



Extension FactSheet

Agriculture and Natural Resources, 2120 Fyffe Rd., Columbus, OH 43210-1084

Sustainable Agriculture Fact Sheet Series

Ohio Soil Health Card

What Is the Ohio Soil Health Card?

The Ohio Soil Health Card evaluates a soil's health or quality as a function of soil, water, plant, and other biological properties identified by farmers. The Card was *developed for farmers by farmers* with assistance from Ohio State University Extension and the Natural Resources Conservation Service (USDA-NRCS). The Card is a tool to help you monitor and improve soil health based on your own field experience and a working knowledge of your soils. Regular use will allow you to record long-term changes in soil health and to compare the effects of different soil management practices. This Card is most effective when filled out consistently by the same person over time. It provides a qualitative assessment of soil health, and evaluation ratings that do not represent an absolute measure or value. *The purpose is not to measure one soil type against another, but rather to use indicators that assess each soil's ability to function within its capabilities and site limitations.*

How Do You Use the Ohio Soil Health Card?

- Step 1)** The only tools required to use the Card are a pencil and shovel or spade.
- Step 2)** Use the chart on page 4 for the best times to assess each indicator of soil quality and health.
- Step 3)** Divide your farm and fields into separate sections for evaluation in the same way you would divide them for soil-fertility sampling: separate by factors like soil type, topography, and history of tillage, crop rotation and manure application.
- Step 4)** Enter the **Date** and **Field Identification** information at the top of the Card.
- Step 5)** Select 2–3 representative spots in your field and evaluate each soil health **Indicator**. Read the **Descriptive Ratings** in the rectangular boxes and based on your judgment rate the indicator **Good**, **Fair**, or **Poor** by checking the small square in the lower left-hand corner of the box with the best description.
- Step 6)** In the **Notes** section following each group of soil health indicators, record any observations or soil conditions that will help you review and evaluate your ratings.
- Step 7)** Follow changes in each of the soil health indicators over time, examine current field management practices, and consider ideas for management changes in problem areas.

Ohio Soil Health Card

Date: _____ Field Identification: _____

Indicators	Descriptive Ratings		
	<i>Good</i>	<i>Fair</i>	<i>Poor</i>

SOIL TILTH

Structure	<input type="checkbox"/> Good crumb structure, tills easily leaving no clods, soil breaks apart easily	<input type="checkbox"/> Moderate crumb structure, some clods, soil breaks apart with some pressure	<input type="checkbox"/> Hard, tills with difficulty, tillage creates lots of clods
Crusting	<input type="checkbox"/> Soil maintains open/porous surface all growing season, seedling emergence not affected	<input type="checkbox"/> Some surface sealing, minimal effect on seedling emergence	<input type="checkbox"/> Soil surface seals easily after tillage and rain events, inhibits seedling emergence
Compaction	<input type="checkbox"/> Loose soil, unrestricted root penetration	<input type="checkbox"/> Firm soil, root penetration somewhat restricted	<input type="checkbox"/> Hard layers, tight soil, severely restricted root penetration

Notes:

SOIL LIFE

Earthworms	<input type="checkbox"/> Lots of earthworms, many holes and casts	<input type="checkbox"/> Some earthworms, few holes and casts	<input type="checkbox"/> No visible signs of earthworm activity
Smell	<input type="checkbox"/> Soil has a fresh, earthy smell	<input type="checkbox"/> Soil has little or no smell	<input type="checkbox"/> Soil has a swampy, stagnant smell
Residue Decomposition	<input type="checkbox"/> Residue at various stages of decomposition on soil surface and in the topsoil	<input type="checkbox"/> Some visible, non-decomposed residue in the topsoil	<input type="checkbox"/> Rapid decomposition with little or no visible residue in the topsoil or very slow decomposition with relatively unweathered residue in the topsoil

Notes:

SOIL AIR AND WATER

Drainage	<input type="checkbox"/> Soils drain and warm quickly in spring, limited delays in field operations, good balance between air and water in the soil, yield reduction in only very wet years	<input type="checkbox"/> Soils drain and warm more slowly in spring, some delays in field operations, water-logged after heavy rains, minimal yield reduction	<input type="checkbox"/> Soils stay wet for long periods, delays in field operations, soil doesn't breathe, reduces yields
-----------------	---	---	--

Indicators

Descriptive Ratings

	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
<i>Water-Holding Capacity</i>	Soil holds water well, deep topsoil for water storage, crops seldom suffer from moderate dry spells	Soil has moderate capacity to hold water, crops are not the first in the area to suffer from dry weather	Soil has limited capacity to hold water, crops suffer in moderate dry spells
<i>Water Movement</i>	Rainfall soaks in, very little runoff and erosion, water does not pond	Absorbs water, but more slowly, some runoff and erosion, ponding after heavy rains	Absorbs water very slowly, lots of runoff and erosion, ponding after moderate rains

Notes:

PLANT VIGOR

<i>Uniformity in Growth and Color</i>	Uniform deep-green color, rapid growth, even stand (height and population), no visible signs of stress	Some variation in color, height, and population, moderate growth, mild stress	Uneven color, variable height and population, stunted and stressed, nutrient deficiency symptoms
<i>Seedling Emergence</i>	Rapid and even emergence	Some variability in emergence	Slow and uneven emergence
<i>Root Systems</i>	Healthy, uninhibited root growth, lots of fine roots	Root growth somewhat restricted, some fine roots	Restricted root growth, few fine roots

Notes:

FERTILITY MANAGEMENT

<i>Nutrient Levels</i>	Soil test levels are adequate for planned crops and yield goals, no visible signs of plant nutrient deficiency	One or more soil test levels are less than adequate for planned crops and yield goals, no visible signs of plant nutrient deficiency	One or more soil test levels are deficient or excessive for planned crops and yield goals, visible signs of plant nutrient deficiency may be present
<i>Soil pH</i>	pH levels are within the acceptable range for the planned crops	pH levels slightly above or below the acceptable range for planned crops	pH levels are too high or too low for the planned crops
<i>Organic Matter</i>	Organic matter levels are being maintained or increasing, dark, friable, with good structure	Organic matter levels can be improved, some crusting and clods	Organic matter levels are decreasing, light-colored, crusted, cloddy, hard

Notes:

Best Times to Assess Indicators

	Early Spring Before Planting	Growing Season		Fall	After Rainfall
		Spring	Summer		
Structure (when moist)	X	X	X	X	
Crusting		X			X
Compaction	X	X	X	X	
Earthworms	X	X		X	X
Smell (when moist)	X	X	X	X	X
Residue Decomposition	X	X		X	
Drainage	X	X	X	X	X
Water Movement	X	X	X	X	X
Water-Holding Capacity		X	X	X	X
Uniform Growth & Color		X	X		
Seedling Emergence		X	X		
Root Systems		X	X	X	
Nutrient Levels	X			X	
pH	X	X	X	X	
Organic Matter	X			X	

Edited by Alan Sundermeier, Extension Agent, Wood County.

This Card was originally developed for farmers by farmers with assistance from the Ohio State University Extension Sustainable Agriculture Team, the OSU Piketon Research & Extension Center, and the U.S. Department of Agriculture—Natural Resources Conservation Service (USDA-NRCS).

For more information on soil health go to the following web sites:

<http://soils.usda.gov>

<http://southcenters.osu.edu/soil>

<http://ohioline.osu.edu>

Visit Ohio State University Extension's web site "Ohioline" at: <http://ohioline.osu.edu>

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status. Keith L. Smith, Associate Vice President for Ag. Adm. and Director, OSU Extension
TDD No. 800-589-8292 (Ohio only) or 614-292-1868