Idaho NRCS Soil Health Assessment Card

Location Info:	Landowner:	Tract/Field:	County:	Data Collectors:	Date:
Soil & Site Info:	MU/Soil Name:	GPS Coord: % Slope:	Mean Annual Precipitation:	Current Tillage System:	Planned Tillage System:

	Indicator	Observations	least desired → most preferred										Indicator Values		
			1	2	3	4	5	6	7	8	9	10	*least desired* 1	5	*most preferred* 10
Physical	Soil Structure/Tilth (0-12")												Powdery when dry; crusts easily after rain; large hard clods; difficult to work	Some granular structure and little platiness; crust only in areas such as wheel tracks	Mostly granular; no crusting
Physical	Soil Slaking												0-25% of aggregates remain	25-50% of aggregates remain	75-100% aggregates remain
Physical	Compaction (Penetrometer, Probe or Flag)												Cannot push wire flag into soil; penetrometer reading > 300 psi at depth < 3"; hard pan stops vertical root growth, roots grow laterally	Can push flag into soil with force; penetrometer reading of >300 psi at 3-9"; some roots grow laterally, a few roots grow thru hard pan	Flag enters soil easily; can be pushed in to twice the plow depth; penetrometer reading of <300 psi above 15"; roots grow down
Physical	Infiltration (2nd inch)												Water ponds; excessive runoff	Water ponds for short period; some runoff	No water ponding or runoff; water moves easily through soil
Physical	Soil Erosion												Erosion > 2 times "T" value	Erosion = "T" value	Erosion < 1 ton/acre
Chemical	Soil pH												pH < 5 or pH > 8.5	pH < 6 or pH > 7.5	pH 6.0 - 7.5
Chemical	Salinity - Ece												ECe > 3 dS/m	ECe > 1 and < 3 dS/m	ECe < 1 dS/m
Chemical	Adequate N-P-K soil test levels												One or more soil test levels are deficient or excessive for planned crops and yield goals; may see 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	Soil test levels are adequate but not excessive for planned crops and yield goals; no visible signs of plant nutrient deficiency
Biological	Crop Residue												0-25% of surface covered	25-50% of surface covered	>75% of surface covered
Biological	Soil Smell												Swampy stagnant smell	Little or no smell	Fresh, deep earthy smell
Biological	Crop Condition												Uneven stand with poor yields; crop color light green to yellow	Fair growth, spots in field different, medium green color	Excellent growth across field; healthy looking crop, dark green color
Biological	Earthworms (growing season)												0-1 worm per cubic foot; no casts or holes	5 worms per cubic foot; few casts &/or worm holes	>10 worms per cubic foot; lots of casts and holes.
Biological	*Respiration (Solvita Basal)												1	2.5	5
Biological	*Soil Health Index (Haney test)												Index = 1	Index > 5	Index > 10

TOTAL SCORE _____

* Suggested tests

Water Infiltration Evaluation

Evaluation Date:

	1st inch of water		(W) 1st Infiltration Time (minutes)	1st Infiltration (in/hr)*	2nd inch of water		(W) 2nd Infiltration Time (minutes)	2nd Infiltration (in/hr)*
	Start Time	End Time			Start Time	End Time		
1								
2								
3								

*Conversion of infiltration time to inches per hour = (1/W) X 60

How to use the NRCS Idaho Soil Health Assessment Card:

- Turn over a shovelful of soil (about 12" deep) and rate each indicator by making an 'X' in the box that best represents the value for that indicator.
  Ratings: 1 (least preferred) to 10 (most preferred) are comparative and determined by user.
- Determine soil compaction by pushing a penetrometer, probe, or wire flag into undisturbed soil and noting the resistance.
- For Chemical Indicators, soil test data can be used.
- The Soil Quality Indictor sheets are online and have information on slaking, compaction, infiltration, pH, EC, nitrate, respiration, etc. Go to:

http://www.nrcs.usda.gov/wps/portal/nrcs/site/id/home/ and click on the Soil Health Link. Look for the link to the SQI sheets

Tools Needed: A shovel, printed guide sheets, soil slake kit, infiltration kit, penetrometer, probe or wire flag, sampling bags (for respiration/soil health index, and supplies for optional tests (pH Ece).

➤ *Regular use of this assessment card provides a long-term record of soil health improvements on different fields and with various farming and management systems.*

What is Soil Health?

Soil Health is *the continued capacity of a soil to function*. Healthy soils support plants, animals and humans by:

- cycling nutrients
- increasing water infiltration and availability
- filtering and buffering toxic compounds
- maintaining a stable porous structure that withstands natural forces (e.g. water, wind)

Healthy, fully functioning soil creates a habitat that sustains diverse soil micro- and macro-organisms.

The **Idaho Soil Health Assessment Card** will help to determine how well your soil is functioning, including infiltrating water, cycling nutrients, and evaluating other biological parameters.

Why is Soil Health Important?

Soils that lack organic matter, structure, and microorganisms are susceptible to erosion, hold less water, and need more chemical inputs to rebalance their productivity.

For example, water runoff is the symptom we see when soils have a water infiltration problem. Improving soil health increases soil aggregates and improves soil structure resulting in greater water infiltration, decreased erosion, and reduced runoff and sedimentation.

Follow these **4 Key Principles** to improve soil health:

1. Minimize soil disturbance
2. Maximize the diversity of plants in the rotation
3. Keep living roots in the soil as much as possible
4. Keep the soil covered with plants and plant residues at all times

For more information or assistance with soil health, contact your local NRCS field office

Oct 2014