|  |  |
| --- | --- |
| WHO: Participants | Individuals preparing for Master Gardener Volunteer role. |
| WHY:The Situation | A soil amendment refers to a material added to the soil to improve its physical, biological or chemical properties. There are many different types of soil amendments, each fulfilling a different goal. While some may add nutrients, others may improve soil structure. While some may act quickly others will act more slowly over a sustained time period. It is important to understand what different soil amendments do and how to apply them. |
| WHEN:Timing | 2.5 hours/135 minutes of session time & 15 minutes for a break. |
| WHERE:Space | Classroom setting with seats and tables arranged in a circle or in clusters conducive to discussion and participation.  |
| Learning Objectives*\** | Learning Strategy  |
| **Practice** reading a soil test report to gather information about the soil nutrient status of a site.  | *Getting the Most out of Your Vegetable Garden Soil Test Report* pre-work reading; Understanding A Soil Test Activity |
| **Explain** management practices that help individuals enhance soil to optimize plant success.  | Session presentation; *Benefits of No-Till Farming* and *Dangers of Compaction* post-work videos |
| **Identify** when and how to use compost and other soil amendments. | Session presentation; *Soil Amendments and Fertilizers* pre-work reading |
| **Practice** using Cornell’s Cover Crop Guide and become familiar with cover crop management practices. | Cover Crop Scavenger Hunt Activity; Session presentation |
| **Recognize** that soils can be impacted by lead and other contaminants and it is important to consider the quality of *any* material that you add to your garden in order to avoid contaminants and other undesirable materials. | Soil Contamination Discussion Activity |
| **Read and understand** fertilizer labels to be able to identify appropriate fertilizers to meet plant needs and personal goals. | Reading and Understanding Fertilizers Activity; Session presentation |

\*These learning objectives match those in Participant Guide & Presentation.

**Before Session**

**Total time for preparation will vary; minimally 8 hours.**

**Consider adult learning theory and strategies for implementation**



Figure credit: C. J. Carmichael adapted from M. S. Knowles and R.E. Mayer

Additionally, adult learners:

* Are **experts of their lived experience**.
* Come with their own **motivations and** **goals.**
* Need a **safe and trusting** learning environment.
* Know or will come up with **85% of the information** you are planning to share.
* Remember **30%** of what they hear and see, **50%** of a demonstration, **70%** of what they simulate, and **90%** when they do the real thing.

**Facilitated dialogue** allows the classroom to become a conversation. Such discussion offers a way for students to explore supposedly settled questions and develop a fuller appreciation for the complexity of our knowledge. Model and encourage participants to ask open-ended questions that don’t seek yes/no answers or have right/wrong answers. This will help create a safe and trustworthy learning environment that helps participants reflect on information and make it personally relevant. The *Ground Rules for Engagement* from the Toolkit section in the GB Learning Library - Core Preparation can be re-introduced if discussions lead to difficult and emotional conversations.

**Review (time will vary; minimally 4 to 6 hours)**

Go to the online **GB Learning Library - Core Preparation** and review the resources available in the section Soil Amendments and Fertilizers,including:

* Session Slides and Facilitator Notes
* FAQs
* Facilitator Guide
* Participant Guide
* Knowledge Check
* Print Materials for Before Session Pre-Work and Hands-on Activities
* Note: There is a stand-alone Soil Contaminant Discussion activity in this session. Please note that the topic of soil contaminants can be integrated into any mention of soil testing. Though we focus on soil testing for pH, organic matter and nutrients, soil testing for contaminants is another important topic.

**Gather materials and supplies (2 plus hours)**

* Write cover crops on index cards for station-based activity, Cover Crop Scavenger Hunt. See activity handout.

**Communicate with participants before session (1 hour)**

Ideally at least 2 weeks in advance of this session provide participants with theParticipant Guide found in the **GB** **Learning Library - Core Preparation**. This document details what participants must do before the session. Review the document to determine if you need to supply any material in advance and to confirm the links are still good. Time to complete this pre-work will vary depending on the participant’s background and interest. We estimate most participants should allocate 3 to 5 hours.

**Program Evaluation/Feedback** **(1 hour)**

See section below.

**Session Flow and Delivery**

**Total time for session is 2.5 hours - 135 minutes of task time & 15 minutes for a break.**

**Session Tasks**

**Task 1: Opening and Introduction (5 minutes)**

Welcome everyone, review housekeeping, ground rules, learning objectives, and class flow.

**Task 2: Reconnect (5 minutes)**

Ask participants to discuss:

* Why should we care about soil?
* What are some ways we can learn about our soil?

**Task 3: Soil Amendments and Fertilizers presentation (50 Minutes)**

 See session presentation and follow facilitator’s notes.

**15 Minute BREAK**

**Task 4: Station-Based Hands-on Activities (60 minutes)**

Break into 4 groups and have each group spend 15 minutes per activity.

Follow the activity directions documents found in the **GB Learning Library.**

1) Reading and Understanding Soil Tests

2) Reading and Understanding Fertilizer Labels

3) Cover Crop Scavenger Hunt

4) Soil Contaminant Discussion

**Task 5: Conclusion (10 minutes)**

# Ask participants to reflect on key take home points from today and any lingering questions.

Direct participants’ attention to the items listed under **After Session** in their Participant Guide.

**Task 6: Program Evaluation/Feedback (5 minutes)**

Provide participants with an avenue to give feedback and data for your program evaluation and reporting. See section below on Program Evaluation/Feedback.

**Task 7: Participant Evaluation/Knowledge Check (part of participant’s After Session work)**

Provide an avenue for participants to assess what they know. See section below on Participant Evaluation/Knowledge Check**.**

**After Session**

**Total time for follow-up will vary; minimally 2 hours.**

**Communicate with participants after session (1 hour)**

Follow-up on unanswered content questions that emerged during the session and provide feedback on the knowledge check.

**Consider Program Evaluation/Feedback (1 hour)**

Summarize the feedback and data you received from participants for your program reporting and or future planning needs. See section below on Program Evaluation/Feedback.

**Session Materials and Supplies**

**General Materials List**

Facilitator notes, Markers, Index cards, Pens, Highlighters, Flip chart paper, Name tags Feedback Forms, Post-it® notes, Masking tape, Computer/Internet/Projector

**Materials by Task**

|  |
| --- |
| Before Session Tasks* Materials found in GB Learning Library:
	+ Module 5: Management Strategies Section 5.2 Soil Amendments and Fertilizers
	+ Evaluation Toolkit
 |
| Task 1 - Opening and Introduction * Participant Guide
* Session Slides and Facilitator Notes
 |
| Task 2 - Reconnect* Participant Guide
* Flip chart paper and markers for group discussion notes
 |
| Task 3 – Soil Amendments and Fertilizers presentation * Session Slides and Facilitator Notes
 |
| Task 4 - Station-Based Hands-on ActivitiesActivity Directions documents for each of these are found in the GB Learning Library. Materials are listed in each document and summarized here: * Reading and Understanding a Soil Test Activity
	+ *Sample Soil Analysis Report Form D-1 NY* *Report* for each participant
	+ Activity handout for each participant
	+ A variety of sample soil test results (*optional*)
* Reading and Understanding Fertilizer Labels
	+ A fertilizer label photo for each participant (participants should bring one with them as part of their pre-work).
	+ A few extra fertilizer labels to have on hand.
	+ Activity handout for each participant
* Cover Crop Scavenger Hunt
	+ Laptop, tablet or smartphone with internet access for each pair or small group
	+ Activity handout for each participant
	+ Index cards (write one cover crop on each index card, each pair or small group will need one index card)
		- Annual Ryegrass
		- Field Peas
		- Oats
		- Arugula
		- Fall Mustard
		- Feel free to add additional cover crops from the database
* Soil Contaminant Discussion Activity
	+ *Sources and Impacts of Contaminants in Soils* handout for each participant
	+ *What Gardeners Can Do: 10 Best Practices for Healthy Gardening* handout for each participant
	+ Activity handout for each participant
 |
| Task 5 – Conclusion * Participant Guide
* Flip chart paper and markers for group discussion notes
 |
| Task 6 – Program Evaluation/Feedback * Your evaluation/feedback materials
 |
| Task 7 – Participant Evaluation/Knowledge Check* Materials for participants to assess what they know around this topic such as Knowledge Check from GB Learning Library
 |
| For After Session* Feedback from participants
* Reporting forms
* Knowledge Check Key from GB Learning Library
 |

**Optional Activities**

**Frequently Asked Questions (FAQs)**

With the input of county and campus-based experts, we have compiled a list of top **FAQs** for each topic areas and placed it with the other session resources in **GB Learning Library**. Though not an exhaustive list, it should provide an opportunity for discussion and exploration of resources related to the topic. Integrate the FAQs in a way that makes sense for your local program. The FAQs could be used to prompt discussions within your group or they could be adapted into a scavenger hunt where individuals sift through reliable resources to find correct answers. Feel free to add or subtract questions and resources in the answers to meet your program's needs and address emerging issues.

**Participant Evaluation/Knowledge Check**

Adult learners enjoy getting feedback on what they have learned. In the **GB Learning Library, you will find** the Knowledge Check handouts for each session. You may ask participants to answer the questions at home on their own or in small groups discussions. The Knowledge Check **KEY** can be used for participants to self-check or for the educator to grade and provide feedback. You may wish to identify more engaging ways for participants to self‐test what they have learned as it motivates and empowers them to be more accountable for their learning.

**Program Evaluation/Feedback**

**Time for creating and implementing a program evaluation plan will vary; minimally 1 hour.**

Ideally, evaluation begins before the program starts. Though for many educators, the idea of measuring the effects of your program is so daunting it never begins.  With this in mind, we provide an **Evaluation Toolkit** in the **GB** **Learning Library**. Our aim is to offer tools you can use, even while you’re on the run. Check it out as you consider these key questions:

* **Who** is this evaluation for?
* **What** do you want to know,and **why?**
* **What’s do‐able, really?**

Other key resources will be your local county program plan of work which likely aligns with CCE Programmatic Plans: <http://www2.cce.cornell.edu/plans/Pages/FY-2016-CCE-Programmatic-Plans.aspx>

Find on CCE staff website under the Organizational Development and Planning Unit a Program Reporting module: <http://staff.cce.cornell.edu/orgdev/Pages/reporting.aspx>

**References**

For Adult Learning Theory references see those listed in GB Learning Library in Module 6: Facilitating Learning Section 6.1 Adult Learning and Community Engagement.

Date Published/Updated: March 2019

**Facilitator’s Notes**

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| --- |
| **List quotes and behavior change you noticed, especially those that may be included in your necessary reporting, success story, or for future program improvement:** |
| **List Participant Commitments that you will need to follow up on:** |
| **Changes and Adaptations to Session:**  |