

GROWING and NOURISHING

Healthy Communities Garden Course *Instructor's Guide*



GROWING and NOURISHING **Healthy Communities Garden Course** *Instructor's Guide*



The Growing and Nourishing Healthy Communities Garden Course is a curriculum of the Growing and Nourishing Healthy Communities program.

For program information

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Table of Contents

Introduction	1
Navigating for Success Elements	3
The 4-A Method of Educational Program Delivery	4
Training Supply Box	5
Program Orientation	7
How to Access <i>Growing and Nourishing Healthy Communities Garden Course</i>	
Reference Materials	10
Tips for Establishing a Community Garden	13
Orientation Sign-in Sheet	15
Gardener's Application	17
Community Garden Map	19
Session 1: Choosing a Garden Location	21
Session 1 Sign-In Sheet	25
Garden Location Ranking (English)	27
Garden Location Ranking (Spanish)	29
Session 2: Soils and Compost	31
Session 2 Sign-In Sheet	39
Soil-Shake Test	41
Session 3: Raised Beds and Container Gardens	43
Session 3 Sign-In Sheet	53
Session 4: Maintaining Your Garden	55
Session 4 Sign-In Sheet	63
Session 5: Diseases and Insects	65
Session 5 Sign-In Sheet	79
Session 6: Harvest and Review	81
Session 6 Sign-In Sheet	85
Retrospective Post-Survey (English)	87
Retrospective Post-Survey (Spanish)	89
Certificate of Completion (English)	91
Certificate of Completion (Spanish)	93
Acknowledgments	95
Photo Credits	95



Growing and Nourishing Healthy Communities Garden Course

Introduction

The *Growing and Nourishing Healthy Communities Garden Course*, which is funded, in part, by the Supplemental Nutrition Assistance Program (SNAP), helps increase the availability of fresh produce through teaching participants how to grow fruits and vegetables in community and backyard gardens. The gardening series includes topics such as how to select the right garden location, planting and watering techniques, controlling insects, and composting. By incorporating cooking demonstrations using the produce grown, participants learn how to prepare the produce they harvest.

Goals

Participants will be able to

- ◆ Identify the characteristics of a suitable garden site
- ◆ Evaluate soils and identify the main components as sand, silt, clay, or loam
- ◆ Make compost and know what materials are best for home composting
- ◆ Create “pots” from newspaper and use them to plant seeds or seedlings to begin a garden
- ◆ Identify good maintenance practices common to vegetable gardens
- ◆ Keep a garden journal to help observe plant health and growth, investigate

problems, and record measures taken to resolve problems

- ◆ Identify causes, symptoms, prevention, and treatment of common vegetable disorders and diseases
- ◆ Detect common insect pests and beneficial insects
- ◆ Follow best practices for harvesting, handling, and storing produce
- ◆ Learn how to save seeds

The *Growing and Nourishing Healthy Communities Garden Course* is composed of a program orientation session and six class sessions. The learning sessions are:

- ◆ **Timing:** Sessions are designed to last about an hour, although the educator can adapt them to be shorter or longer. Other factors that might affect the class length are the size of the group, the assistance of an interpreter, planned time for working in the garden, or sponsor or host needs.
- ◆ **Format:** The *Navigating for Success 4-A* format (anchor, add, apply, and away) provides the outline for each session. See page 4 for more information on the 4-A format.
- ◆ **Educator-led:**
 - Talking points: Statements and questions engage the participants in

dialogue while teaching the session objectives and basic gardening skills.

- Activities: Instructors choose one or more of the suggested activities based on the time allotted for each session.
- Hands-on gardening/cooking demonstrations: Interactive segments provide opportunities for class participation and conversation that reinforce the key objectives of the lesson.
- ♦ **Retrospective survey:** The retrospective survey helps indicate the effectiveness of this curriculum as shown by the participants' behavior changes. Have the participants complete the retrospective survey at the last session. Explain to participants that in completing the surveys
 - There are no right or wrong answers.
 - The survey helps us know if the information discussed is helpful and useful.
 - They need to answer questions on both the front and back of the survey.

Allow participants enough time to finish the surveys; collect them when completed. To keep the responses anonymous, ask them to not write their names on the surveys.

Gardener's Application

If this program is part of a community garden project, have each participant fill out and sign the Gardener's Application. It contains a brief questionnaire concerning participant contact information and gardening experience and the Memorandum of Understanding (MOU). The MOU covers the rules for working in the community garden, media release permission for photos and videos of participants to be used for marketing and educational purposes, and a participation waiver releasing you (the educator) and other partnering agencies and facilities from liability in connection with working in the garden.



Navigating for Success Elements

VOICE Principles—Use the Better Living for Texans (BLT) welcome poster (17 inches × 14 inches) and VOICE by CHOICE Principles handout or poster during BLT programs. Poster and handouts are available from the AgriLife Bookstore. Review the VOICE principles (below) before sessions.

Say:

V = Voice by Choice You will not be called on individually to speak in front of the whole group or answer a question. We do expect you to participate with partners and in small group activities.

O = One, Two, Three, Four, Five

This is how long I will wait for a response from the group. I invite you to share and will wait for your responses. We will listen to as many of you who want to share within the time allowed. If no one wants to share, we will move on to the next activity.

I = Inclusion

We will all strive to make sure that people feel welcome and accepted in the group.

C = Consideration

We will start on time and end on time each day.

E = Encouragement

We will encourage each other, be supportive, recognize others for their contributions, and present a positive and constructive approach to all our challenges.

Keys To A Great Session—The seven keys of group facilitation during each session are

INVITE Set a learning environment that welcomes and celebrates, interests, and engages.

- ◆ Play culturally appropriate music on a CD player at a low volume.
- ◆ Greet participants.
- ◆ Set up and arrange tables, tablecloth, and chairs.
- ◆ Set up all materials needed, including supplies, handouts, etc.

ASK Use open-ended questions. Give people a chance to share.

WAIT Wait 5 seconds for people to speak. Let three people speak before you jump in.

AFFIRM Say, “Thank you, I’m glad you said that because. . .”

WEAVE Transition from one learning experience to the next.

ENERGIZE Show enthusiasm. Change your voice. Smile!

EMBRACE Use inviting body language—open arms and hands, no pointing.

Adapted from materials created by Cornell University Cooperative Extension.

The 4-As

The *Growing and Nourishing Healthy Communities Garden Course* creates an atmosphere where learners are actively engaged in the learning process, not just passive listeners. Each session uses the 4-A model to guide meaningful learning experiences that build knowledge and skills.

The 4 “As” stand for

- Anchor:** An activity that “anchors” the topic into participants’ lives introduces it by building on their previous experiences and knowledge. It helps the learner transition from what they already know to potentially new information. The activity is usually done in pairs or small groups and serves as the session “warm up.”
- Add:** Information the educator needs to convey in order to help the participants understand the topic and successfully take action is “added” here. It can be offered as a mini-lecture, demonstration, slides, video, story, etc.
- Apply:** By acting on the information offered in the “add,” learners apply the information more concretely to their lives. Participants actually “do” something with the knowledge they gain, usually as a hands-on activity done in pairs or small groups.
- Away:** How the participants will use the information in a real-life setting. This activity helps the learner take the information “away” with them by bridging it to the future. It asks the learner, “What will you do with this information?”

A disciplined, focused lesson plan should present the most essential information or skills—the “need to know” elements for your learners. This means not teaching your learners everything you know about the subject, but only select information—information directly related to the specific needs of our learners. The 4-A model offers a reminder of the best way to deliver the content and encourage learner participation. Each learning task in every unit (session) on *Navigating for Success* is actually a lesson with objects that are met using the 4-A model. In your work with learners and the *Growing and Nourishing Healthy Communities Garden Course*, you will plan six sessions to meet your learners’ needs and program goals.

–Adapted from *Navigating for Success, Planning Effective Lessons*

Training Supply Box

Materials and Supplies—A short list of supplies is included in each session. To save time, gather these supplies ahead of time. The supplies suggested for this Training Supply Box could be useful for any session or series. Add to the list items that are helpful for you.

- ☐ Welcome sign
- ☐ Sign-in sheets
- ☐ VOICE by Choice poster(s) or handout
- ☐ Retrospective post-survey
- ☐ Pencils/pens
- ☐ Basic cooking and kitchen supplies
- ☐ Napkins and sample cups, dishes
- ☐ Plastic gloves
- ☐ Hand sanitizer
- ☐ Sanitizing wipes
- ☐ _____
- ☐ _____

Depending on the participants and location, these items may be useful to include in your supply box.

- ☐ Easels and flip chart paper
- ☐ Post-it® notes of various sizes
- ☐ Highlighters—at least one per participant
- ☐ Fine point markers—dark colors
- ☐ Broad tip markers—in various colors
- ☐ White paper in legal and letter size
- ☐ Index cards
- ☐ Masking tape
- ☐ Food models
- ☐ Name tags
- ☐ Directions to the training location (to direct participants through unfamiliar buildings)



Growing and Nourishing Healthy Communities Garden Course

Program Orientation

Note to agent/educator

If possible, conduct this session at the community garden site so participants will know where their garden plot is and what it will look like. If participants will build their gardens at home or are doing only container gardens, make sure the location of this and other sessions is easily accessible for them.

Handouts needed

- ◆ Sign-in sheet
- ◆ **Vegetable Variety Selection Sheet** downloaded from the Vegetable Variety Selector at http://aggie-horticulture.tamu.edu/publications/veg_variety/
- ◆ **Gardener's Application** (if participating in the community garden)

Materials needed

- ◆ Something to write on such as a flip chart or tablet and markers, whiteboard and dry erase markers, chalkboard and chalk, or poster board and sticky notes
- ◆ Pencils and pens
- ◆ Folders or envelopes to file the retrospective post surveys
- ◆ Garden map of the current or proposed garden with the beds numbered
- ◆ Large Post-it® pad
- ◆ Easel (to display the Post-it® pad)
- ◆ Marker



Garden Orientation

(30 to 45 minutes)

1. Have participants register on the sign-in sheet and complete the Gardener's Application.
2. Distribute the Vegetable Variety Selection Sheet for your county, pencils, and the Gardener's Application. It is helpful if the participants have a list of vegetable names when filling out the form. Go over the application with them and explain the Memorandum of Understanding, which is at the bottom of the application. Collect the applications.
3. If this curriculum is offered as a community garden project, show the sample of the Community Garden Map as an example of a proposed garden site. Help the participants create a similar map and numbered bed system for their gardens. Use a large Post-it® pad and Post-it® notes to map out bed areas for their gardens. Provide copies of the garden map with plot names and numbers.

Remind them that if a gardener cannot continue caring for a bed, they must let the garden leader or agent know so others can help take care of the plot until a new gardener takes it. Identify a designated garden contact person for the group. It can be one of the gardeners or an employee where the garden is located. Give the contact person's name, phone number, and email address to the participants.

4. Review the rules for working in the community garden (if applicable), and briefly describe the information that participants will learn over the course of the program.

Say: Over the next six sessions, we will learn how to plan, plant, grow, and harvest vegetables. Those of you who take part in the community garden will get hands-on experience in planning, building, and maintaining a garden. You will also apply what you learn in these sessions to your home garden or container garden.

Over the next six sessions, you will learn about:

- ◆ Identifying the right location for your garden
- ◆ Understanding how soil type impacts your garden and how to improve it
- ◆ Composting
- ◆ Planting seeds and transplants properly
- ◆ Maintaining plants

- ◆ Dealing with common plant diseases
- ◆ Insects (Not all of them are bad!)
- ◆ Harvesting

Our last session will be graduation and celebration of everything you have learned and grown!

Say: We will work in the garden almost every week. Here are some simple rules to help assure that we all stay safe and accident-free:

- ◆ Contact the garden leader if you will miss a session or can't continue to participate.
- ◆ Keep the garden plot and the area around it clean or, after 2 weeks' notice, you will lose it.
- ◆ Respect other people's garden plots (Don't put tall plants where they block the sun from neighbors' plots, pick only your crops unless you have permission from others to pick theirs, and don't put chemicals on your plants that can affect other plots.)
- ◆ No pets are allowed in the garden.
- ◆ Keep the garden smoke, alcohol, and drug-free.
- ◆ Keep sharp tools (hoes, rakes, shovels, and trowels) out of pathways where they can be stepped on. Watch for irrigation lines or water hoses so you don't trip over them.
- ◆ **Wear closed-toe shoes.**
- ◆ Bring drinking water, a hat, gloves, sunscreen, and whatever you need to be comfortable outside.
- ◆ Keep the garden clean. Pick up any trash and dispose of it properly.

For the next session

Encourage participants to

- ◆ Take garden pictures and share them on the official garden Facebook™ pages as the class progresses.
- ◆ Bring a notebook to class to keep their handouts organized.
- ◆ Review the crop list and decide what they want to plant in their garden.
- ◆ Bring pictures of potential home garden sites to the next class (for participants gardening at home).
- ◆ Bring items such as cardboard or old carpet or rugs to put on the paths around the raised beds to keep grass and weeds from growing there. These items can be covered with mulch once it is available.

- ◆ Use their communication network to remind each other of the next meeting and to invite new people.

Thank them for their participation.

How to Access Growing and Nourishing Healthy Communities Garden Course Reference Materials

Individual *Easy Gardening* publications in English and Spanish, as well as other course reference materials are available for free download at <https://aggie-horticulture.tamu.edu/ghc/>. It is a password-protected site and you will be given the user name and password to access these materials.

Easy Gardening and Other Gardening Course Fact Sheets

English	Spanish
Artichokes (EHT-065)	Alcachoras (EHT-065S)
Asparagus (EHT-066)	Espárragos (EHT-066S)
Beets (EHT-050)	Remolacha (EHT-050S)
Carrots (EHT-035)	Zanahorias (EHT-035S)
Cilantro (EHT-032)	Cilantro (EHT-032S)
Cole Crops (broccoli, cabbage, cauliflower, brussels sprouts) (EHT-067)	Cultivo de Coles (EHT-067S)
Collard Greens (EHT-051)	Col Rizada (EHT-051S)
Cucumbers (EHT-033)	Pepinos (EHT-033S)
Dill (EHT-053)	Eneldo (EHT-053S)
Eggplant (EHT-036)	Berenjena (EHT-036S)
Ginger (EHT-014)	Jengibre (EHT-014S)
Green Beans (EHT-057)	Frijoles Verdes (EHT-057S)
Melons (EHT-034)	Melones (EHT-034S)
Okra (EHT-058)	Quingombó (EHT-058S)
Onions (EHT-037)	Cebollas (EHT-037S)
Peppers (EHT-038)	Pimientos y Chiles (EHT-038S)
Irish Potato (EHT-068)	Papas (EHT-068S)
Radishes (EHT-042)	Rábanos (EHT-042S)
Rosemary (EHT-039)	Romero (EHT-039S)
Spinach and Other Greens (EHT-040)	Espinacas y Otras Verduras de Hoja Verde (EHT-040S)
Squash (EHT-041)	Calabacitas (EHT-041S)
Sugar Snap Peas (EHT-015)	Guisantes Dulces (EHT-015S)
Sweet Corn (EHT-044)	Maíz Dulce (EHT-044S)
Sweet Potatoes (EHT-026)	Camotes (EHT-026S)
Tomatoes (EHT-043)	Tomates (EHT-043S)
Tomatillos (EHT-025)	Tomatillos (EHT-025S)
Turnip and Mustard Greens (EHT-061)	Nabos y Mostaza (EHT-061S)
Composting (EHT-069)	Compostaje (EHT-069S)
Composting to Kill Weed Seeds (EHT-052)	Elaboración de Compost para Exterminar Semillas de Malezas (EHT-052S)

Disease Control (EHT-054)	Control de Enfermedades (EHT-054S)
Fertilizing (EHT-070)	Fertilización (EHT-070S)
Harvesting and Handling (EHT-071)	Cosecha, Manejo y Almacenamiento de Vegetales (EHT-071S)
Insect Control (EHT-072)	Control de Insectos (EHT-072S)
Mulching (EHT-073)	El Mantillo (EHT-073S)
Planning (EHT-074)	Cómo Planear un Huerto (EHT-074S)
Planting (EHT-075)	La Siembra (EHT-075S)
Soil Preparation (EHT-076)	Preparación del Suelo (EHT-076S)
Watering Your Vegetables (EHT-024)	Riego de Las Verduras (EHT-024S)
What Makes Tomato Leaves Twist or Curl? (EHT-064)	¿Qué Hace Que Las Hojas del Tomate Se Doblen o Enrollen? (EHT-064S)
Building a Raised Bed Garden (EHT-078)	Construcción de Arriates Elevados (EHT-078S)
Vegetable Gardening in Containers (EHT-062)	Jardinería de Verduras en Contenedores (E-545S)
Texas Home Vegetable Gardening Guide (EHT-077)	
Selecting Fresh Fruits and Vegetables (E-197)	Seleccionando Frutas y Verduras Frescas (E-197S)
Safe Handling of Fresh Fruits and Vegetables (E-198)	Manejo Seguro de Frutas y Verduras (E-198S)
Washing Fresh Fruits and Vegetables (E-199)	Manejo de Frutas y Verduras Frescas (E-199S)
Safe Storage of Fresh Fruits and Vegetables (E-200)	Almacenamiento Seguro de Frutas y Verduras Frescas (E-200S)

Tips for Establishing a Community Garden

Experience shows that successful community gardens have

- ◆ Strong and consistent leadership
- ◆ A master plan resulting from careful consideration of the purpose of the garden
- ◆ One or more participants with reliable horticultural knowledge
- ◆ Strong support from the sponsoring agency, if associated with an institution of some kind
- ◆ A consistent, reliable source of funding
- ◆ A location in a site that provides 8+ hours of sun each day
- ◆ A location that is easily reached by the workers
- ◆ Adequate and available water supply
- ◆ Five to 10 workers who are dedicated to the purpose of the garden
- ◆ A set of basic rules that participants have agreed to

Steps for establishing the garden

1. Gather people who have a strong desire to build a successful garden.
2. Determine the purpose of the garden—feed families of the volunteers, supply fresh produce to a food bank or soup kitchen, teach horticulture and nutrition to children, provide therapy for the handicapped, or community beautification.
3. Find a site. Evaluate possible locations as to hours of direct sunlight each day; access to water; whether the land is flat, slopes, or floods; soil condition; accessibility of the site for the convenience of the gardeners and delivery of soil and other materials; and whether the site is fenced.
4. Plan the garden site regarding what to grow, space needed, number of beds, budget, watering logistics, and timeline for completion.
5. Build the beds.
6. Fertilize the beds.
7. Plant the garden.
8. Monitor the garden for pest control.
9. Harvest at the right time.
10. Plan for sustainability—develop long-term leadership within the community garden participant group.

This information is from the *Community Garden Workbook: A Guide to Starting Your Own Community Garden*, available at elp.tamu.edu/files/2010/10/Community-Garden-Workbook.pdf.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course Program Orientation

Name	Address	Phone number	E-mail address



To learn more about the Supplemental Nutrition Assistance Program (SNAP) or to apply for benefits, visit www.yourtexasbenefits.com.
USDA is an equal opportunity provider and employer. This material was funded by USDA's Supplemental Nutrition Assistance Program — SNAP.
The Texas A&M AgriLife Extension Service provides equal access in its programs, activities, education, and employment, without regard to race, color, sex, religion, national origin, disability, age, genetic information, veteran status, sexual orientation, or gender identity.



Gardener's Application/ Solicitud para Jardineros

Name/Nombre: _____

Address/Dirección: _____

City/Ciudad: _____ Zip code/Código postal: _____

Telephone/Teléfono: _____ Cell phone/Teléfono celular: _____

1. Have you grown vegetables before? Yes ____ No ____ ¿Cultivó verduras alguna vez? Sí ____ No ____

2. What vegetables have you grown? _____

¿Qué verduras cultivó? _____

3. What fruits and vegetables do your family usually eat? ¿Qué frutas y verduras consumen usted y su familia habitualmente?

a. _____ d. _____

b. _____ e. _____

c. _____ f. _____

4. Which vegetables and fruits are your favorites? _____

¿Cuáles son sus frutas y verduras favoritas? _____

5. Put a check (✓) by any program that you or a member of your household have participated in within the last 30 days. Coloque una marca de verificación (✓) en cualquier programa en el que usted o un miembro de su familia haya participado dentro de los últimos treinta (30) días.

☐ TANF ☐ WIC ☐ Head Start ☐ Food pantry/Programa de asistencia alimentaria

☐ Food stamps/Cupones para alimentos/SNAP ☐ Free or reduced school meals/Comidas escolares gratuitas o a precios reducidos

6. Memorandum of understanding/Memorando de entendimiento

- I will have something planted in the garden by _____ (date) and keep it planted all season long./Habré sembrado algo en el jardín antes del _____ (fecha) y lo mantendré durante toda la temporada.
- If I must abandon my plot for any reason, I will notify the garden leaders./Si debo abandonar mi parcela por cualquier motivo, se lo notificaré a los líderes del jardín.
- I will control weeds, trash, and litter and maintain the areas immediately surrounding my plot./Controlaré la maleza y la basura, y mantendré las áreas que rodean directamente mi parcela.

- If my plot becomes unkempt, I understand that I will be given 2 weeks' notice to clean it up. If the issue has not been addressed by the end of that time, the plot will be reassigned or tilled in./*Si mi parcela está descuidado, comprendo que se me dará una notificación con un plazo de 2 semanas para limpiarlo. Si no se abordó el problema al final de ese período, se reasignará la parcela o se la labrará.*
- I will actively assist with the fall cleanup of the entire garden./*Colaboraré de manera activa con la limpieza de otoño de todo el jardín.*
- I will plant tall crops only where they will not shade neighboring plots./*Sembraré cultivos altos solo si no hacen sombra a los cultivos contiguos.*
- I will pick only my own crops unless given permission by another plot user./*Recogeré solo mis propios cultivos a menos que otro usuario de parcela me dé permiso.*
- I will not use fertilizer, insecticides, or weed repellants that will in any way affect other plots./*No utilizaré fertilizantes, insecticidas ni herbicidas que afecten de cualquier manera a otras parcelas.*
- I will keep the path bordering my plot clear./*Mantendré limpia el área que rodea a mi parcela.*
- I agree to volunteer some time toward community gardening efforts./*Acepto colaborar voluntariamente en iniciativas de jardinería comunitarias.*
- I will not bring pets to the garden./*No llevaré mascotas al jardín.*
- I will not come to the garden intoxicated or under the influence of drugs, nor will I use alcohol or drugs while at the garden. I will not bring firearms, knives, or other items that can be considered a "weapon" to the garden or gardening classes./*No iré al jardín en estado de embriaguez ni bajo la influencia de drogas, ni consumiré alcohol ni drogas mientras esté en el jardín. No traeré armas de fuego, cuchillos, u otros artículos que se consideren armas, al jardín o a las clases de jardinería.*
- I understand that neither the garden group nor owners of the land are responsible for my actions./*Comprendo que ni el grupo de jardinería ni el propietario de la tierra son responsables de mis acciones.*
- I give my permission to use my pictures or any graphic image in all media publications including but not limited to Facebook, newspapers, tv broadcast, etc./*Yo doy mi permiso para usar mis fotos o cualquier imagen gráfica en todas las publicaciones de los medios de comunicación incluyendo pero no limitado a Facebook, periódicos, televisión, etc.*
- I THEREFORE AGREE TO HOLD HARMLESS THE GARDEN GROUP AND OWNERS OF THE LAND FOR ANY LIABILITY, DAMAGES, LOSS, OR CLAIM THAT OCCURS IN CONNECTION WITH THE USE OF THE GARDEN BY ME OR ANY OF MY GUESTS./*POR LO TANTO, ACEPTO EXIMIR DE RESPONSABILIDAD AL GRUPO DE JARDINERÍA Y A LOS PROPIETARIOS DE LA TIERRA, POR CUALQUIER DAÑO, PÉRDIDA O RECLAMACIÓN QUE SURJA EN CONEXIÓN CON EL USO DEL JARDÍN DE MI PARTE O CUALQUIERA DE MIS INVITADOS.*

Signature/Firma

Date/Fecha

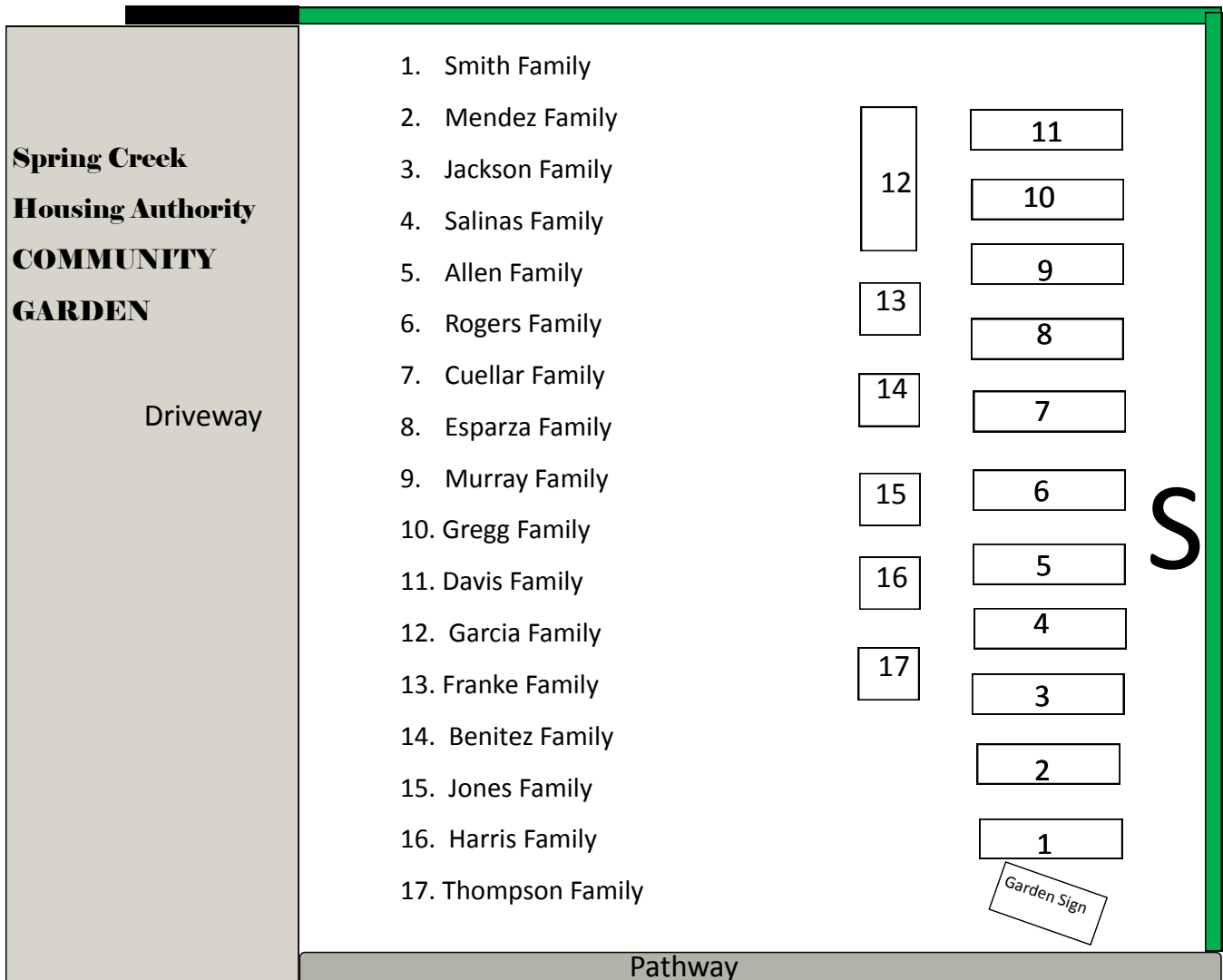
To learn more about the Supplemental Nutrition Assistance Program (SNAP) or to apply for benefits, visit www.yourtexasbenefits.com.
 Para obtener más información acerca del Programa Asistencial de Nutrición Suplementaria (SNAP por sus siglas en inglés) o solicitar beneficios, visite <http://www.yourtexasbenefits.com>.

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 USDA es un proveedor y empleador que ofrece oportunidad igual para todos. Este material se desarrolló con fondos proporcionados por el Supplemental Nutrition Assistance Program (SNAP en inglés) del Departamento de Agricultura de los EE.UU. (USDA siglas en inglés).



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Community Garden Map





Growing and Nourishing Healthy Communities Garden Course

Session 1: Choosing a Garden Location

Note to agent/educator

At the end of this session, program participants will be able to identify the characteristics of a good garden site.

Before this session, review the Extension publication *Easy Gardening: Planning a Garden* (EHT-074) (see <https://aggie-horticulture.tamu.edu/ghc/>).

Depending on the time available, you may combine this session with the Orientation session or the Soils and Compost session (Session 2).

Handouts needed

- ◆ Session 1 sign-in sheet (all participants need to sign in)
- ◆ **Vegetable Variety Selection Sheet** (for any new participants) http://aggie-horticulture.tamu.edu/publications/veg_variety/
- ◆ **Gardener's Application** (for any new participants who did not attend the orientation session)
- ◆ **Garden Location Ranking** handout
- ◆ **Easy Gardening Series—Planning** (EHT-074) (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ Individual *Easy Gardening* fact sheets are available for free download (see <https://aggie-horticulture.tamu.edu/ghc/>). These

are available in English or Spanish (see list on pages 11–12).

Materials needed

- ◆ Something to write on such as a flip chart or tablet and markers, whiteboard and dry erase markers, chalkboard and chalk, or poster board and sticky notes
- ◆ Pencils and pens
- ◆ Large Post-it® pad
- ◆ Easel (to display the Post-it® pad)
- ◆ Markers
- ◆ 9 to 12 pictures of possible garden sites from your area
- ◆ Food demonstration supplies (optional)
 - Equipment and ingredients to demonstrate a recipe with vegetables
 - Napkins
 - Small cups (for a sample of the recipe)
 - Forks or spoons

If there are new participants

- ◆ Give them the Vegetable Variety Selection Sheet, the Community Garden Map, and orientation summary information to keep in their garden folders.
- ◆ Collect from them the Gardener's Application.
- ◆ Record the community garden bed number assigned to each participant.

Anchor

(5 minutes)

Ask participants to work in small groups of three or four to talk about any past gardening experiences they have had. Ask those who have had a garden to think about where they located the garden and why they chose that spot.

Have each group write down the answers and then invite them to share their responses with the entire group.

Provide participants with a copy of the *Easy Gardening* series fact sheet, *Planning A Garden*.

Say:

Add: When choosing a site for a garden, look for three characteristics:

- ◆ Well-drained soil (If the soil is always wet, plants won't grow.)
- ◆ A source of water
- ◆ At least 6 to 8 hours of sunlight daily. Plant your garden away from buildings, trees, or shrubs that might block out the sun. Sunlight is vital for plants because that is how they make food to grow.

Add: In addition to these characteristics, there are other factors to consider when planning a garden. If you are planning a garden at your home, think about the following:

- ◆ How much room do you have for a garden?
- ◆ How much time do you have to garden? Large gardens take more time than small gardens or plants grown in containers. If this is your first time to garden, you may want to start out small and expand your garden as your skills and confidence grow.
- ◆ How many people will be eating from the garden? It may need to be larger, depending on how many people will rely on it.
- ◆ What types of vegetables or fruits do you plan to grow? Some vegetables need a lot of room to grow while others can grow in small spaces or containers.

Add: Speaking of vegetables, you will soon decide what vegetables you want to plant in your garden. When deciding what vegetables you want to plant, consider the following:

- ◆ Space. Know how much space a vegetable needs before you plant it. A watermelon plant in a small container won't produce much because it needs a lot of space. (Refer participants to the chart on page 2 of the *Planning a Garden* handout.)

- ◆ How much will the plant produce? For small gardens, plant vegetables that will produce as much as possible in the space you have.
- ◆ Cost of the vegetable if you had to buy it at the store. Some vegetables cost a lot at the grocery store but are easy to grow.
- ◆ Personal preference. Grow only those vegetables you or your family will eat.

Apply: In groups of three or four, have the participants look at pictures of potential garden sites, using a PowerPoint presentation or photos. Discuss if each site would be a good or bad place to build a garden. After 3 to 5 minutes, have the groups share their conclusions.

Away: If these sessions take place at a community garden site, have the participants look at the site and evaluate two or three potential garden spots. If possible, point out a shady area, a part of the site that has no water source, one that has poor or rocky ground, and one that looks promising. Decide which area would be best for the garden.

Away: Have the participants look at the *Vegetable Variety Selection Sheet* and write down the names of plants they want to plant so you can order the seeds or seedlings for them. Point out the cool and warm season vegetables.

Away (optional): Introduce the *Garden Location Ranking* handout to take home to evaluate potential garden sites. Have the participants who are gardening at home bring pictures of the possible sites to the next class and use the *Garden Location Ranking* handout to determine which sites will be best suited for a garden.

Next session

Ask participants to bring 1 to 2 cups of dry soil from their home gardens. Also, ask them to be prepared to identify what vegetables they want to grow.

Note to agent/educator

We need to know in advance what participants want to grow to purchase seeds or seedlings in time (ideally, by Session 4). Have copies of the vegetable fact sheets from the Easy Gardening series available for the participants. These fact sheets are available in English and Spanish at <https://aggie-horticulture.tamu.edu/ghc/>.

Optional activities

- ◆ Work in the community garden if it is already established; assign beds if that has not been done already.
- ◆ Demonstrate a recipe using vegetables that are commonly grown in gardens in your area.

Thank them for their participation.



Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 1: Choosing a Garden Location

[illegible]



Name: _____

Date: _____

Garden Location Ranking

For each question, give 3 points for **Yes**, 2 points for **Partly**, and 1 point for **No**. Count the total points for each location.

Location _____

	Yes=3	Partly=2	No=1
1. This location gets 6 to 8 hours of full sunlight.	_____	_____	_____
2. It is near a good water source.	_____	_____	_____
3. The soil is rich for planting.	_____	_____	_____
4. There is storage for my tools close by.	_____	_____	_____
5. It is easy to reach and close to home.	_____	_____	_____

How many total points did this location get? _____ points

Location _____

	Yes=3	Partly=2	No=1
1. This location gets 6 to 8 hours of full sunlight.	_____	_____	_____
2. It is near a good water source.	_____	_____	_____
3. The soil is rich for planting.	_____	_____	_____
4. There is storage for my tools close by.	_____	_____	_____
5. It is easy to reach and close to home.	_____	_____	_____

How many total points did this location get? _____ points

Which location got the most points? _____



Nombre _____ Fecha: _____

Calificación para el local del jardín

Para cada pregunta, dé 3 puntos para **sí**, 2 puntos para **en parte**, y un punto para **no**. Sume los puntos totales para cada lugar.

Lugar _____

	Sí=3	En parte=2	No=1
1. Este lugar recibe de 6 a 8 horas de sol directo.	_____	_____	_____
2. Está cerca de una fuente de agua.	_____	_____	_____
3. La tierra es apta para la siembra.	_____	_____	_____
4. Hay donde almacenar mis herramientas cerca.	_____	_____	_____
5. Es de acceso fácil y cerca de mi hogar.	_____	_____	_____
¿Cuántos puntos logró este lugar?	_____ puntos		

Lugar _____

	Sí=3	En parte=2	No=1
1. Este lugar recibe de 6 a 8 horas de sol directo.	_____	_____	_____
2. Está cerca de una fuente de agua.	_____	_____	_____
3. La tierra es apta para la siembra.	_____	_____	_____
4. Hay donde almacenar mis herramientas cerca.	_____	_____	_____
5. Es de acceso fácil y cerca de mi hogar.	_____	_____	_____
¿Cuántos puntos logró este lugar?	_____ puntos		

¿Cuál lugar logró el mayor número de puntos? _____



Growing and Nourishing Healthy Communities Garden Course

Session 2: Soils and Compost

Note to agent/educator

At the end of this session, participants will be able to evaluate soils and identify the main component as sand, silt, clay, or loam. Understanding soils and the important role they play in plant health is important to every gardener.

Participants will also learn how to make compost, what materials work well, and which ones do not. They will understand that to be successful, compost should be kept at approximately 60 percent moisture and turned on a weekly basis.

Compost is an excellent soil amendment and one that most soils need. Fill raised beds with 50 percent compost and 50 percent clean topsoil. For in-ground vegetable beds, make sure the area is completely cleared of all grass roots and weeds. Then add about 3 inches of compost and till it into the top 8 inches of soil.

To learn more about soils and home composting, review the following websites as well as the materials featured in this session. During the class, demonstrate how to build a compost “sandwich” by preparing a clear plastic box with three layers: “brown, green, and brown.”

Additional information

“Improving Landscape Soils: Crucial to Long-Term Success...,” <http://aggie-horticulture.tamu.edu/earthkind/files/2010/10/soilimprovement.pdf>.

Haby V. A., Baker M. L., and Feagley S. *Vegetable Growers Handbook*, “Chapter III: Soils and Fertilizers,” at <http://aggie-horticulture.tamu.edu/vegetable/guides/texas-vegetable-growers-handbook/chapter-iii-soils-fertilizers/>.

Handouts needed

- ◆ Session 2 sign-in sheet
- ◆ Soil handout – Chapter III: Soils and Fertilizers (see above).
- ◆ EHT-069 *Easy Gardening* Composting fact sheet (see <https://aggie-horticulture.tamu.edu/ghc/>).

Materials needed

- ◆ Something to write on such as a flip chart or tablet and markers, or whiteboard
- ◆ Dry erase markers
- ◆ Pencils to loan participants (if they want to take notes)
- ◆ Pictures or PowerPoint® slides of different soil types
- ◆ Soil samples (clay, silt, and sandy). Hopefully, participants will have brought soil samples from their yards. If not, have containers of different types of soils ready.
- ◆ Paper plates for soil samples

- ◆ Water for soil drainage test and compost
 - ◆ Plastic spray bottle with water for texture identification
 - ◆ Shovel or trowel for drainage test and compost
 - ◆ Wire-mesh sifter
 - ◆ Funnel
 - ◆ Plastic jar with soil and water for the Soil-Shake test
 - ◆ Organic matter such as “green” items (fresh fruit or vegetable scraps, fresh grass clippings) and “brown” materials (such as leaves, small twigs, dried peel from fruit)
 - ◆ Items that should not be included in compost (grease, soap)
 - ◆ A small, clear plastic container to demonstrate putting layers of “brown,” “green,” “brown” to make compost (It is helpful to have some finished compost as an example.)
- Food demonstration supplies (optional)
- ◆ Equipment and ingredients to demonstrate a recipe with vegetables
 - ◆ Napkins
 - ◆ Small cups (for a sample of the recipe)
 - ◆ Forks or spoons

Anchor

(5 minutes)

Ask participants to share their garden location pictures. Have the groups review the previous week’s information about choosing a good location, taking into consideration sunlight, access to water, and soil. Allow participants to discuss the question in groups of three or four people (5 minutes). Then invite each group to share their discussions.

Note to agent/educator

This discussion will serve as a review of the information covered in the last session.

Say:

Add: Plant growth requires sunlight + water + good quality soil.

Soils form over hundreds, even thousands, of years by the natural breakdown of minerals and rocks through weathering and the decaying of organic matter. Soil supports plants and holds water and nutrients (such as minerals) for roots to take up into the plant.

Soil is made up of four main components: oxygen, water, minerals, and organic matter.

The oxygen in soils allows the plant roots to breathe and is necessary for all plants that grow in soil.

Organic matter includes decayed wood, leaves, or animal residue (including manure). As it breaks down, organic matter provides nutrients to plants and improves soil texture so oxygen, water, and nutrients can more easily move throughout the soil.

Soil has a fifth component of soil that many people don't think about. Tiny microorganisms also live in the soil. While people often think of microorganisms as a bad thing, they are important because they help break down nutrients so plants can absorb them through the roots. Earthworms that live in rich soils feed on the organic matter too and help make the soil more porous.

It is important that garden soils drain well so that the water doesn't remain standing to the point that it fills up all the air space in the soil. By drainage, we mean how fast water moves away from the plant roots. If the soil has poor drainage, it stays wet for a long time, keeping oxygen from reaching the plant roots. Without oxygen, plants won't grow. For home and community gardens, using raised beds or containers are practical solutions for soils with poor drainage.

Use the Hole Test to find out how well the soils in your garden drain.

Step 1: In the garden, dig a hole 2 feet deep and 6 to 8 inches wide. A post-hole digger or sharp-shooter shovel works well.

Step 2: Fill the hole with water until it is half full. Check what the time is.

Step 3: Once all the water has drained from the hole, note how much time has passed.

The amount of time it takes water to drain from the hole indicates how well the soil drains.

Less than 15 minutes: This soil has excessive drainage; organic matter can help slow the drainage and increase the soil's water-holding ability.

15 to 30 minutes: Drainage is adequate.

More than 30 minutes: Drainage is poor (takes too long to drain). Use raised beds or add compost or mulch to increase drainage and soil aeration.

Apply: Conduct a soil-drainage test in the garden location.

Say:

Add: Soil particles are described by the size of the pieces. Clay has the smallest pieces. Silt particles are larger than clay, but still tiny. Sand has the largest particles. No soil is 100 percent clay, silt, or sand. Soils are

mixtures of these particles and are often called loamy soils, such as clay loam or sandy loam, depending on what kind of particles make up most of the soil.

- A. Dry **clay** soil looks hard-baked or crusty and can feel like a rock. Clay soil particles were once rock and are rich in minerals. Because the minerals are easy to compact, clay soils sometimes lack open air space where roots pick up air and water. Compacted clay soil does not drain well, and water will puddle on top of it. Wet clay soil sticks together and can feel greasy. It holds its shape, and you can form it into a ball or roll it into a “ribbon” or sausage. To create the open spaces for air and water that plants need, add compost and organic matter to clay soil.
- B. Dry **silty** soil looks and feels like cornstarch or flour. It can float on top of water. When it is wet, silty soil can be formed into a ball or ribbon, but crumbles apart in chunks if pressed. Compost should be regularly added to keep this soil at its best.
- C. Dry **sandy** soil is coarse, loose, and feels rough or gritty because it is full of sand grains. When wet, it doesn’t hold its shape when squeezed. Sandy soil needs a lot of compost added so it will hold water and nutrients.

Ask: What questions do you have concerning what we have covered about the soil in our gardens?

Apply: Soil Identification Activity

Have participants work in small groups. Pass out paper plates, dry soil samples, and water. Instruct them to place the soil on the paper plate (one sample per paper plate). Have them feel the dry samples, then the wet soil samples, and see if they can form the soil into ribbons. Have participants roll the wet soil between their fingers or hands to test it.

Clay soil makes a ball, ribbon, or sausage and holds the shape the best.

Silty soil sticks together but crumbles with pressure.

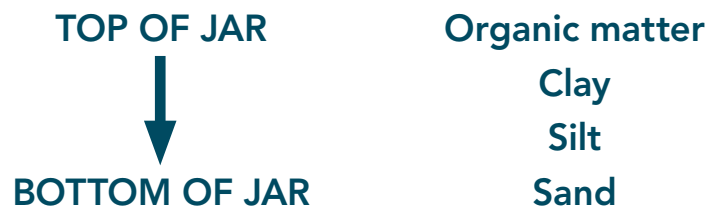
Sandy soil doesn’t hold together.

Have groups share their observations about the soils.

Say:

Add: We mentioned that soil is not all sand, silt, or clay but rather a combination of the three plus organic matter. You can get an idea of how much of these different components are present by doing a simple Soil-Shake Test. (Distribute the Soil-Shake Test handout and demonstrate how to do the test.)

1. Take a sample of soil from your garden. Be sure the sample does not include any rocks or large particles.
2. Place the soil in a clear plastic jar (peanut butter or mayonnaise) until the bottle is one-third full.
3. Fill the bottle with water and add the lid. Be sure the lid is on tight!
4. Shake the jar until large clumps of soil break down. Let the jar sit for 2 to 3 hours so the particles can settle.
5. Take a black marker and mark the layers to show what has settled.



If you wait 24 hours, the layers will be clearly defined with a top layer of clay, a middle layer of silt, and a bottom layer of sand.



Away: Encourage participants who are gardening at the community garden to conduct a shake test on soil from their garden bed. Participants gardening at home can perform the test on their soil at home.

Say:

Add: Clay soil needs compost to create more space for air and water and provide a space for roots to grow easily. Adding compost in clay soils also reduces compaction. **Silty soil** needs compost added regularly to improve the soil structure, hold it together, and provide nutrients. **Sandy soil** needs compost to provide nutrients and slow the movement of water, so it is available to the plant roots.

Add: We have talked about compost, but what is it? In the simplest terms, compost is what we have when an organic material such as leaves, grass clippings, and kitchen scraps break down or decompose.

Add: Compost benefits both the garden and the environment because it

- ◆ Makes the soil easier to work. It's not as compacted or hard, so roots grow better. Strong roots make healthier plants, which are better at fighting off disease.
- ◆ Compost increases the soil's ability to hold water and nutrients.
- ◆ Compost acts as a natural fertilizer.
- ◆ Compost can be free (if you make it). In fact, compost greatly reduces the amount of waste that goes into the landfill.

Distribute and review the **composting** handout with the class.

Add: When making compost, make sure to have the right ingredients—much like preparing your favorite recipes at home. The following materials work well in compost:

- ◆ Chicken, cow, or horse manure
- ◆ Dry leaves
- ◆ Grass clippings
- ◆ Kitchen scraps (fruit, vegetable trimmings, coffee grounds and filters, eggshells)
- ◆ Shredded newspaper

On the other hand, there are some things you **DON'T** want to put in compost:

- ◆ Animal products such as grease, fat, meat trimmings, milk, or other dairy products (These items are slow to break down, attract pests, and cause bad odors!)
- ◆ Dog or cat feces (They can carry disease.)
- ◆ Large branches or twigs (They won't break down fast enough.)
- ◆ Noxious weeds (These weeds can harm other plants in the garden.)

Apply: Write the following items on a large Post-it® pad or chalkboard: chicken bones, coffee grounds, cow or chicken manure, cut grass, diseased garden plants, leaves, moldy cheese, potato peels, shredded newspaper, and tree branches.

Ask participants to gather in small groups and discuss which of these items would be appropriate to make compost. Allow 2 to 3 minutes for discussion, then ask them to share their answers.

Answer: The following items are excellent compost materials: coffee grounds, grass clippings, leaves, manure, potato peels, and shredded newspaper.

Divide compost “ingredients” into “green” or “brown” ingredients.

Green ingredients contain nitrogen. They provide moisture and nutrients to the compost. Examples of “green” ingredients are fruit and vegetable scraps (including potato peels), grass clippings, fresh manure, and coffee grounds.

Brown ingredients provide carbon, absorb excess moisture, and give structure to your compost. These types of ingredients include dried leaves, shredded newspaper, and coffee filters. Brown ingredients also promote airflow in the compost bin and prevent the compost from getting compacted.

Add: Before you start making compost, you need a place to put the ingredients. We call this the compost bin. Think of the bin as your compost pot!

There are several ways to build a compost bin. You probably have most of the materials in your home right now. You can use wire fencing (chicken wire), bricks, or even lumber. Make sure you can turn (stir) your compost pile so air can get into the pile. Remember, air flow in a compost bin is important because the microorganisms in the compost need oxygen as well as moisture to break down the ingredients to make the nutrients available for your plants.

Locate your compost bin

- ◆ In a secluded area (so it is not disturbed or in the way of other activities)
- ◆ Near the garden (so you don’t have to carry the compost too far when it is ready to use)
- ◆ In partial shade (so the compost doesn’t dry out too fast)
- ◆ In a space with good drainage (so the compost doesn’t stay too wet)

When the bin is ready, start filling it up, adding ingredients in layers, if possible.

First layer: Start the pile with small sticks (if available) on the bottom. This layer creates space for air to circulate.

Second layer: Add “brown” materials. Use cardboard, newspaper, or soil (with no grass or weeds is best).

Third layer: Add a “green” layer on top of the “brown” layer. If using fruit and vegetable scraps, chop them into smaller pieces to help them decompose (break down) faster.

Additional layers: Continue adding “brown” layers on top of “green” layers. Always end with “brown” on top so the wet scraps aren’t exposed and attract unwanted animals to the compost.

When adding the layers, make sure the compost is moist. Ideally, the compost pile should be about as moist as a wrung-out sponge. To check the moisture, grab a handful of compost and squeeze it. If there is no water running down your fingers and if the materials keep their shape, the moisture content is good. If it is too moist, add more “brown” materials. If it is too dry, add water.

When all the requirements (air, water, “green,” and “brown”) are met and under normal conditions, the compost will be ready in 3 to 4 months. Under less favorable conditions, it can take many months, even a year, for the organic matter to decompose. Keep the compost moist and turn the compost each week. Compost is “done” when it looks like dark, crumbly soil with small pieces of organic matter and smells sweet or “earthy.”

Away: Remind participants to take the session handout home and encourage them to begin composting kitchen and yard waste.

Apply (optional): Let participants make a compost “sandwich” of brown, green, and brown layers. This activity works well if you have a community garden with a dedicated compost bin.

Away (optional): Demonstrate a recipe that features a vegetable that may be grown in the garden.

Answer any additional questions. Remind participants that next week’s topic is on planting. They will make paper pots and start their seeds for the garden. Ask participants to let the educator know what vegetables they want to plant so seeds can be purchased and the appropriate vegetable handouts made available for the next session.

Note to agent/educator

Make sure you know what each participant plans to plant in their garden so you can have seeds/seedlings/plants along with the vegetable fact sheets from the *Easy Gardening* series ready for Session 4.

Thank them for their participation.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 2: Soils and Compost

[illegible]

Soil-Shake Test



Take a clean, empty jar (plastic peanut butter or mayonnaise jar) and fill it one-third full with soil.



Add water until the jar is almost full. Shake the mixture and leave the jar for 2 or 3 hours for the contents to settle out and the water to start to clear.



Over time, the layers of the soil will appear. Sand particles are the largest and will be the bottom layer. The next layer will be silt. If the soil contains clay, that layer will be on top of the silt. Organic matter will be on top.

Time started: _____

Time stopped: _____

What were the results? _____



Growing and Nourishing Healthy Communities Garden Course

Session 3: Raised Beds and Container Gardens

Note to agent/educator

If this is the first year of establishing the gardening programs, constructing beds or setting up container gardens may take several sessions to complete. Wooden beds, 4 feet by 8 feet long by 10 inches high are practical (they provide a comfortable length for reaching vegetables to harvest), but other sizes are also effective options. You can also establish gardens in 10-gallon plastic containers or tubs.

At the end of this session, participants will be able to make “pots” from newspaper and plant seeds or seedlings to begin a garden. They will also understand how to build a garden bed or prepare large containers for planting.

Educator resources

In Praise of Raised Beds, by Dr. William M. Johnson, Extension horticulturist, https://aggie-horticulture.tamu.edu/galveston/in_praise_of_raised_beds.htm.

EHT-075 *Easy Gardening: Planting* (see <https://aggie-horticulture.tamu.edu/ghc/>).

Vegetable Garden: Raised Beds, by Brazos County Master Gardeners, www.brazosmg.com/pdf/dig-vegetable-garden-raised-bed-brochure.pdf.

Handouts needed

- ◆ Session 3 sign-in sheet
- ◆ EHT-078 *Building a Raised Bed Garden* (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-078S *Building a Raised Bed Garden* (Spanish version—*Construcción de Arriates Elevados*) (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-062 *Vegetable Gardening in Containers* (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ EHT-545S *Vegetable Gardening in Containers* (Spanish version—*Jardinería de Verduras en Contenedores*) (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ *Easy Gardening* fact sheets for each kind of vegetable to be planted by the participants (see <https://aggie-horticulture.tamu.edu/ghc/>).
- ◆ A copy of the variety selection list from the orientation and the *Vegetable Planting Schedule* for your county that shows specific dates for planting seeds. (Contact your county Extension office for planting guides.)
- ◆ A calendar or notebook to record planting date information.

Materials needed

Paper pot materials

- ◆ Cardboard trays to hold the pots
- ◆ Fertilizer
- ◆ Newspaper pages
- ◆ Potting mix
- ◆ Tape
- ◆ Vegetable seeds
- ◆ Water bottles (to moisten the soil)

For constructing raised beds

- ◆ Purchase pressure-treated lumber in sizes 8 feet by 2 feet by 10 feet or 2 feet by 12 feet by 10 feet. These two sizes allow you to use all the lumber without any waste. Depending on the size of the lumber, you could have two different size beds.
- ◆ 80 3-inch screws or nails (screws are recommended)
- ◆ Drill and screwdriver, a hammer, and a posthole digger or shovel
- ◆ Weed cloth to cover the area under the beds
- ◆ Top soil and compost in equal amounts (One yard each covers two beds. Spread evenly and mix well.)

For containers

- ◆ Examples of containers for growing vegetables (wooden box, trash can, basket, pot)
- ◆ 10-gallon plastic tubs
- ◆ Drill for drainage holes
- ◆ Plastic water bottles, aluminum cans, or Styrofoam pieces (Use as a filler on the bottom of the tub.)
- ◆ Topsoil and compost, mixed evenly half and half; needed only in the top half of the container
- ◆ Seeds
- ◆ Seedlings
- ◆ Trowels for planting

Food demonstration (optional)

- ◆ Equipment and ingredients to demonstrate a recipe with vegetables
- ◆ Napkins
- ◆ Small cups (for a sample of the recipe)
- ◆ Forks or spoons

Make a map of the garden beds, marking each bed with the name of the person assigned to it.

By now, participants should have selected which vegetables and herbs they want to plant in their community garden bed, containers, or home garden. Have the appropriate vegetable fact sheet available for each person.

Anchor

(5 minutes)

Have participants review the soil types from the previous session: clay, silt, and sand and discuss the results of the Soil-Shake Test on soil from their garden beds (if at the community garden) or their home gardens (if they are gardening at home). Then invite each group to share their discussions. Following the soils discussion, review the importance of what compost does to each soil type.

Answer: Clay soil needs compost to create more space for air and water and provides a space for roots to grow easily. Adding compost in clay soils also reduces compaction. **Silty soils** need compost added regularly to improve the soil structure, hold it together, and provide nutrients. **Sandy soil** needs compost to provide nutrients and slow the movement of water so that it is available to the plant roots.

Note to agent/educator

This discussion will serve as a review of the information covered in the last session.

Say:

Add: There are other things to consider when planning a garden.

- ◆ How much room do you have for a garden?
- ◆ How much time do you have to garden? Large gardens take more time than small gardens or plants grown in containers. If this is your first time gardening, you may want to start out small and expand your garden as your skills and confidence grow.
- ◆ How many people will eat from the garden? The garden may need to be larger, depending on how many people rely on it to support their diets.
- ◆ What types of vegetables and fruits do you plan to grow? Some vegetables need a lot of room to grow, while others can grow in small spaces or containers.

Add: Also keep in the mind the three main characteristics of a garden site:

1. Well-drained soil (If the soil is always wet, plants won't grow.)
2. A source of water
3. At least 6 to 8 hours of sunlight daily

Add: When thinking about building a garden, consider raised beds. They are popular for community and backyard gardens—especially in areas where the soil is too compact to till or where drainage is poor. Soils in raised beds tend to warm up sooner and are less likely to be invaded by grass. You still have to weed the beds, however!

There are seven steps in building a raised bed: (Pass out Extension publication EHT-078 *Building a Raised Bed Garden*)

1. Select the spot for your raised bed.
2. Remove any existing vegetation by
 - Using an herbicide
 - Covering the area with clear plastic for 1 to 2 months so the heat kills the vegetation (This will not kill the vegetation as quickly as an herbicide does.)
 - Tilling the soil thoroughly (After the vegetation is killed.)
3. Build the bed using bricks, cinder blocks, landscape timbers, metal edging, or stones. We will be using landscape timbers for our community garden beds.
4. Think about irrigation needs. Install any needed irrigation before adding the soil to the beds.
5. Add newspaper or weed barrier cloth in the bottom of the bed.
6. Add soil to the prepared beds. Use good quality soil that holds moisture but allows for good drainage. A mixture of topsoil and compost is recommended.
7. Plant your vegetables or herbs.
8. Mulch. Mulch reduces moisture loss through evaporation and runoff, decreases weed growth, and keeps the plant roots cool during the hot summer months. Apply mulch after the plants are in the bed. If you are starting your plants from seeds in pots, wait until they are transplanted before adding mulch to the bed.

You can use several types of materials for mulch, including bark, leaves, pine needles, or shredded newspaper. Apply 2 to 3 inches of mulch to the garden beds.

Another option for mulch is black plastic. Place the plastic across the beds, making sure it is anchored down so it doesn't blow away. Cut holes in the plastic to plant the seeds or transplants.

Away: How to make a newspaper “pot” to grow seedlings. Explain how seedlings for many plants, including vegetables and herbs, can be grown ahead of time and transplanted into the garden. Demonstrate how to make a paper pot, using a 16-ounce water bottle and masking tape.

- ◆ Give students a newspaper page and have them tear it in half.
- ◆ Fold that piece in half and roll it into a tube or cylinder shape.

- ◆ Tape the edge to hold the circle together.
- ◆ Next, fold in the bottom edges till they overlap slightly in the middle and tape them together.
- ◆ Pinch the bottom edges that are sticking up and bend them down to the middle also and tape them in place.
- ◆ You should now have a small paper pot to plant a seed in. Fill it with commercial potting soil (for seed propagation) and plant your seed.
- ◆ Take it home and water it until the seed sprouts and is large enough to be planted (either in the ground or in a container). Plant the whole thing—pot and plant!

Note to agent/educator

You can keep the pots at the garden site or Extension office, or let participants take them home to care for them until it is time to plant the seedlings in the ground.

Ask: What questions do you have so far?

Anchor: Ask the following question: What types of plants do you grow in pots or containers at home? Give participants 2 to 3 minutes to discuss the question among themselves.

Say:

Add: Container gardening is a convenient way to grow some of your favorite vegetables when space is limited. Other advantages include:

- ◆ Easier to control diseases and pests
- ◆ Less work (compared to managing a large garden)
- ◆ A good substitute in areas where drainage is a problem
- ◆ An interesting way to introduce children and new gardeners to the idea of growing vegetables

Distribute the EHT-062 Vegetable Gardening in Containers publication (see <https://aggie-horticulture.tamu.edu/ghc/>); give the participants a few minutes to review it.

Say:

Add: When planning container gardens, consider

- ◆ What vegetable(s) to grow (Most vegetables grown in backyard gardens do well in containers. Grow vegetables you and your family will eat.)

- ◆ What containers to use (Use the right size container for your vegetable.)
- ◆ Soil

Note to agent/educator

Refer to the chart in EHT-062 *Vegetable Gardening in Containers* for more information.

Say:

Add: You can use just about any container to grow vegetables—baskets, pots, tubs, wooden boxes, and even trash cans. The key is that they are large enough for the vegetable you want to grow and that they have good drainage. Generally, 6- to 10-inch pots work well for green onions and herbs. Five-gallon containers work well for eggplant, peppers, squash, and tomatoes. One-gallon containers work well for cucumbers, lettuce, and radishes.

Make sure that any container you use drains well. Drill holes along the side of the container, about 1/2 inch from the bottom, to allow water to escape. Place an inch of gravel in the bottom of the container to improve drainage.

If the containers you have are larger than you need, fill the bottom of a plastic tub with plastic bottles or plastic “peanuts,” then fill the rest of the tub with soil. You will need about 10 to 12 inches of soil for planting.

Ask: What questions do you have?

Apply (optional): Show participants different types of containers that can be used to grow vegetables. Ask them to look at the chart in the *Vegetable Gardening in Containers* publication and identify what types of vegetables would grow best in the containers. Allow participants 3 to 5 minutes to complete the activity, and then discuss as a group what they learned.

Say:

Add: Let’s talk about the soil to use in our container gardens. Just like soil in traditional gardens, the soil we use in containers must provide water and nutrients to the plants. Depending on how many containers you plan to have, buying soil at garden centers may be the easiest choice to be sure you get a quality soil free of disease and weed seeds. Another option is to mix topsoil and compost together (similar to what we do for raised beds).

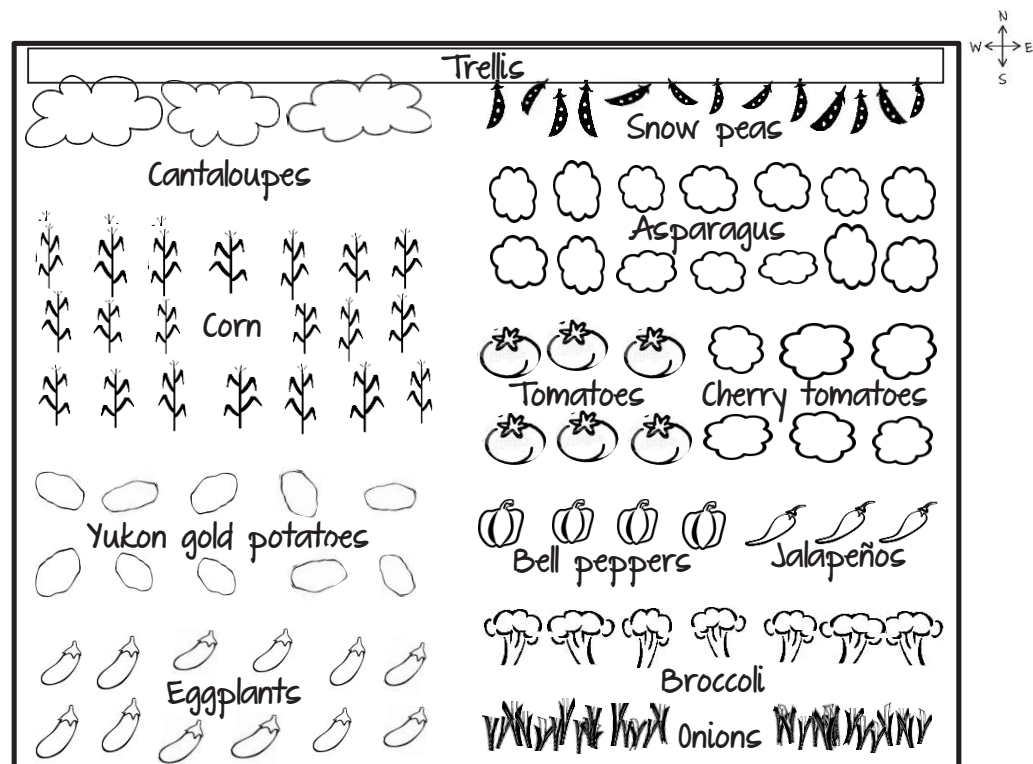
Apply: Give participants the *Extension Vegetable Planting Guide* for their county. Review the approximate planting dates and mark the crops you can plant now. Make a list of those seeds or seedlings available that you would like to plant and encourage participants to try at least one plant that is new to them. Assure them that they will receive information on the planting of all of the crops they are provided. Download the specific vegetable fact sheet from <https://aggie-horticulture.tamu.edu/ghc/>.

Say:

Add: Because vegetable plants need sunlight to produce their food, place them where they will get enough sunlight. When deciding which vegetable to plant, keep in mind how much space each one will need, how tall it will get, and what it will shade. For example, you might plant tall plants, such as okra or tomato, on the north side of the bed and shorter crops, such as radish or carrots, on the south side.

Plan to rotate crops and section off the bed into areas 1 (beans and peas), 2 (onions and roots), 3 (tomatoes and flowering vines), and 4 (cabbage family), with 5 (leafy vegetables) in the very center. Plant family 6 (flowers and herbs) as companions in the other areas. Plant family 7 (other plants) in an adjacent area, in tires or containers, or as companion plants.

Apply: Invite participants to divide into small groups. Give each group a large sheet of paper (a large Post-it® pad works great) and some markers. Ask them to draw a picture of a garden plot (see example below).



If the following plants are available, which ones would they select and how would they arrange them in the plot?

Summer: Eggplant, jalapeño peppers, squash, tomato

Winter: Broccoli, cauliflower, lettuce, spinach

Allow them to work on this activity for about 5 minutes. Then invite the groups to share their ideas.

Apply: Constructing planting beds. Build a garden bed for planting. Wooden beds 4 feet wide by 8 feet long, by 10 inches high are practical. (Note: Do not make the beds wider than 4 feet to keep plants within arm's length while harvesting.) To prevent weeds from coming up into the beds, weed cloth placed under the beds will keep out all light that might support weed growth. You can also use flattened cardboard boxes in place of weed cloth. Fill the beds with one-half topsoil and one-half compost and mix well.

Note to agent/educator

Mention that before filling the beds, they should till the soil where the raised beds will be placed and remove bermudagrass and weed roots.

Constructing Wooden Beds

To make a simple 8-foot by 4-foot bed,

- ◆ Cut one 8-foot board in half.
- ◆ Cut the 8-foot, four-by-four board into eight 1-foot pieces.
- ◆ Lay the four wall pieces on the ground where you want the bed to be.
- ◆ Put four 1-foot long, 4-inch by 4-inch pieces inside the “walls” where the four corners of the bed will be.
- ◆ From outside the bed, use five 3-inch screws to attach the bed “wall” to the inside 4-inch by 4-inch corner post. Two inches of the corner post will be above the “wall.” Do this twice at every corner until the whole bed is put together.
- ◆ Use the post-hole digger or a shovel to dig down a couple of inches so that the corner 4-inch by 4-inch bed “legs” can sit securely in the holes.
- ◆ Turn the bed over so that the 2-inch legs sit in the corner holes.
- ◆ Put a weed cloth or barrier down to prevent weeds and grass in the bed. Old carpet (turned upside down) or cardboard in the paths between the beds also keeps the weeds from growing. You can cover these with mulch to make them look nicer.

Reminder: Keep the bed area free of grass and weeds or they will be in your vegetable beds.

Apply: Use the remaining time to build the raised beds and fill containers for the community garden.

Away (optional): Demonstrate a recipe that features a vegetable that will be grown in the community garden.

Answer any additional questions. Remind participants that the topic of the next session will be plant maintenance.

Note to agent/educator

If you are meeting weekly, you may want to take an extra week or two between session 4 and session 5 to allow seeds in the pot to sprout (unless you are planting the garden from seedlings and plants). Use the time between session 4 and session 5 to build the community garden.

Thank them for their participation.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 3: Raised Beds and Container Gardens

Name	Address	Phone number	E-mail address



Growing and Nourishing Healthy Communities Garden Course

Session 4: Maintaining Your Garden

Note to agent/educator

At the end of this session, participants will be able to identify good maintenance practices common to all vegetable gardens. These practices include watering consistently, maintaining a weed-free garden, mulching to prevent weeds and regulate soil temperature, fertilizing plants to provide nutrients, and monitoring plants for insect pests and diseases. By keeping a garden journal, participants will learn to use their observation skills, investigate problems, and record measures taken to resolve problems.

The community gardens should be constructed and planted by the time you offer this session.

Educator resources

EHT-077 *Texas Home Vegetable Gardening Guide* (see <https://aggie-horticulture.tamu.edu/ghc/>).

EHT-073 *Easy Gardening: Mulching* (English) (see <https://aggie-horticulture.tamu.edu/ghc/>).

EHT-073S *Easy Gardening: Mulching* (Spanish—El Mantillo) (see <https://aggie-horticulture.tamu.edu/ghc/>).

Resources for program participants

Small notebook to use as a garden journal

Handouts needed

- ◆ Sign-in sheet
- ◆ *Texas Home Vegetable Gardening Guide*
- ◆ EHT-073 *Mulching* (English)
- ◆ EHT-073S (Spanish)

Materials needed

- ◆ Example of a garden journal page for making regular observations
- ◆ Small notebooks (one per participant; this will be their garden journal)
- ◆ Large Post-it® pads or chalkboard
- ◆ Markers, pencils, and pens
- ◆ Examples of mulch: Leaves, wood chip mulch, or straw (Hay is not suitable for mulch because it usually contains weed seeds.); a large black plastic trash bag cut as a single sheet of plastic; 8 to 10 sheets of newspaper; and professional weed cloth (from a garden center).
- ◆ Examples of fertilizers that are readily available to participants, such as granulated chicken manure (purchased from a garden center or farm and ranch store), compost, compost tea, fish emulsion, and examples of brand name fertilizers for vegetables, such as Miracle Grow™ fertilizer.

- ◆ Gallon jug with a screw-on lid, measuring spoon (disposable, or designate a spoon to store safely for use with the fertilizer), and water for mixing the fertilizer.

Note: If an established garden is available, you can teach this session pointing out examples in the community garden.

Food demonstration (optional)

- ◆ Equipment and ingredients to demonstrate a recipe with vegetables
- ◆ Forks or spoons
- ◆ Napkins
- ◆ Small cups (for a sample of the recipe)

Anchor: Ask the following question:

Everything needs maintenance—our bodies, homes, and vehicles—and so do plants. How do we keep our plants healthy? Encourage participants to get into small groups and give them 2 to 3 minutes to discuss the topic. Afterward, invite each group to report and list good maintenance practices.

Say:

Add: Visiting and checking your garden every day is the best way to identify and address problems before they become severe, especially if you take the time to check plants for pests, diseases, and how they are growing. It can be helpful to keep a journal or notebook of what you find. (Show participants an example of a garden journal.)

If possible, keep a record of what you see in the garden, noting the weather conditions, any problems, or how well plants are growing. Write down what actions you take to resolve problems. Do this at least once a week and you will develop good observation skills that can help you determine the causes of problems in your garden and how to resolve them before they affect the harvest. And, your notes may be helpful when you make future decisions about what variety of vegetables and when to plant. For example, there may be a difference in harvest amounts between two varieties of a vegetable, or you may learn that you can avoid a pest altogether by planting your crop a couple of weeks earlier or later. Your garden journal will help improve both your skills and your harvest.

Apply: Give participants a small notebook to use to keep track of what they plant in the garden, where they plant it, and their future observations.

Say:

Add: When you are in the garden, here are some key things to check:

- ◆ *Insects:* Check the leaves for insects or holes in the leaves, which would indicate insect feeding.
- ◆ *Sunlight:* Are the plants getting enough sunlight to produce healthy growth, or do the plants have thin stalks, few leaves, and lean toward the sun—a sure sign that plants are not getting enough sunlight.
- ◆ *Water:* Just as we need water to stay healthy, so do our plants. Most vegetable and herb plants need regular, consistent watering. Water plants to a depth of 6 inches. About 1 hour after watering, use a trowel or shovel to see whether the water has soaked down into the soil 6 inches.

The best time to water a garden is in the early morning to allow enough time for plants to dry before the sun goes down. Watering at night or late in the evening makes it difficult for plant leaves to dry; the moisture can promote fungus development. Fungal infections can kill plants or, at the very least, greatly reduce harvest. We will learn more about fungal infections and what to do about them during our next session.

- ◆ *Signs of overwatering:* Are the plants getting too much water? Overwatering reduces the amount of oxygen (air) in the soil that roots need to breathe, causing the plant to “drown” and die. One sign of overwatering is wilting, which is the same symptom plants show when they need water. Sometimes only a section of the plant roots will die, or rot, depending on the soil drainage.

To check if your plant is getting too little or too much water, pull back the mulch and put your finger in the soil to feel if it is moist or dry. Using a trowel or shovel, dig down an inch or two to determine the need for water. Be careful not to disturb the plant roots.

- ◆ *Consistent watering:* Irregular watering occurs when the soil becomes extremely dry and then is overwatered. This happens if you forget to water and suddenly, hours or a day or two later, you remember and overwater to make up for what you forgot. This inconsistent watering causes extreme stress inside the plant. For example, sometimes irregular watering causes the fruit of plants like squash or watermelon to spoil from the end of the fruit and turn black. Remember to be consistent about timing irrigation and avoiding overwatering.
- ◆ *Other things to know about watering:* It is important to get to know your plants and what they like and don't like. Young plants need

daily watering. As plants develop a good root system, you should be able to cut back on the water and irrigate only every other day or less, depending on rainfall, how well the soils drain, and the type and amount of mulch covering the garden.

It is also important to follow watering guidelines for your city. Depending on drought conditions, each area will have water use recommendations for vegetable gardens. Catching and saving rainwater to use on your plants not only saves you money and helps conserve city water resources, but it may also be of higher quality for the plants. Rainwater is low in minerals and salts that can harm root growth. And, it has no chlorine, which is common in many city water supplies. Collecting rainwater can be as simple as filling a bottle or trash bin and then covering it with a tight-fitting lid to prevent mosquitoes. See <http://rainwaterharvesting.tamu.edu> for more information.

- ◆ *Plant support:* Some vine-type plants do better if they can climb a trellis or wire mesh. You can make trellises from wire mesh, bamboo, or heavy string supported by posts, or just use stakes, depending on the size of the plant and how many plants need to be trellised. Tomato plants can be individually staked or caged; however, beans grow best if they climb rows of string supported by posts. When planting any crop, read planting and spacing requirements on the package or plant tag to provide the correct spacing and support for your crop.
- ◆ *Weeding and mulching:* Weeds can take valuable resources such as water, nutrients, sunlight, and space away from vegetable plants. Weeds also provide a home for pests that damage your plants. Some weed seeds can live up to 7 years in the soil waiting for the right conditions to develop! This is why it is crucial to check regularly for weeds and remove them before they become well established and rob your vegetables of water and nutrients.

Putting a layer of mulch covering around your plants can stop weeds from growing and make it easier to pull out those that do grow. You can make mulch from paper, plastic, or organic matter like leaves, grass (be sure it has no seeds), or wood chips. Mulch also helps keep the soil moist and regulates the soil temperature, especially around the roots. When the mulch is a barrier between the plant, fruit, and soil, the fruit doesn't touch the soil and less of it rots, reducing fruit losses and making a cleaner and bigger harvest.

- ◆ *Fertilizing (Food):* Plants need food to live and grow. Nitrogen, phosphorus, and potassium are vital nutrients that plants need. Nitrogen helps foliage and stems grow; phosphorus helps flowers, fruit, and roots grow; and potassium is important for overall plant

health. Potassium is especially important in helping plants make their food and resist diseases and insects.

Often, regularly adding good quality compost to gardens reduces the need to use a lot of extra fertilizer. Adding fertilizer when it is not needed can cause lush plants that bear no fruit and can also make plants susceptible to disease.

Some plants, however, need additional fertilizer. These plants include beets, cabbage, carrots, cucumbers, eggplants, peppers, squash, and tomatoes.

Compost tea, fish emulsion, and pelletized chicken manure are usually available at garden supply stores and are easy to use with little risk of damaging plants. Commercial fertilizers, such as Miracle Grow™ are also available, but you must mix them properly.

Commercial fertilizer usually has three numbers on the front of the package that indicate the percent of Nitrogen (N), Phosphorus (P), and Potassium (K) that is in the fertilizer. For example, a bag of fertilizer may say 5-10-5, meaning that the fertilizer contains 5 percent nitrogen, 10 percent phosphorus, and 5 percent potassium.

In addition to these nutrients, plants also need smaller amounts of calcium, copper, iron, magnesium, manganese, sodium, sulfur, and zinc.

When beginning a garden in the native soil rather than raised beds, a soil test can determine what elements are lacking or what may be in abundance. Contact your county Extension office for soil test information and test the garden soil every 2 to 3 years.

If you cannot test the soil before planting, here are some general fertilizer guidelines:

- ◆ For sandy soils, apply a complete fertilizer with an N-P-K ratio of 5-10-10 or 6-12-12 at a rate of 1 to 2 pounds per 100 square feet.
- ◆ For soils heavy in clay, use a fertilizer with an N-P-K ratio of 10-20-10 or 12-24-12 at a rate of 1 to 2 pounds per 100 square feet.
- ◆ Work the fertilizer into the soil a few days before planting. Once the plants are established, fertilize according to recommendations specific to the vegetable being grown (refer to the *Easy Gardening* fact sheets).

Note to agent/educator

A raised bed that is 4 feet by 8 feet will have 32 square feet, so 1/3 to 2/3 pound of fertilizer per raised bed should be sufficient.

Apply:

How do you know if your garden needs watering?

Have participants break into small groups. Give each group two different soil samples (one damp and the other dry) to see if they need water.

Say: Squeeze a handful of soil and then open your hand.

- ◆ If the soil doesn't hold together, it needs water.
- ◆ If the soil holds together in a lump or ball, it does not need water.

Optional: If the community garden is established, let the participants inspect their plots and determine if they need water.

Applying fertilizer (optional)

Depending on how long it has been since the gardens were planted, it may be possible for participants to learn how to apply fertilizer.

- ◆ Have two to three types of fertilizer available and let participants choose which ones to use (Be sure they note it in their journal).
- ◆ Let them practice mixing and applying the fertilizer.
- ◆ If the material must be diluted with water, have them mix the fertilizer outdoors in a 5-gallon bucket to avoid spilling accidents.
- ◆ Remind them to wear rubber gloves and follow the product label directions for mixing.

Dilute Alaska Fish Fertilizer with water. It uses 2 tablespoons of fertilizer per gallon of water for 25 square feet of soil. One 8-foot by 4-foot bed is 32 square feet, so, depending on the placement of the plants, you will need just over 1 gallon of water per 8-foot by 4-foot bed.

Some products will be less expensive for gardening than others. Discuss the cost of the various products.

Granulated chicken manure is practical and inexpensive; it can easily be applied to the soil and tilled into the area where you will plant transplants or seeds. After planting, water the crop and the granulated chicken manure will dissolve and become available to the plants. Never use fresh animal manure directly in the garden because the high nitrogen content can burn or kill plants.

Work compost into the raised beds to add additional organic matter and nutrients.

Mulching (optional): Let participants add mulch to their community garden plots.

Take away

Remind participants to take the session handout home and encourage them to practice the soil moisture test in their home gardens or their community garden plot. Encourage everyone to use their notebook as a garden journal and begin to record weekly observations. For the rest of the session, have participants work in their community garden or participate in a food demonstration (see below).

Away (optional): Present a food demonstration featuring a vegetable that is being grown in the community garden.

Answer any additional questions. Tell the participants that the topic for the next session will be diseases and insects.

Thank them for their participation.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 4: Maintaining Your Garden

[illegible]



Growing and Nourishing Healthy Communities Garden Course

Session 5: Diseases and Insects

Note to agent/educator

At the end of this session, participants will be able to identify common vegetable garden insect pests as well as symptoms of common plant diseases.

Goals

- ◆ Identify causes, symptoms, prevention, and treatment of the more common vegetable plant disorders and diseases as well as the resources to help identify and avoid these diseases.
- ◆ Identify common vegetable garden insect pests and beneficial insects.

Educator resources

Chapter VII: Disease Management from *Texas Vegetable Growers Handbook*, and a guide with photos of fungal disease, especially in melons, is available online at <http://aggie-horticulture.tamu.edu/vegetable/guides/texas-vegetable-growers-handbook/chapter-vii-disease-management/>.

The University of Oklahoma has some YouTube videos on vegetable diseases, including a good one on tomato diseases.

EHT-072 *Easy Gardening: Insect Control* (see <https://aggie-horticulture.tamu.edu/ghc/>).

EHT-072S *Easy Gardening: Insect* (Spanish—*Jardenería fácil: Control de insectos*) (see <https://aggie-horticulture.tamu.edu/ghc/>).

The *Easy Gardening* series provides individual vegetable information, including common insect and disease problems specific to each of the individual vegetables in the series. Print out a variety of these vegetable publications specific to vegetables you are growing in the garden (see <https://aggie-horticulture.tamu.edu/ghc/>).

Insect Pests of the Home Vegetable Garden, http://extension.msstate.edu/sites/default/files/publications/publications/p2347_1.pdf

Resources for Class Participants

The Aggie Horticulture website at <http://aggie-horticulture.tamu.edu> has several on-line diagnostic tools, including those for cucumber, tomato, and watermelon.

EHT-072 *Easy Gardening: Insect Control* (English) (see <https://aggie-horticulture.tamu.edu/ghc/>).

EHT-072S *Jardenería fácil: Control de Insectos* (Spanish) (see <https://aggie-horticulture.tamu.edu/ghc/>).

Additional resources

Websites

- ◆ *Insect Pest Management Answers*, <http://www.texasinsects.org/index.html>
- ◆ *Vegetable IPM*, <http://vegetableipm.tamu.edu>
- ◆ *A Field Guide to Common Texas Insects*, <http://texasinsects.tamu.edu>
- ◆ Aggie Horticulture, <http://aggie-horticulture.tamu.edu>. Choose *Vegetable Resources*, and then *Vegetable Problem Solvers* for step-by-step information and photos on cucumber, squash, tomato, and watermelon pests and diseases, identifying the pest or disease by damage to fruit, leaves, or stems.

Materials

- ◆ Sign-in sheet
- ◆ Something to write on such as a flip chart or tablet and markers, whiteboard and dry erase markers, chalkboard and chalk, or poster board and sticky notes
- ◆ Pencils or pens
- ◆ Two plants: one sick and one healthy (if available)
- ◆ Samples of organic disease treatment products: Copper, Neem Oil, and Sulfur. There are several biological products including a beneficial bacterium (Actinovate® Organic Fungicide) and beneficial fungus (Serenade® and RootShield®) that help prevent fungal disease, especially at planting time.

- ◆ Insects and other arthropods or pictures of them, such as aphids, bees, beetles, butterflies, earthworms, lady beetles, pillbugs, praying mantis, spiders, stink bugs, wasps, and whiteflies
- ◆ A healthy plant, a plant damaged by chewing insects, and one damaged by sucking insects
- ◆ Examples of pesticides and any containers, measuring cups, or spoons needed to demonstrate how to prepare chemicals for treating pests. Please note: The publications listed above contain recommendations for organic and conventional pesticides.
- ◆ Water and a sprayer, whether a simple bottle or a larger pump model. Once you use a container for insecticide, rinse it at least three times to clean it. Mark the container “pesticide” and do not re-use it for applications other than pesticides.

Food demonstration (optional)

- ◆ Equipment and ingredients to demonstrate a recipe with vegetables
- ◆ Napkins
- ◆ Small cups (for a sample of the recipe)
- ◆ Forks or spoons

Session: Plant Disease

(30 to 45 minutes)

Discussion: (5 minutes) What are some of the common diseases humans get and what causes them?

Have small groups of three or four discuss the question, take notes, and share with the class. Discuss how we get diseases and how often environmental conditions such as cold, wet weather might cause disease problems. Plants also get diseases, especially under similar conditions. Sometimes the name of the disease changes from one kind of plant to another, but frequently the cause(s) of the disease may be similar or the same.

Say:

Add: Common Disease Symptoms

We can learn how to identify plant diseases by observing some of the symptoms plants exhibit. The most common disease symptoms are

- ◆ Seeds fail to germinate
- ◆ Stems of young seedlings turn black and die
- ◆ Plants do not grow normally
- ◆ Leaves are stunted or distorted in shape, wilted, have spots or die early
- ◆ Fruit or stems are discolored, have spots, or decay
- ◆ Stems split, and the plant excretes fluid

Sources of Common Disorders and Diseases

Causes of common plant problems can be environmental or physical conditions such as too much or too little water, salty soil, an abundance of nitrogen, a lack of calcium, or excessive shade. These situations create stress within the plant and may then result in a secondary decay or rot.

For example, when a young leaf opens up on a plant during a cloudy day and the weather brightens up, the leaf is suddenly facing full sun. The tender, new leaf may be burned, and that area on the leaf turns brown and dies. The death of these plant cells on the leaf is not due to a disease, but to the environmental condition.

Blossom end rot in tomato is a problem that occurs at the bottom end of the fruit. A calcium deficiency in developing fruit causes the problem. The deficiency is a result of irregular irrigation caused when

overwatering follows a drought condition. This stress in a young, developing fruit causes a black spot that develops into a secondary decay or rot. This same type of nonparasitic disease can occur in developing watermelons.



Blossom end rot on a tomato. Source: Russ Wallace, Texas A&M AgriLife Extension Service

A pathogenic, or biotic, disease can develop from organisms commonly occurring in the soil, water, or air. These include fungi, bacteria, viruses, and nematodes that interact with the plant, causing disease and crop loss. Most plant diseases occur with high humidity and cool to moderate temperatures, not too hot or too cold.

Fungi can be very beneficial to man and, in fact, we consume some fungi in our diets. Other fungi, however, cause a variety of plant diseases. Their spores (like seeds) can be carried by birds, infected plant material, insects, rain or irrigation water, soil, tools, and the wind. Some fungi hitch a ride on a gardener's shoes and some live in the soil. Fungal diseases include blight, canker, damping-off seedling disease, mildew, mold, rust, stem and root rot, and wilt.



Spotted wilt on tomato plants. Source: Russ Wallace, Texas A&M AgriLife Extension Service

Some fungi invade the roots and clog the water and nutrient transportation system within the plant. As the internal water transport system becomes clogged, roots or stems split and ooze plant liquids. Plants starve because the lack of water also means a lack of much-needed nutrients traveling within the plant.

The longer water stays on the leaves or fruit, the more opportunity a fungus has to enter and damage the plant. Water a garden in the early morning so that the sun can dry the plant leaves.

Powdery mildew is a fungal disease that may be caused by various fungi when conditions are warm and dry during the day and cool at night. The symptoms appear as a white or gray powdery coating, usually on the leaves. It is a common problem of cucumbers, melons, and squash. This disease can quickly spread on the wind, so treat or discard diseased plants as soon as symptoms appear.

To reduce the development of this disease in susceptible plants, cover planting rows with plastic mulch. White plastic may be most effective in areas that experience high temperatures during the growing season. (Black plastic can be painted). Although members of the cucurbit family and strawberries are very susceptible, powdery mildew can occur on any vegetable if the environmental conditions are right.

Bacterial disease symptoms usually appear first on the older leaves of plants and may also show up on the fruit. The bacteria, visible only under a microscope, move in the water film on the leaves or in the water around the roots.



Powery mildew on a tomato plant. *Source: Russ Wallace, Texas A&M AgriLife Extension Service*



Tomato plants wilted by southern blight. *Source: Russ Wallace, Texas A&M AgriLife Extension Service*



Southern blight vascular infection. *Source: Russ Wallace, Texas A&M AgriLife Extension Service*



Powdery mildew on winter squash leaves. *Source: T.A. Zitter, Cornell University*

Bacterial disease spreads mainly by splashing water, but insects, soil, and tools also spread bacteria. It is important to identify garden insects and treat if disease-carrying pests are present.

Bacterial disease spreads mainly by splashing water, but insects, soil, and tools also spread bacteria. It is important to identify garden insects and treat if disease-carrying pests are present.

Adult striped and spotted cucumber beetles spread bacterial wilt of cucumbers.



Bacterial black rot of cabbage. *Source: Chris Smart, Cornell University*



Striped cucumber beetle (top) and spotted cucumber beetle (bottom). *Source: Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org*

Viral disease is specific to a particular plant. Viruses cannot be cured or treated, and once the disease is in the plant, it remains there its entire life. Virus particles are tiny and cannot be seen except with a microscope.

Most viruses are transmitted by insects such as aphids or whitefly, but some are transmitted by mechanical means such as riding on a gardener's hands or tools that touch the host plant, especially through common maintenance work like trimming branches, taking cuttings, or through pollen and seeds. To prevent tobacco leaf virus, which attacks tomatoes, have a no-smoking policy in the garden. Gardeners should also wash their hands before working in the garden.

Virus symptoms are mottling (spots or blotches with different shades of color) or yellowing of leaves and stunted plant growth. Viral disease usually attacks the younger leaves first.

Insects can transmit viruses by feeding on an infected plant, then moving to another plant and passing the disease along.



Yellowing and distorted leaves caused by pepper geminivirus transmitted by the white fly. Source: Juan Anciso, Texas A&M AgrLife Extension Service.

Nematodes are small, microscopic, worm-like animals that live in the soil. They eat mainly plant roots, but can feed on stems and leaves. Nematode feeding usually does not kill a plant but weakens it by reducing its ability to take in water and nutrients. Its fruit may be blemished and yields greatly reduced.

Nematodes often target beans, beets, carrots, cucumbers, lima beans, okra, peas, potatoes, squash, tomatoes, and watermelon. Some vegetable varieties will be labeled if they are resistant to a particular nematode. Nematodes move only about 1 foot during a growing season, so rotating crops is an important strategy to avoid nematode problems.

Disease Prevention Measures:

It is easier to prevent disease than it is to deal with it. To avoid disease problems

- ◆ Plant disease-resistant varieties where there is a known problem. The Texas A&M AgriLife Extension Service, local nurserymen, Master Gardeners, and local farmers are excellent resources for information about plant varieties.
- ◆ Plant varieties suited to the area and site.
- ◆ Plant when soil temperatures are at the appropriate temperature for the crop.
- ◆ Keep the garden free of weeds or insects that can harbor disease.
- ◆ Regularly remove diseased or pest-ridden plant materials. Do not put these materials in a compost bin as this could spread the problem.
- ◆ Be prepared to remove pests any time you are in the garden. Carry a container of soapy water and brush insect pests into it. Keep a plastic bag handy for captured insects or to remove an insect-covered leaf or stem.
- ◆ Plant flowers that discourage the presence of disease or nematodes. For example, French marigolds exude a chemical from their roots that deters nematodes. Plant these near crops that are susceptible to nematodes.
- ◆ Plant flowers that support beneficial insects.
- ◆ Encourage good airflow around plants by thinning them out, pruning, or supporting plants, especially vining crops.
- ◆ Cover crops with row cover or fine mesh to avoid seasonal disease-carrying insects. For example, cover tomatoes with row cover to prevent the incidence of seasonal, disease-carrying whitefly without reducing production.
- ◆ Observe the plants and potential problems. Keep a garden journal and make notes when



Tomato plants covered with row cover. Source: Tom LeRoy, Texas A&M AgriLife Extension Service

you begin to see certain disease-carrying insects. Determine if changing the planting date could avoid the time the insect is in the area or if it is possible to cover a crop for the time needed to avoid the insect pressure.

- ◆ Avoid overfeeding crops with nitrogen, which can cause lush growth and attract pests.
- ◆ Water on a regular basis. Water-stress, whether from too little water or too much, encourages disease.
- ◆ Water in the morning, before 10:00 a.m., so the sun has a chance to dry excess water on leaves or fruit.



Blossom end rot. *Source: Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org*

- ◆ Mulch around plants to prevent water and soil from splashing up on the plants, especially with crops such as cucumber, melons, squash, and strawberries.
- ◆ Clean tools with a 10 percent bleach solution to avoid spreading diseases.



Crops planted with plastic mulch. *Source: Juan Anciso, Texas A&M AgriLife Extension Service*

- ◆ Wash your hands before going into the garden and after carrying diseased plant material.
- ◆ Avoid entering the garden during wet conditions because shoes can carry and spread diseases.
- ◆ Keep the garden free of weeds; they can harbor diseases and support insects that carry virus diseases.

Take Away:

Remind participants to take the session handout home and encourage them to spend time in their gardens observing plants for disease symptoms or for insects known to carry diseases.

Session: Insects and others

(30 to 45 minutes)

Discussion Question: What kinds of insects or other small critters have you observed in your garden? (Refer to your notebook for drawings, pictures, or to samples brought to class.)

Have small groups of three or four participants discuss the question and take notes to share with the group (5 to 10 minutes).

Briefly have each group report and list their insect observations on the whiteboard.

Add: There are two groups of insects: those that help the plants and those that harm them. Provide the following information and identify the insects written on the board by the role they play in the garden.

Say:

- ♦ **Beneficial insects** help the plants in some way. Most insects are beneficial or harmless. There are four kinds of **beneficial insects: predators, parasites, pollinators, and decomposers.**
- ♦ **Predators** such as dragonflies, lady beetles, praying mantis, and spiders kill other harmful pests.



Adult lady beetle. Source: Pat Porter, Texas A&M AgriLife Extension Service



Green lacewing larvae. Source: Juan Anciso, Texas A&M AgriLife Extension Service

Spiders are not insects, but arachnids. Most spiders in the garden perform a beneficial role but avoid handling any arachnids or insects with your bare hands until you know which ones are harmless to humans.

- ♦ **Parasites** are very small and not noticeable. They destroy pests by laying eggs on or inside the pest, usually during its larval (worm) stage. When the parasite eggs hatch, they eat their host and emerge as adults.



Tomato hornworm attacked by parasites. Source: David Hill, Flickr (CC BY 2.0)

- ◆ **Pollinators** carry pollen from male to female plants so that fruit can develop. Bees, wasps, and some butterflies and flies are pollinators.



Honeybee. Source: Susan Ellis, Bugwood.org



Bee on a watermelon plant. Source: Juan Anciso, Texas A&M AgriLife Extension Service

- ◆ **Decomposers** help recycle organic material by eating and excreting it, enriching the soil.

Dung beetles, pill bugs, and earthworms do this work.

- ◆ **Pests** are only about five percent of the insect population, but they can cause much damage to crops, resulting in harvest losses.



Common earthworm. Source: Joseph Berger, Bugwood.org

Damage from pests includes:

- ◆ Plants that don't reach their full and proper size or that droop and wilt.
- ◆ Plants that cut off at the base of the stem when they are very young.
- ◆ Leaves that are chewed, misshapen, or have light colored, winding "trails" or streaks.
- ◆ "Spots" of the wrong shade of green compared to the rest of the leaf, or tiny holes or sections of a leaf missing.

You might see bugs near the plant, or in the soil nearby. Another telltale sign is evidence of their waste material, called frass.) Or, the plant may have galls or swollen places, like little balls, on its leaves or roots.



Wilted plant. Source: Juan Anciso, Texas A&M AgriLife Extension Service

Insect pests are often identified by the kind of mouthparts they have and how they use them on the plant (chewing, tearing, or sucking).

Chewing

Beetles, caterpillars (the larval stage), grasshoppers, and slugs or snails chew irregular holes in the leaves, or they may eat whole sections of leaves. Many of these insects feed only at night.

Other tiny flies and beetles lay eggs inside the leaf and feed in tunnels or “mines.”



Chewed leaf. Source: Juan Anciso, Texas A&M AgriLife Extension Service



Tomato pinworm with larvae tunneling a leaf. Source: Juan Anciso, Texas A&M AgriLife Extension Service

Sucking

Leafhoppers, whiteflies, mealybugs, scale insects, spider mites, and aphids attack leaves by sucking the plant sugars from the leaves. Some insects, such as squash bugs and stink bugs, also drink from stems and fruit.

On fruit, their feeding deadens the cells and forms a hard place on the fruit. If not treated, these insects cause a substantial loss of harvest and may transmit bacteria and viruses.



Aphids. Source: Juan Anciso, Texas A&M AgriLife Extension Service

Pest Control

- ◆ When available, choose plants that resist pests. (Ask the nurseryman.)
- ◆ Keep your garden and surrounding area clean and weed-free.
- ◆ Plant flowers that provide nectar year-round for a variety of beneficial insects, such as lady beetles or green lacewings, to help reduce pests. Allow herb crops such as cilantro, dill, fennel, and

parsley to flower. Plant calendulas (edible petals), bishop's cap, marigolds, salvias, and zinnias along the beds and the edges of the garden area. Wildflowers such as bee balm, bluebonnets, and Mexican hat are all excellent support for beneficial insects.

- ◆ Treat pests when they first appear by picking them off, washing them off with a hose, or spraying with a pesticide. Always follow label directions.
- ◆ Carry a coffee can with soapy water into the garden when you look for pests. Often, if you catch them early, you can brush young pests into the soapy water to kill them. By being observant, you can spot pests when they are very young. Because the early stages of many insects, including beneficials, do not resemble later stages, learn to recognize all stages of pest and beneficial insects in your garden.
- ◆ Horticultural or insecticidal soap is often recommended in organic gardening, especially against soft-bodied insects. Do not use dish detergent as a substitute. It is not the same, and the degreaser in it is harmful to your plants and can kill young ones.
- ◆ Remove infected plants when necessary to stop the spread of pests. Also remove them after harvest is complete.

Remember, pests can carry bacteria, fungi, and viruses that harm plants (not humans), so do your best to keep pests to a minimum.

Ask participants what questions they have.

Apply: Show the sample treatment you brought and read the label with participants. Emphasize how important it is to follow the safety precautions for using the product and disposing of the container. Look at your plants for signs of pests and follow the recommendations on the publications noted in this session.

Say:

Take Away: Look for signs of pests on your plants at home. Bring a pest or a picture of it or of the damaged plant to the next class. Visit aggie-horticulture.tamu.edu website or Insect Pest Management Answers at www.texasinsects.org.

Away (optional): Demonstrate a recipe that features a vegetable that will be grown in the community garden.

Answer any additional questions. Remind participants that harvesting will be the topic for the next session. Encourage them to be observant in the garden, take notes in their notebooks/journals of the insects they see, and take photos of the insects and the damage they have done.

Thank them for their participation.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 5: Diseases and Insects

Name	Address	Phone number	E-mail address



Growing and Nourishing Healthy Communities Garden Course

Session 6: Harvest, Review, and Retrospective Post-Survey

Goals

- ◆ Identify best practices for harvesting, handling, and storing produce.
- ◆ Learn about saving seeds.
- ◆ Review key session points and answer final questions from previous sessions.
- ◆ Complete the *Retrospective Post-survey*.
- ◆ Recognize participants completing the sessions.
- ◆ Give out certificates of completion.

Optional: Plan a meal and have participants bring in dishes prepared with vegetables from their garden.

Materials

- ◆ Something to write on such as a whiteboard and dry erase markers
- ◆ Pencils or pens
- ◆ Examples of produce in good and poor condition
- ◆ Tools for harvesting (knives, scissors, clippers) and bleach/water, alcohol, or hydrogen peroxide to clean tools
- ◆ Pods with seeds (okra, beans, peas) or tomatoes, peppers, cilantro
- ◆ Water and a jar for rinsing tomato pulp off of the tomato seeds

- ◆ Paper towels
- ◆ Containers (like small jars) to store seeds, labels, and permanent markers
- ◆ A copy of Easy Gardening fact sheet EHT-071 Harvest, Handling, and Storing Vegetables and EHT-071S Cosecha, Manejo y Almacenamiento (see <http://aggie-horticulture.tamu.edu/ghc/>).

Resources

Websites

Aggie Horticulture at <https://aggie-horticulture.tamu.edu>. Choose Vegetable Resources, Guides, and then *Producing, Preparing, and Processing Vegetables for Health*, then choose a vegetable variety for specific information on the nutritional value of a vegetable as well as how to harvest, store, and prepare it.

Junior Master Gardeners at <http://jmgkids.us/lgeg/grow/harvest-indicators/>.

Easy Gardening Publications (see <https://aggie-horticulture.tamu.edu/ghc/>)

- ◆ EHT-071 *Harvesting, Handling, and Storing Vegetables*; EHT-071S *Cosecha, Manejo y Almacenamiento*
- ◆ E-197 *Selecting Fresh Fruits and Vegetables*; E-197S *Seleccionando frutas y verduras frescas*

- ◆ E-198 *Safe Handling of Fresh Fruits and Vegetables*, E-198S *Manejo seguro de frutas y verduras frescas*
- ◆ E-199 *Washing Fresh Fruits and Vegetables*, E-199S *Manejo de frutas y verduras frescas*
- ◆ E-200 *Safe Storage of Fresh Fruits and Vegetables*, E-200S *Almacenamiento seguro de frutas y verduras frescas*

Session: Harvest

(30 to 45 minutes)

Discuss: When you are shopping, how do you pick the best quality produce? What do you look for when selecting fresh tomatoes, spinach, or squash (Or any other vegetable you often purchase?) Have small groups of three or four discuss the questions and take notes to share. Have each group share their answers and list them on the whiteboard for discussion.

Add:

Harvesting / Handling / Storing

If the gardeners recorded planting information, they should have an idea of when the crops will be ready to harvest. Visual inspection and evaluating how the plant or fruit looks and feels will also help them decide whether to pick it, leave it a little longer, or remove it. Dispose of any diseased or decayed plants or fruits.

Say:

- ◆ Temperature is important. Picking early in the morning when the temperature is cooler and after the dew has dried is a good time to harvest crops.
- ◆ Some crops, such as peas and sweet corn, should be cooled immediately after harvesting. In high temperatures, sugar can turn into starch.
- ◆ Preferred moisture levels also vary for plants. Store leafy greens and eggplant in high humidity. Green onions need less humidity (65 to 70 percent). Store other onions, garlic, and potatoes in a cool, dry place.
- ◆ Rinse carrots, celery, greens (including lettuce and spinach), radishes, and snap beans before putting them in the refrigerator.
- ◆ Wait to wash vegetables such as asparagus or sweet potatoes until it's time to use them; just remove the soil before storing them.
- ◆ Proper ventilation or air movement helps keep delicate plants like lettuce from wilting.

Seed Saving

Good ventilation, the right temperature, and correct humidity also aid in harvesting and storing seeds. It is better to save seeds from self-pollinated or open-pollinated common plants such as beans, herbs, lettuce, okra, peas, and tomatoes and rather than from hybrid seed plants.

To harvest seeds

- ◆ Leave the seed pods on the plant as long as possible to dry, but collect them before the seeds fall to the ground.
- ◆ Leave several inches of the stem when you cut a seedhead from the plant.
- ◆ Tie the stems together and hang them upside down to dry.
- ◆ Cover cut flower heads with a paper bag to catch the seeds.

Seeds stay viable from 1 to 5 years. Some seeds (anise, celery, cilantro, and dill) are ready to use as spices as soon as they are dry. Keep seeds in airtight containers or envelopes.

Ask participants if they have any questions.

Apply:

- ◆ Clean your harvesting tools.
- ◆ Look at your sample plants and discuss which ones are in good or poor condition.
- ◆ Collect seeds from pods or plants.
- ◆ Label storage containers.
- ◆ Look at your garden plants and harvest anything that is ready or estimate when they will be ready.
- ◆ Use a sharp knife to cut fruit or plant stems (like broccoli) to avoid tearing the rest of the plants and stems.

Take away:

Have participants look for plants at home that are ready to harvest. If possible, bring a harvested plant to the next class to share. Remind participants to clean tools and surfaces before harvesting.

Session: Review and final questionnaire

(10 minutes)

Discuss: What is the most important thing you have learned in these sessions?

Have small groups of three or four discuss the questions and take notes to share. Have each group give a brief report.

Add: Answer any final questions participants may have. Take a group picture. Distribute certificates of completion.

Apply: Invite the participants to complete the retrospective post-survey. Assure them that they do not have to write their name on the page. Assist any participants who need help completing the survey. Let participants know their input makes this program better!

Take Away: Remind the participants to continue good gardening practices and to use their observational skills on every visit to the garden. Remind them to refer to the fact sheets and handouts as a resource for help and information.

Thank them for their participation.

Date: _____ Location: _____

Growing and Nourishing Healthy Communities Garden Course

Session 6: Harvest, Review and Retrospective Post-Survey

[illegible]

Growing and Nourishing Healthy Communities

Thank you for being a part of our Growing and Nourishing Healthy Communities program. Please complete this short survey. It will help us know how we are doing and what we can do better to serve your needs in the future.

- Before participating in the Growing and Nourishing Healthy Communities program, had you ever grown vegetables or fruits for you and your family? ____ YES ____ NO

Place a check (✓) in the column that best tells how you feel about the following statements before and after the program.

	BEFORE THIS PROGRAM				AFTER THIS PROGRAM			
Current Knowledge	Poor	Fair	Good	Excellent	Poor	Fair	Good	Excellent
2. How would you rate your current knowledge of growing fruits and vegetables (gardening)?								

Place a check (✓) in the column that best tells how you feel about the following statements before and after completing the program.

	BEFORE THIS PROGRAM				AFTER THIS PROGRAM			
Consuming Fruits and Vegetables	Hardly Ever	Sometimes	Often	Almost Always	Hardly Ever	Sometimes	Often	Almost Always
3. In my home, we have fruits and vegetables.								
4. In my home, we serve vegetables at meals.								
5. In my home, we serve fruit for dessert.								
6. In my home, fruit is available as a snack.								
7. In my home, vegetables are available as a snack.								
8. In my home, cut-up vegetables are in the refrigerator for me and my family to eat.								
9. In my home, fresh fruit is on the counter, table, or other easily available location.								

Place a check (✓) in the column that best describes your knowledge of the following gardening practices BEFORE and AFTER participating in the program.

	BEFORE THIS PROGRAM				AFTER THIS PROGRAM			
Gardening Practices	Poor	Fair	Good	Excellent	Poor	Fair	Good	Excellent
10. How to pick a site for a vegetable garden								
11. When to plant vegetables								
12. How and why to test your soil								
13. How to space plants								
14. Water requirements and drip irrigation								
15. How to identify insects to determine if chemical control is necessary								
16. Pesticide safety								
17. How to use mulch								
18. How to make and use compost								

Tell us about yourself

20. I am (check one) ☐ Male ☐ Female

21. With what ethnic group do you identify (check one box) ☐ Hispanic or Latino ☐ Not Hispanic/Latino

22. With what race do you identify (You may check more than one):

☐ Asian ☐ Black ☐ White ☐ Hawaiian/Pacific Islander ☐ American Indian or Alaska Native

23. Put a check (✓) by any program that you or a member of your household has participated in within the last 30 days.

☐ TANF ☐ WIC ☐ Head Start ☐ Food pantry

☐ Food Stamps/SNAP ☐ Free or reduced school meals

24. How many people live in your household (total number, including you)? _____

25. How many children under 18 live in your household (total number)? _____

26. What is the highest level of education you have completed (check one box)

☐ Less than high school ☐ High school or GED ☐ Some college or technical school ☐ College degree

27. Is the Growing Healthy Communities program the first Texas A&M AgriLife Extension Service program you

have attended? (check only one box)

☐ Yes ☐ No ☐ Not sure

28. In what year were you born? _____



To learn more about the Supplemental Nutrition Assistance Program (SNAP) or to apply for benefits, visit www.yourtexasbenefits.com.
 USDA is an equal opportunity provider and employer. This material was funded by USDA's Supplemental Nutrition Assistance Program — SNAP.
 The Texas A&M AgriLife Extension Service provides equal access in its programs, activities, education, and employment, without regard to race, color, sex, religion, national origin, disability, age, genetic information, veteran status, sexual orientation, or gender identity.

Fomentando y Nutriendo Comunidades Saludables

Gracias por ser parte de nuestro programa Fomentando y Nutriendo Comunidades Saludables. Por favor complete esta breve encuesta. Esto nos ayudará a saber si nuestro programa está cumpliendo con sus necesidades y qué podemos hacer para mejor cumplir con sus necesidades en el futuro.

1. ¿Antes de participar en el programa Fomentando y Nutriendo Comunidades Saludables, había cultivado frutas y verduras para usted y su familia? ____SÍ ____NO

Marque con (✓) la columna que mejor representa cómo se siente acerca de las siguientes declaraciones antes y después del programa.

	ANTES DEL PROGRAMA				DESPUÉS DEL PROGRAMA			
Conocimiento actual	Pobre	Regular	Bueno	Excelente	Pobre	Regular	Bueno	Excelente
2. ¿Cómo calificaría su conocimiento actual en cuanto a la cultivación de frutas y verduras (jardinería)?								

Marque con (✓) la columna que mejor representa cómo se siente acerca de las siguientes declaraciones antes y después de completar el programa.

	ANTES DEL PROGRAMA				DESPUÉS DEL PROGRAMA			
Consumo de Frutas y Verduras	Casi nunca	A veces	A menudo	Casi Siempre	Casi nunca	A veces	A menudo	Casi Siempre
3. En mi casa tenemos frutas y verduras.								
4. En mi casa servimos verduras con las comidas.								
5. En mi casa servimos frutas como postre.								
6. En mi casa hay fruta disponible para tentempiés.								
7. En mi casa hay verduras disponibles para tentempiés.								
8. En mi casa hay verduras picadas para mí y mi familia.								
9. En mi casa hay fruta fresca sobre el mostrador, la mesa, u otro lugar muy accesible.								

Marque con (✓) la columna que mejor representa su conocimiento de las siguientes prácticas de jardinería antes y después de completar el programa.

Prácticas de jardinería	ANTES DEL PROGRAMA				DESPUÉS DEL PROGRAMA			
	Pobre	Regular	Bueno	Excelente	Pobre	Regular	Bueno	Excelente
10. ¿Cómo elegir un sitio para un jardín?								
11. ¿Cuándo sembrar verduras?								
12. ¿Cómo y cuándo hacer analizar la tierra del jardín?								
13. ¿Cómo dejar suficiente espacio entre plantas?								
14. Requisitos de agua e irrigación.								
15. ¿Cómo identificar insectos y determinar si se necesita control químico?								
16. Seguridad con pesticidas.								
17. ¿Cómo usar mantillo?								
18. ¿Cómo hacer y usar composta?								

Cuéntenos sobre usted

20. Soy (marque uno) ☐ Hombre ☐ Mujer

21. ¿Con cuál grupo étnico se identifica? (marque uno) ☐ Hispano o Latino ☐ No Hispano/Latino

22. ¿Con qué raza se identifica? (puede marcar más de uno)

☐ Asiático ☐ Negro ☐ Blanco ☐ Nativo de Hawái o de otra isla del Pacífico

☐ Amerindio o nativo de Alaska

23. Marque (✓) cualquier programa del cual usted o un miembro de su familia ha participado dentro de los pasados 30 días.

☐ TANF ☐ WIC ☐ Head Start ☐ Despensa comunitaria

☐ Cupones de alimentos/SNAP ☐ Comida escolar gratuita o de precio reducido

24. ¿Cuántas personas viven en su hogar (número total)? _____

25. ¿Cuántos niños de menos de 18 años de edad viven en su hogar (número total)? _____

26. ¿Qué es el nivel de educación más alto que usted ha completado?

☐ Menos de secundaria ☐ Secundaria o GED ☐ Algo de Universidad o escuela técnica

☐ Título Universitario

27. Es Fomentando y Nutriendo comunidades Saludables el primer programa de Texas A&M AgriLife Extension Service al que ha asistido? Marque uno solamente)

☐ Sí ☐ No ☐ No estoy seguro

28. ¿En qué año nació? _____

Para obtener más información acerca del Programa Asistencial de Nutrición Suplementaria (SNAP por sus siglas en inglés) o solicitar beneficios, visite <http://www.yourtexasbenefits.com>.

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El Texas A&M AgriLife Extension Service provee igualdad de acceso en sus programas, actividades, educación, y empleo, sin hacer distinción por motivos de raza, color, sexo, religión, origen nacional, discapacidad, edad, información genética, condición de veterano, orientación sexual o identidad de género.

Certificate of Completion

TEXAS A&M
AGRI LIFE
EXTENSION

Presents this certificate to

for completing the
Growing and Nourishing Healthy Communities
Garden Program.

County Extension Agent

GNHC Program Assistant

To learn more about the Supplemental Nutrition Assistance Program (SNAP) or to apply for benefits, visit www.yourtexasbenefits.com.
USDA is an equal opportunity provider and employer.

This material was funded by USDA's Supplemental Nutrition Assistance Program — SNAP.

The Texas A&M AgriLife Extension Service provides equal access in its programs, activities, education, and employment, without regard to race, color, sex, religion, national origin, disability, age, genetic information, veteran status, sexual orientation, or gender identity.

Certificado de Finalización



Presenta este certificado a

por completar el programa de
Jardinería Fomentando y Nutriendo
Comunidades Saludables.

Agente de Extensión de Condado

Asistente de Programa FNCS

Para obtener más información acerca del Programa Asistencial de Nutrición Suplementaria (SNAP por sus siglas en inglés) o solicitar beneficios, visite <http://www.yourtexasbenefits.com>.

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Joseph Berger: Common earthworm

Susan Ellis: Honey bee

Gerald Holmes: Blossom end rot on a melon, spotted cucumber beetle, striped cucumber beetle

Cornell University

Chris Smart: Black rot of cabbage

T. A. Zitter: Powdery mildew on winter squash leaves

Flickr

David Hill: Tomato hornworm

Texas A&M AgriLife Extension Service

Juan Anciso: Aphids, bee on a watermelon plant, chewed leaf, crops planted with plastic mulch, green lacewing larva, pepper Gemini virus symptoms, powdery mildew on melon leaves, tomato pinworm, wilted plant

Tom LeRoy: Tomato plants covered with row cover

Pat Porter, Professor and Extension Entomologist: Adult lady beetle.

Russell Wallace: Blossom end rot on a tomato, powdery mildew on a tomato plant, southern blight vascular infection, southern blight wilted tomato, tomato plants wilted by southern blight, tomato spotted wilt

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