

Growing Vegetables in Minigardens



School of Agriculture & Consumer Sciences
Cooperative Extension Program

Revised

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The first section of this publication explains how to grow vegetables in a small conventional garden

The second section explains how to grow vegetables in containers.



GROWING VEGETABLES IN MINIGARDENS

Introduction

Society is changing rapidly. In many areas, space and resources are scarce commodities and minigardens are the only gardens possible. Minigardens can be in a yard, on a terrace, patio, balcony, roof, window box, tub, hanging basket or a combination of these. This publication provides information to help gardeners grow vegetables in a limited space.

Minigardens provide an opportunity for family members to learn about and participate in sustainable agriculture on a small-scale basis. Proper use of the practices discussed in this publication can be of great benefit in understanding how food is grown, harvested and handled.

With a properly managed vegetable garden, a family can benefit in several ways. They can save money on food, increase the nutritional level of their diet and have something to work on together. Given proper care, a well-planned minigarden can supply many vegetables from spring planting until killing frosts in the fall.

SITE SELECTION

Choose a spot that has full sun if possible. Vegetables need a minimum of six hours of sunlight per day, but some vegetables need more sun than others.

Leafy vegetables (lettuce, collards, cabbage, mustard greens) can tolerate more shade than root vegetables (beets, carrots, radishes, turnips). Root vegetables can tolerate more shade than heavy-fruited vegetables (cucumbers, peppers, eggplants, tomatoes), which grow poorly in the shade.

The roots of trees, large shrubs and hedges compete with vegetables for nutrients and moisture. Additional plant food and supplemental watering will help compensate for this competition, but will not relieve serious shade problems.

Soil type is an important consideration when there is a choice of garden sites. Sandy loam or loam soils are best adapted to vegetable production and are the preferred soil types. A fertile, deep, well-drained soil is necessary for a successful garden.



PLAN YOUR GARDEN

A garden plan will help you use all available space wisely and efficiently. To plan a garden, you should ask yourself these questions:

1. Which vegetables would I like to grow?
2. Which varieties are better adapted to Tennessee?
3. How much seed will I need?
4. How far apart should the rows and plants be spaced?
5. When is the best time to plant?



In limited space, vegetables should be arranged so that cool-season, early crops such as leaf lettuce, mustard greens, green peas, carrots, radishes, beets, spinach and onions are planted on one side of the garden. Warm-season, late maturing crops can be planted on the other side. This will permit later plantings after the early cool season crop mature. It will also permit crop rotation, which is important for disease control. The following plan will illustrate how to get the most from a garden when space is limited.

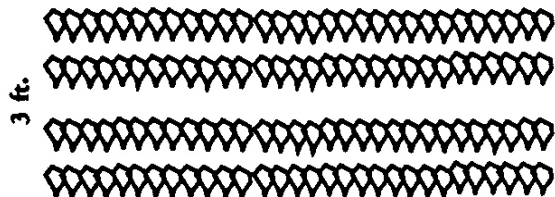


GARDEN PLAN 21' X 21'

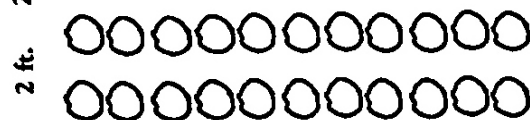
Cool-Season Vegetables*-first planting made in the spring



1 ft. Leaf Lettuce (2 plantings in bed)



2 ft. Mustard (followed by Pole Beans)



2 ft. English peas (followed by Collards)



2 ft. Radish (2 plantings in bed)



2 ft. Cabbage (followed by late Tomatoes)

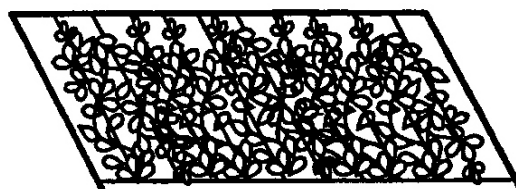


1 ft. Beets (2 plantings in bed)



Onions (followed by late Cabbage)

Warm-Season Vegetables*-make plantings opposite cool season crops



Cucumber (5 plants on trellis)



Tomatoes (6 plants staked)



Okra



Bell Pepper



Hot Pepper



Bush Squash (2 plantings)



Lima Beans, bush



Snap Beans, bush

*See table 1 for space between plants.

By planting cool-season and warm-season crops in blocks, it becomes easy to annually rotate crops between blocks.





More vegetables can be produced in limited garden space by "double cropping."

Double-cropping is done by first planting a vegetable which requires a short growing season, such as radishes or snapbeans. After it had been harvested, plant another vegetable in its place. Production can also be increased by interplanting vegetables. This is done by planting early-maturing small vegetables like radishes or onions between plants or rows of larger, late-maturing vegetables like peppers or tomatoes. You can harvest the early crop before the late crops crowd them. Growing vegetables under these conditions will require more watering and fertilizing than if only one crop is grown.

Production can be increased by fall gardening. Some of the best quality garden vegetables are grown in the fall, when warm sunny days are followed by cool nights.

The selection of crops for the fall garden may be determined by what is presently producing in the garden. Some crops planted in the spring may continue production into the fall.

Remember to use the airspace above your garden. Pole beans, tomatoes, cucumbers and English peas can produce higher yields per square foot of garden space by using the airspace above the row. Supports made of wire fencing or wood can be re-used year after year. This will produce higher yields in limited space.

When making a garden plan, select only the varieties recommended for Tennessee. These have the best quality and most disease resistance and are best adapted to Tennessee climatic conditions.

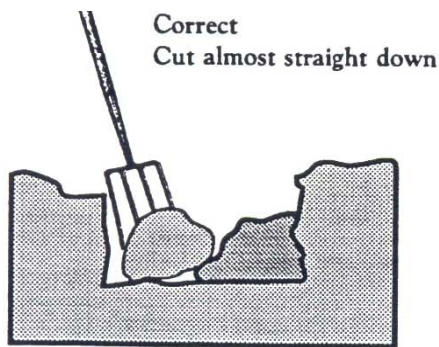
LAND PREPARATION

Soil should not be spaded, plowed or cultivated when it is too wet. Pick up a handful of soil and squeeze it. If soil forms a ball, it is too wet. Cultivation and planting should not be done until the soil is dry enough to crumble.

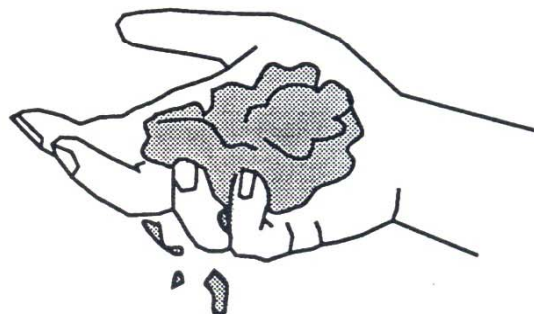
Small garden plots can be prepared for planting by using a spade, shovel or spading fork to turn the soil. The soil should be worked to a dept of 6 to 7 inches.

Before working soil, remove all litter or trash on top of the ground. Excessive plant residue in the upper soil level will interfere with final seedbed preparation and cultivation. If left in the garden, it will increase disease, insect and weed problems.

The soil should be pulverized and a smooth, level surface established by raking or harrowing as soon as possible after working. This will help compact the soil, break up clods and leave a smooth surface for seeding.



Sod turned over completely



Test soil for wetness



VARIETIES

There may not be enough room to grow everything you want in a minigarden. You should start by growing your favorite vegetables. You will want to grow the most possible food in the space you have. You can do this by planting those vegetable that produce the highest yield for the space they take. The following vegetables are good choices for small gardens: tomatoes, pole beans, onion, bush beans, beets, information on varieties, planting dates, seed needed to plant 25 feet of row, depth of planting and spacing between row and plants.

TABLE 1. GUIDE TO SPRING-PLANTED, COOL-SEASON VEGETABLES

Use the earlier planting dates in West Tennessee and the later dates in Middle and East Tennessee.

Vegetable	Planting Interval ¹	Seeds or plants per 25 foot row	Inches between rows	Inches between plants	Days to first harvest	Length of Harvest Season	Yield per 25 foot row
Beets	Mar. 1 to Mar. 10	1/8 oz. seed	14 to 36	2 to 3	55 to 60	4 weeks	18 to 36 lbs.
Broccoli	Mar. 1 to Apr. 1	17 plants	24 to 36	18	60 to 70	4 weeks	12 to 25 lbs.
Cabbage	Feb. 20 to Apr. 1	17 plants	24 to 36	18	60 to 75	3 weeks	30 to 50 lbs.
Cauliflower	Mar. 1 to Apr. 1	17 plants	24 to 36	18	55 to 65	2 weeks	12 to 25 lbs.
Carrots	Mar. 1 to Apr. 1	1/16 oz. seed	14 to 36	2 to 3	75 to 85	4 to 6 weeks	12 to 25 lbs.
Collards	March	1/16 oz. seed	18 to 36	18	65 to 75	4 to 30 weeks	25 to 35 lbs.
Kale	February	1/16 oz. seed	18 to 36	12 to 15	55 to 65	4 to 20 weeks	25 to 35 lbs.
Kohlrabi	Feb. or March	1/16 oz. seed	14 to 36	3 to 6	40 to 50	4 weeks	12 to 18 lbs.
Lettuce, Head	Feb. or March	1/16 oz. seed	14 to 36	12 to 15	65 to 80	2 to 3 weeks	12 to 25 lbs.
Lettuce, Leaf	Feb. to Apr.	1/8 oz. seed	14 to 36	6	40 to 50	4 to 6 weeks	12 to 18 lbs.
Mustard	February	1/16 oz. seed	14 to 36	5 to 10	35 to 45	3 to 6 weeks	18 to 25 lbs.
Onions, Bunch	Feb. or March	100 to 150 sets	14 to 36	2 to 3	30 to 60	3 weeks	8 to 12 lbs.
Onions, Storage	Feb. or March	50 to 100 sets	14 to 36	3 to 6	100 to 120	2 weeks	20 to 25 lbs.
Peas, English	Feb. 1 to Mar. 20	1/8 to 1/4 lb. seed	12 to 36	2 to 4	65 to 70	2 to 3 weeks	5 to 7 lbs.
Peas, Snap	Feb. 1 to Mar. 20	1/8 to 1/4 lb. seed	12 to 36	2 to 4	65 to 75	2 to 3 weeks	8 to 12 lbs.
Potatoes, Irish	March	4 lbs. seed	30 to 36	12	90 to 110	4 months stored	25 to 30 lbs.
Radish	Feb. 15 to Apr. 15	1/8 oz. seed	14 to 36	1 to 2	25 to 30	3 weeks	12 bunches
Spinach	February	1/4 oz. seed	14 to 36	3 to 4	40 to 50	3 weeks	2 to 8 lbs.
Swiss Chard	March	1/8 oz. seed	18 to 36	6 to 8	50 to 60	4 to 30 weeks	12 to 35 lbs.
Turnip, Greens	March	1/8 oz. seed	18 to 36	2 to 4	30 to 40	Several weeks	12 to 25 lbs.
Turnip, Roots	March	1/16 oz. seed	18 to 36	3	40 to 65	6 months	25 to 35 lbs.

¹Use the earlier planting dates in West Tennessee and the later dates in Middle and East Tennessee.



TABLE 2. GUIDE TO WARM-SEASON VEGETABLES

Vegetable	Planting Interval ¹	Seed or plants per 25-foot row	Inches between rows	Inches between plants	Days to first harvest	Length of Harvest Season	Yield range per 25- foot row
Beans, Bush Snap	Apr. 10 to June 20	1 oz. seed	24 to 36	3 to 4	52 to 60	2 weeks or more	20 to 30 lbs.
Beans, Pole Snap	Apr. 10 to June 20	1 oz. seed	36 to 48	3 to 4	60 to 65	5 to 6 weeks	25 to 35 lbs.
Beans, Bush Lima	May or June	2 oz. seed	24 to 36	3 to 4	65 to 75	3 weeks	5 to 8 lbs. shelled
Beans, Pole Lima	May or June	2 oz. seed	36 to 48	3 to 4	80 to 90	4 weeks	6 to 12 lbs.
Cantaloupe	May	1/8 oz. seed	72	24	80 to 90	3 weeks	25+melons
Corn, Sweet	Apr. 1 to June 1	1 oz. seed	36	8 to 12	80 to 95	7 to 10 days	22 to 30 ears
Corn, Super Sweet	Apr. 15 to June 1	1 oz. seed	36	8 to 12	80 to 95	10 to 15 days	22 to 30 ears
Cucumber, Pickling	May	1/16 oz. seed	72	12	50 to 55	3 to 6 weeks	28 to 60 lbs.
Cucumber, Slicing	May or June	1/16 oz. seed	72	12	50 to 65	3 to 6 weeks	28 to 60 lbs.
Eggplant	May	12 plants	36	24	65 to 80	2 months or more	18 to 35 lbs.
Okra	May 5 to May 20	1/4 oz. seed	36	12	50 to 60	7 to 9 weeks	12 to 25 lbs.
Peas, Field	May or June	1 oz. seed	36	4	65 to 80	3 to 5 weeks	7 to 10 lbs.
Pepper, Sweet	May or June	15 plants	36	18 to 24	55 to 80	2 to 3 months	12 to 18 lbs.
Pepper, Hot	May or June	15 plants	36	18 to 24	60 to 70	2 to 3 months	3 to 6 lbs.
Potato, Sweet	May	25 slips	36	12	110 to 120	5 months stored	20 to 28 lbs.
Pumpkin	May	¼ oz. seed	120 to 144	48	100 to 120	4 months stored	10 to 12 pumpkins
Squash, Summer	May or June	¼ oz. seed	48 to 60	12 to 24	40-50	6 weeks	25 to 35 lbs.
Squash, Winter	May or June	¼ oz. seed	72 to 96	24 to 36	90-110	4 months stored	12 to 50 lbs.
Tomatoes	Apr. 10 to June 10	12 plants	48	24	70-80	8 weeks or more	50-80 lbs.
Watermelon	May	1/16 oz. seed	120 to 144	48	80-90	3 weeks	5-6 melons

¹Use the earlier planting dates in West Tennessee and the later dates in Middle and East Tennessee.



TABLE 3. GUIDE TO FALL VEGETABLES

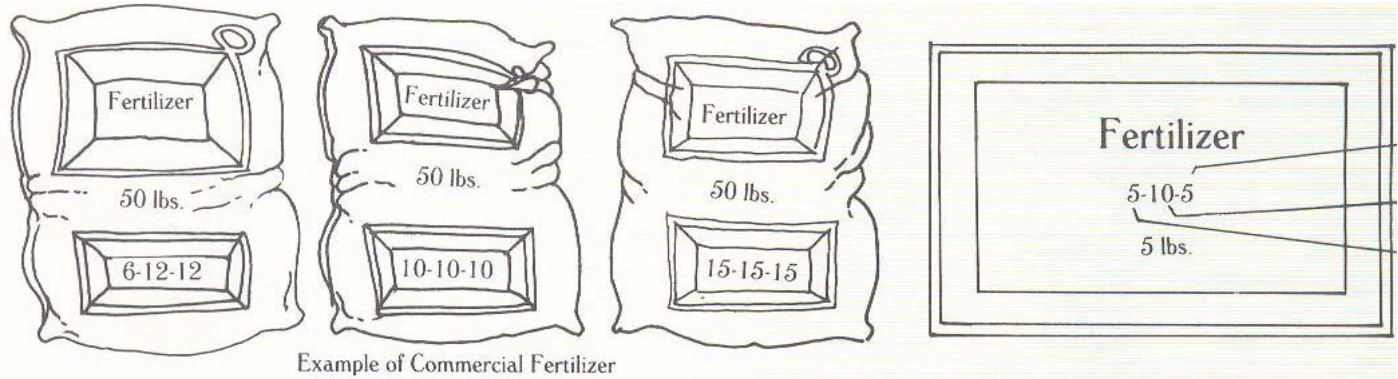
Vegetable	Planting Interval ¹	Seed or plants per 25-foot row	Inches between rows	Inches between plants	Days to first harvest	Length of Harvest Season	Yield range per 25-foot row
Beans, Bush Snap	July 15 to Aug. 15	1 oz. seed	24 to 36	3 to 4	52 to 60 ²	2 weeks or more	20 to 30 lbs.
Broccoli	July 15 to Aug. 15	15 plants	24 to 36	18	60 to 70	4 weeks	12 to 25 lbs.
Cabbage	July 5 to Aug 15	15 plants	24 to 36	18	60 to 75	3 weeks	30 to 50 lbs.
Cabbage Chinese	July 1 to July 30	25 plants	24 to 36	12	40 to 50	4 weeks	50 to 80 lbs.
Cauliflower	July 15 to Aug. 15	15 plants	24 to 36	18	55 to 65	2 weeks	12 to 25 lbs.
Collards	July 1 to Sept. 1	1/16 oz. seed	18 to 36	18	65 to 75	4 to 12 weeks	25 to 36 lbs.
Cucumber, Pickling	July 1 to Aug. 1	1/6 oz. seed	72	12	50 to 55	3 to 6 weeks	28 to 60 lbs.
Cucumber, Slicing	July 1 to Aug. 1	1/16 oz. seed	72	12	50 to 65	3 to 6 weeks	28 to 60 lbs.
Kale	July 1 to Sept. 1	1/16 oz. seed	18 to 36	12 to 15	55 to 65	4 to 12 weeks	25 to 36 lbs.
Kohlrabi	July 15 to Sept 1	1/16 oz. seed	14 to 36	3 to 6	40 to 50	4 weeks	12 to 18 lbs.
Lettuce, Leaf	July 1 to Sept. 15	1/8 oz. seed	14 to 36	6	40 to 50	4 to 6 weeks	12 to 18 lbs.
Mustard	July 1 to Sept 1	1/16 oz. seed	14 to 36	5 to 10	35 to 45	3 to 6 weeks	18 to 25 lbs.
Potatoes, Irish	July 1 to July 31	4 lbs. of seeds	30 to 36	12	90 to 110	4 months stored	25 to 30 lbs.
Radish	Aug. 1 to Sept 15	1/16 oz. seed	14 to 36	1 to 2	25 to 30	3 weeks	12 bunches
Spinach	Sept 10 to Sept 20	¼ oz. seed	14 to 36	3 to 4	40 to 50	3 weeks	3 to 7 lbs.
Squash, Summer	July 15 to Aug 15	¼ oz. seed	48 to 60	12 to 24	40 to 50	6 weeks	25 to 36 lbs.
Tomatoes	July 1 to Aug 1	12 plants	48	24	70 to 80	8 weeks or more	50 to 75 lbs.
Turnip Greens	Aug 1 to Sept 30	1/8 oz. seed	18 to 36	2 to 4	30 to 40	Several weeks	12 to 25 lbs.
Turnip Roots	Aug 1 to Sept 15	1/16 oz. seed	18 to 36	3	40 to 65	6 months	12 to 36 lbs.

¹Use the earlier planting dates in West Tennessee and the later dates in Middle and East Tennessee.



FERTILIZER AND LIME

Vegetable plants need nutrients for proper growth and development. Commercial fertilizers can be used in the garden to provide plant nutrients.



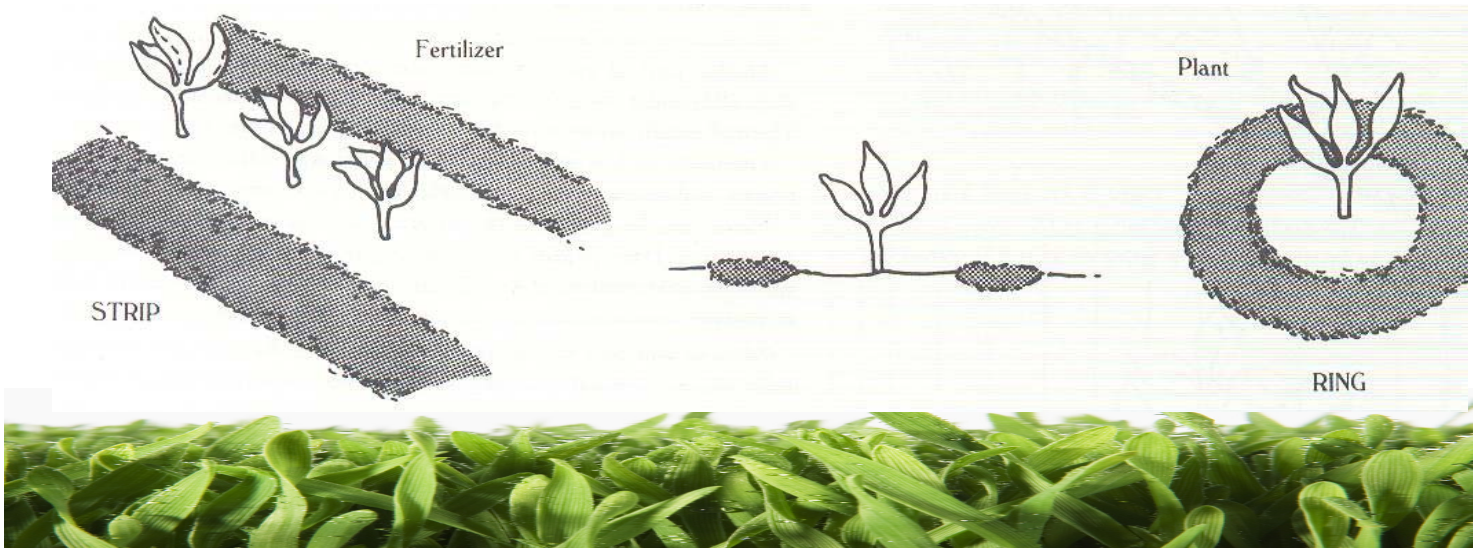
Fertilizers are sold by grade, such as 6-12-12, 10-10-10, 15-15-15 and many others. The three numbers used to describe fertilizers are referred to as the fertilizer analysis. The first number is the percentage of nitrogen, the second is the percentage of phosphate and the third is the percentage of potash. A soil test is the best way to determine the amount of fertilizer needed for a minigarden. In place of a soil test, a good suggestion is to apply six to eight pounds of fertilizer per 300 square feet. The amount to apply will vary with the analysis being used. Usually, you should use the larger amounts with the lower analysis. One pint of fertilizer will weigh about one pound.

A good practice is to apply commercial fertilizer by broadcasting a few days before planting the crop. Rake the soil two or three times to condition the soil and mix the fertilizer properly.

A nitrogen-carrying fertilizer such as ammonium nitrate is useful as a side dressing with some vegetables. Apply side dressing to leafy vegetables after the plants are well established, to corn when it is 12 to 18 inches tall and to tomatoes and pepper when the first fruits are about 1 inch in diameter. Side dress vine crops such as cucumber and squash when first new vines are about 1 foot long.

Apply three ounces of ammonium nitrate per 25 feet of row or one teaspoon around individual plants. Place fertilizer in a 4- to 6-inch circle around the plant. It should never come in contact with the plants, because it will burn them.

Lime is a material used to reduce soil acidity. If acidity is high, lime will improve vegetable plant growth and fruit quality by increasing the availability of fertilizers. Lime is also important in reducing certain diseases, such as blossom-end-rot on tomatoes and other crops. The best method to determine the need for lime is to soil test. Soil test information is available through your county Extension office. Follow the soil test recommendations in applying lime and fertilizer.

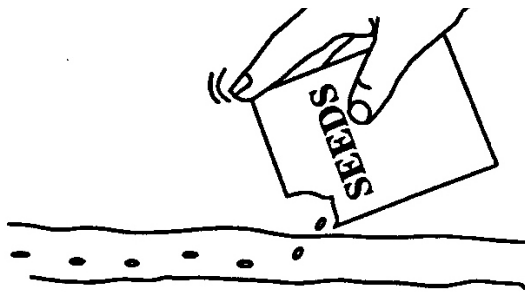


PLANTING SEEDS AND TRANSPLANTS

When possible, plant taller vegetables on the north or east side of the garden area to reduce shading of shorter-growing plants.

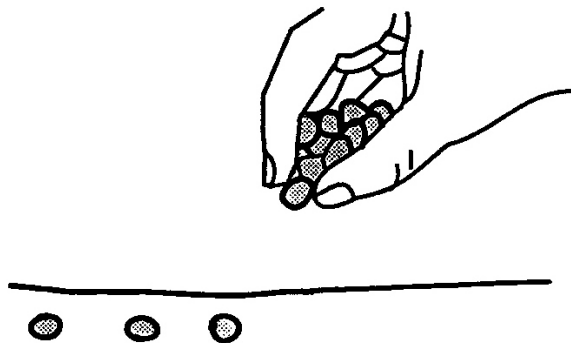
Most seeds should be planted about twice the depth of their smaller diameter. Planting seeds slightly deeper than this in late summer when soil moisture is not as close to the soil surface will speed germination. Seeds planted in clay soil may not germinate due to crusting of the soil. To prevent crusting, cover seed with a loose material such as sand or compost.

Small seeds like carrots are planted shallow and fairly close together. They help each other break through the soil.

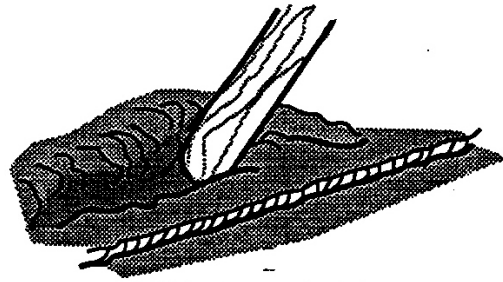


When sowing small seed, cut or tear off a corner of the packet and scatter seed in furrow while tapping gently with index finger.

Larger seed like corn are planted further apart. The young sprouting plants are larger and stronger. They do not need to help each other break through to the soil surface.

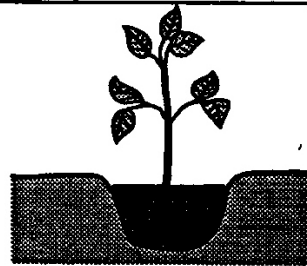


Space larger seed evenly and drop by hand.



For small seeds, make a planting furrow with handle of hoe or rake drawn along the cord.

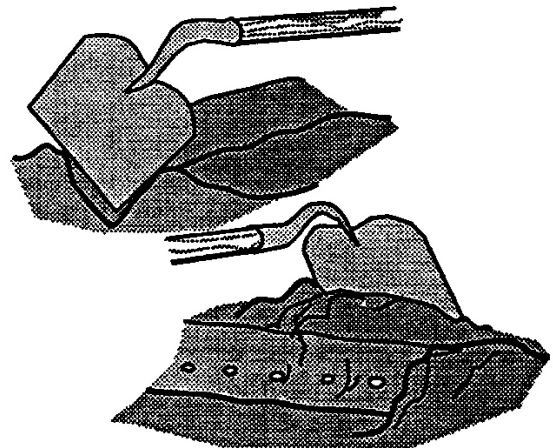
Plant in straight rows. The garden will look better and be easier to hoe or cultivate. Rows should be marked off. Use a string or a cord stretched between two stakes.



Place top edge of peat cup about 1 inch below soil level to reduce moisture loss through the cup.

Larger seed make stronger young plants. They can be planted deeper than the small seed. The younger plants from larger seed can grow faster to reach the soil surface.

For larger seed, open a deeper planting furrow with hoe.



Cover seed with hoe or rake.



After the seed is dropped or placed in the furrow, use the hoe or the rake or your hands to cover the seed. Fill the seed furrow with soil. Leave the ground level or slightly mounded above the seed.

Another method used to improve seed germination is to make a furrow, thoroughly water the soil in the furrow, then sow the seeds and cover lightly. There is usually no need for further watering until seed merge.

Vegetables such as broccoli, cabbage, cauliflower, collard greens, eggplant, pepper and tomatoes are usually planted in the garden as transplants.

Plants may be purchased in containers such as peat pots, but often are bare-rooted. Those in peat pots or other type containers can be transplanted with very little checking of growth. Bare-rooted plants usually require longer to recover from transplanting than container-grown plants.

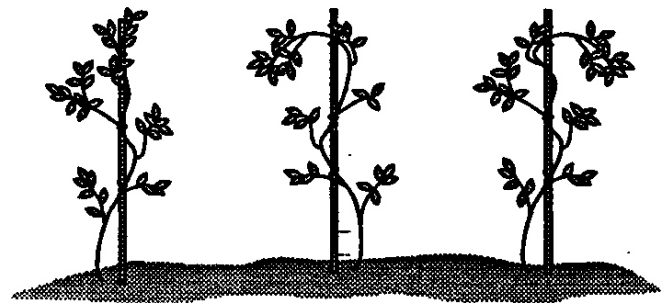
Plants in peat pots should not be removed from the containers. Those in paper, plastic or from the containers. Those in paper, plastic or wood containers should be removed from setting. The use of peat cups or pots involves one precaution when setting in the garden. The upper edge of the pot must be placed about 1 inch below ground level. Otherwise, the peat material of the cup may act as a wick to draw moisture out of the root zone.

Dig the holes for plants slightly deeper than they were previously growing. It is desirable to water each plant when planted. A starter solution is very useful in getting transplants off to a good start. Fertilizer can be purchased for starter solutions, but a satisfactory solution may be made by stirring two tablespoons of a complete fertilizer (6-12-12, 10-10-10, 5-10-5) in one gallon of water. Mix well and apply about one cup of this solution in each hole. Place the plant in hole and draw dry soil over the soaked area.

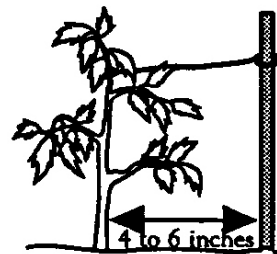
PROVIDING SUPPORTS

Vegetables such as pole beans, tomatoes, cucumbers and English peas can yield more per square foot of garden space by using airspace above the row. Other advantages are earlier harvest, cleaner fruit and less fruit rot.

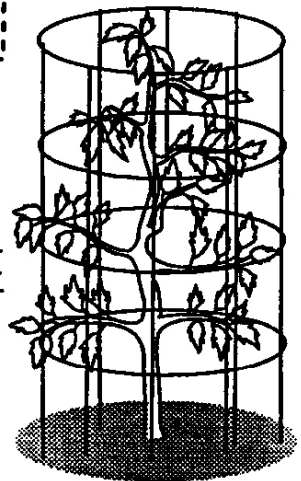
Supports for pole beans can be provided by using stakes placed 10 to 12 inches apart or strings attached to a wire placed about 5 feet above the row. A fence will also provide good support.



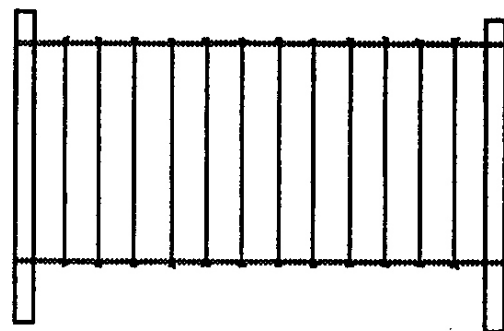
Wood stakes, canes or small saplings can be used for bean poles.



Place stake four to six inches from plant. Keep tomatoes tied to reduce sprawling.



Growing tomatoes in cages.



Post 5 1/2 to 6 feet tall and 3 to 4 inches in diameter.



Stakes for supporting tomatoes should be placed the same time as transplanting. Drive the stakes eight to 12 inches into the soil 4 to 6 inches from the plant to avoid injuring the roots. The stakes should be 5 to 6 feet long and about 1 1/2 inches in diameter.

Caging can be used in place of staking to support tomato plants. Caging often increases yields. Cages should be made of 10-gauge concrete reinforcing wire that is about 6 feet long and 4 to 5 feet high. They should be well anchored to reduce falling over.

The same type of supports used for pole beans and tomatoes may also be used for cucumbers and English peas. A trellis works well for cucumbers, pole beans or peas. A trellis works well for cucumbers, pole beans or peas.

WATERING AND MULCHING

During most seasons there are times when watering is of real value in the garden. Many gardeners mistakenly water plants too lightly, done correctly, watering should wet the soil to a depth of 8 to 10 inches. If watering in the afternoon, do so early enough to allow foliage to dry before night. If the foliage is wet when the temperature is falling, the plants are more susceptible to attacks by disease organisms. The critical times to apply water are during seed germination, flower formation and growth.

Mulching is the placement of any material such as plastic, straw, leaves, sawdust, grass clippings or compost around plants to protect roots of plants from heat, drought, cold or to keep the fruit clean.

Mulching is a good practice with many vegetable crops, particularly crops that grow over a long time, such as tomatoes, peppers, melons and cucumbers. Good organic mulching materials are leaves, straw, well-rotted sawdust and grass clippings. Organic mulches conserve water, keep down weeds and maintain organic matter when turned under. Organic mulches conserve water, keep down weeds and maintain organic matter when turned under. Organic mulch should be placed 2 to 4 inches deep. Black plastic may also be used as mulch. Plastic may be most useful on warm-season crops such as tomatoes, peppers, eggplants and melons. It is not

INSECT CONTROL IN HOME GARDENS

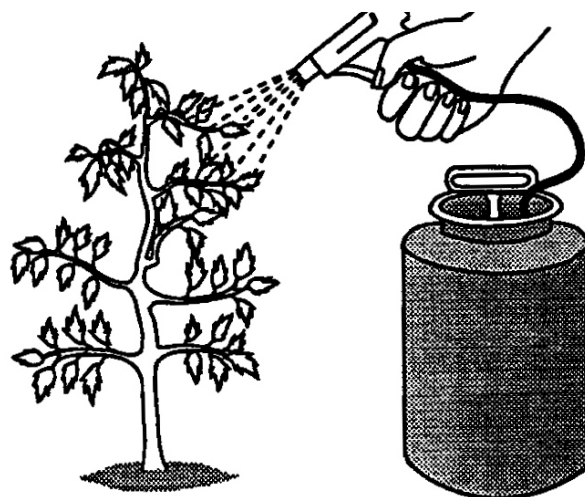
Insects can damage all vegetables grown in the home garden. Insecticides are available for control of insects. The first step to control insects is to accurately identify the insect.

The correct insecticide, at the correct rate, applied at the proper time, will provide good control. Observing the correct time interval between the last application and harvest will promote good insect control and avoid harmful insecticide residues on your vegetables.

An insecticide works only when it reaches the insects. When an insecticide is needed on vegetables, be sure to cover the entire plant, especially the undersides of leaves. By closely observing plants, you can detect insects while they are small and before much damage has been done. In general, you should apply insecticides weekly as long as insect pests are a problem. Avoid excessive rates of insecticides, as plant burn can occur.

Sprays are generally more effective than dust because they give better coverage. Compressed air knapsack and bucket pump sprayers are suitable for garden use.

For more information on insect control, see Extension PB 595, *You Can Control Garden Insects*, available at your county Extension office.



Pressure pump sprayer



DISEASE CONTROL

Disease prevention is essential. Once disease-causing organisms infest your vegetable plants, no treatment will cure the disease. Treatment may prevent disease spread.

Disease-causing organisms may be brought into your garden on contaminated seed. Buy new seed each year. Do not save seed from your garden plants.

Plant the varieties on the recommended list located in Table 1. Several of these varieties are resistant to certain diseases.

Do not use tobacco while handling tomato or pepper plants. Aphid control will reduce mosaic and the spread of many other diseases.

Remove plant residue from the garden soon after harvesting. Many diseases will overwinter in plant residue.

Vegetable diseases may be prevented by a timely application of fungicides (refer to Extension PB 716, How to Control Vegetable Diseases, available at your county Extension office).

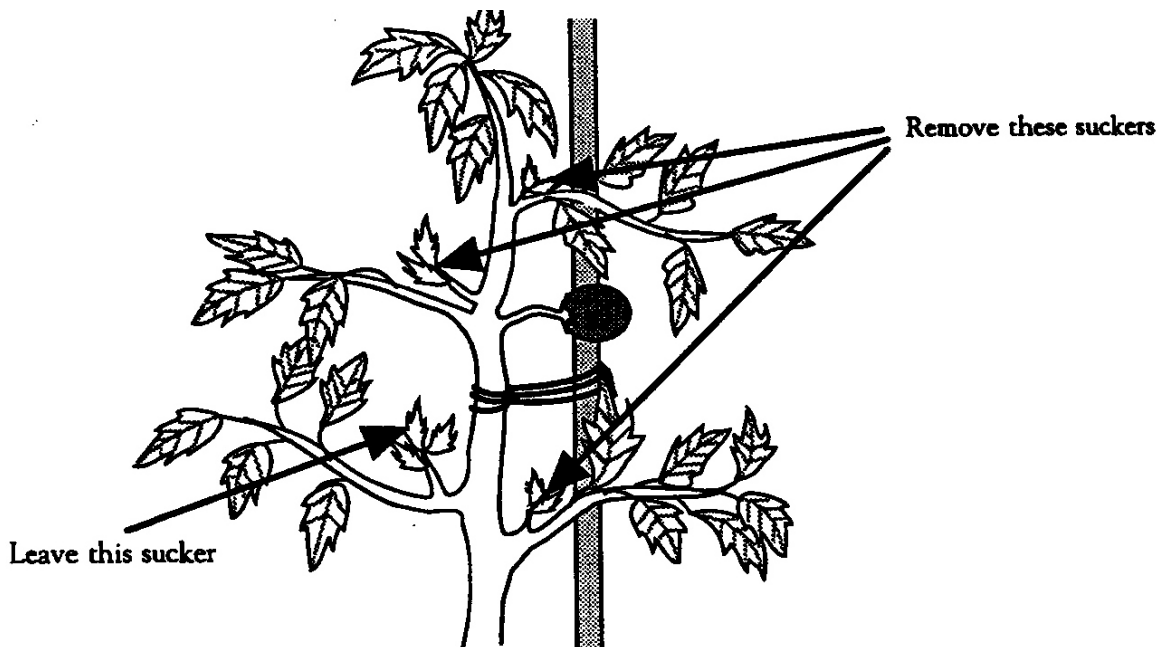
PRUNING TOMATOES

Tomatoes are pruned by removing shoots (suckers) which appear in the axis of the leaves. Most home gardeners prefer the single or two stem methods. If you prefer the two stem method, leave the first sucker below the first fruit cluster on the vine. This is the most productive sucker on the plant. If you prefer the one stem method, remove all sucker. It is not necessary to continue suckering after harvesting begins.

A suckered tomato plant will be easier to support than an unsecured plant. Also, a complete coverage of spray can easily be applied. This is very important in providing effective insect and disease control.

HARVESTING

Vegetables must be harvested at the proper stage of maturity if they are to have maximum tenderness, flavor and vitamin content. Table 4 contains helpful guidelines for harvesting vegetables.



How to sucker your tomato plants.



TABLE 4.
STAGE OF MATURITY FOR HARVESTING GARDEN VEGETABLES

Vegetable	Harvest Stage
Beans, Snap	When pods snap easily while they are smooth.
Beans, Lima	When pods are full but seeds are green.
Beets	Small beets have higher quality when they are 1 1/2 to 2 1/2 inches in diameter.
Broccoli	Before flowers show yellow color.
Cantaloupe	When the melon can be removed from the vine without applying pressure.
Cabbage	When the head is firm and heavy.
Carrots	Anytime roots are firm and brittle.
Cucumbers	While seeds are small and flesh is firm.
Eggplant	While color is brilliant.
Lettuce	Before a seed stalk appears; while the leaves are tender and mild.
Okra	When pods are 2 1/2 to 3 1/2 inches long.
Onions	Mature onions - after the tops have died down.
Green onions	When 3/8 to one inch in diameter.
Peas, English	After pods are filled out, but before they turn yellow.
Peas, Southern	When pods shell easily for fresh or frozen use. For storage, after pods dry.
Peas, Sugar Snap	Anytime after pods form but before pods yellow.
Pepper, Bell	When pods are full size.
Pepper, Hot	After pods reach full size.
Potatoes, Irish	Mature tubers - after the vines have died down.
Fresh tuber	When they are one inch in diameter.
Potatoes, Sweet	After reaching the desired size, but before cool fall rains.
Radish	While roots are still firm and have a brilliant color.
Squash, summer	While small and when large ends are about 1 1/2 inches in diameter.
Spinach	While leaves are crisp and dark green.
Swiss Chard	While leaves are crisp and dark green.
Tomatoes	When firm and fully colored.
Turnips, greens	When leaves are green and crisp.
Turnips, roots	When roots are 2 1/2 to 3 1/2 inches in diameter.



GROWING VEGETABLES IN CONTAINERS

There are several reasons for growing vegetables in containers:

1. Space may not be available for a large garden if you live in an apartment, a townhouse or mobile home.
2. You may want to grow only a few favorite vegetables.
3. You can make pleasing arrangements that can be moved around to give variety and change.
4. By growing vegetables in containers, you can protect the plants from squirrels and rabbits. Because our seasons change so drastically, it is an advantage to be able to move plants into more sheltered places when frost in winter and heat in summer require it.

You can use practically any vegetable, but especially those which grow rapidly and do not require much space. Plant breeders have recently developed dwarf varieties that grow quickly and well in containers. The more suitable plants are those that fruit over a long time, such as tomatoes, eggplant, pepper and cucumber, and those leafy vegetables such as leaf lettuce, Chinese cabbage, kale and spinach that are harvested by picking the outer leaves.

SOIL PREPARATION FOR CONTAINERS

A good soil for a container garden can be made by mixing peat moss, sand and compost with the garden soil. You could use one of the following mixtures: (1) one quart of garden soil, one quart of peat moss and one quart of sand or (2) one quart of garden soil, one quart of compost and one quart of sand. do not use heavy clay soil.

The garden soil may be infected with weed seeds, insects or diseases. To kill these, place each gallon of soil in a shallow metal pan and put it in the oven. Heat the mix until the center has been 180 degrees for 30 minutes. A moist soil will heat more rapidly than a dry soil. After the soil cools, mix two teaspoons of a complete fertilizer (6-12-12, 10-10-10, 5-10-5) and three tablespoons of lime to each gallon of either mixture. Be sure that the soil mixture and fertilizer are well mixed before filling your container.

You can buy a soil substitute, or synthetic soil, prepared from a mixture of horticultural vermiculite, peat moss and fertilizer. This mixture, sold by seed dealers and garden supply centers, comes ready to use. This type of soil substitute has several advantages over soil. It is free of plant diseases, insects and weeds, it holds moisture and nutrients well and it is very lightweight and portable. When you fill the container, leave 1 or 2 inches of space that can be filled with water.

The soil mix should not be packed tightly, but should remain light and open to allow good root development, aggregation and drainage.

CONTAINER SELECTION

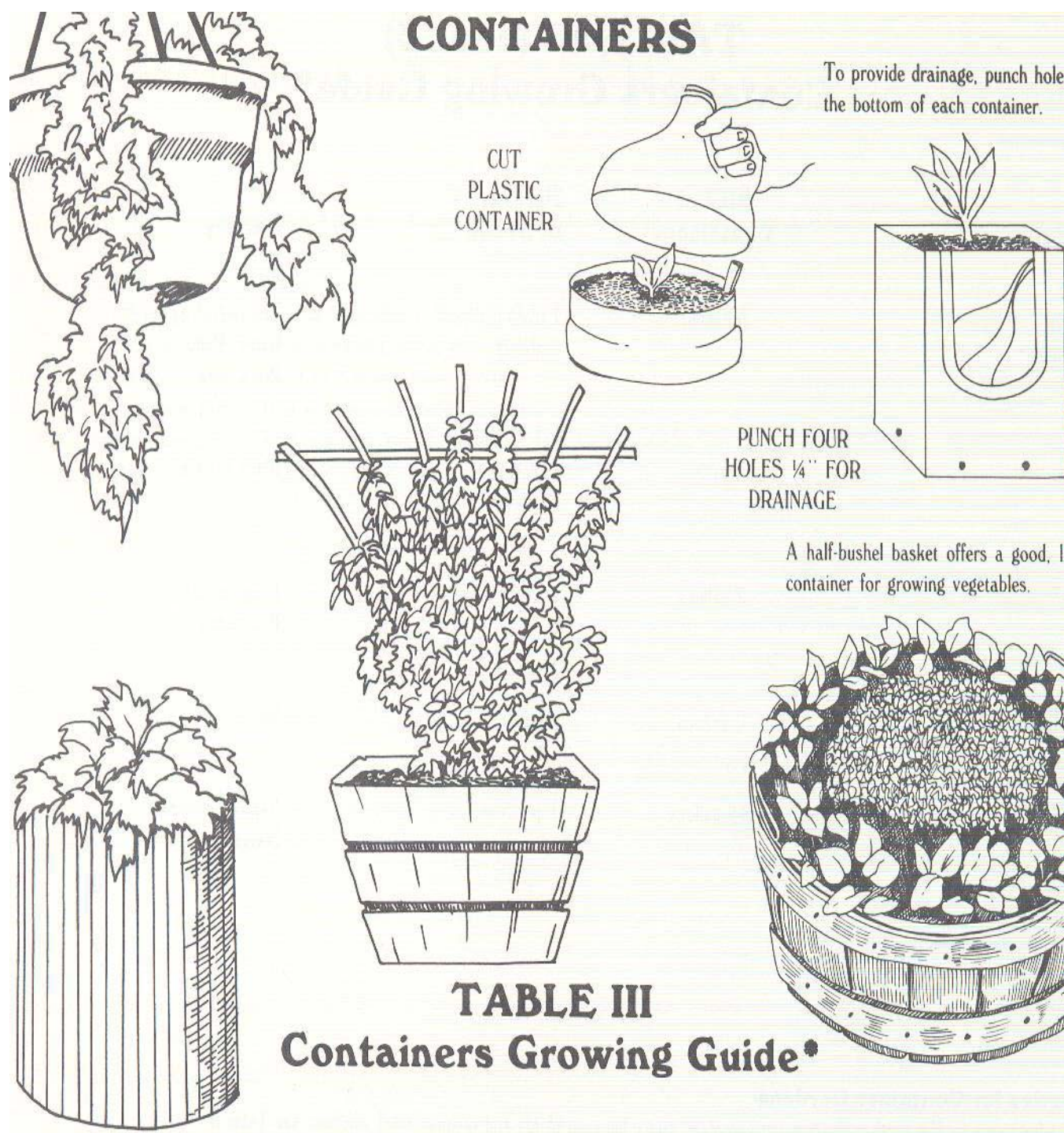
The container should be large enough to allow complete spread of roots when the plant is fully grown. You can use a plastic bucket, or a bushel basket, a wire basket, wooden box, flower pot, milk cartons or coffee cans.

Be sure to allow for drainage regardless of the containers used.

Drill 1/4 inch holes every 4 to 5 inches along the side at the bottom of the container. Do not drill holes in the bottom itself. One advantage of growing vegetables in containers is mobility. Containers can be moved from one location to another to get more sunlight when shade is a problem.

The size of container used will depend on the vegetable being grown. The lower-growing, shallow-rooted vegetables can be grown in smaller containers than taller, deeper-rooted vegetables. Vegetables can be grouped according to the size of the container needed.

The old style of pressure treated lumber should not be used to build containers because of its potential for leaching arsenic into the soil.



VARIETIES FOR CONTAINER GARDENS

For information on the number of seeds per container, space between plants and recommended varieties, see Table 5.



TABLE 5. CONTAINER GROWING GUIDE

VEGETABLE	SIZE OF CONTAINERS	NUMBER OF SEEDS OR TRANSPLANTS	VARIETY
Cucumber, types for slicing	5 gallons	3 per container and thin to 2	Spacemaster, Bush Baby, Pot Luck Hybrid
Peppers, sweet (transplants)	5 gallons	1 plant per container	Yolo Wonder L, Sweet Bonanza, Super Set
Peppers, hot (transplants)	5 gallons	1 plant per container	Hungarian, Long Cayenne
Radish	2 gallons	4-6 per inch	Cherry Belle
Squash (bush)	5 gallons	3 per container and thin to 1	Bush types
Tomatoes (transplants)	5 gallons	1 plant per container	Dixie Hybrid, Lunch Box, Hybrid Patio, Red Cherry, Basket King Hybrid
Eggplant	5 gallons	1 plant per container	Black Beauty, Baby Bell
Spinach	2 gallons	4 to 6 per inch	Longstanding Bloomsdale
Lettuce, Leaf	2 gallons	1 per 6 inches	Simpson
Onion	2-5 gallons	1 per 3 inches	Yellow Danvers, Sweet Spanish

* See Table 1 for planting dates.

FERTILIZING CONTAINER GARDENS

After your plants begin to grow, fertilize your containers with a solution containing one tablespoon of a low analysis fertilizer (6-12-12, 5-10-5) per gallon of water. Apply enough of this solution every two weeks until it begins to run out the bottom of containers. If a high analysis fertilizer (15-15-15, 20-20-20, 12-24-24) is used, it should be mixed at the rate of one teaspoon per gallon of water.

WATERING

Watering is extremely important. Containers dry out more rapidly than garden plots because they are exposed to the atmosphere. Therefore, containers need to be watered daily or more often. Water until it begins to drop from the bottom. Plants should be watered slowly. When the water begins to drop from the bottom of the container, stop.

CONTAINER LOCATION FOR MAXIMUM PRODUCTION

As stated earlier, vegetable plants need a minimum of six hours of sunlight per day. Container gardens can be located on a porch, windowsill, doors, balcony, patio and other sunny locations.

INSECT AND DISEASE CONTROL AND HARVESTING

Insect and disease control and harvesting will be the same as for the backyard garden.



CONVERSION TABLE FOR HERBICIDES ON SMALL AREAS

Rate per Acre	Rate per 1000 Sq. Ft.	Rate per 100 Sq. Ft.
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Liquid Materials

1 pt.	3/4 Tbs.	1/4 tsp.
1 qt.	1 1/2 Tbs.	1/2 tsp.
1 ga.	6 Tbs.	2 tsp.
25 gal.	4 1/2 pts.	1 cup
50 gal.	4 1/2 qts.	1 pt.
75 gal.	6 1/2 qts.	1 1/2 pts.
100 gal.	9 qts.	1 qt.

Dry Materials

1 lb.	2 1/2 tsp.	1/4 tsp.
3 lbs.	2 1/4 Tbs.	3/4 tsp.
4 lbs.	3 Tbs.	1 tsp.
5 lbs.	4 Tbs.	1 1/4 tsp.
6 lbs.	4 1/2 Tbs.	1 1/2 tsp.
8 lbs.	2/5 cup	1 3/4 tsp.
10 lbs.	1/2 cup	2 tsp.
100 lbs.	2 1/4 lbs.	1/4 lb.

MEASURING TABLES FOR HERBICIDES

Herbicides are often bought in large packages or containers which do not have specific instructions for mixing smaller amounts to treat small areas. The following table compares various measurements that are needed to make smaller amounts of spray:

3 teaspoons (tsp.) = 1 tablespoon (Tbs.)
 2 tablespoons = 6 teaspoons = 1 fluid ounce
 4 tablespoons = 1/4 cup = 2 fluid ounces
 1 cup = 16 tablespoons = 8 fluid ounces
 2 cups = 1 pint = 16 fluid ounces
 2 pints = 1 quart = 4 cups
 4 quarts = 1 gallon = 16 cups
 16 ounces = 1 pound



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Middle Childhood: Eight to Ten
Early Adolescence: Eleven/Twelve to Fourteen
Late Adolescence: Fourteen to Eighteen
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