANT

When to plant a container garden

Since the garden will be outdoors from germination to harvest, be sure to consider the outdoor temperature before planting.

Cool season vegetables can handle a light frost when well-established. However, new seedlings of cool season crops may not be as cold-resistant.

Warm season vegetables cannot be planted outdoors in spring until the danger of frost has passed. The “last frost date” varies from location to location throughout the state.

For more information about your specific area, check Section Four of Part One of the Got Dirt? Toolkit (www.gotdirtwisconsin.org).



Planting large seeds

Seed selection for containers

Look for seed packets that describe the larger vegetables like tomatoes, zucchini and bean plants as *compact*, *bush*, *tiny*, *dwarf*, *patio*, *early* or *short*. These plants require less space and are ideal for container gardening. Select seeds in early spring for best selection. Most stores only stock seeds in the spring and early summer. However, seeds can be ordered online or through catalogs any time of the year.



Planting small seeds

WHAT TO PLANT

Cool season vegetables

In general, seeds in this group can be planted in the early spring or fall since they will do well during cool weather. Follow the directions on the seed packet regarding planting depth, spacing, and the number of days to maturity.

Beets	Lettuce
Broccoli	Mustard greens
Cabbage	Parsley
Carrots	Peas
Cauliflower	Radishes
Collard greens	Spinach



Warm season vegetables

The seeds in this group require warmer soil temperatures, so they should be planted after all danger of frost has passed. Look for seed packets that describe these larger vegetables as *compact*, *bush*, *tiny*, *dwarf*, or *patio*. These plants will require less space than standard varieties and are more suitable for container gardening.

Beans
Cucumbers
Eggplants*
Peppers*
Summer squash
Tomatoes (dwarf or patio)*

*Due to the short growing season in Wisconsin, these warm season vegetables must be purchased as transplants or started indoors for best results.

In order to move transplants from their small pot to your container, remove the plant from the pot by grasping the leaves, not the stem, and gently pull the plant from the pot. Gently loosen the “soil” around the roots with your fingers and place the plant in the mix at the same depth as originally in the pot.

Tomato plants are an exception to this rule; if they are tall and gangly, they can be planted up to four inches deeper than they were originally.

Gently pat the mix around the plant. The roots need oxygen in order to grow, so do not compact the soil during this step.



CARING FOR A CONTAINER GARDEN



Location

The container should be placed in a sunny location near a source of water. Most vegetables require at least six hours of direct sun every day for optimal production.

Check the weather forecast each day. In the event of a frost warning, containers of warm season vegetables should be moved indoors for the night. Containers should also be moved indoors or to a sheltered location during periods of high winds.

Roots in containers need protection from direct sunlight during hot summer days. Group the containers closely together so the leafy plants provide some shade for the base of the container. If the weather is very warm and the plants are wilted, water the plants and move the containers to a partly shaded spot until they recover.



Water for plants

Seeds and transplants need consistent moisture during all stages of growth. Using a watering can or hose, slowly add water to the container until it starts to drain from the bottom.

Thorough, less frequent waterings are more beneficial than frequent small waterings. Thorough watering also assures that the entire root mass has been moistened.

To help prevent fungal diseases, water at the base of the plant and avoid pouring water directly on the leaves, if possible. Make sure the plants have good air circulation.

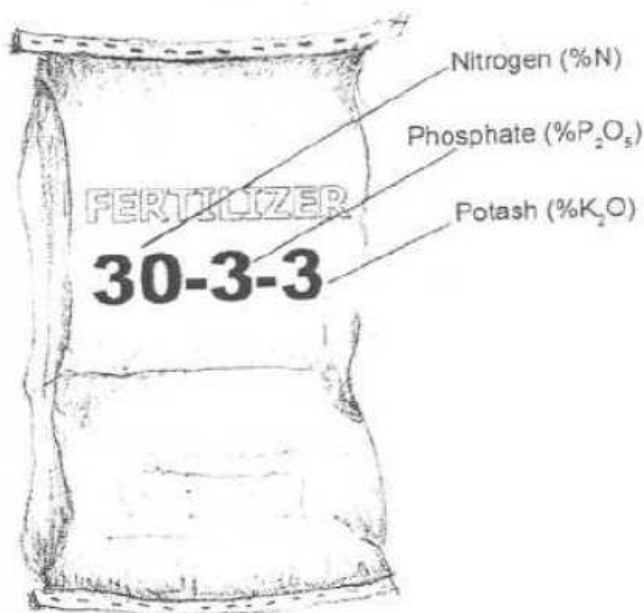
Fertilizer

About three weeks after germination, apply a water-soluble fertilizer to the seedlings. Since most soil-less mixes have very few nutrients for plants, this is a critical step.

For seedlings, you should dilute the fertilizer solution 50% so as not to burn the young roots. When the plants are older, you can fertilize twice a month at full strength. Check the product's label for the proper rate of application.

Do not fertilize if the plants are wilted; water first, and put them in a shady spot to recover before fertilizing.

Check the fertilizer label to see specific recommendations for the type of plant you are growing. Specific plants have different needs.



Traditional fertilizer products have three numbers on the front of the package representing the percent of nitrogen, phosphorus and potassium by weight found in the product. The higher the numbers, the more concentrated the fertilizer.

A 10-10-10 fertilizer is suitable for many vegetable plants.

Harvesting vegetables

For the best texture and flavor, harvest vegetables at their peak. Check the maturity dates on the back of the seed packets for an estimate of the number of days necessary for the plants to reach maturity. As the plants approach maturity, check them daily.

- ◆ Tomatoes should be firm.
- ◆ Snap beans should be thin, medium length, and not contain any big seeds.
- ◆ Pea pods should be filled out and the peas should taste sweet and fresh.

More suggestions can be found in your Got Dirt? Toolkit.



Post-harvest care of containers

- ◆ Children can take their containers home at the end of the growing season or the containers can be recycled.
- ◆ Healthy plant material and soil-less mix can be placed in a compost bin.
- ◆ Bag up any diseased plant material and place in the garbage.
- ◆ Wash containers with soap and water, then rinse in a bleach solution consisting of 1 teaspoon of household bleach to 1 gallon of water.
- ◆ Air dry containers and store them for next season.

What are some of the problems I may experience and how would I handle them?

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Q Why are the edges of my plant leaves turning brown?

A: Fertilizer may have built up in the planting medium. Stop using fertilizer. Make sure that the water runs out of the drainage holes of the container every time you water the plant.

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Q Why is the bottom half of my plant yellowing?

A: It could have too much water or not enough fertilizer. Let the mix dry out a little. If the plant is a large one that has been growing for at least six weeks, it may need more nutrients. Water with a fertilizer solution twice a week.

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Q Why do my plants look small, purple in color, or have stopped growing?

A: The containers may be located in an area that is too cold. The cool conditions may be preventing the plant from taking up phosphorus from the soil, and causing the symptoms. Move plants to a sunnier location.

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Q Why do some leaves have white mold on them?

A: This is a fungal disease called powdery mildew that is common in cool, damp weather. Discard diseased leaves in the garbage. The rest of the plant and fruit should be okay. Providing good air circulation, and full sun are two ways to help prevent this disease.





Q Why do my plant's leaves or fruit have irregular holes?

A: Insects may be feeding on the plant. Remove insects by hand, if you see them. You can use floating row covers, available at many local garden centers, to prevent insects like cabbage loopers from laying eggs on leafy vegetables. Vegetables that need pollination to ensure fruit production should not be covered, as it may interfere with pollination. Another insect control method involves making a soap solution for spraying. One recipe combines 1/4 teaspoon of dish soap and 1/2 teaspoon baking soda in a quart of water. Be sure to check the leaf undersides for insects, as many species are commonly found there. Leave butterflies and bees alone. They are pollinating the plants and helping to produce fruit.



Q Why did my healthy plant leaves and branches droop after watering?

A: The drainage holes may be blocked, and the roots are not getting enough oxygen as the soil is too wet. Use bricks or wooden blocks to raise the container off the surface it is sitting on so the water can drain freely.



Q Why are my plants long, lanky and not producing fruit?

A: They may not be getting enough sunlight. Try moving containers to an area that receives at least eight hours of sunlight per day.



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made possible by the following collaborators**

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