

On-Farm Soil Monitoring for Water Resource Protection



Curriculum Guide

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A supplemental video learning module, *On-Farm Soil Monitoring for Water Resource Protection* (V-WQ-43) (17 minutes running time) is available online at <http://www.ces.purdue.edu/waterquality> and by clicking on the Field Assessment link, or you can order a VHS copy for \$10 from Purdue Extension by dialing this toll-free number: (888) 398-4636 and asking for Media Distribution Center.

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Objectives of this Curriculum Guide

To provide an organized outline of presentation options, objectives, and materials that can be used in teaching student and adult audiences the methods of conducting soil quality monitoring on agricultural fields, and interpretation of the results for improving soil and water conservation.

To assist educators and agricultural professionals in serving the needs of farmers in protecting soil and water quality through on-farm monitoring of soil quality and health.

Program Options

The PowerPoint presentations and additional handouts are available on the web site: <http://www.ces.purdue.edu/waterquality>, then click on the Field Assessment link. Teachers, please note that the subject of soils and soil monitoring can be taught in-depth over two or more weeks, culminating in on-farm field experiences. The program options presented here are for a one-time event.

2 hours (With in field hands-on learning)

Pre-program survey.....	5 minutes
PowerPoint presentation.....	20 minutes
In field hands-on demonstrations.....	60 minutes
Interpreting & recording the data.....	10 minutes
Continue PowerPoint presentation.....	10 minutes
Question-and-answer period.....	5-10 minutes
Post-program survey.....	5 minutes

70 – 80 minutes with video, 50 – 60 minutes without video

Pre-program survey.....	5 minutes
PowerPoint presentation.....	20 minutes
Show video.....	20 minutes
In class aggregate stability demo.....	5-10 minutes
Continue PowerPoint presentation.....	10 minutes
Question-and-answer period.....	5-10 minutes
Post-program survey.....	5 minutes

45 minutes with video, 25 minutes without video

(for groups such as Breakfast Club, Optimists, Kiwanis, etc.)

PowerPoint presentation (slides 1-8, 12, 14, 16, 19, 21)..	15 minutes
Show Video.....	20 minutes
Continue PowerPoint (slides 24-26).....	5 minutes
Question-and-answer period.....	5-10 minutes

Program Outline

I. Program opening

- A. Introduce yourself and your agency
- B. Conduct the pre-program survey (You can download the pre/post evaluation file from the Web site.)

II. PowerPoint presentation

(Use the notes page that accompanies each PowerPoint slide for your presentation. You can download the PowerPoint presentation from the Web site.)

1. Introduction of the topic
2. Conduct a field assessment first
3. Then, monitor the changes you make
4. Why monitor soils?
5. An on-farm soil monitoring approach
6. Two fundamental approaches to soil monitoring
7. Monitoring soil quality indicators on the farm
8. The monitoring kit
9. Preparing to monitor – obtain publication
10. Preparing to monitor – select sample site
11. Preparing to monitor – record sheet

Option: Show the video*

12. Water infiltration rate
13. Water infiltration rate method
14. Earthworms
15. Earthworm counts
16. Soil aggregate stability
17. Soil aggregate stability method
18. Soil aggregate stability

Option: In classroom demonstrate the soil aggregate method.

19. Soil compaction
20. Soil compaction method
21. Plant and residue cover
22. Plant and residue cover method

Option: Conduct field demonstration**

23. Enter the results on the record sheet
24. Using the results
25. How to obtain materials
26. On-farm soil monitoring helps you –summary

III. Question-and-answer period

IV. Post-program survey

V. Distribute any additional information, flyers, and publications

Program Outline Continued:

*To obtain a VHS copy of the training video contact the Media Distribution Center (765) 494-6794 and ask for V-WQ-43. The video is also available on the Web site.

**Conducting a demonstration in the field will provide the best learning format. This will work best with groups under 20 people. People can form small groups and rotate through stations, or with smaller audiences the group can select one sample site and proceed together through each indicator.

Teaching Preparation

Objectives

Participants will learn why soil monitoring is important for making better decisions about protecting water and soil quality.

Participants will learn about putting together a simple, but effective, soil monitoring kit for use on their own farms.

Participants will learn about methods for conducting five soil quality indicators: water infiltration rate, earthworm counts, aggregate stability, soil compaction, and plant and residue cover.

Participants will learn to interpret and record field and soil monitoring information.

Teaching Checklist

- If you are presenting a public presentation, send out a news release at least two weeks before the program.
- Make arrangements for the meeting room and room set-up
- Make overhead transparencies, if needed in place of PowerPoint slides.
- Read lesson and prepare
- Copy the pre/post surveys for participants

Materials and Equipment Checklist

- Overhead projector and screen or LCD projector, laptop, and PowerPoint file (you can download the PowerPoint file from the Web site).
- Overhead transparencies if needed
- Copy of the publication for each participant (these are available from the Web site and in quantities free of charge from Brent Ladd, 765-496-6331)
- Pre/post surveys for each participant (you can download this from the Web site)
- A complete soil monitoring kit for in-field demonstrations (see the publication)

Presenting the Program

PowerPoint Notes Pages

You may find it helpful to print out the slides with the notes page that accompanies each slide. The notes give information about each slide. Simply select the printing option that includes the notes pages.

Summary of Video

The optional training video (17 minutes) demonstrates how to easily make a soil monitoring kit, and how to conduct monitoring for five soil quality/health indicators. The video may be especially helpful in situations where field demonstrations are not possible. To obtain a VHS copy of the training video contact the Media Distribution Center (765) 494-6794 and ask for V-WQ-43. The video is also available on the Web site.

Please mail pre- and post-evaluation surveys to:

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Program Notes: