GROW IOWA:

Container Gardening Guide for All Iowans

Compiled by team Grow Iowa from Cohort 10 of

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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

Bill Northey, Secretary of Agriculture

Dear Iowans,

Gardening in containers offers us a unique opportunity to enjoy the gardening experience without consuming a lot of space, time, or money. “Grow Iowa: Container Gardening Guide for All Iowans” provides you with easy to understand information and directions to reap the benefits of container gardening. From “getting started” to “what to do with produce”, this guide takes you through the entire process of container gardening as well as providing wonderful recipes and intriguing children’s activities.

Congratulations go to the Certified Public Manager (CPM) Cohort 10 team Grow Iowa from Drake University. The cohort team has successfully created

a guide that Iowans from all walks of life can use to assist them in creating container gardens as an alternative to more traditional gardens. The “Grow Iowa: Container Gardening Guide for All Iowans” will be of benefit not only to those Iowans having limited space for gardening, but also to those of us with busy lives, curious children, and a desire to “garden from the windowsill.”

Sincerely,

Bill Northey, Iowa Secretary of Agriculture
Iowa Department of Agriculture and Land Stewardship
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We congratulate you for picking up this book! The ability to choose a nutritious diet is not instinctive, but a skill that is learned from experience. Some benefits of growing your own fruits and vegetables:

Most individuals create food habits in the first 10-15 years of life.

Help children reach maximum physical and mental potential.

Improved Nutrition = Improved Health, Energy and Attitudes.

Reduced risk of chronic diseases, such as heart disease and diabetes.

Improve children's growth, development and ability to learn.

In urban areas where space is limited and restricted, a container garden provides the flexibility to allow gardening to be successful. A container can easily conform to the available space found at any particular area. The flexibility of the container garden provides the gardener many opportunities to create a garden in an urban area that usually prohibits a conventional garden.

Container gardening is an ideal compromise to “traditional gardening” because it has so many positive attributes. Even one large container can provide all the pleasure gardening has to offer. Almost every plant that can be grown in a traditional garden can be grown on a smaller scale in a container. Container gardens can be used to grow vegetables, flowers, or herbs. They increase the amount of space available for growing plants and are ideal for those plants that require specific growing conditions such as soil and light that may not be available.

In some ways, gardening in containers is easier than gardening in the ground. Containers are easier to manage and have benefits of saving both time and money. Many chores such as weeding, mowing, digging, and raking are reduced or eliminated when you garden in containers. Initially, there will be an investment in the containers and a few supplies; but the annual cost will only include your choice of plants and fertilizer.

Enjoy your gardening experience!

Getting Started : Container Gardening Supply List

Gloves

Container

Soilless Mix

Plants

Fertilizer

Hand shovel

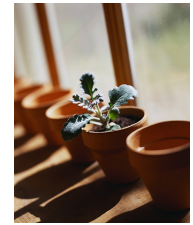
Water

Seeds

Newspaper/ Drop cloth

Location, Placement and Plant Growth

To determine the best placement of your container garden, type of plants you can grow and container size, answer these questions:

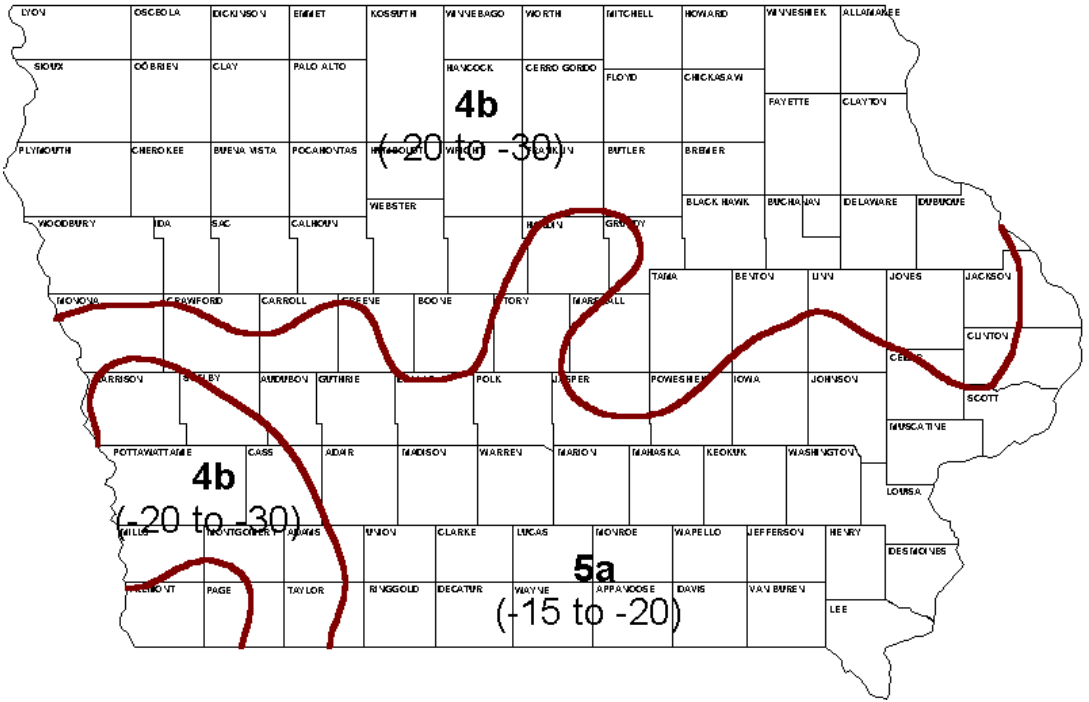


- How much sunlight is available?
- What type of produce do I want to grow?
- How much sunlight & water does the plant require?
- What type of soil will I need?
- What type of container would work best for the plant?

Now that you have answered these questions, focus on maximizing the amount of growing space in the container, and minimize competition between plants for available sunlight. Containers can be moved to available light source. The size of the container will influence the mobility of the container. Small containers provide the best mobility starting an early growing season inside and moving them outside as the weather warms up, and then once again moved back inside in late summer or early Fall to extend the growing season.

A container garden is not restricted on the horizontal landscape plane. Container gardens can also be placed on the vertical landscape plane in an area if required picking the appropriate plants.

USDA Plant Hardiness Zone Map for Iowa



Guidelines for Selecting Plants

The **United States Department of Agriculture Plant Hardiness (USDA) Zone** is a rating system developed by the USDA to describe a plant's ability to survive weather conditions. Eleven zones are assigned to North America. In addition, zones 2 to 10 are divided into 5 degree differences designated (a) and (b). Northern to southern Iowa is made up of two hardiness zones. [see map on facing page]

- Northern Iowa is zone 4, and has minimum temperatures down to -30° F.
- Southern Iowa is in zone 5, with minimum temperatures above -20° F.
- Southern Iowa is in zone 5a while most of northern Iowa is in zone 4b.
- Southwest Iowa has an area of zone 4b.

Remember, when using hardiness zones to select plants, it is better to select plants that will be more cold tolerant than plants that are less cold tolerant. You will find information about the plant hardiness on seed packets, plant labels, species recommendations, in nursery catalogs and gardening books.

http://www.iowadnr.gov/forestry/pdf/TFK04planthardiness.pdf

Guidelines for Selecting Your Container

With a little imagination and creativity, you can construct a container garden with minimal cost and effort. If there is something capable of holding together dirt, fertilizer, and plants, with adequate water drainage then you can use it for container gardening. To begin you need to take into consideration:

Plant Growth - How tall and wide the plant will be at maturity.

←Mobility

Weight of the container + soil + plant

Location & Placement

Shape - Be creative!

Constructing Your Own Container

Construction material:

- The best material is a rot resistant wood such as cedar.

- Never use pressure treated or any other chemically treated wood for the container; the toxic chemicals will leech into the plants growing inside the container.

- If you do not use cedar, use an exterior grade paint or opaque stain to protect the wood container from rotting.

Other useful materials for adequate container gardens:

☼ Clay pots ☼ Plastic buckets ☼ Hanging baskets

Containers must have adequate drainage to prevent water from pooling inside the container which will kill the plant.

☼ Drill a hole, if necessary, to allow water to drain.

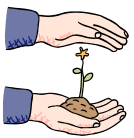
Growing Common Plants in Containers

The basic ingredients for salads are often a good choice for containers or shady areas.

- Tomatoes and peppers can do well in containers, as long as you provide support for their tall stalks and plenty of sunshine to keep them happy. For tomatoes you may do well with determinate varieties, as they will tend to be more compact in their growth.

- Lettuce, cabbage and mustard greens. This type of leafy plant often does well with limited sunlight and might be good choices for shady areas.

- Root vegetables can do well in containers. Carrots will do especially well in this environment, as long as the container is deep enough to accommodate them. Radishes are another salad favorite that grow well in small containers and are quick to mature .



http://howtogardenguide.com/2007/03/30/vegetable-gardens-for-apartment-living-you-can-do-it/

Spacing Plants

- One plant in a square (one foot space between plants) cabbage, broccoli, cauliflower, pepper, eggplant, okra, tomato.

- Four plants in a square (six inch space between the plants)
  lettuce (crisphead, butterhead, loose leaf), Swiss chard (silver beet), bush beans, Indian mustard.

- Nine plants in a square (four inch space between the plants)
  lettuce (cos, mini), beet root, radish, spinach, garlic.

- 16 plants in a square (three inch space between the plants)
  radish, carrot, spring onion, celery.

Based on the "Square Foot Gardening" book by Mel Bartholomew.

TIP: Available light can be increased somewhat by providing reflective materials around the plants, e.g., aluminum foil, white-painted surfaces, marble chips.

Getting Started: The Process

At the Store

1. Select your plants, pay attention to how tall they will become.
2. Select your container with a diameter of at least 12 inches .
3. Grab one or two bags of container mix.
   (depending on the size of your container)
4. Pick an all purpose fertilizer.

At Home

1. Fill the container up to 1 to 2 inches from the top with the soilless mix.
2. Add fertilizer according to the package directions and mix into the soil.
3. Position plants in the container to determine spacing.
4. Dig the holes and add each plant.
5. Press soil gently and add container mix to even out the soil level.
6. Water thoroughly.
7. Allow for 8 hours of sunlight daily.
8. Water and deadhead routinely.

Note: If you are starting from seed, follow directions on the package.

Maintaining Your Container Garden

- Place the container in a site with full sun and protection from the wind.
- Check the plants daily for watering needs.
- After 4 weeks, begin to use a fertilizer solution for supplemental feeding.
- Once a week give each plant a good watering with a water soluble fertilizer at the recommended rate.
- Do not fertilize when the plants are dry — water them thoroughly first.
- Check plants daily for signs of insect and disease infestation.
- Keep mature fruits harvested to induce continued fruit formation.

http://ohioline.osu.edu/hyg-fact/1000/1254.html

For more detailed information, check with your local library or look up the websites listed under References in this book.

What To Do With Extra Produce

Now that you have enjoyed the fruits of your labor, you may find you have some extra food. You have a couple of options:

- Give the food away to friends and family.
- Sell it at a local farmer's market: http://www.iafarmersmarkets.org/
- Preserve it for later use through canning, freezing or dehydrating.

Freezing is a method for preserving fresh foods that keeps the natural color, fresh flavor and nutritive qualities of most foods better than other methods such as fresh preserving (canning) or dehydrating.

To learn more about canning and dehydrating foods, see:
http://www.pickyourown.org/.
Additional resources are listed at the back of this book.

To Freeze Fresh Foods, You Will Need:

- Common kitchen utensils.
- Freezer bags or plastic containers.
- Fresh vegetables or fruit.

Step 1 - Select appropriate freezer containers or packaging for the type of food being frozen. Use rigid containers for foods which are liquid or semi-liquid at room temperature and flexible wrap for foods which are solid at room temperature.

Step 2 - Vegetables require blanching, a critical step to cleanse off surface dirt, brighten the color, help retain vitamins and reduce the action of enzymes which can destroy the fresh flavor.

Step 3 - Pack prepared food in appropriate freezer containers. For rigid containers, leave ½ inch headspace to allow for expansion of liquid during freezing.

Step 4 - Label containers or packaging with the date and name of the product.

Step 5 - Freeze in a single layer near the coldest spot in the freezer. After food is frozen solid, the containers can be stacked.

Colorful Quesadillas

Makes 4 servings

Nutritional Information Per Serving
One serving (one quesadilla contains):
160 calories
3.5 grams of fat
2 grams of fiber
35% of Daily Value of Vitamin A

Ingredients:
8 ounces fat-free cream cheese
¼ teaspoon garlic powder
8 small flour tortillas
1 cup chopped sweet red or green bell pepper
1 cup shredded low-fat cheese
2 cups fresh spinach leaves or 9 oz. frozen, thawed, and squeezed dry

Directions:
1. In a bowl, mix the cream cheese and garlic powder.
2. Spread about 2 tablespoons of the cheese mixture on each tortilla.
3. Sprinkle about 2 tablespoons bell pepper and 2 tablespoons shredded cheese on one half of the tortilla.
4. Add spinach: ¼ cup if using fresh leaves or 2 tablespoons if using frozen. Fold tortillas in half.
5. Heat a large skillet over medium heat until hot. Put 2 folded tortillas in skillet and heat for 1-2 minutes on each side or until golden brown.
6. Remove quesadillas from skillet, place on platter, and cover with foil to keep warm while cooking the remainder.
7. Cut each quesadilla into 4 wedges. Serve warm.

Veggie Dip

Makes 4 servings

Nutritional Information Per Serving
One serving of ¼ cup of dip and ½ cup of veggies contains:
60 calories
0 grams of fat
3 grams of fiber
107% of Daily Value of Vitamin A
141% of Daily Value of Vitamin C

Ingredients

½ cup fat-free sour cream
1/3 cup prepared salsa
3 tablespoons chopped green onions
½ teaspoon garlic salt

Directions:

1. Put sour cream, salsa, green onions, and garlic salt in a small bowl.
2. Stir well.
3. Pour in serving dish.
4. Serve with bell pepper strips, celery sticks, radishes, broccoli pieces, or tomato wedges.

Courtesy of Iowa's Pick a Better Snack Program

Guidelines for Gardening with Children

- Keep it simple
- Keep an open mind
- Select appropriate plants
- Avoid discouragement
- Plan activities for immediate and delayed gratification
- Avoid poisonous and sharp plants
- Maintain a patient and tolerant attitude

Have fun!

Children's Garden Activities

Seed Viewer

Put a piece of rolled construction paper in a clear plastic cup so that the paper touches all sides of the cup. Stuff crumpled paper towels into the center so that the paper is firm against the sides of the plastic cup. Place 3 to 4 seeds (dried bean or corn seed from the grocery store work well) in between the plastic cup and the construction paper. Moisten the paper towels. The seeds should sprout in 4 to 5 days.

An alternative to this activity is to place seeds in closed plastic sandwich bags with wet paper towels. This will also allow you to watch germination.

Space Invaders

Examine the importance of correct spacing of seeds. Plant five 4" pots of radish seeds (or some other type of fast growing seeds). In the first pot plant only one seed, in the second plant 5, in the third plant 10, in the fourth plant 15 and in the fifth plant 20. Grow the seeds without thinning until you have mature radishes and then compare the sizes of the radishes depending on their pots. Measure the width of each radish and chart your results.

Why Composting is Important

Composting is an ideal way to reduce waste that goes into our landfills and change that waste into a product that is useful for gardening, landscaping or house plants. Composting can also transform a child's perception of food remains as "gross" into a useful bi-product. Food scraps and other organic waste turn into something that is pleasant to handle and is good for the soil. It is one more way we can have a direct, positive effect on our environment.

Resources for Compost

- http://www.iowadnr.gov/waste/recycling/organics/index.html is an excellent source of information about all facets of composting and waste management
- Those in outlying areas should check with their local landfill operators to find local sources of compost.
- Sand is available from a variety of sources including building supply stores and landscaping companies.

Creating Your Own Compost

1. Construct a bin. Find a plastic or an aluminum garbage can (with a lid) and drill 1/4-inch holes, 4 to 6 inches apart, all over the sides and bottom, so your compost can breathe.
2. Kick-start it. Almost everything natural can be categorized as either a "brown" or a "green." You'll need both colors. Three parts brown to one part green works well, so begin by filling your bin with "browns"—such as leaves, pine needles, small twigs or shredded newspaper
3. Wet the mess. Add water until your mix has the consistency of a wrung-out sponge.
4. Activate it. Toss in your "greens," which include fruit and veggie peels; trimmings and rinds; weeds and lawn clippings.
5. Protect the process. Top your greens with more browns to keep your bin working properly and smelling fresh. Replace the lid. Continue feeding and watering your bin, always layering one part green with three parts brown.
6. Stir your pile every week and wait about six months, until the material at the bottom looks dark and crumbly and smells earthy.
7. Harvest the world's best fertilizer by scooping out the rich stuff and sprinkling it liberally throughout your garden.

http://www.self.com/health/2009/12/things-every-woman-should-know?currentPage=8

References & Resources

Container Gardening

Top 10 Tips for Great Container Gardens Creating a garden in a pot by Marie Iannotti: http://gardening.about.com/od/gardendesign/tp/ContainerGarden.htm

10 Common Container Gardening Mistakes Container Gardening mistakes and solutions by Kerry Michaels: http://containergardening.about.com/od/containergardening101/a/10mistakes.htm

Tips on Organic Container Gardening from Pete Bottomley by Kerry Michaels: http://containergardening.about.com/od/interviews/a/PeteBottomley.htm

Don't let Your Container Garden Plants Drown The Art of Drainage in Container Gardens by Kerry Michaels: http://containergardening.about.com/od/containergardendesigna/drainage.htm

Vegetable Container Gardening-Getting Started What you need to know before you start vegetable container gardening by Kerry Michaels: http://containergardening.about.com/od/vegetablesandherbs/a/ContainerVeggie.htm

References & Resources

Gardening with Kids: Container Gardening
Growing in Small and Soilless Spaces:
http://www.kidsgardening.com/growingideasPROJECTSfeb03/pg1.html

Preserving Foods
http://www.pickyourown.org

Growing Tips
http://www.thriftyfun.com/tf28563935.tip.html
http://apps.betterthanrocks.com
http://journeytoforever.org/garden_sqft.html

Sprouting Seeds
http://ag.arizona.edu/pubs/garden/mg/index.html

How to Live Green
http://www.permacultureprinciples.com/

Thank you to our sponsor, Iowa Department of Agriculture and Land Stewardship.

For a FREE download of this book, go to:

http://www.iowaagriculture.gov/Horticulture_and_FarmersMarkets/horticulture.asp

http://www.agriculture.state.ia.us/FieldServices/urbanConservation.asp