4-H BEGINNING GARDENING
UNIT 1
VEGETABLE GARDENING

This book belongs to:

Name ________________________________
Address ________________________________
Parent’s Name ___________________________
Name of Club ___________________________

Florida Cooperative Extension Service / Institute of Food and Agricultural Sciences / University of Florida / John T. Woeste, Dean
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BEGINNING GARDENING
UNIT 1
Vegetable Gardening

Those of you enrolling in this gardening project area will be growing a vegetable garden. Better health should come from working in the sun and eating nourishing, fresh vegetables which you grow and pick yourself. Successful gardening is a sure-fire way to strengthen the four H's:

Your Head—by drawing up a garden plan
—by selecting seeds and supplies
—by choosing the right soil and the best time to plant and harvest

Your Hands—by plowing
—by planting
—by hoeing
—by harvesting

Your Heart—by learning to love growing plants
—by appreciating the earth's goodness
—by being thankful for our blessings
—by enjoying success

Your Health—by eating nourishing, fresh vegetables
—by working in the sunshine and fresh air

Requirements of the Project Area
You should have your own garden plot or care for part of the family garden. The size of your garden will depend on the amount of space you have available and the time you have to tend it. Do not take more than you can properly take care of. For most beginning gardeners, at least 200 square feet of garden space is sufficient. More than 2,000 square feet is probably too much.

You should plant crops that you like to eat and that are fairly easy to grow. Plant such crops as tomatoes, beans, radishes, beets, turnips, squash, peas, strawberries, lettuce and sweet corn.

You should exhibit your garden vegetables at a community, county, or district event.

Keep a record of your garden's progress. Fill out the report form included in the back of this booklet. Answer the questions and write your story as indicated.

Other Beginning Gardening Project Areas
Vegetable Gardening is one of four areas you may select in the Beginning Gardening (Unit I) project. The four areas are: (1) Vegetable Gardening, (2) Plant Science Experiments, (3) Growing Vegetables in Containers, and (4) Vegetable Identification Workbook. There is a separate booklet for each area.

You may choose at least one of the four areas. If you complete one area one year, you may wish to do another area the next year. You should be 9 to 12 years old to do this project.

About Gardening
To grow a successful garden in Florida requires a great deal of gardening know-how. Use the following information and tips on gardening to help you with your gardening fun.

Plan Your Garden
You wouldn't take a vacation trip without taking along a map. It's important to "map" your garden, too, before you do anything else. Then you'll know where you are going. To plan a garden, you should ask yourself these questions:

Which crops will I grow?
Which varieties are best?
How much seed will I need?
How far apart should the rows and plants be spaced?
When is the best time to plant?

Draw a plan of your garden in the space provided in your record section. This sample plan should be helpful:
Sample Plan
(Central Florida)

<table>
<thead>
<tr>
<th>Row Width</th>
<th>Plant Spacing</th>
<th>Crop</th>
<th>Variety</th>
<th>Planting Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½'</td>
<td>1&quot;</td>
<td>Radish</td>
<td>Cherry Belle</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2'</td>
<td>4&quot;</td>
<td>Turnips</td>
<td>Purple Top</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2'</td>
<td>4&quot;</td>
<td>Mustard</td>
<td>Fla. Broad Leaf</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2'</td>
<td>4&quot;</td>
<td>Onions</td>
<td>Yellow Granex</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2'</td>
<td>24&quot;</td>
<td>Cabbage</td>
<td>Marion Market</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2⅛'</td>
<td>24&quot;</td>
<td>Collards</td>
<td>Vates</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2⅛'</td>
<td>4&quot;</td>
<td>Beans, snap</td>
<td>Contender</td>
<td>Sept. 1</td>
</tr>
<tr>
<td>3½'</td>
<td>36&quot;</td>
<td>Squash</td>
<td>Summer Crookneck</td>
<td>Sept. 1</td>
</tr>
<tr>
<td>3½'</td>
<td>36&quot;</td>
<td>Tomatoes</td>
<td>Better Boy</td>
<td>Sept. 1</td>
</tr>
<tr>
<td>3½'</td>
<td>36&quot;</td>
<td>Tomatoes</td>
<td>Flora-Dade</td>
<td>Sept. 1</td>
</tr>
<tr>
<td>3'</td>
<td>12&quot;</td>
<td>Strawberries</td>
<td>Florida Belle</td>
<td>Sept. 15</td>
</tr>
<tr>
<td>2'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

50 feet long — 30 feet wide
1,500 square feet

Location
A garden spot handy to the house and kitchen is best. A good water supply, such as a spigot, should be nearby. Choose a spot where the soil is as rich as possible and one which is not shaded, especially in the morning hours.

Arrangement
How you arrange the vegetables in the garden is important. Keep tall vegetables, such as corn, to one side and low-growing plants, as radishes, to the other side. Otherwise, the tall plants will shade the little ones. Run the rows north and south so more sunlight can strike the plants.

Tools
For a small garden only a few simple tools, such as a spade, rake, hoe, trowel, bucket, garden hose, and hand duster, are needed. Also, a quart can for putting out fertilizer, a ball of twine, and garden labels will make your gardening easier.

Soil Sampling
Your garden soil should be sampled and this sample tested to find out what fertilizer and lime are needed. After you have taken a sample of your soil, ask your 4-H leader or County Agent to test it for you.

How to Take Soil Sample for Testing:

Take samples from 5 different places in your garden
Take a slice of ground to spade depth at each spot
Place the samples in bucket and mix

Place sample from bucket in a clean container with your name and address on the container.

1 pound coffee can
Ice cream package
### Florida Planting Guide

<table>
<thead>
<tr>
<th>Crop</th>
<th>Varieties</th>
<th>Spacing in Inches</th>
<th>Planting Dates in Florida</th>
<th>Days to Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rows</td>
<td>Plants</td>
<td>Depth Inches</td>
</tr>
<tr>
<td>Beets</td>
<td>Detroit Dark Red</td>
<td>14-24</td>
<td>3-5</td>
<td>½-1</td>
</tr>
<tr>
<td>Cabbage</td>
<td>Marion Market, Red Acre</td>
<td>24-36</td>
<td>14-24</td>
<td>½</td>
</tr>
<tr>
<td>Carrots</td>
<td>Imperator, Chantenay</td>
<td>16-24</td>
<td>1-3</td>
<td>½</td>
</tr>
<tr>
<td>Corn, Sweet</td>
<td>Silver Queen, Florida StaySweet, Golden Cross Bantam</td>
<td>34-42</td>
<td>12-18</td>
<td>½-1</td>
</tr>
<tr>
<td>Cantaloupes</td>
<td>Smith's Perfect, Seminole, Edisto</td>
<td>70-80</td>
<td>48-60</td>
<td>½-1</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>Ashley, Poinsett</td>
<td>48-60</td>
<td>15-24</td>
<td>½-1</td>
</tr>
<tr>
<td>Eggplant</td>
<td>Florida Market, Black Beauty</td>
<td>36-42</td>
<td>36-48</td>
<td>½</td>
</tr>
<tr>
<td>Mustard</td>
<td>Florida Broad Leaf, Southern Giant Curled</td>
<td>12-24</td>
<td>4-8</td>
<td>½</td>
</tr>
<tr>
<td>Onions</td>
<td>Granex, Texas Grano</td>
<td>12-24</td>
<td>3-4</td>
<td>¼-1</td>
</tr>
<tr>
<td>Peas, Southern</td>
<td>Floricream, Blackeye</td>
<td>30-36</td>
<td>2-3</td>
<td>1-2</td>
</tr>
<tr>
<td>Potatoes</td>
<td>Sebago, Red La Soda</td>
<td>36-42</td>
<td>12-15</td>
<td>4-8</td>
</tr>
<tr>
<td>Potatoes, Sweet</td>
<td>Centennial, Porto Rico</td>
<td>48-54</td>
<td>18-24</td>
<td></td>
</tr>
</tbody>
</table>

**Liming**

The most important test of your soil is a test for soil pH. The best pH range for garden soils is 5.5 to 6.2. If your soil tests under pH 5.5, your soil is sour and lime may be needed. Use 3 to 4 pounds of finely ground limestone to every 100 square feet of soil. Scatter the lime evenly over the soil surface and then spade it in to a depth of 6 inches. You should apply lime 2 to 3 months ahead of planting.

Some soils are sweet (alkaline), such as the marl and rock soils of Dade County. These do not need lime, but require special fertilizer instead.

**Spading**

Turn the soil completely over when spading. Weeds, cover crops, and added lime can all be spaded under at the same time. Break all clods and level with a rake. Remove all woody weeds and trash from the plot.
**Garden Layout**

Use stakes, string, and a yardstick to lay off straight rows. Follow your previously prepared plan. Place a garden label at the head of each row. Information on the label should include the crop, variety, and planting date.

**Nematode Control**

Tiny, eel-like worms called nematodes may live in the soil in your garden. Nematodes can only be seen with a microscope. These tiny worms feed on plant roots and cause them to become knotted or stunted.

To kill these nematodes you should fumigate the soil with a chemical such as SMDC (Vapam or Fume-V). These chemicals are and dribbled about 6 inches deep in the planting row following the directions on the label of the chemical. Rake the soil back into the furrow immediately to keep the fumigant from escaping and then wet the soil to seal it in. The soil should be treated 2 to 3 weeks before planting.

**Bedding**

A raised bed is made for the purposes of draining, keeping plant roots out of water, and in some cases for furrow-irrigating the plants. For most vegetables, a small bed about one foot across and six inches high is best. Later this bed may be enlarged by cultivation and sidedressing with fertilizer. Where possible, you may wish to plant flat without raised beds.

**Fertilizing**

Commercial fertilizer should be applied right before or at planting time. The best way is to place it in one or two bands. Each band should be 3 inches to the side and 2 inches below the level of the seed. Do not put the fertilizer directly under the seed.

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Fertilizer Grade</th>
<th>Amount, 100 sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand, Clay, or Marl</td>
<td>6-8-8</td>
<td>4</td>
</tr>
<tr>
<td>Muck or Peat</td>
<td>0-12-20</td>
<td>2</td>
</tr>
</tbody>
</table>

Additional fertilizer, called side dressings, may be needed during the growing season. Apply side dressings at about 1/4 the rates listed above. Most gardens will need from 2 to 4 sidedressings at about two week intervals, or whenever needed.

Some gardeners prefer to broadcast their fertilizer over the entire garden plot before planting. This should be done a week or ten days before the seed are planted.

**Planting Seed**

Be sure you have good fresh seed to start your garden. Plant the variety suggested in this booklet. Since some diseases may be carried on the seed, buy treated seed.

Rake and smooth out your planting surface. To plant in straight rows, tie a string between the garden labels at both ends of each row. Follow this string with the end of a hoe handle or your finger, to make a planting furrow.

Seeds should be planted at the proper depth. Use the Planting Information Chart to find out how deep to put the seed.

Plant spacing is important. Place the seed somewhat closer together in the row than the suggested plant spacing. Then you can thin out the tiny plants to obtain the "stand" you want.

When you transplant young plants directly into your garden, put them at the proper spacing.
Transplanting

It is best to start some vegetables in your garden by setting transplants rather than by direct seeding. By transplanting, you can have an earlier garden and sometimes a better stand.

Not all vegetables can be successfully transplanted. Some that you might try are tomatoes, pepper, eggplant, lettuce, and cabbage.

Young vegetable plants for transplanting may be obtained from a neighbor's garden, from a garden supply store, or by growing your own in a seedbed or plant box.

Transplant when conditions are best.

Soon after a rain or when cloudy or in late afternoon.
Handle plants carefully when transplanting.

Use a trowel or large spoon to lift the plants carefully from the box. Leave as much soil on the roots as possible. Dip roots in soft mud.

Water when setting. (Starter solution may be used.)
Firm soil around roots and put dry soil over moist soil.

To make a starter solution, use 2 tablespoons of 6-8-8 fertilizer per gallon of water. Apply 1/2 to 1 pint to each plant. This will get your plants off to a quick start.

You should place a cardboard band around the base of the plant to protect it from cutworms.

Protect plants 2 to 4 days after transplanting.

Weeds

Knock out weeds before they get started. They compete with the plants for food and water. They may shade the crop. They are hiding places for insects and other pests. Pull or hoe weeds when they are young and tender. When hoeing, do not cut too deeply, as vegetable roots might be damaged.

Irrigating

Never let your garden suffer from lack of water. Most vegetables need about one inch of water per week when young and nearly 2 inches when older. It is better to water heavily once a week than to sprinkle a little each day. Several methods of irrigating may be used:
Insects

There are many insect pests which may injure or even destroy your garden vegetables if they are not controlled.

Go to work on bugs early. Dust or spray at the first sign of them and continue at 4 to 7 day intervals. Some insects such as the tomato hornworm may be picked off and controlled by hand.

The spray or dust should contain one or more safe, vegetable insecticides. These control such pests as worms, aphids, and beetles.

If your garden has ants, mole crickets or cutworms apply an insecticide to the soil.

Diseases

Again, early and frequent action is best for keeping plant diseases from damaging your garden. A spray is best since it will stick to the plant.

A dust may also be used. The dust or spray should contain either zineb or maneb.

Some diseases, such as wilts and viruses, cannot be controlled by spraying and dusting. Planting varieties which are resistant to these diseases is very helpful.

Pesticide Precautions

Consider all pesticides as potential poisons. Read the labels on the containers and strictly follow the directions. It is the responsibility of the user to use these products only within the limits which have been set for their use. Do not apply pesticides on the same day you harvest. Thoroughly wash vegetables from the garden before using them.

Harvesting

Be ready to harvest your vegetables when they are ready. Some, like tomatoes, have best quality when they are ripe. Others, like beans and cucumbers, should be eaten before they are fully ripe.

Dusters and Sprayers

Several different kinds of hand sprayers and dusters are available. Here are a few examples of some that you might use.

- Trombone sprayer
- Rotary duster

UNIT 1

Beginning Gardening Activities

Those of you who are taking this Beginning Gardening Project should also take part in one or more of the following activities. They are fun to do and will help you get a lot more from your project.

1. Horticulture Demonstrations.—You should participate in a demonstration once a year. If you have ever shown anyone how to make a kite or mix a spray solution, you have given a demonstration. In a vegetable demonstration you show how while you tell about some gardening practice.

   There is a 4-H pamphlet which you can get that tells how to prepare a demonstration. It is called "4-H Horticulture Demonstrations." Ask your leader for a copy.

2. Horticulture Judging.—This activity is in the form of a contest. By competing in it, you will learn about kinds and varieties of vegetables, and how to pick the good ones from the bad ones. You might have a chance to be in a club or county contest and test your knowledge of these things. Any of you taking any part of Beginning Gardening may participate in horticulture judging.

   Get a copy of "4-H Horticulture Identification and Judging Contest" to find out more about this contest.
3. Exhibiting.—At every opportunity you have, such as at a fair, you should be proud to show others the produce that you have grown. When you show others how well you have done, they may benefit by trying to do as well.

To find out how your vegetables should be exhibited, review Fact Sheet VC 32, “Exhibiting Vegetables in Florida.”

Exact requirements must be met by exhibits entered for contest. The number called for should be used—no more, no less—and other rules of the Exhibit Committee should be closely followed.

Suggested Number of Vegetables to Make an Exhibit

**Major Crops**

- Beans, bush green, 1 qt.
- Beans, pole green, 1 qt.
- Beans, lima, 1 qt.
- Broccoli, 3 flower stems
- Cabbage, 3
- Carrots, 6
- Collards, 3 plants
- Corn, sweet, 6 ears
- Cucumbers, 6
- Eggplants, 3
- Lettuce, 3
- Melon, cantaloupe, 3
- Melon, watermelon, 1
- Mustard, 1 bunch
- Okra, 1 qt.

**Minor Crops**

- Artichoke, Globe, 3
- Artichoke, Jerusalem, 6
- Asparagus, 12 spears
- Brussel Sprouts, 1 qt.
- Cauliflower, 1
- Celery, 3
- Chard, Swiss, 1 bunch
- Citron, 1
- Endive, 1 plant
- Herbs, Collection of
  - 3 kinds
- Horseradish roots, 3
- Squash, winter, 1
- Sweetpotato, 6
- Tomato, slicing and greenripe, 6
- Turnip roots, 6
- Turnip tops, 1 bunch

4. Tours.—Visit the gardens of your neighbors and other members of your club. Field trips into farming areas are fun and educational. Group trips through local market places to see how produce is sold will be very worthwhile.
4-H GARDEN RECORD

For Year 19____

My ____ Year in Beginning Gardening

UNIT I — VEGETABLE GARDENING

My name is _______________________ My parents are ______________________

My address is __________________________

(Street or Route) (Town) (County)

I am ____ years old. I am in the ____ grade. This my ____ year in 4-H Club work. My leader's name is ______________________

About Your Garden

(Complete this outline plan of your garden.)

<table>
<thead>
<tr>
<th>Row Width</th>
<th>Crop</th>
<th>Variety</th>
<th>Planting Date</th>
</tr>
</thead>
</table>

My garden is __________ feet wide.

N, S, E, W
(Circle proper direction)

My garden is __________ feet long.
Expenses
(List a value for items used even if they did not cost you anything.)

<table>
<thead>
<tr>
<th>Item</th>
<th>What Kind?</th>
<th>How Much?</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td></td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>Fertilizer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dust Material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spray Material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. Total Cost $

Returns
(List the value of vegetables used, given away, or sold.)

<table>
<thead>
<tr>
<th>How Used</th>
<th>Amount</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>Eaten</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frozen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Given Away</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Total Value $

Summary
Total Value (Line B) minus Total Cost (Line A) = Gain on Project

What problems did you have with your garden?
4-H Gardening References

Florida Cooperative Extension Service—Gainesville
Vegetable Gardening Guide
Manual of Minor Vegetables
Grow Your Own Vegetables Without Soil
Exhibiting Vegetables in Florida
4-H Horticulture Demonstrations
4-H Horticulture Identification and Judging
Contest Volume 1, Fruits and Vegetables
Managing Pests in Vegetable Gardens
Vegetable Gardening Fact Sheet Series

Florida State Department of Agriculture—Tallahassee
Vegetable Gardening in Florida

U.S. Department of Agriculture—Washington, D.C.
MiniGardening
Insects and Diseases of Vegetables in the
Home Garden

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