Soil Quality Card for Students

How to use the card

1. Enter required information at top of sheet. Select 2-5 representative spots in the field.
2. Follow test procedures described on back of sheet.
3. Use a shovel and a wire to probe the soil. Rate each indicator on a scale from 1 to 10. Refer to the rating guide to determine the score for each indicator.
4. Record your observations. Add all ratings and record TOTALS in bottom row.
5. Compare results to other locations.

Date: _____ Soil Texture:_____ Time:_____

Location: _____ Weather:_____

Student Names:_____

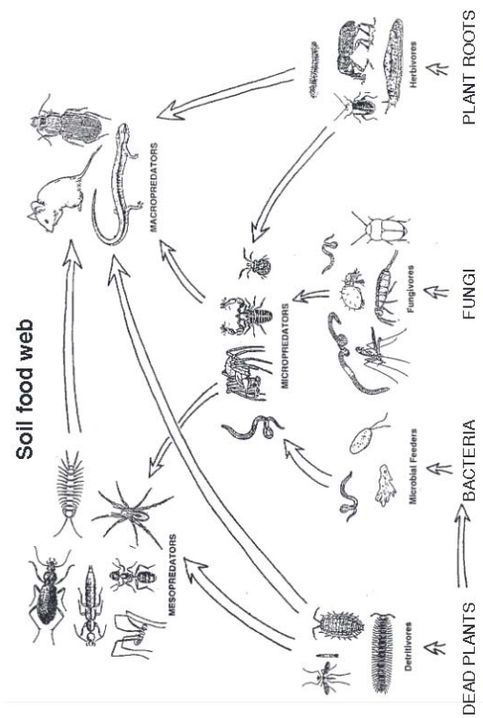
Indicator	Rating (Least Desirable → Most Desirable)										Observations	Rating Guidelines		
	1	2	3	4	5	6	7	8	9	10		1	5	10
1. Is the soil free of compacted layers?											Depth when flag bends:	The flag bends readily. Plant roots that turn horizontally indicate a hardpan.	Some restrictions to a penetrating wire flag, some root growth restrictions.	The wire flag can penetrate all the way into the topsoil >6-8 inches deep.
2. Is the soil full of living organisms?												Almost no moving organisms are seen in the soil after 4 min. of searching.	1-2 individuals of at least 2 kinds of soil organisms are found after 4 min. of searching.	Several individuals of at least 4 diff kinds of organisms are seen after 4 min. of searching.
3. Do plant roots grow well?												Only a few fine roots; brown, diseased or mushy-looking roots extend only a very short distance into the soil.	The plant has some fine roots with a mostly healthy appearance, and only some evidence of restricted growth.	The roots system is fully developed with many find roots, grows into the soil at least 6-8" deep.
4. Does water infiltrate quickly?												Infiltrometer takes >8 minutes to drain.	Infiltrometer takes 2-8 minutes to drain	Infiltrometer takes 0-2 minutes to drain
5. Is water available for plant growth?											Record depth of sample	0-25% soil moisture	25-50% soil moisture	50-100% soil moisture
6. Other														
TOTAL SCORE (add up all numbers in each column, then add those totals together)											**Sum of TOTALS**			

Indicator #1
Is the soil free of compacted layers?

Materials Needed
1. Wire flag
2. Measuring tape

Procedure

Hold the wire flag near the flag end and push it vertically into the soil at several different location in the field. In observation column, record depth where flag bends.



Indicator #2
Is the soil full of living organisms?

Materials needed
1. Shovel
2. Tray
3. Jar lid
4. Hand lens
5. Watch

Procedure

Dig out a shovelful of soil down to at least 6 inches. Place soil sample on tray and spread it out.

Put a spoonful of soil into a lid and flood with water.

Examine the soil in both samples for 4 minutes. Keep track of the numbers of individuals of each kind of soil organism that you see.

In observation column, record time of day and weather at the time you make the observation.

This is a student version of the Willamette Valley Soil Quality Card © 1998 by Oregon State University Extension Service (extension.oregonstate.edu/catalog/pdf/em/em8710-e.pdf). The student version was created with funding from USDA Risk Management Education Partnerships Program grant. Agreement #13-IE-53102-129—Reduce Agricultural Risk through Soil Health Education.

USDA

Benton Soil and Water CONSERVATION DISTRICT

Indicator #3
Do plant roots grow well?

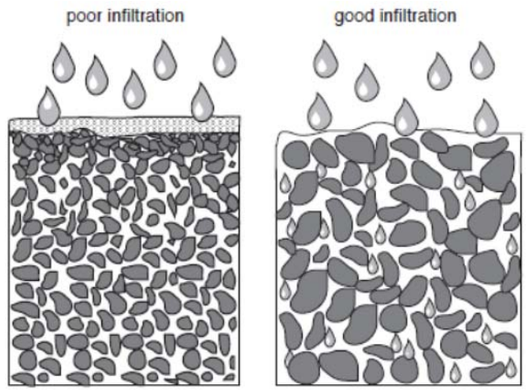
Materials Needed
1. Shovel
2. Hand trowel

Procedure

Dig around a plant as extensively as possible to get an idea of how deep the roots extend into the soil.

Examine the root system by separating the soil from the roots.

Look for:
- Extent of root system development
- Number of fine roots
- Color of new roots



Indicator #4
Does water infiltrate quickly?

Materials Needed
1. Infiltration ring
2. 32 oz yogurt cup
3. Water
4. Timer

Procedure

Pound the ring at least 1 inch into the ground. Fill the yogurt container with water to the inner rim. Begin timing infiltration as you gently begin to pour water into ring. If possible, repeat in three representative locations and take an average.

Indicator #5 Is water available for plant growth?

Materials Needed
1. Moisture By Feel Brochure
2. Soil Sample
3. Hands

Procedure

Texture must be determined first. Use the Soil Moisture by Feel Method. www.cdpr.ca.gov/docs/emon/vocs/vocproj/estimating_soil_moisture.pdf
Test results are most reliable 2-3 days after a rain event.