UNIVERSITY of ARKANSAS AT PINE BLUFF
1873
School of Agriculture, Fisheries and Human Sciences
Cooperative Extension Program

Horticulture

FSA6117

Lamb Brothers System of Container Gardening

Dr. Obadiah Njue
Extension Horticulture Specialist

Introduction

Container gardening – growing vegetables, fruits and/or ornamentals in containers – is gaining in popularity, in part because of lack of adequate space and/or the potential reduction in the amount of energy expended when compared to traditional methods of growing vegetables and ornamental plants, and because the cultivation of a plot of land is not required.

Plants are grown in containers, appropriately sized to meet the needs of the plant and/or the number of plants placed in a single container.

Container gardening offers many advantages to hobby gardeners, including an additional value to low-income and elderly households if vegetables, herbs and fruits are the items planted. Also, container gardens can be grown in a minimum of space and adapted to a variety of settings.

The concept of container gardens captured the attention of two widower brothers (Felton Lamb and Odell Lamb) of Little Rock, Arkansas, in the 1980s. Since then, they have translated their knowledge of over 30 years of home gardening into a container gardening system that has consistently produced an abundant supply of vegetables. The production system, as currently configured, did not result from the simple transfer of knowledge about production techniques into containers, but by many years of trial and error in transferring production knowledge about irrigation, pest control and soil enhancement into application in a confined environment (i.e., containers).

Application

Container vegetable gardens have potential applications for low-income and elderly individuals and families whose health status could be improved with a ready supply of fresh vegetables. The cost savings could greatly expand the available food dollars. In addition to saving money, important health benefits accrue to the elderly who practice container gardening.

- ✓ Freshly-grown vegetables are a healthier alternative than processed vegetables because of the levels of sodium and sugars in processed foods (particularly canned goods). Many health problems associated with aging (cardiovascular disease, hypertension and type II diabetes) are magnified by high intakes of sodium and sugar.

NOTE: The container gardening system described in this publication was not developed under strict research protocols, but the late Dr. Steve Izekor, University of Arkansas at Pine Bluff (UAPB) horticulture specialist and researcher, had studied the system, acknowledged its validity and recommended it to Arkansans interested in this form of gardening.

Arkansas Is Our Campus

Visit our web site at:
https://www.uaex.uada.edu

- ✓ The activity involved in growing container gardens can increase both the mental and physical health of the elderly, thus increasing their quality of life.
- ✓ Container gardens can be established in limited space, making them ideal for demonstration in public schools and youth clubs.
- ✓ Container gardens can be moved from one location to another.

Purpose

This publication provides step-by-step directions for container gardening based on the system developed by the Lamb brothers.

Container gardening is a popular practice among urban dwellers with limited space for a garden plot, poor soil or inadequate sunlight. But this has proved not the case for Odell and Felton Lamb, two elderly brothers from Little Rock, Arkansas, who have spent much of their retired life container gardening. Their recipe for successful container gardening is simple, safe and economical.

Containers

Containers come in different sizes, shapes and materials. Whether clay, wood, plastic or ceramic, they must have adequate holes for drainage. Container sizes must vary according to the crop and available space. The Lambs prefer 30-gallon recyclable plastic drums (available from ACT Poly Drum, Russell Stanley, Mid West, Inc., Romeoville, Illinois 60441).

The drums are cut to 18 inches tall, and they are 21 inches in diameter. These are used for bigger plants including tomatoes, eggplant and cucumbers. The Lambs use containers 14 inches tall and 19 inches in diameter for smaller plants such as cherry tomatoes and peppers. They place two ¼-inch holes every 4 inches from the bottom of every container. A half-inch-long bolt is fitted into the holes to adjust moisture content of the container.

Larger containers take about 10 gallons of growing media for larger plants and 6 to 8 gallons of growing media for smaller plants. Despite the size and soil media content, individual plants are never more than three stands per container for larger plants like tomatoes, cucumbers and squash.

Another characteristic of the Lambs' growing container is immobility. Six containers of the same size and composition described above are cut and buried in the garden at a depth of 8 to 10 inches. Two inches are above ground, and the containers are spaced 5 feet apart.

They build a 7-foot tepee of 6-inch mesh wire gauze, supported with a wooden stake mounted over the buried container. The tepee is optional for squash, cucumber and snap beans. Tepees are not needed for butternut squash. The Lambs and I recommend the immobile container method for extreme sandy soils, high drainage field capacity, history of moisture depletion and severe flood.

The Lambs use wooden box containers to raise Irish potatoes, collards and turnip greens year round. Their wooden containers are made of 1 foot x 10 inch nontreated plywood, 15 feet long and 5 feet wide, buried 2 inches deep into the soil with 10 inches exposed to the surface. The Lambs fill the container with shredded manure mixed with peat moss to 2 inches deep.* Set viable potato pieces with eyes in the container and fill with pine needle mulch. As the potatoes grow, the pine needles shrink below as they decompose while the potato tuber enlarges to the surface. Irish potatoes grow upwards, unlike carrots or sweet potatoes that extend their roots into the ground in a conventional garden. Growth in a container is no exception.

The Lambs' wisdom in container sizing is simple. Containers can never be too big for any type of vegetable crop. Small containers restrict root growth, dwarf top growth and reduce harvest. Bushel baskets, bushel whiskey barrels, 12-gallon dough drums cut in half or large pressed paper containers are ideal for growing tomatoes, squash, pole beans and cucumbers. The Lambs seldom grow squash, cucumber or butternut squash in mobile containers. They prefer containers buried in the ground with tepees built on top for the vines to climb.

Growing Media

Potting mix is available at most discount stores. It drains easily, is lightweight and free from soil-borne diseases and weed seeds. The cost of soilless medium can overwhelm a gardener's budget when using large containers to grow different vegetables. The Lambs' containers measure 2 feet high and 23 inches in diameter and are filled with 5-gallon buckets of regular garden soil and topped with 2 gallons of shredded cow manure to a depth of shovel's blade, 4 to 6 inches deep, and smoothed out with a ½ x 3 inch wedge. Other do-it-yourself mixes (planting media) include equal parts of sand, loamy garden soil and peat moss heated in an oven for one hour at 210°F to kill any bacteria, fungi, insects and weed seeds.

Preferred Vegetable Selection for Container

The Lambs' first choice of tomato varieties are Better Boy and Beef Steak. They are indeterminate tomatoes which allow harvesting until the first killing frost. Their suggested vegetable varieties are shown in Table 1.

Some vegetables, including lettuce, can be grown as ornamentals in containers and also as vegetables for nutrition and taste. Annual flowers noted for their brilliant colors, including dwarf marigolds, can be planted among vegetables. Many herbs planted in containers outdoors can be brought indoors in winter so that the grower can continue to enjoy their aroma.

Table 1. Preferred Vegetable Varieties for Container Grown Vegetables

Tomatoes	Better Boy, Patio, Spring Giant, Small Fry, Beef Steak, Red Cherry
Peppers	Jalapeno, Red Cherry
Eggplant	Black Beauty, Long Tom
Cucumber	Liberty, Early Pick, Crispy
Collards	Vates
Yellow Squash	Dixie, Senator, Straightneck, Crookedneck, Butternut Walphram
Beets	Detroit, Wonder Early, Ruby Queen, Swiss Chard
Green Onions	Crystal Wax, Evergreen Bunching
Radishes	Cherry Belle, Scarlet Globe

Seeding and Transplanting

Plant spacing for most vegetables depends on container size and eventual size of the plant at maturity. Always plant a few extra seeds. After seeds have sprouted to foliage and are touching each other, thin plants to desired number. Set your transplants in containers at the same time you would when planting a regular garden. Direct seeding may also be used.

*Note that use of well decomposed manure is recommended.

Fertilization

Most experienced gardeners use two handfuls of compost per 5-gallon container. The Lambs use two handfuls of shredded manure per 5-gallon container. Prior to planting, apply 2 gallons of shredded cow manure and 1 tablespoon of 13-13-13 per 10-gallon container and work the soil to 6 inches deep. The most common NPK formulations are 5-10-10 and 10-10-10 or time-release fertilizers (Osmocote 14-14-14) that release nutrients over a period of time. It is not unusual for gardeners to overfertilize plants in containers. Recommended application at frequent intervals is preferred for container gardening rather than a one-time, heavy-handed application.**

Beginning gardeners should follow the standard recommendation of ½ tablespoon of fertilizer to 1 gallon of soil mix; for example, a 5-gallon bucket of soil mix would need 2½ tablespoons of fertilizer. Add any common water soluble fertilizer, 20-20-20 or Miracle Gro 15-30-15, to containers during bloom or fruit set.

Most fruiting vegetables (tomatoes, peppers, eggplant and okra) require mid-season additional fertilizer as watering releases nitrogen out of the soil. Potting mixes do not retain nutrients very well because the water drains from the container quickly. Frequent watering washes the fertilizer out of the plant roots. Soilless medium (potting soil) is light and easy to work with but weak in retaining water.

Experienced container gardeners use a super bloom, high phosphorus content fertilizer (10-50-10 or 19-59-9) to stimulate bloom and subsequent fruits. Use these super bloom fertilizers every one or two weeks for fruiting vegetables.

Watering

Plants in containers exposed to extreme weather conditions such as scorching sun and hazy wind need frequent watering. Water twice daily, once in the morning and again in the afternoon. Plants recovering from drought use their energy to reestablish feeder roots at the expense of bloom and fruit set. Therefore, never allow plants in containers to dry out near the bloom or fruit set stage. This may result in stunted plants without flowers or fruit.

Table 2. Planting Tips for Growing Vegetables in Containers

Vegetable Crops	Days for Germination	Weeks of Hardening Off, Transplanting	Soil Volume/ Container	Amount of Light Required	Days from Seeding to Harvest
*Tomatoes	5-8	4-8	5-6 gal/plant	full sun	until frost kill
Squash	5-8	4-8	5-6 gal/plant	full sun	50-65
Pepper	10-12	6-8	5-6 gal/plant	full sun	90-125
Beans	4-7	direct seeding	3-4 gal/plant	full sun	45-65
Cucumbers	4-8	4-8	5-6 gal/plant	full sun	55-75
Eggplant	8-12	6-8	6 gal/plant	full sun	90-120
Onion	6-8	6-8	2-3 gal/plant	partial shade	80-100
Beets	-	-	2-3 gal/plant	partial shade	50-60
Kale	6-10	4-8	4-5 gal/plant	partial shade	55-65
Cabbage	6-10	4-6	5 gal/plant	partial shade	65-120
Lettuce	6-8	3-4	1-2 gal/plant	partial shade	45-60

*All fruit-bearing vegetable crops must have full sunlight.

**Note that the use of properly composted livestock manure in food crop production minimizes the likelihood of contamination with harmful bacteria.

Some container gardeners mix water-holding gels, starch-based gels that retain water called hydrogels, with soil before putting it in the container. The gel swells with moisture and releases water when needed, extending the duration of moisture in the container. Avoid excessive water which leads to loss of nutrients through leaching. Use your intuition to gauge the moisture need of the soil mix. Stick your finger or a popsicle stick into the soil. If the soil sticks to your finger or the stick, water is needed.

Place compost, straw, pine needles, grass clippings or shredded bark on top of the container to reduce moisture loss. Container gardeners with resources can use drip irrigation mounted on the containers or use rotating row cover fabric to shade the plants from the sun.

Diseases and Insects

The economics of cultural care and high productivity can be enhanced by choosing resistant plant varieties, following good sanitation practices and adjusting moisture. Check daily for insects, mites and signs of diseases, especially during fruiting. Practicing integrated pest management with container gardening is easier than with traditional gardening.

The Lambs rarely use synthetic chemicals to control pests, preferring heavy oil on heat aggravated spider mites and white flies. Should serious problems occur, contact your local county Extension office for EPA-approved chemicals for vegetable plants. Plant early and harvest before the pest pressure reaches damaging levels.

Some container gardeners prefer to empty each container at the end of the season so they don't risk spreading diseases that may be present in the mix or on the debris. Also, the medium has been depleted of nutrients. Scrub each container and disinfect it with a 10 percent chlorine bleach solution. Do not leave porous containers outside over the winter, as low freezing temperature could crack them.

Table 3. Comparative Yields, Container Grown Vs. Conventional Staked Better Boy Tomato

Average Yields lb/plant	Container Grown	Conventional Grown
Better Boy	18.12	11.90

Harvesting

Vine-ripened tomatoes, tender green beans to mouth-watering squash, the Lambs harvest when fruits or leafy vegetables are mature and ready to eat. Delayed harvest reduces total yield per container and encourages insects and the spread of disease.

Table 4. Troubleshooting Common Problems of Growing Vegetables in Containers

Symptoms	Cause	Corrective Measure
Plants appear spindly, lodging and unproductive	Insufficient light	Move container to area with full sunlight.
Soft stem, pale yellow from bottom and stunted	Excessive water/lack of adequate fertility	Reduce watering, check for good drainage and use a balanced fertilizer.
Plants look poor, wilted and water soaked leaves	Poor soil drainage and lack of aeration (no oxygen)	Use a container with higher organic matter, increase size or number of holes for drainage.
Leaves look brown, firing or burned especially at the margin	High salt poisoning	Leach container with tap water at regular intervals.
Plants stunted in growth, with purplish color	Low temperature and low phosphate	Increase phosphate level in base solution and move plants to higher ground.
Irregular holes in leaves with distorted shape	Insects	Use recommended insecticides or organic treatment.
Plants and fruits have discoloration, marked spots, rusty and soaked fruit, powdery and rusted leaves	Plant diseases	Remove diseased plants and use recommended fungicides.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

Original copy by the late Dr. Steve Izekor, Extension horticulture specialist, University of Arkansas at Pine Bluff. Final copy prepared by Dr. Obadiah Njue. Photography by Ariston S. Jacks, Extension specialist - graphic art.

DR. OBADIAH NJUE is Extension horticulture specialist at the University of Arkansas at Pine Bluff.

FSA6117-PD-12-05N