Small Space Gardening

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Growing Vegetables in Containers and Small Spaces
Plant Growth Requirements

- **Light**
  - Support
  - Nutrients
  - Temperature
  - Air - Gases

- **Full Sun Outside**
- **Partial Sun Outside**
- **Sunny Window**
- **Florescent**
- **Gro-Lites**
Plant Growth Requirements

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  • Nutrients
  • Temperature
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  • **Florescent**
  • **Gro-Lites**
Plant Growth Requirements

- Light
- **Support**
  - Nutrients
  - Temperature
  - Air – Gases
  - Water and Drainage
- Anchor the roots
- Keeps the shoot from falling over
Plant Growth Requirements

- Light
- Support
- **Nutrients**
  - Temperature
  - Air – Gases
  - Water and Drainage
- Fertilizer
Plant Growth Requirements

- Light
- Support
- Nutrients

**Temperature**
- Air – Gases
- Water and Drainage

- Not too Hot
- Not too Cold
Plant Growth Requirements

- Light
- Support
- Nutrients
- Temperature

**Air — Gases**

- Oxygen
- Carbon Dioxide
- Nitrogen
- Avoid Toxic Gases-Air Pollutants

- Water and Drainage
Plant Growth Requirements

- Light
- Support
- Nutrients
- Temperature
- Air – Gases

**Water and Drainage**

- Water until the container drains forces air into soil mix and leaches salt.
- Need drainage holes to release excess water.
Containers and soil mix for plants

- Baskets
- Buckets – 3-5 gallons
- Trays
- Bags
- Bales of Straw
- Pots
There are no hard rules to follow, but this is a general guide:

- Use small containers (about 1 to 2 gallons) for lettuce, spinach, mustard, peppers, radishes, green onions, carrots, beets, chard, broccoli, beans, and dwarf tomatoes.

- Use medium containers (about 3 to 5 gallons) for eggplants and for larger crops.

- Use large containers (5 to 10 gallons) for cabbage, brussel sprouts, cucumbers, squash, and cooking tomatoes.

- For most vegetables - start with transplants.
Growing Media

Synthetic "soils" are best suited for container gardening

Mixes may be composed of sawdust, wood chips, peat moss, perlite, and vermiculite.

Mixes must be free of disease and weed seeds, hold moisture and nutrients but drain well and be lightweight.

Synthetic "soils" are available from garden centers.

Mix one bushel each of vermiculite and peat moss, and ½ bushel of perlite. Add 10 tablespoons of limestone, (do not add too much lime.) Add 5 tablespoons of 0-20-0 (superphosphate). Add 1 cup of garden fertilizer such as 6-12-12 or 5-10-10. Mix the material thoroughly adding a little water to reduce dust.

Wet the mix thoroughly prior to seeding or transplanting.
## Recommended vegetables for containers

<table>
<thead>
<tr>
<th>Crop</th>
<th># days to germination</th>
<th># weeks to grow</th>
<th>Size of container</th>
<th>Light required</th>
<th># days to harvest</th>
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<tbody>
<tr>
<td>Beans</td>
<td>5</td>
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<td>M</td>
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<td>Cucumber</td>
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<td>Eggplant</td>
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<tr>
<td>Leaf Lettuce</td>
<td>6</td>
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<td>Partial Shade</td>
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<td>Parsely</td>
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<td>PS</td>
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<td>Pepper</td>
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<td>7</td>
<td>L</td>
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<tr>
<td>Radish</td>
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<td>-</td>
<td>S</td>
<td>PS</td>
<td>32</td>
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<tr>
<td>Squash</td>
<td>5</td>
<td>3</td>
<td>L</td>
<td>Full Sun</td>
<td>45</td>
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<tr>
<td>Tomato</td>
<td>7</td>
<td>5</td>
<td>L</td>
<td>Full Sun</td>
<td>82</td>
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</table>
Fertilizing vegetable plants in containers

- Use a light soil mix to allow drainage after each watering or fertilization. (This prevents salt build up.)

- **Before Fruit Set:** Fertilize once a week with one quart of a solution of 1 Tbs of 20-20-20 per gallon of Water.

- **After Fruit Set:** Fertilize twice a week
Plant Nutrients - The Major Elements

- Nitrogen (N)
- Phosphorus (P)
- Potassium (K)
- Calcium (Ca)
- Sulfur (S)
Plant Nutrients -
The Micro Elements

- Magnesium
- Iron
- Zinc
- Copper
- Manganese
- Molybdenum
- Boron
- Chlorine
Plant Nutrients - The Toxic Elements

- Aluminum
- Copper
- Manganese
- Boron
Plant Nutrition – Nitrogen Sources

- Ammonium Nitrate
- Calcium Nitrate
- Potassium Nitrate
- Urea
- Organic Nitrogen Sources
# Plants for Small Space Gardens

<table>
<thead>
<tr>
<th>Partial Sun</th>
<th>Full Sun</th>
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<tbody>
<tr>
<td>Lettuces</td>
<td>Patio Tomatoes</td>
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<tr>
<td>Greens</td>
<td>Cherry Tomatoes</td>
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<tr>
<td>Radish</td>
<td>Bush or trellised Cucumbers</td>
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<tr>
<td>Herbs</td>
<td>Peppers</td>
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<tr>
<td>Chives</td>
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</table>
The Square Foot Garden

Plant small things in small places; big things off to the side where they will not shade out the small things.
Small things go together in small spaces where they are not shaded.
Recommending Soil Amendments for the Garden

- Agricultural Limestone to Raise soil pH
- Sulfur to Lower soil pH
- Gypsum pH neutral
- Poultry Litter
- Cover Crops
- No green saw dust!
Add Lime According to Your Soil Test
Liming the Soil

• It takes time, 8 to 12 weeks, for agricultural lime to have an effect!
• Lime adds Calcium ion to soil solution
• Particle size is listed by the mesh size
  – 40-60 mesh large and slow to react
  – 200-240 mesh, very small and reacts quickly
Fertilizer for The Garden

ANALYSIS:

- 10% Nitrogen
- 20% Phosphorus
- 10% Potassium (Potash)
Fertilizing the Garden using 10-20-10 fertilizer

- The average garden is 400 square feet, 1/100th of an acre.
- To apply 10 pounds of Nitrogen per acre, add 100 lbs fertilizer/acre or 1 lb/400sq feet.
- Preplant light 20 lbs N/acre (2 lbs/400sq ft).
- Preplant med 40 lbs N/acre (4 lbs/400sq ft).
- Preplant heavy 60 lbs N/acre (6 lbs/400sq ft).
Use A Transplant Starter Solution

- 1 Tbs. of a soluble fertilizer high in Phosphorus
- In 1 gallon of water
- Apply 1 cup of solution per plant
- 1-1-1
Use the Best Genetics
Plant Seeds At The Proper Spacing & Depth - Plant 3X deeper than diameter of seed.
Starting Your Own Plants from Seeds

- Select Proper Varieties.
- Sterile Potting Media.
- Sterile Containers.
- High Light Intensity for 14-16 hours.
- Regular Applications of Soluble Fertilizer
Choosing Quality Transplants
Plant large vigorous plants incorporating ¼-½ cup of complete, slow release fertilizer at planting.
Tunnels are Easy to Build
Floating Row Cover

- 2° to 4° F of Frost Protection.
- Wind Protection.
- Keeps Out Insects.
- Allows 85 to 90% Light Penetration.
Cold Frames
Wall O Water in Action
Use a Hot Cap or Cloche To Protect Young Plants
Growing Tomatoes in Containers
Growing Tomatoes in Containers

- Container size 12 inches diameter, 15 inches Deep with drainage holes
- Non-Toxic Container, Plastic or Clay
- Use a well drained light soil mix
- Need to Fertilize and Water More Often
Fertilizing Tomatoes In 3 Gallon Containers

• **Preplant:** 1 Tbs complete Fertilizer plus 1 Tbs Ag Limestone

• **At Transplanting:** One Cup of Starter Solution per plant - (1 Tbs of 20-20-20 per Gal.)
Common Diseases and Insects of the Nightshade Family
Bacterial Speck
Bacterial Spot
Blossom End Rot – A Calcium Deficiency
Buckeye Rot
Cat Face
Early Blight
Southern Blight
Tomato Spotted Wilt Virus
Raised Beds are Versatile
Vegetables for a family of two.

- Tomato plants needed: Determinate (bush type) 2 cherry, 1 Roma and 2 salad
- Wax Peppers – 2 plants (salad), 2 bell peppers
- Cucumbers – 4 plants, 2 plants per pot
- Cantaloupes – 3 plants, 1 plant per pot
- Lettuce - ?
- Mixed greens – 5’ x 5’
- Onions - ?
- Summer squash – bush type, 2 plants
Free Water on Leaf Surface Can Cause Problems
Use Drip Irrigation to Water
Plot Being Solarized
Any Questions?
<table>
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<tr>
<th>Diseases</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<td>Bacterial leaf spots</td>
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<td>Cedar-apple rust</td>
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(Gray Mold)
ORNAMENTALS

Powdery Mildew

Crapemyrtle

Euonymus

Rose

(fungus)

Phlox

FSA61 13

UGA

ORNAMENTALS
Black Spot
(Fungus)

FSA7530
Indian Hawthorn

RedTip Photinia

“Photinia Leaf Spot”

“Leaf Spot” (fungus)
TREES

Wood Rots

- BACTERIA
- FUNGI
Heart Rot
Anthracnose

Look-a-likes
Fire Blight (bacteria)

Other hosts:
Apple
Pyracantha
Bearing Pear
Cotoneaster
Hawthorn

FSA7534
Branch Canker - Leyland Cypress
(fungus)

FSA7536
Fruit Diseases

Black Knot

Peach Leaf Curl

Cedar-Apple Rust

Black Rot
Homeowner Products
spurweed, winter
annual

2 and 3-way herbicides (Trimec) or Manor
postemergence.

fruit with spines
If all else fails.