University Extension. 4-H Club

4-H Vegetable Projects Leader's Guide

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Leader's Guide FOR 4-H VEGETABLE PROJECTS

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Introduction

To the 4-H Leader or Prospective Leader:

This Vegetable Leader's Guide has been prepared to help you do a a more effective job of assisting and guiding young people in their attempts to grow vegetables and develop an appreciation of growing things.

Vegetable Project I is designed for the young 4-H'er and explains how plants grow and how to grow plants.

Vegetable Project II is designed for the teenage 4-H'er. It teaches the value of planning and following through with the execution of the plan. Helping to grow the family garden is no small contribution to the health and welfare of the entire family!

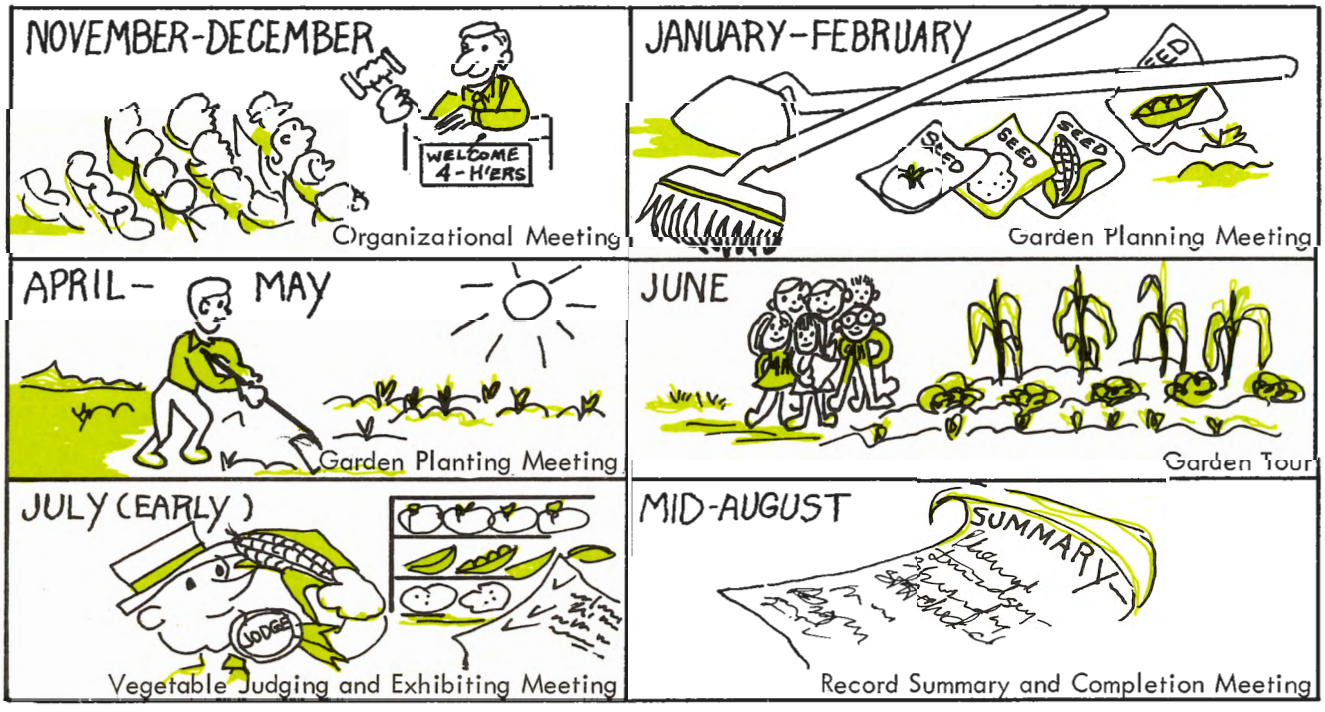
Vegetable Project III is designed for the advanced 4-H teenager who has the ability, the facilities, and the market for growing vegetables. The purpose of this project is to make some money!

So remember—the 4-H Vegetable Projects are:

1. For all age groups!
2. Adaptable for rural, suburban and even urban areas (the latter can take Project I if as little as 50 square feet of space is available).
3. Equally popular among boys and girls!

SOUND LIKE FUN? IT IS! GOOD LUCK!

Calendar of 4-H Vegetable Project Meetings



Organizational Meeting

WHEN: NOVEMBER OR DECEMBER

INVITE PARENTS This enables everyone to have a better understanding of the project. Greater cooperation on the "home front" as a result of this understanding can go a long way in making the 4-H Vegetable Projects more successful.

OUTLINE PROGRAM Briefly outline for parents and 4-H'ers the program for the year as it appears on the calendar, page 3. Additional meetings can be held if necessary. For example, two garden planting meetings could be held—one in early spring for such crops as cabbage, peas, potatoes, spinach, lettuce, radishes, and a second one in late spring for planting such warm season vegetables as tomatoes, sweet potatoes, squash, beans, and corn. Two tours may be scheduled.

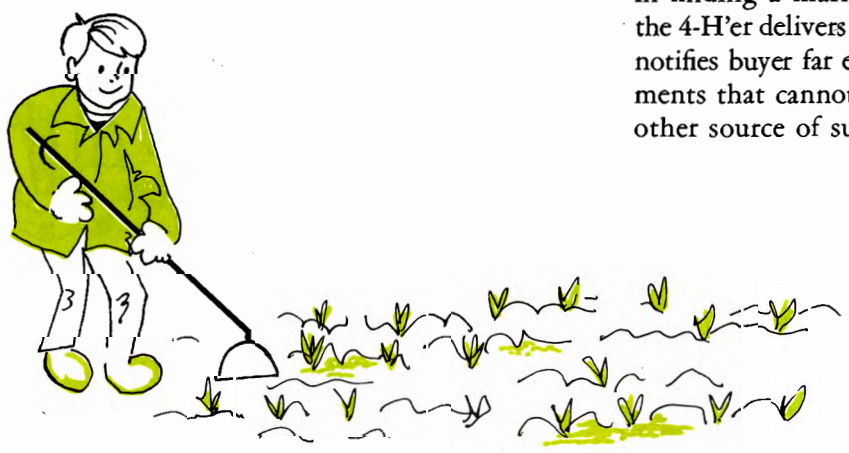
DISTRIBUTE PROJECT CIRCULARS AND RECORD SHEETS

Project I—*Watch Your Garden Grow,* Youth Publication 29.

Project II—*Growing Vegetables for Family, Food, and Fun,* Circular 145.

Project III—*Growing and Marketing Fresh Vegetables,* Circular 146.

A record sheet should accompany each project circular. Note that Project I is for ages 9 through 12; Project II is for ages 13 and over; and Project III is for ages 14 and over. Be sure to explain project requirements to the members and parents.



THE MEMBER'S RESPONSIBILITY

1. Complete project requirements as listed in project leaflet.
2. Attend a majority of your vegetable project meetings.
3. Turn in complete and accurate record sheet at the August meeting.
4. Complete the Standard Report Form and Supplement (optional but recommended).
5. Participate in the Vegetable Judging Contests (optional but recommended).
6. Exhibit vegetables at County Achievement Day or Fair (optional but recommended).
7. Attend six or more 4-H Club meetings if your project group is part of a larger club.

THE PARENT'S RESPONSIBILITY

Project I: Provide and help select a portion of the family garden for the member to grow the three vegetables he selects. Provide assistance in planting and care of the three vegetables, but do not do actual work (except for soil preparation and spraying). Encourage regular upkeep of the Weekly Observation Blocks.

Project II: Assist the teenage 4-H'er with planning, planting, maintaining and harvesting the garden. This should be a cooperative effort. The 4-H'er should assume a goodly share of the growing of the garden.

Project III: Provide acreage needed to grow the vegetables. Assist in obtaining equipment and finances to initiate the project. Assist in finding a market (See Circular 146). Make sure the 4-H'er delivers on any commitments made, or notifies buyer far enough in advance of commitments that cannot be made, so buyer can locate another source of supply.

Garden Planning Meeting

WHEN: JANUARY OR FEBRUARY

PROJECT I Watch Your Garden Grow

WHAT TO PLANT Each member should have a copy of Youth Publication 29 and the Garden Record Sheet for Project I. Each member should select the three kinds of vegetables he wants to grow from the list on the last page of Y.P. 29. Write the names of these vegetables in the spaces provided on the Record Sheet. Members should select different vegetables each year to broaden their experiences.

HOW MUCH TO PLANT It is suggested that the Project I members plant the amount of vegetable suggested in column 3, Chart I, of the *Missouri Vegetable Planning and Planting Calendar,* Folder 5. But these figures should only be used as a guide. The amount to plant is flexible. It should be enough to allow the 4-H'er to become thoroughly familiar with the practices necessary to grow a good crop, but not be over-burdened with planting and maintenance chores to the point where he loses interest. Therefore it is suggested that the 4-H'er not plant more than 100 feet of row of any of the vegetables.

WEEKLY OBSERVATION BLOCKS These weekly observation blocks are the key to the success of of Project I. They are intended to teach the 4-H'er to OBSERVE! And in observing, to learn more about plants and how they grow. They also serve as an excellent record of accomplishment. Be sure to encourage the 4-H youngsters to jot down everything that happens to or affects his vegetables. A few ideas are given on the back page of Y.P. 29. You can help the 4-H'er by suggesting additional ideas. It would be a good idea to have the 4-H'er bring the observation blocks to each meeting after planting and report on his observations to the other club members. Sooner or later you will be asked about the questions that are between the observation blocks. These are project *extras* and are not required for project completion. It is hoped these questions will help stimulate the youngsters to think a little more about how and why vegetables grow as they do. You could assign one or two at each project meeting for the boys and girls to ponder over and report on at the next meeting. (For your information, the answers to these questions are given in Appendix A.)

PROJECT II Growing Vegetables For Family, Food and Fun

MATERIALS NEEDED Each member should have a copy of Circular 145 and the Garden Record Sheet for Project II, also copies of Extension Folder 5, *Missouri Vegetable Planning and Planting Calendar* and Extension Folder 48, *Good Garden Soils.*

PROJECT DESIGN This project is designed for the 4-H'er to take an active part in all phases of gardening—(1) planning; (2) planting; (3) maintenance; (4) harvesting; and (5) record keeping. The 4-H'er is not expected to take over and do all the family gardening as this could be too much of a job if the garden is large. But he should be involved in all phases of gardening—the key words are *all phases.* Where more than one 4-H'er in a family is enrolled in Project II, they might divide the work, each being responsible for a part of the garden. In this way they each can keep records on yields and costs and take an active part in all phases of gardening.

PLANNING THE GARDEN •**Determine soil fertility needs:** Use Folder 48, *Good Garden Soil.* For beginning members of Project II, make sure they understand Steps 1 and 2 regarding soil testing, basic fertilizer levels and maintenance fertilizer applications. Older Project II members and Junior Leaders could develop this phase into a good teaching program for new members of Project II. You as Project Leader should read Folder 48 and a copy of the Garden Soil Test Report Form. Be sure you understand how to use these publications. If you have any questions concerning them, ask your youth agent.

• **Determine kinds of vegetables to plant:** This should be fun. Go down the list of vegetables in Folder 5, Chart I, Column 1, and list those that the 4-H'er (and his family) likes to grow and eat. Keep in mind the nutritional values as given in Column 2 of this chart. On the Garden Record for Vegetable Project II, list the kinds of vegetables you have selected (subject to revision by the family).

• **Determine the amounts of each vegetable to plant:** Use Folder 5, Chart I, Column 3. (This is more difficult and as leader you should probably give an example or two to new members so they understand how to do this part.) Column 3 gives the approximate planting per person in the family. First determine how many members there are in the family. Then determine the number of feet of row, hills, or plants per person and multiply by the number in the family. Note that if you want to process (freeze or can) a vegetable there is a separate column for this, and you must add this amount to the fresh use column before multiplying. Record amounts in Garden Record.

• **Choose varieties:** This is always a lot of fun. You might ask some of the members to tell why they like a particular variety. Have the members vote on who gave the best reasons for planting a variety. Use Chart II of the Planting Calendar (Folder 5) and several seed catalogs to help in selecting varieties. Record varieties in Garden Record.

• **Make a list of seed and plant requirements.** Column 4 of Chart I, Folder 5, will assist you.

PROJECT III Growing and Marketing Fresh Vegetables

PROJECT SCOPE This project is a most difficult one for the 4-H leader to handle, because its success is dependent upon (1) the individual's abilities; (2) facilities available to him; and (3) local opportunities.

ABILITIES As a leader, you should know the abilities of your 4-H members as well as the assistance to be expected from the parents. Qualities to assess in a youngster might include dependability, ability to communicate, good health, work habits, experience. As a leader you might suggest this project to members you think have the abilities to handle it. Or you might advise other members who ask about taking this project. If an interest is expressed, discuss the situation with the parents as they will, of necessity, be much involved. You will need the parents' help in assessing the facilities available and the local opportunities.

FACILITIES AVAILABLE For a successful Project III, certain physical facilities must be available or obtainable. A plot of ground of sufficient size and suitable physical capabilities is needed to successfully grow vegetables. Certain equipment will be needed, depending upon the vegetables grown. Is the equipment available? Can it be rented or leased? Must it be purchased? What means of delivering produce to the buyer is available? Who will do the delivering? When? At what time of the day? These are questions that must be answered by the 4-H'er and his parents.

LOCAL OPPORTUNITIES FOR SALES *Local opportunities to sell vegetables is the key to determining whether this project has a chance for success.* Where local opportunities for the sale of vegetables do not exist or are marginal in nature, this project should not be attempted. But there are

many opportunities to grow and sell vegetables locally in Missouri. It takes some know-how and effort to find these opportunities. Where an opportunity does exist it can provide a valuable experience for the 4-H'er and a contribution to the economy and well-being of the community. For information on finding potential buyers see Circular 146. You as a leader, the parents, youth agents or county agents and others may be able to help advise the 4-H'er how to go about approaching potential buyers. However, the 4-H'er should approach the buyer by himself or with a parent.

BENEFITS AND LIMITS Project III offers the 4-H boy or girl an opportunity to make money and gain valuable experience. He will learn the importance of planning. He will learn the value of continued application of certain principles of production. His experiences in selling vegetables will prove invaluable. You might find a situation where local opportunities exist for only one 4-H'er. Or it might be possible for one 4-H'er to grow and sell one or more vegetables and another 4-H'er one or more different vegetables. Remember, the key to this project is local marketing opportunities!

PROJECT III LEADER SUGGESTIONS Following is an outline of what you, as Project III Leader, might do to encourage and assist potential Project III members:

1. Study Circular 146. Become familiar with the principles involved. Try to apply these principles to your local situation with respect to potential markets and abilities of those likely to be involved.
2. Suggest Project III to those boys and girls you think have ability and potential to handle this project.
3. Have the 4-H'er read Circular 146 very carefully and then submit a tentative outline for growing vegetables.
4. If the proposal seems logical, discuss it with the youth's parents. Determine the interest and potential expressed by the parents.
5. If all things are still GO, help the boy or girl, with the aid of parents, to locate a reliable market in the local area. (Again, see Item k, Circular 146.) *If a market cannot be found, this project should not be attempted.*
6. If a reliable market (buyer) is found, help the 4-H'er develop a plan. See Items II and III in Circular 146.
7. Give what help you can based on your experience. Give what encouragement you can during the growing and marketing season. Things can get hectic at times, but the over-all results will be rewarding.

PROJECT EXTRA Explain the vegetable awards program and the use of the standard report form. See the club leader or 4-H youth agent for information on awards.

Garden Planting Meeting

WHEN: APRIL OR EARLY MAY

Projects I and II (can be combined for this meeting)

TIME AND PLACE This meeting can be scheduled any time during the planting season, from late March to early May. It can be scheduled after school or on Saturday. About 2½ hours should be allowed to accomplish the required planting of the garden. The place of meeting and planting could have been decided at the preceding Garden Planning Meeting, or you as Leader can choose from among your members. Each year you should visit a different garden for the planting operations.

PREPARING THE SOIL If possible, make arrangements to have the soil plowed and disced at this meeting. If the garden was fall plowed, it will need discing. Or perhaps all you need to prepare the soil is a rototiller (a Junior Leader could demonstrate how to use a rototiller). Next step in preparing the soil for planting is to apply needed fertilizer. At the planning meeting you should have determined whether a basic fertilizer application is necessary or if a maintenance fertilizer application is all that is needed. Apply one of the two as directed in Folder 48. (Note: Since weather conditions may prove unfavorable to planting the garden on any one date, several alternatives dates should be chosen about five to seven days apart. You might check the condition of the members garden at least two days prior to the meeting to determine if it is ready for planting. The experiences the 4-H'ers will have in actually planting a garden as a group will be well worth any frustrations brought about by weather conditions.)

WHAT TO PLANT Plant one vegetable (or more) in each of the following categories:

1) Small seeded vegetable—lettuce, radish, carrots, mustard, etc.
2) Large seeded vegetable—peas, beans, corn, cucumbers, etc.
3) A vegetable transplant—cabbage, tomato, sweet potato, etc.

If you have time and the situation warrants, you could also try planting potato seed pieces, rhubarb divisions, and asparagus crown—these offer something a little different in planting procedures. This could well be a good demonstration for a senior member or Junior Leader.

HOW TO PLANT Consider the following practices in planting vegetables:

- **Determine depth to plant**—size of seed or plant is usually the determining factor in how deep to plant—see Folder 5 for further information.
- **Determine spacing of seeds or plants**—see Folder 5.
- **Cover seeds to proper depth & firm soil.**
- **Use starter fertilizer on transplants**—see Folder 48.

PROJECT EXTRA Use one or more herbicides to control weeds. Use one of the pre-emergent type herbicides. This should only be done by an adult, a Junior Leader, or senior member with considerable gardening experience. Check with your Extension Youth Agent for latest information on use of herbicides in the garden.
If a herbicide is used, it should be used only on a part of the row, or a part of the planting. Then you can determine the effectiveness of the herbicide by comparing it with the unsprayed area.

PROJECT REMINDERS Again, encourage Project I members to keep Weekly Observation Blocks up to date. You might make several timely suggestions on what to record. Perhaps you can come up with some ingenious ways to keep the observation blocks current! Also, remind Project II members to keep their Garden Record Sheets up to date.

Garden Tour

WHEN: JUNE

PROJECTS I, II, and III

Following are things to look for on the garden tour. Items that are starred can be demonstrations.

1. Check the garden location. Is it at least 50 feet away from trees and tree roots? Is it near (within easy sight) of the house? Is it close to a source of irrigation water if water is available?
2. Count the number of different kinds of vegetables growing in the garden. How many are the more nutritional vegetables listed in the first three nutritional groups in Folder 5?
3. As a group, determine if any of the vegetables were over-planted—that is, more than the family could use. Common examples are lettuce and radishes—also squash, cucumbers (unless used as pickles) and even tomatoes.
4. Have the host identify all the varieties of vegetables in the garden.
5. Find five or more insects the group can identify.
6. Look for two foliage diseases.
7. Identify two or more weeds found in the garden.
8. Evaluate the use of herbicides if any were used.

*9. Have host demonstrate how the garden is cultivated—equipment used and how it is used.

*10. If garden is irrigated, have host show how it is done and what equipment is used.

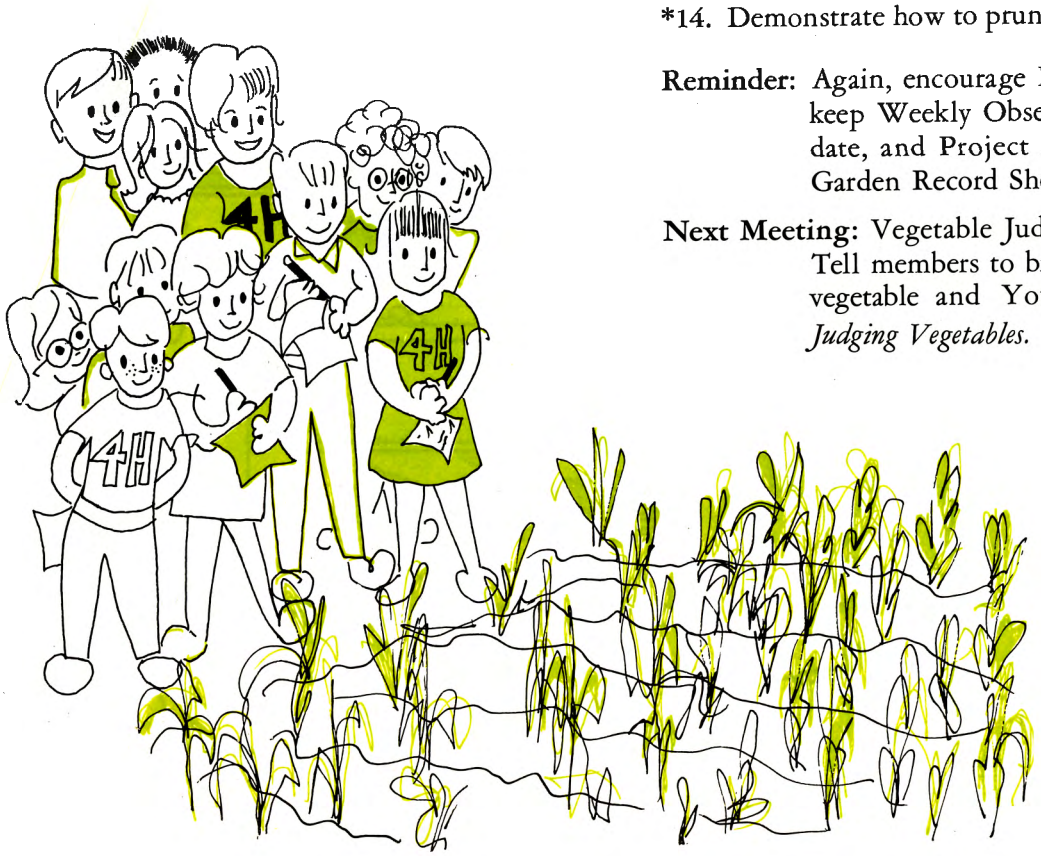
11. Determine what vegetables are at the peak of quality at the time of the tour.
12. Count the number of vegetables of which more than one planting was made.

*13. Have Junior Leader, advanced Project II member, or Project III member demonstrate how to use a compressed air sprayer. Emphasize the importance of safety in handling pesticides. (See the following publications: *Pesticides in Your 4-H Project, Unit 1,* (for Projects I and II); *Pesticides in Your 4-H Project,* Unit 3, (for Project III); and *4-H Leaders Handbook on Pesticides.* These may be obtained from your County Extension Center.)

*14. Demonstrate how to prune a tomato plant.

Reminder: Again, encourage Project I members to keep Weekly Observation Blocks up to date, and Project II members to keep Garden Record Sheets current.

Next Meeting: Vegetable Judging and Exhibiting. Tell members to bring a basket of some vegetable and Youth Publication 30, *Judging Vegetables.*



Vegetable Judging and Exhibiting Meeting

WHEN: EARLY JULY

Projects I, II, III

Vegetable judging and exhibting can be fun for everyone. Judging is fun because it is competitive and everyone can be a good judge—if they really want to. Exhibiting is fun because it is a reward for a job well done.

To do a good job of judging or exhibiting the 4-H'er needs to:

1) learn the mechanics of judging or exhibiting
2) practice...practice...practice

Judging: Y.P. 30, *Judging Vegetables* presents the mechanics of judging vegetables. Encourage the youngsters to practice judging—alone, in pairs, or in groups. Try different kinds of vegetables, but concentrate mainly on those in Y.P. 30. You might want to call a practice session or two as the situation and interest warrants.

Exhibiting: Most of the same basic principles of judging can be used in exhibiting vegetables. Quality, condition, uniformity and size are just as important in exhibiting as in comparative judging. Some tips on exhibiting vegetables are given in Appendix B. Have members set up an exhibit with the vegetables they bring (or you furnish) and then as a group evaluate the exhibit. Test the exhibit against some of the tips given in Appendix B. Good exhibits are the result of good growing, proper selection and careful handling.

Next Meeting: Record Summary and Completion Meeting. Instruct members to bring completed records to this meeting.

Record Summary and Completion Meeting

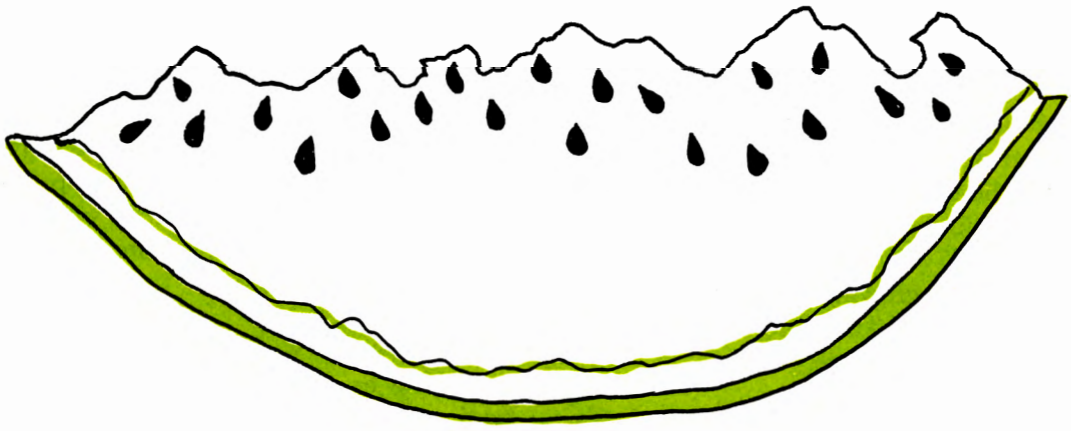
WHEN: MID-AUGUST

1. Check Garden Records
   a. *check for completeness to date* (some fall garden results will need to be added to make records complete for season)
   b. *make suggestions for improvement* (if necessary)
   c. *emphasize importance of neatness*
2. Check Standard Report Forms

You could also—(if time permits)

3. Have one or more Project I members report on Observation Block recordings of one vegetable.
4. Have one or more Project II members report on the Garden Summary items on the Garden Record Sheet.
5. Have Project III members tell of some interesting project experiences.

6. HAVE A WATERMELON BUST!



Appendix A

ANSWERS TO QUESTIONS ON PROJECT 1 RECORD BLANKS

Why do roots generally grow downward? Numerous environmental factors determine the direction and extent of root growth. The main reason why roots grow downward is the response to gravity. This is known as *positive geotropism.* A young root, if placed horizontally, will, in a short while start growing downward. The downward curve takes place just back of the root tip in the region where the cells are elongating.

Which vegetable contains more Vitamin A per pound—spinach or green beans? Spinach. A pound of spinach contains about 45,000 International Units of Vitamin A. A pound of green beans contains about 3,000 International Units of Vitamin A.

What is a "seed" leaf as distinguished from a true leaf? Seed leaves are called cotyledons (cot-e-lee-dons). Although they are leaves, they often differ from ordinary leaves of the plant. Sometimes they serve merely as food storage organs for the developing seedling. In other plants they may become functioning leaves after the seed germinates. In dicotyledonous plants there are two of these cotyledons (beans, peas, cucumbers are examples). In monocotyledonous plants there is only one cotyledon (corn and onions are examples).

Why do we plant "Irish" potatoes in March and sweet potatoes in May? "Irish" potatoes require a relatively cool growing season in order to store up food material in the tuber. If we plant in late March, the potatoes grow during the cool weather in April, May and early June. Sweet potatoes, on the other hand, must have warm growing weather to store up food material in the roots. Therefore, we plant sweet potatoes after the frost-free date.

Why are vegetables important in our diets? Vegetables are primary sources of Vitamins A and C. They also contribute various amounts of minerals and other vitamins, and provide important bulk to our diets.

Do the insects you find on your vegetables have chewing or sucking mouthparts? There are two ways to determine this. Look at the insect. A sucking insect has a beak similar to that of a mosquito which he inserts into the plant and sucks out the cell sap. A chewing insect will have moving mouthparts. Note also the type of damage the insect causes. A chewing insect will leave holes in the leaf or will eat portions of the leaf. A sucking insect will cause the leaf to turn yellowish and perhaps shrivel up.

If you plant squash next to muskmelons will the muskmelons taste like squash? No! It is impossible for this to happen. The muskmelons may taste like squash, but it won't be because of cross pollination—it will be because of poor soil or growing conditions. Squash, muskmelons, cucumbers, watermelons will not cross with each other. Varieties will cross, but the result of such a cross will be apparent only from seed saved for next year. (Except sweet corn.)

Why are leaves of vegetables always shades of green? Because the green color of leaves is chlorophyll. Chlorophyll is the food manufacturing plant of the leaf. Without the green color, plants would not grow. Even plants which have a reddish, yellowish, or purplish cast to the leaves, have green chlorophyll but the green is masked by the other colors.

What is the difference between a cool season crop and a warm season crop? A cool season crop needs cool weather to make its best growth. Such a crop must be planted early in the spring or in the fall. A warm season crop needs warm weather to make its best growth. Therefore it must be planted after the frost-free date.

Why do we sow bean seed, but plant potato tubers? Why not sow potato seed? Beans come true from seed, potatoes do not. For example, if we plant Topcrop bean seed we get Topcrop beans. If we plant Irish Cobbler potato seed we will likely get potatoes different and less desirable than Irish Cobbler. Also, potatoes grown from seed need much longer cool growing season than occurs in any part of the United States to mature potatoes.

Appendix B

SUGGESTIONS ON EXHIBITING VEGETABLES

1. Read the fair book. Follow the rules and regulations very carefully.
2. Basically, judges look for three things: quality, condition and uniformity.
   a. **Quality** means freedom from damage that has occurred during the growth of the vegetable. Vegetables should be well shaped, of good color, free of soil stains, insect and disease damage. Many factors contribute to quality. Each vegetable will have certain quality standards. (see Y.P. 30.)
   b. **Condition** has to do with freedom from damage that has occurred during or after harvest. It might include mechanical damage, such as bruising or puncturing, wilting, etc. So harvest vegetables carefully. Use gloves if necessary. Place carefully in padded containers, and only one layer deep! (see Y.P. 30.)
   c. **Uniformity** means all vegetables exhibited on a plate should be as nearly the same size, shape and color as possible. This means careful selection from the vegetables you have available. The larger the selection you have the more likely you will find the quality, condition and uniformity desired.
3. Try to select vegetables that are of good size for that type of vegetable and that particular variety. Avoid the extra large vegetables. They are freaks and usually of poor quality. Large vegetables should only be exhibited when called for in the fair book—such as the largest watermelon or pumpkin.
4. Take a few extra specimens along. If one of the vegetables becomes damaged, a replacement is available.

References

4-H Leaders Handbook on Pesticides.

Good Garden Soils, Folder 48, University of Missouri Extension Division.

Growing and Marketing Fresh Vegetables, Circular 146, University of Missouri Extension Division.

Growing Vegetables for Family, Food, and Fun, Circular 145, University of Missouri Extension Division.

Judging Vegetables, Youth Publication 30, University of Missouri Extension Division.

Missouri Vegetable Planning and Planting Calendar, Folder 5, University of Missouri Extension Division.

Pesticides in Your 4-H Project, Unit 1.

Pesticides in Your 4-H Project, Unit 3.

Watch Your Garden Grow, Youth Publication 29, University of Missouri Extension Division.

Continuing Record

OF 4-H VEGETABLE PROJECT ENROLLEES

Year 19___

Name	Address	Phone	Project

Year 19___

Year 19___

Year 19___

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