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Michigan State University Cooperative Extension Service  
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J. Lee Taylor, Horticulture  
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# The Home Garden BEGINNER

Horticulture - Vegetables

*4-H—Youth Programs*  
*Cooperative Extension Service*  
**MICHIGAN STATE UNIVERSITY**



## FOREWORD

*This Bulletin is for members 9 to 12 years old. Members of this age may enroll in the Novice Garden Project for two or three years. So it is a good idea to grow more kinds of vegetables and to care for a larger garden each time you repeat the project. This will help prepare you for the Intermediate Garden Project. If you had an excellent vegetable garden project when you were 10 and 11 years old, you can enroll in an Intermediate Vegetable Garden Project when you are 12 if your leader approves.*

*Older members who enroll in a vegetable gardening project for the first time may also use this bulletin. They may want to start in with the Intermediate or Advanced Garden Project, however, if they have grown a garden before. Which project they enroll in will depend upon their gardening experience and their age.*

Members should enroll in the Basic Plant Science Project before they enroll in the Novice Garden Project if at all possible. The Basic Plant Science Project is conducted during the winter and members are able to get a head start on their garden project since some time is spent in planning the garden, selecting varieties, etc.

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# The Home

YOU HAVE CHOSEN a very interesting and popular 4-H project. The things you learn will be useful the rest of your life. It is fun to sow seeds, to set out plants and watch plants grow! Imagine picking garden-fresh vegetables from plants that grew from tiny seeds.

You will learn how plants grow and why they are important. Vegetables include a wide variety of plants that can teach you many things. Growing vegetables will give you a great deal of enjoyment. This is something you will remember for a long time.

## What You Will Learn

This bulletin will help you grow a good home vegetable garden. Some things you will learn are:

- 1—how to choose a good place for a garden
- 2—how to decide what to plant and how much
- 3—how to get the soil ready
- 4—how to put fertilizer on the soil
- 5—how to plant the seeds, thin the seedlings, and set out young plants
- 6—how to cultivate your garden
- 7—how to harvest and exhibit your vegetables

The best gardens usually belong to members whose parents are willing to help. So, get your parents to help you with your garden. They can help you find the best place for your garden. They can help you plan your garden. They can also show you how to fertilize the soil, set out young plants, harvest your vegetables and many other things. Your leader will also help you.

These pages tell you only the most basic facts about gardening. Your parents or leader will help you with detailed questions and problems. Try to help your parents with their garden. That will give you some experience before starting your own. You might help them put fertilizer on their garden. Then you will know how to put it on your own garden.

## What You Should Do

- Grow at least six different kinds of vegetables.
- Have a garden at least 100 square feet in area (an area 5 feet wide and 20 feet long, for example).
- Go on a garden tour.



# Garden BEGINNER



By J. Lee Taylor  
Extension Specialist in Horticulture

## Locating the Garden

Choose a place near your house and tools, but not in the shade of buildings or trees. Locate your garden near a well or faucet so that you can water your plants during dry weather. Otherwise, you will have to carry water to your garden.

The spot you select should have a loose, rich, well-drained soil. Choose a place that is level so that the soil will not wash away in a heavy rain.



A good location is on the south side of buildings.

## What Should You Grow?

Choose vegetables that you want to grow and that you like to eat.

*First*, decide what *kinds* of vegetables to grow. That is, do you want to grow peas, tomatoes, carrots, radishes, peppers, and sweet corn, for example. Several *kinds* of vegetables are listed in the Planting Chart on page 11, in the first column. Some kinds of vegetables listed in the Planting Chart are easier to grow by Beginner Gardeners than others. These easy-to-grow vegetables are marked with a star (\*).

*Second*, decide what *varieties* of the vegetables you have chosen are the best to grow where you live. Each *kind* comes in several *varieties*. Each variety is best for a certain soil, climate, size, or early or late ripening. Varieties that grow well in Michigan are listed in the Vegetable Variety List on page 10. Look up the *kind* of vegetables you want, say Cabbage. All of the *varieties* listed under the heading of Cabbage will grow in Michigan soil and climate. If you want to grow cabbage varieties that produce heads in a short time, buy either the Yellow Resistant Golden Acre variety, or the Wisconsin Golden Acre variety. If you want red cabbage, buy either Red Acre or Red Danish varieties, and so on with each kind.

Write to seed companies for seed catalogues in January or February so that you will have a lot of time to look them over. Order your seeds in February or March.

If you get a late start, you can buy seed packets at local stores. There will probably not be many kinds and varieties of vegetables to choose from, however. You can plant the seeds of most vegetables in your garden and they will be ready to harvest before frosts. A few vegetables, such as tomatoes and cabbage, will be ready to eat much sooner if you buy small plants at a store and set them out in your garden. Plants already started from seed are called transplants since you will transfer, or transplant, them to your own garden.

## Plan Your Garden

*Where do you start?*

*First*, how much land do you have?

*Second*, how much time do you have? A good job on a small garden is better than a poor job on a big garden.

Some 4-H'ers can handle a garden several thousand square feet or larger in area; other members may be able to handle only a few hundred square feet. Your garden should be at least 100 square feet in area—that is, about the size and proportions that a parked automobile will cover.

It may also be any other shape, such as a square 10 feet by 10 feet, or else a long narrow plot 5 feet wide by 20 feet long.

*Third*, draw a plan. Put your garden on paper. First, list the kinds and varieties of vegetables that you decided to grow. Next, figure out how much to grow of each kind and variety of vegetable. Columns 2 and 3 of the Planting Chart tell you how many feet of row it takes to produce a certain amount of vegetables. The Planting Chart is based on the needs of a small family of about four people.

You may want to grow larger or smaller amounts, depending upon the size of your family and their likes and dislikes.

*Fourth*, after you know how much you are going to grow, look at column 4 of the Planting Chart to see how much seed or how many plants you will need. Now figure out which vegetables you will plant first from column 5 in the Planting Chart.



## Figure Rows and Lengths

You are now ready to decide which way to run the rows.

*How long is your plot?* Your rows should run the length of the garden if tractor or power tools will be used for cultivating. If your land slopes, the rows should run across the slope, rather than up and down so that water and soil will not wash downhill, or erode.

Look at column 6 in the Planting Chart. Find out how far apart the rows should be for the vegetables you are going to grow. The space between rows depends upon the size of the plants when full grown. If a tractor or power tools are to be used to cultivate the garden, be sure to leave enough room between rows for the machine to work.

Remember that you will need only part of a row of some vegetables. In this case, plant other kinds of vegetables that are nearly the same size, such as carrots, beets, and turnips, in the same row.

Check the Planting Chart for other vegetables that should be planted in rows the same distance apart.

## Use the Planting Chart

Now, let's run through an example of the Planting Chart in action with one vegetable. Here is how it would work with carrots:

*A row of carrots 10 feet long will yield about 10 pounds of carrots. (A pound is usually around 6 or 8 medium sized carrots.)*

*It will take ½ packet of seed to grow this much.*

*Carrots can be planted in the spring as soon as the soil is dry enough to work, that is, dug easily, or in late June if you want them to eat in the fall.*

*Carrot seed should be planted in rows that are 18 to 24 inches apart.*

*The seed should be planted ½ to 1 inch deep.*

*Plants should be 1 to 3 inches apart in the row after being thinned. (How to thin and transplant are explained in a section below.)*

*It takes carrots 70 to 75 days after the seeds have been planted until they are ready to eat.*

## Check These Directions

Here are some other good ideas to think about before putting your garden plan on paper:

—Plant early crops such as lettuce, carrots, and radishes, together in rows along one side of your garden. This will let you spade your garden as you plant it. By doing this, you will not have to work up the entire garden at one time.

—Plant tall-growing plants, such as sweet corn, on the north or west side of your garden so that they will not shade shorter plants.

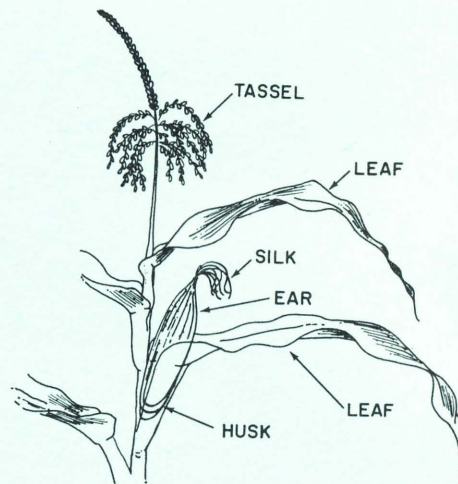
—Plant some vegetables that are fast growing and that you like to eat (like radishes, lettuce and snap beans) several times in small plantings (two or three weeks apart). This is much better than a single planting. Then you will be able to harvest fresh vegetables for a much longer time. Suggested planting dates are given in the Planting Chart.

—Plant sweet corn in blocks of two or more rows so that good pollination of the ears can take place. Pollination is the transfer of pollen grains from the tassel to the silk on the ears and is necessary to produce good plump kernels. Pollen grains are formed in the tassel at the top of the plant and contain the male sex cells. The pollen grains are carried by wind from the tassel to the silk at the tip of the corn ear. When a pollen grain falls on a silk, it sprouts and the male cells move down inside the silk until they reach the young kernel at the end of each silk. Then one of the male sex cells unites with the female sex cell (fertilization).

After fertilization, the young kernel starts to develop. If the young kernel isn't fertilized, it shrivels up. So you can see why it is important to have good pollination.

If you plant sweet corn in a single row, a cross-wind may blow the pollen grains away from the silk. Then all the silks will not be pollinated. This results in ears of corn that have many shriveled kernels. If you have several short rows of sweet corn, a cross-wind will carry pollen grains to the next row of sweet corn and so on, and better pollination will usually take place.

—Look back at your ground space again to see if you have enough room for all the vegetables that you plan to grow. Figure out the amount of space needed for each vegetable the same way as you did in the example with carrots.



**Pollination**—Wind carries pollen grains from the tassel to the silk at the end of the corn ear. There is a young kernel at the end of each silk.



## Seed

*How much seed?* One small seed packet of each vegetable should be plenty for the beginning gardener to grow in his garden. Always buy varieties of vegetables that grow well in Michigan. These recommended varieties are listed in the Vegetable Variety List on page 10.

## Tools

*How about tools?* Most of the tools and supplies that you will need can probably be found right at home.

You will need:

a *spade* or *spading fork* for turning the soil over and breaking up the large lumps. (This is called working the soil.)

a *rake* to smooth the soil surface.

a *yardstick*, *string*, *stakes* and *labels* for getting the rows straight and for labelling your vegetables.

a *trowel* or *small hand spader* for working close to the plants and for transplanting small plants.

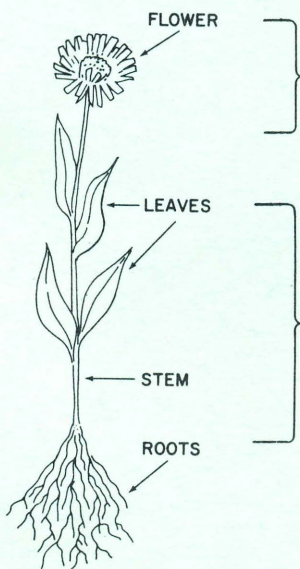
a *hoe* for killing weeds and loosening the soil.

a *sprinkling can* or *water hose* for watering your garden in dry weather.

an inexpensive *hand duster* or *dust pump* for "dusting" your vegetables to control insects and diseases.

## Parts of Plants and What They Do

It is important to know something about plants so that you can garden intelligently. After reading this section, you should know why you add *fertilizer* to the soil, why you water your garden, why you locate your garden in the sun and many other things.



Flowers contain the *reproductive* parts of a plant and produce seeds.

Roots, stems and leaves are called *vegetative* parts and are necessary for making the plant grow.

The parts of a plant.

Plants have four basic parts—roots, stems, leaves, and flowers.

### What do the roots do?

They anchor the plant in the soil.

They take up water and *nutrients* (nu-tri-ents) from the soil. A nutrient is a mineral element such as nitrogen (ni-tro-gen) that a plant needs for normal growth just as your body needs iron and calcium and other minerals.

They carry water and nutrients taken in from the soil upward into the stem of the plant.

They store the food that is made in the leaves during the daytime.

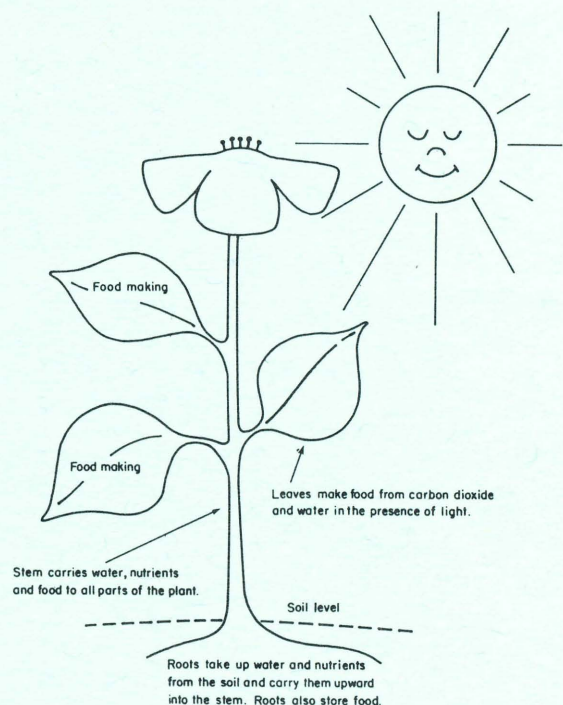
### What do stems do?

They produce and support the plant's leaves and flowers much as our bones help make and support our bodies.

They act as pipes to carry water, nutrients, and food to all parts of the plant.

### What do the leaves do?

They make food for the plant by combining carbon dioxide (a gas) from the air with water from the soil. This food-making process is called *photosynthesis* (fo-to-sin-the-sis). It goes on in all green leaves in the presence of light. All the food we eat comes either directly from green plants, or else indirectly from plants in



Photosynthesis—How leaves help make food for the plant.



the form of meat, fish, eggs, milk, and other products produced by animals that eat green plants.

#### What do the flowers do?

They produce seeds. A seed contains a tiny plant that will start to grow under the proper conditions.

## Fertilizing Your Garden

Soil is made up of minerals; old dead roots, leaves and stalks of plants; animal wastes; and very tiny plants and animals. All of these things help furnish plants with nutrients. Your soil will probably not have enough of certain nutrients in it so that you can grow real good vegetables. Therefore, you will have to put some fertilizer on your garden soil.

There are two kinds of fertilizer. One is sometimes called natural fertilizer because it comes from nature. One example of *natural fertilizer* is animal manure. Another example of a natural fertilizer is called *green manure*. Green manure is a crop such as rye or wheat that is grown so that it can be plowed under to improve the soil.

The other kind of fertilizer is made by man in factories and is called *commercial fertilizer*. It is sold in bags with numbers printed on the outside, such as 5-20-20. Directions for using are given below. Both kinds of fertilizers add nutrients to the soil. Either may be used on your garden.

### Plants Need Nutrients

The nutrients most often needed in garden soils by plants are these:

- (1) nitrogen
- (2) phosphorus (fos-fo-rus) and
- (3) potash (pot-ash).

Plants need many other nutrients besides these but they are usually present in the soil in large enough amounts so that you do not have to add them to the soil.

The numbers on a bag of fertilizer tell you how much nitrogen, phosphorus and potash are in the fertilizer. If a bag has 5-20-20 on the outside, it means that 5% of the mixture inside the bag by weight is nitrogen, 20% is phosphorus, and 20% is potash. The rest of the mixture in the bag is made up of other elements and filler materials such as sand which help keep the mixture from getting hard and from separating.

All the plant nutrients are very well mixed with the other elements and filler at the factory. This is done so that half a bag or even a shovelful of the fertilizer will still have 5% nitrogen, 20% phosphorus,



5-20-20 is a good garden fertilizer.

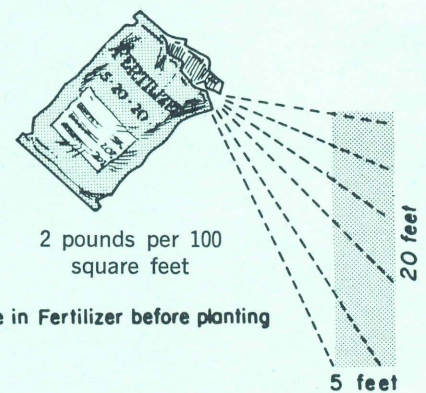
and 20% potash in it. You can remember the order of the nutrients in the numbers on a bag because they are in alphabetical order—nitrogen, phosphorus, and potash.

### Measure Your Fertilizer

#### How much fertilizer should I use?

Spread about 2 pounds of a 5-20-20 fertilizer over each 100 square feet of soil (an area 10 feet by 10 feet) in the spring before the garden is plowed or spaded. If your soil is sandy, spread one half of the fertilizer before the garden is plowed or spaded and the other half afterwards. Barnyard manure, if available, makes an excellent addition to the garden soil if it can be turned under with a fork, hoe or spade and mixed with the soil.

You can spread fertilizer by hand or with a small mechanical spreader or drill. If you spread the fertilizer by hand, measure your garden to find out how large it is in square feet. A garden 25 feet long and 10 feet wide will have 250 square feet (25 feet  $\times$  10 feet = 250 square feet). Remember that we spread about 2 pounds over each 100 square feet. Since 250 square feet is 2½ times bigger than 100 square feet (250  $\div$  100 = 2.5), the amount of fertilizer to spread over this area is 5 pounds (2 pounds of 5-20-20 fertilizer for each 100 square feet  $\times$  2.5 = 5 pounds of fertilizer).



How much fertilizer to use.





Spreading fertilizer by hand.

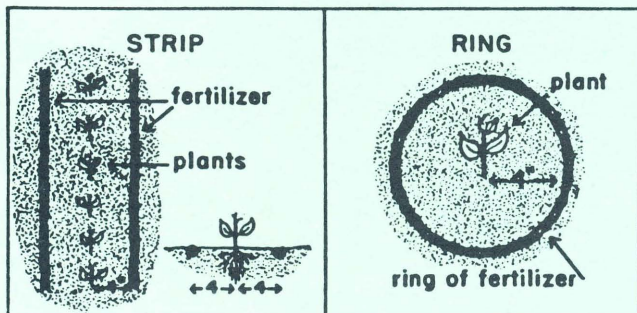
### Spread It Evenly

Weigh out the correct amount of fertilizer in a pail and then spread the fertilizer evenly over the ground, tossing it out gently from the pail by hand. If you use a small mechanical spreader (the kind used on lawns), be sure to set the dial to the right setting before spreading the fertilizer.

If your garden was plowed or spaded in the fall, spread the fertilizer over the soil in the spring and work it in when you prepare the soil for planting.

### A "Booster" Fertilizer

The nitrogen-phosphorus-potash mixture is the main fertilizer to use. You should also use one other kind. Around July 4, spread a small amount ( $\frac{1}{3}$  pound for each 100 square feet of soil) of *ammonium nitrate* in strips between the rows or in a ring around plants such as tomatoes and squash that are planted far



Two ways of side-dressing growing plants with fertilizer.

apart. Ammonium nitrate is a high-nitrogen fertilizer. It comes in bags marked 33-0-0 on the outside (meaning that the mixture is 33%, or one-third, nitrogen by weight and contains no phosphorus or potash). It will give an added boost to the plant. It is strong and may burn the plant, and therefore should be placed 4 inches from the plants.

### Soil Preparation

It is very important to prepare the soil correctly because seeds need moisture and oxygen as well as warmth to grow.

Plow or spade the soil to a depth of 7 to 8 inches. This is done to:

- loosen the soil,
- turn under manure, remains of old crops, cover crops, and other materials,
- let air and moisture pass through the soil more easily.

The soil can be plowed or spaded any time in the fall or spring when it is not wet. Wet soil packs and forms big chunks that do not break up easily. The soil is too wet to work if it sticks to your shoes. Use a hoe or rake to break up soil lumps and to level the surface.

### Sowing Seed

A seed contains a tiny plant. When a seed is planted in the soil, the water in the soil softens the seed so that the tiny plant can sprout and grow. If the soil is dry, the seed will probably not grow.



Make straight rows.



Plant the seeds in a freshly prepared seedbed, or else weeds will come up before your vegetables. Use stakes, string, and a yardstick to make sure that your rows are straight. Stretch the string tightly between the stakes. Mark the row by pulling a hoe handle along the string. This will make a furrow or trench, in which to plant the seeds. Be sure to label the row so that you will know what the plants are when they come up. Use the yardstick to mark where the stakes should be placed for the next row.

### Read Directions Carefully

Plant the seeds at the right time, at the right depth, and at the right thickness. Follow the directions on the seed packets or in the Planting Chart in columns 5, 7 and 8. Some vegetables can stand cold weather and can be planted earlier than others. Check the Planting Chart to see what vegetables can be planted early, (column 5).

How deep to plant depends upon the size of the seed. In general:

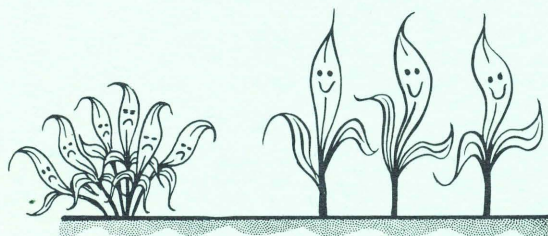
- cover small seeds like lettuce with  $\frac{1}{4}$  inch of soil
- cover medium-sized seeds like carrots and beets with  $\frac{1}{2}$  inch of soil
- cover large seeds like beans and squash with 1 inch of soil

Be sure to read the seed packet for directions on spacing the seeds in the row. Crowded plants will not be able to grow big and healthy because they will be competing with each other for water, nutrients, and sunlight. (It also takes less time to thin the plants out later on if the seeds are not planted too close together.)

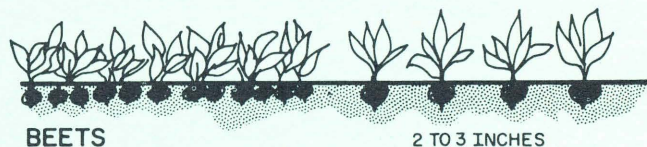
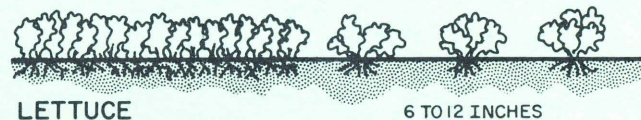
The seeds can be planted more evenly by pouring them out of the packet into the palm of your hand. Then take a pinch of seed between the thumb and first finger of the other hand and spread the seed by rolling it out between your thumb and finger. After planting, firm the soil gently around the seeds with your hands or a rake so that the seeds will sprout sooner.

### Thinning

Thinning means to remove some of the young plants in order to give the remaining plants more



Crowded plants do not grow well. Thin your plants.



Thin the plants while they are small.

room to grow. Crowded plants do not grow well. Since it is difficult to sow small seeds far enough apart to let the plants make their best growth, some of the plants will have to be removed.

Column 8 of the Planting Chart and the directions on seed packets give the proper space between plants after thinning.

Thin the plants while they are small (1 to 2 inches tall) and when the soil is moist. Then, the plants can be pulled out easily without hurting those that are left.

Pull out the smaller and weaker plants. These plants that you take out can be planted elsewhere in the garden if you wish. If you plan to do this, remove them carefully as described below.

### Transplanting

Transplanting is the moving of a plant from one place to another. If you take the plants that you thinned out and set them out in another place, you are transplanting them.

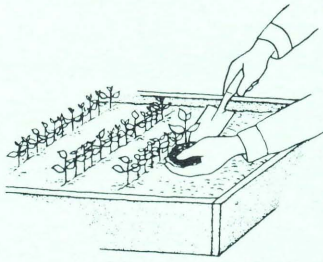
Move as much soil and as many roots as possible with each plant when you are transplanting plants in your garden. Gently lift out a large clump of earth (use a tablespoon or trowel) which contains all of the plant roots. Do your transplanting when the soil is wet, or water the ground ahead of time, so the soil will cling to the roots.

If you can move plants without disturbing the roots, the plants will not stop growing. Otherwise, it may take several days for the plants to recover from the shock of transplanting and some of them may die.

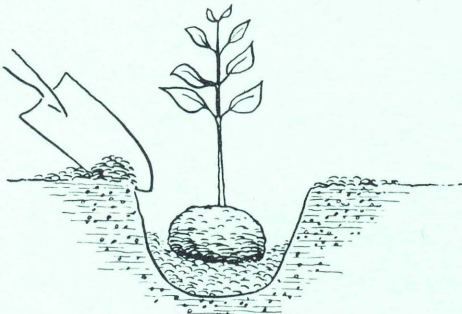
Transplant in the evening or on a cloudy day, if possible, so that the plants will have a chance to recover before being exposed to the hot sun. Set the plants in the ground  $\frac{1}{2}$  to 1 inch deeper than they were before and firm the soil around the roots.

Use a *starter solution* to provide the young plants with early nourishment. This will help them get off to a good start. A starter solution is a mixture of water and a *water-soluble fertilizer* that contains high

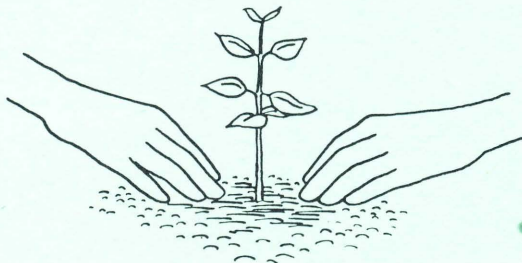




Move as much soil as possible with each plant.



Set plants  $\frac{1}{2}$  to 1 inch deeper than they were before.



Firm the soil around the roots after transplanting.

amounts of nitrogen, phosphorus, and potash. Water-soluble fertilizers are available in most garden supply stores. Select one that is medium or high in phosphorus (16-33-16 or 10-52-17 for example) and follow the directions on the label. Mix 2 level tablespoons of fertilizer with 1 gallon of water. Apply  $\frac{1}{2}$  to 1 pint of the solution around the roots of each plant right after transplanting.

## Weeding and Cultivating

Weeds rob plants of moisture, nutrients, and sunlight. The easiest way to control weeds is to prevent them from sprouting or to kill them while they are young.

Weeds can be pulled up easily by hand when the soil is moist. Weeds can be killed by hoeing, but be sure to not hoe too deeply because you will injure the roots of your plants.

You can also control weeds by *mulching*. A mulch is a material that is spread over the soil around the plants to prevent weeds from growing, to conserve moisture in the soil, or to protect plants in winter from the cold. The most common materials used are straw, sawdust, grass clippings, and *black plastic*, which you can buy at garden equipment centers.

Black plastic also helps warm the soil in the spring and keeps it warmer in the summer. Some vegetables that do well on warmer soils with black plastic are squash, pumpkins, muskmelon, watermelons, peppers, eggplant, and tomatoes.

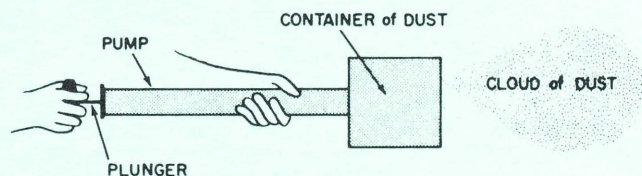
## Controlling Insects and Diseases

Plants have diseases just like animals, and many plant diseases spread quickly. Insects will also eat or hurt the plants. It is very important to control insects and diseases because they destroy large quantities of vegetables every year. It is easier to prevent insects and diseases from attacking vegetables than it is to cure the plants after they have been attacked.

Beginning gardeners will find it easiest to use an all-purpose dust containing both insecticides and fungicides. Malathion and/or methoxychlor are insecticides which are cleared for use on vegetable crops and which are often used in all-purpose mixtures. Do not use more poisonous materials than malathion or methoxychlor.

An inexpensive hand-plunger type duster is satisfactory for applying dust. You can buy garden dusts and dusters from garden supply stores and seed catalogs.

It is important to dust your garden at least once a week to prevent insects and diseases from attacking your vegetables. Apply an even, light coating of dust to both sides of the leaves. Dust when the air is still. Wind can carry the dust to other areas where it is not wanted. Be sure to follow the directions that come with the dust. Most dusts contain poisonous materials that can injure you if they get onto your skin or clothing, or if you breathe them.



An inexpensive hand duster.

## Water Your Garden

Plants need water to grow just as you do. Watering often results in a bigger, better, and earlier crop.

You can use a sprinkling can or water hose to water your garden. You should water your garden once a week during hot weather unless it rains.

A light sandy soil needs to be watered more often than a clay soil because water runs down through



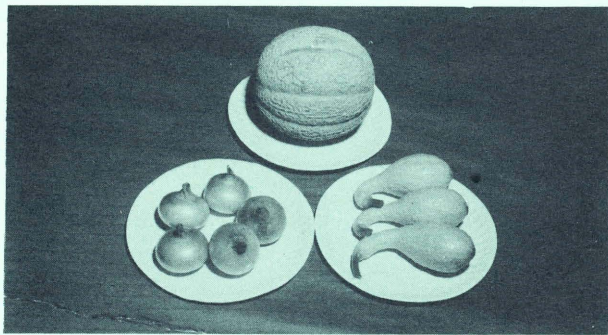


Exhibit only the best vegetables and display them neatly.

it faster. Add enough water at one time to wet the soil at least 6 inches deep so that the roots will grow down deep in the soil instead of up near the surface. If you do not water thoroughly, it is better not to water at all for sprinkling merely encourages shallow-rooted weeds, that is, weeds with roots near the surface, and keeps roots of vegetables from growing down deep.

## Harvesting and Exhibiting Vegetables

Harvest your vegetables when they are in their top condition. Over-ripe vegetables look bad and do not taste good. Handle vegetables carefully so that they are not bruised or injured. Harvest vegetables as close as possible to the time you plan to use or exhibit them. Clean your vegetables carefully.

Here are some things that you should not do when getting your vegetables ready to exhibit:

- Don't show injured or dirty vegetables.
- Don't show vegetables that are not uniform in size, shape, color, maturity (ripeness), and variety.
- Don't exhibit over-ripe vegetables.
- Don't exhibit the biggest vegetables that you have. Unusually large size often means poor quality due to over-maturity. (They are *too* ripe or *too* old.)
- Don't forget to arrange an attractive display with your vegetables.

Check with your leader for additional information. Detailed instructions are given in Michigan State University 4-H Bulletin 397, a leader's guide on "How To Select Vegetables for Exhibit."

## Storing Vegetables

Storing vegetables is an easy and cheap way of keeping food. Some vegetables which can be stored

and the conditions under which they should be stored are:

- Carrots }  
Beets } —Cool and moist  
Turnips }
- Cabbage—Cool and moderately moist
- Onions—Dry and cool
- Tomatoes—Dry and moderately cool—55° to 65°F.  
(Room temperature is usually 72°F. or above.)
- Pumpkins—Dry and warm (room temperature or warm dry basement.)

Extension Bulletins E-760(a), "Home Vegetable Garden — Variety Recommendations," and E-760(b), "Home Vegetable Garden — Disease and Insect Control," contain more specific information on vegetable gardening.

## VEGETABLE VARIETY LIST

### Beans—lima:

- Large Seed: *Fordhook 242*
- Small Seed: *Thorogreen*

### Beans—snap:

- Bush Green: *Spartan Arrow, Bush Blue Lake, Improved Tendergreen, Tenderette*
- Pole Green: *Blue Lake, Kentucky Wonder, Romano*
- Wax: *Kinghorn Special, Resistant Cherokee Wax*

### Beets:

- Detroit Dark Red, Crosby Green Top, Long Season, Ruby Queen*

### Broccoli:

- Green Comet, Spartan Early, Waltham 29*

### Brussels Sprouts:

- Jade Cross, Long Island Improved*

### Cabbage:

- Early: *Yellows Resistant Golden Acre, Wisconsin Golden Acre, Stonehead, C-C Cross*
- Second Early: *Marion Market, Market Topper*
- Midseason: *Globe*
- Late (for storage): *Wisconsin Ballhead, Badger Ballhead*
- Red: *Red Acre, Red Danish*

### Carrots:

- Nantes, Danvers, Spartansweet, Spartan Bonus*

### Cauliflower:

- Snow King, Royal Purple, Greenball*

### Cucumbers:

- For Slicing: *Burpee Hybrid, Gemini, Marketmore, Triumph, Meridian, Spartan Valor, Victory*
- For Pickling: *Wisconsin SMR 18 (scab and mosaic resistant), Crusader, Pioneer, Spartan Champion, Spartan Dawn*

### Eggplant:

- Black Beauty, Black Magic, Classic, Burpee Hybrid*

### Lettuce:

- Leaf: *Salad Bowl, Domineer, Ruby*
- Butterhead: *Buttercrunch, Summer Bibb, Chesbibb*



**Muskmelon:**

*Burpee Hybrid, Harper Hybrid, Gold Star, Saticoy, Super-market*

**Onions—plants:**

*Sweet Spanish*

**Onions—sets:**

*Ebenezer, Stuttgarter*

**Peas:**

Early: *Greater Progress, Little Marvel, Freezonian, Frosty*  
 Midseason: *Green Arrow, Wando (heat tolerant)*  
 Edible Podded Variety: *Dwarf Grey Sugar*

**Peppers:**

**Sweet:**

Early: *Bell Boy, Midway, Vinedale, Canape*  
 Midseason: *Yolo Wonder, California Wonder, Keystone Resistant Giant*  
 Hot: *Hungarian Wax, Hot Portugal*

**Pumpkins:**

*Small Sugar, Connecticut Field, Spookie, Jack-O-Lantern, Cinderella*

**Radishes:**

*Champion, Cherry Belle, Red Boy, Icicle (white)*

**Squash:**

Summer: *Early Prolific, Straightneck, St. Pat Scallop, Seneca Butterbar, Burpee Golden Zucchini*  
 Winter: *Buttercup, Gold Nugget, Table King*

**Sweet Corn:**

Early: *Butter Vee*  
 Midseason: *Bravo, Jubilee, Wonderful*  
 Late: *Golden Queen, Silver Queen (white)*  
 For a succession of harvests, plant Butter Vee, Jubilee, and Golden Queen at one planting; make later plantings of Golden Queen.

**Tomatoes:**

Early: *Springset, Campbell 1327*  
 Main Crop: *Heinz 1350, Supersonic, Burpee VF, Roma VF, Setmore, Jetstar*  
 Yellow: *Golden Boy, Sunray, Yellow Plum*  
 Red Cherry: *Large Red Cherry, Small Fry, Pixie, Presto*

**Turnips:**

*Purple Top White Globe, Tokyo Cross, Just Right*

**Watermelon:**

*Summer Festival, Sweet Princess, Crimson Sweet, Market Midget, Fordhook Hybrid*

**PLANTING CHART**

VEGETABLE	Planting Times**	Depth to		Days to Maturity	Planting Distance (inches)		Row Length (feet)	Estimated Production
		Plant (inches)	Amount of Seed		In Rows After Thinning	Between Rows		
Beans, Lima	May 20 - Jun. 1	1 to 2	½ pound	65 to 90	3 to 4	18 to 24	50	4 pounds shelled
*Beans, Snap	Apr. 20 - Jun. 30	1 to 2	⅛ pound	50 to 70	3 to 4	18 to 24	15	7 pounds
Beets	Mar. 20 - Apr. 20	½ to 1	¼ ounce	60 to 80	2 to 3	18 to 24	25	25 pounds
Broccoli	Mar 20 - Apr. 20, Jun. 20-30	(plants)	12 plants	55 to 75	18 to 24	30	25	10 pounds
Brussels Sprouts	Apr. 1-20, Jun. 20-30	(plants)	15 plants	90 to 95	18 to 24	30	25	8 pounds
Cabbage	Apr. 1-20, Jun. 20-30	(plants)	6 plants	65 to 100	18 to 24	24 to 30	12	6 heads
Carrots	Apr. 1-10	½ to 1	½ pkt.	65 to 85	1 to 2	18 to 24	15	15 pounds
Cauliflower	Apr. 1-20, Jun. 20-30	(plants)	5 plants	60 to 95	18 to 24	30	10	5 heads
Collards	Apr. 1-20	½	½ pkt.	75	6 to 8	18 to 24	25	20 pounds
*Cucumbers	May 20 - Jun. 20	1 to 2	½ pkt.	50 to 70	12	48 to 72	10	6 pounds
Eggplant	May 20 - Jun. 1	(plants)	3 plants	70 to 80	24 to 30	24 to 30	6	12 fruits
Kohlrabi	Mar 20 - Apr. 20, Jun. 20-30	1 to 1½	24 plants	55 to 65	4 to 8	18 to 24	12	24 stems
*Lettuce (head)	Mar. 20 - Apr. 20, July	¼ to ½	18 plants	70 to 85	8 to 15	18 to 24	15	15 heads
*Lettuce (leaf)	Mar. 20 - Apr. 30, July	¼ to ½	1 pkt.	45 to 55	6	12 to 18	5	2½ pounds
Muskmelon	May 20 - Jun. 1	1 to 2	½ pkt.	80 to 90	36 to 48	48 to 60	16	18 fruits
Okra	May 20 - Jun. 1	½	¼ pkt.	50 to 60	12 to 15	24 to 30	8	5 pounds
*Onion (sets)	Mar. 20 - Apr. 20	1 to 2	½ pound	90	2	12 to 18	10	5 pounds
*Onion (transplants)	Mar. 20 - Apr. 20	(plants)	120	90 to 115	2 to 3	12 to 18	30	25 pounds
Parsnips	Apr. 1-20	½	⅓ pkt.	100 to 120	3 to 4	18 to 24	15	15 pounds
*Peas	Mar. 20 - May 15	1 to 2	1 pound	55 to 70	2 to 3	12 to 18	100	28 pounds
Peppers	May 20 - Jun. 1, July 15	(plants)	6 plants	60 to 80	14 to 18	24 to 30	10	6 pounds
Pop Corn	May 20 - Jun. 1	2 to 2½	⅓ pkt.	90 to 120	10 to 12	30 to 36	25 - 2 rows	1 peck
Potatoes	Apr. 20 - Jun. 1	4	5 pounds	100 to 120	10 to 12	24 to 36	50	50 pounds
*Pumpkins	May 20 - Jun. 1	½	⅓ pkt.	100 to 120	36 to 48	60 to 96	3 hills	30 pounds
*Radishes	Mar. 20 - Apr. 20, July	½	1 pkt.	25 to 30	1 to 2	6 to 12	12	8 pounds
Spinach	Mar. 20 - Apr. 20, July	¼ to ½	⅛ ounce	40 to 50	3 to 6	12 to 18	10	5 pounds
*Squash (Summer)	May 20 - Jun. 1	1 to 1½	½ pkt.	45 to 60	36 to 48	36 to 48	2 hills	24 fruits
*Squash (Winter)	May 20 - Jun. 1	1 to 1½	1 pkt.	85 to 110	48 to 60	60 to 72	4 hills	10 fruits
Sweet Corn	Apr. 20 - July 1	2 to 2½	¼ pound	65 to 95	10 to 12	30 to 36	25 — 2 rows	40 ears
Swiss Chard	Apr. 1-20	½	¼ pkt.	50 to 60	6 to 8	18 to 24	8	7 pounds
*Tomatoes	May 20 - Jun. 1	(plants)	10 plants	60 to 90	24 to 36	36 to 48	40	3 bushel
*Turnips	July	1 to 1½	⅛ pkt.	40 to 60	4 to 6	18 to 24	20	20 pounds
Watermelons	May 20 - Jun. 1	1 to 2	½ pkt.	85 to 95	72 to 96	72 to 96	2 hills	4 melons

\*Best for beginner gardeners.

\*\*Planting times are based on conditions at East Lansing. Change these times to suit your location. Also, watch other gardeners to see when they start planting their gardens.



## VEGETABLE GARDEN TOURS

Many clubs are using garden tours to evaluate the member's project. If your club uses a garden tour,

you may find the following check list helpful in preparing for the tour.

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### GARDEN LOCATION

- 1 — Best site available.

### GARDEN PLAN

- 1 — Plan well-organized.
- 2 — Early vegetables grouped together.
- 3 — Correct spacings used in rows and between rows.
- 4 — Tall-growing plants located on the North or West side of garden.
- 5 — Sweet corn planted in blocks of two or more rows.
- 6 — Does member have both an "early" and "late" garden?

### GARDEN PRACTICES

- 1 — A good garden fertilizer such as 5-20-20 applied to garden and worked in before planting.
- 2 — Seeds planted at recommended *times, depths* and *rates*.
- 3 — Varieties are recommended by Michigan State University.
- 4 — More than one variety of sweet corn, tomatoes and other important vegetables used to extend harvest period.
- 5 — Successive plantings made of the major vegetables to extend harvest period.
- 6 — Plants thinned if necessary.
- 7 — Starter solution used when transplanting plants.
- 8 — Black plastic or other mulching materials used in garden.
- 9 — Supplemental nitrogen added in midsummer.
- 10 — Garden kept free of weeds.
- 11 — Garden watered (if possible) during dry spells.

- 12 — Plants free of insects and diseases.

- 13 — Plants healthy and vigorous.

- 14 — Are over mature and diseased vegetables disposed of and not left on plants?

### GARDEN KNOWLEDGE

- 1 — Kinds and varieties of vegetables.
- 2 — Sources of seeds and plants.
- 3 — Kind of soil.
- 4 — Fertilizers — analysis, amounts, date applied.
- 5 — Pesticides and herbicides — kinds, frequency used, purpose.
- 6 — Planting and harvesting dates (from garden record).
- 7 — Does member know the proper stage of maturity when vegetables should be harvested.
- 8 — Amount of time spent in garden.
- 9 — Name of club and leader.

### OTHER

- 1 — Garden size satisfactory — not too large or small.
- 2 — Has member been on a garden tour or does he plan to go on one?
- 3 — Is member's garden record up-to-date?
- 4 — Does the member grow at least one new kind or variety of vegetable each year?
- 5 — Does the member sell any surplus vegetables?
- 6 — Do older members conduct simple experiments in their gardens?
- 7 — Are garden tools in good condition?
- 8 — Have member's parents been interested in the project?

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Judges will circle any items that need improvement.







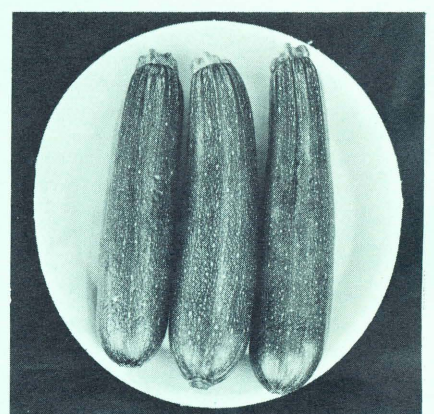
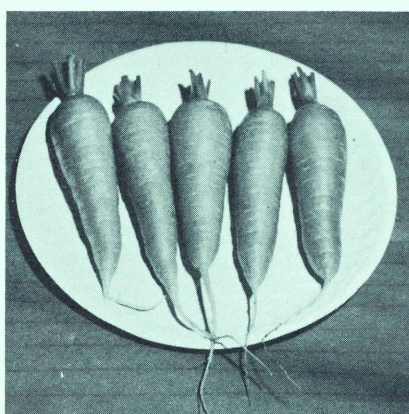
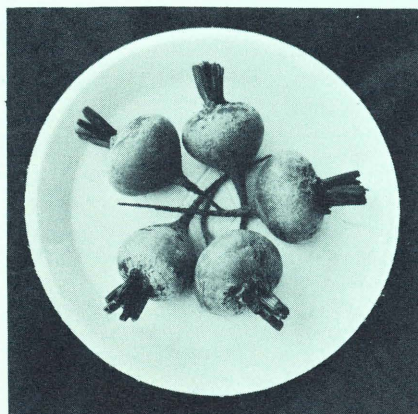
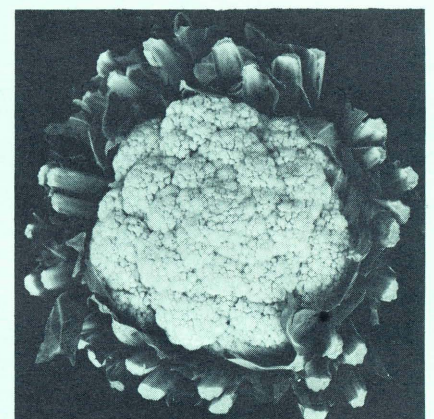
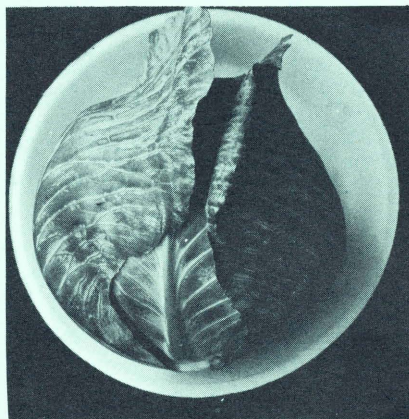
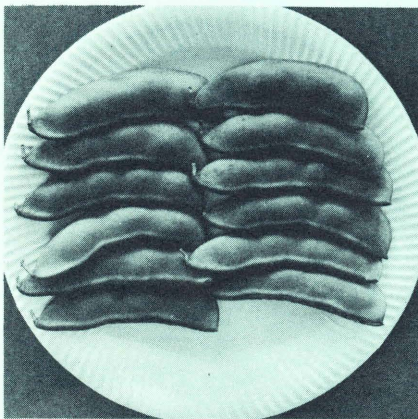
## EXAMPLES OF GOOD VEGETABLE PLATES

Several excellent plates (9-inch diameter) of vegetables are shown to help you do a good job of selecting, trimming, and arranging the vegetables in your exhibit. Remember that the number of specimens that you exhibit varies with the kind of vegetable and the show requirements. The number of specimens suggested below is the number most commonly used at county shows.

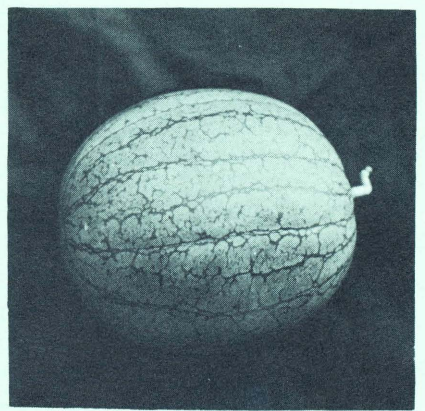
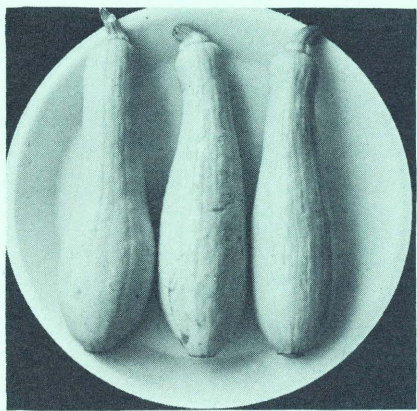
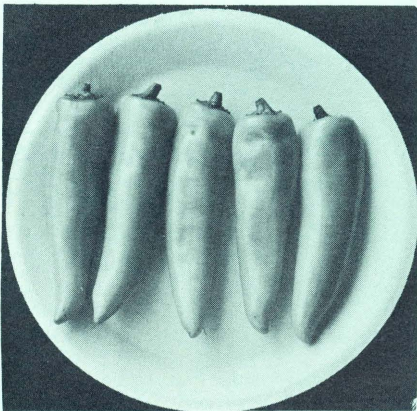
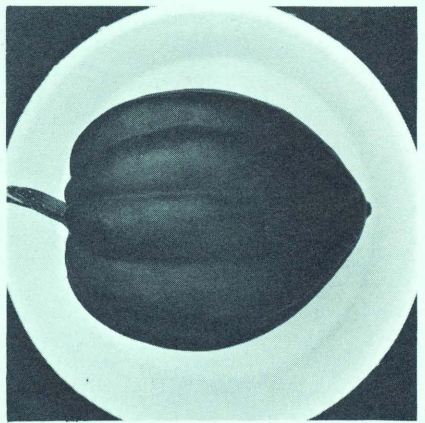
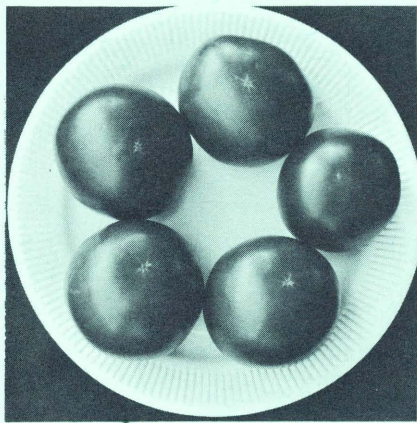
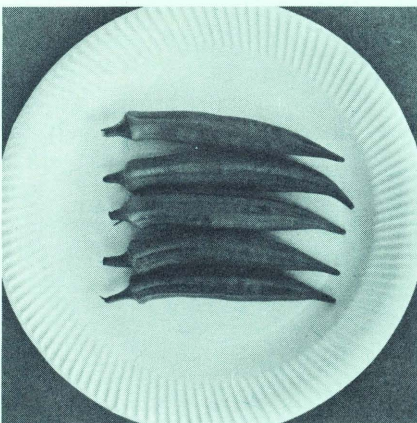
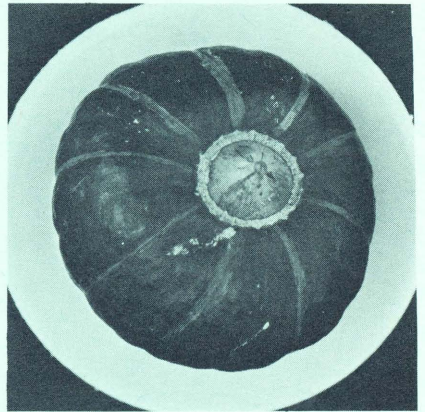
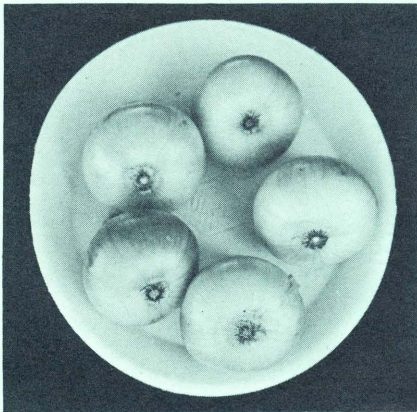
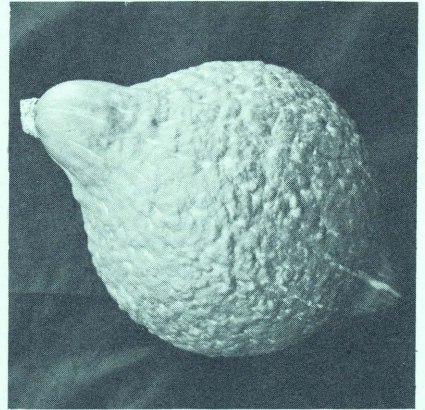
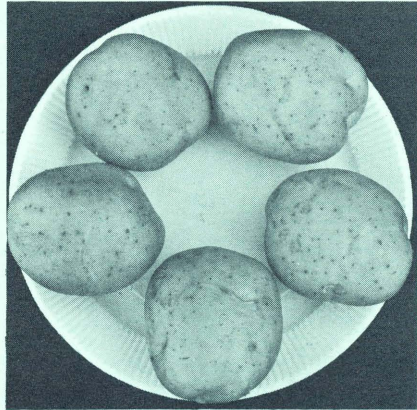
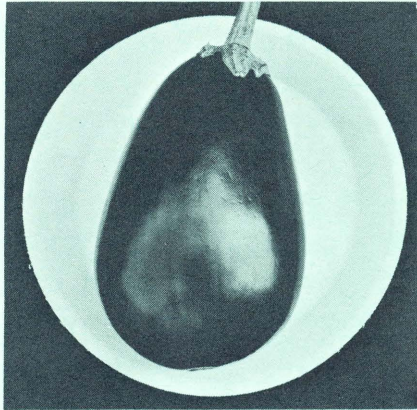
### Suggested Number of Specimens to Exhibit

ONE	THREE	FIVE	TWELVE	ONE BUNCH
Cabbage	Rutabagas	Beets	Beans (green, wax and lima)	Broccoli (1 lb.)
Cauliflower	Squash, summer	Carrots	Brussels Sprouts	Onions (10/bunch)
Celery		Cucumbers	Peas	
Eggplant		Kohlrabi	Tomatoes (cherry)	
Muskmelon		Leeks		
Pumpkin		Okra		
Squash, winter		Onions (dry)		
Watermelon		Parsnips		
		Peppers		
		Potatoes		
		Radishes		
		Salsify		
		Sweet Corn		
		Sweet Potatoes		
		Tomatoes (except cherry)		
		Turnips		

### EXAMPLES OF 9-INCH PLATE EXHIBIT









## PROJECT SUMMARY

Work To Do	Here Is What You Do	Your Parents May Help You	Work To Do	Here Is What You Do	Your Parents May Help You
Locate the garden	Work with your parents or leader to find a good place. It should be easy to get to, not shaded, and the soil should be rich and well drained.	Find the right place.	Thin seedlings	Thin the plants when they are small and when the soil is moist.	Study the Planting Chart to see how far apart the plants should be.
Select your vegetables	Choose vegetables that you like to eat and want to grow. Use varieties listed in the Vegetable Variety List (page 10).	Get seed catalogues and select recommended varieties from the Vegetable Variety List (page 10).	Transplant young plants	Transplant plants from a flat to your garden on cloudy days or in the evening so that the hot sun will not hurt them. Use a starter solution to help the transplants get off to a quicker start.	Transplant a few plants to see how to do it. Prepare a starter solution and apply ½ to 1 pint around each plant.
Plan the garden	Draw a plan on paper. Write down the names of vegetables to be planted, how far apart the rows and the plants should be, and the planting dates. You will find this information in the Planting Chart (p. 11).	Go over the plan to see if it is correct and help change it if necessary. Understand the Planting Chart (page 11).	Weed and cultivate	Keep garden free of weeds. Use a mulch. Also hoe, or pull the weeds up.	Identify the weed seedlings. Mulch your garden.
Learn about plants	Learn the different parts of a plant and what they do.	Identify the plant parts and understand their functions.	Control insects and diseases	Dust your garden at least once a week with an all-purpose dust.	Get the right dust for your garden and understand the directions on the label. Dust your garden.
Fertilize the garden	Put on fertilizer in the spring before the soil is worked. Put on more fertilizer in July.	Decide how much fertilizer to use and how to put it on.	Water the garden	Water your garden thoroughly in dry weather once a week.	Learn when to water and how much to water.
Prepare the soil	Spade or work up the soil.	Learn how to spade correctly. Plow and work the soil. Learn when the soil is dry enough to work.	Harvest and exhibit vegetables	Harvest vegetables in their top condition just before using. Select only your best vegetables for exhibit.	Learn the proper time to harvest vegetables. Get the information about exhibiting your vegetables.
Sow seed	Rake the soil surface. Use wooden stakes and string to mark the rows so that they will be straight. Make shallow furrows by pulling a hoe handle along the string. Plant the seeds and cover with soil.	Understand the Planting Chart. See that the seeds are covered with the right amount of soil.	Store vegetables	Check Michigan State University Extension Bulletin E-529, "The Home Vegetable Garden," for more information about storing vegetables.	Understand information about storing vegetables.

Extension Bulletins E-760(a), "Home Vegetable Garden — Variety Recommendations," and E-760(b), "Home Vegetable Garden — Disease and Insect Control," contain more specific information on vegetable gardening.



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