Recommendations

- Evaluate soil quality periodically (about every 3 years) to document changes.
- Periodic assessments in a field should be done by the same person and under similar soil moisture conditions.
- Assessments are qualitative and do not represent absolute measures.
- For better assessments, check several spots per field.
- Examine the distribution of indicator values. Even if most of the indicators are scored 10 (healthy), the soil may still have serious problems.
- Careful consideration should be used to identify the cause of the problem(s).
- Impaired properties may need immediate action and should be closely monitored.
- Keep completed Soil Quality Cards on file for future reference.
- For more information on soil quality, contact your local USDA Natural Resources Conservation Service office, Conservation District Office, County Agent or visit the Soil Quality Institute website at: *http://www.statlab.iastate.edu/survey/SQI.*

Soil Quality Card for Kansas

NRCS
Natural Resources Conservation Service

What is Soil Quality?

The terms "soil quality" and "soil health" are used interchangeably.

There are many definitions of soil quality, but basically, it is the ability of the soil to:

1. Absorb and hold water
2. Support plant and animal life
3. Act as an environmental buffer

Soil quality is very important to all people. Healthy soil absorbs and holds more water, and has better physical, chemical, and biological properties. If we have good soil quality, we will have productive land, good water quality, good air quality, and a healthy environment.

How to Improve Soil Quality

Management greatly affects soil quality. Farmers throughout Kansas are increasing the amount of soil organic matter in their land and improving the soil's quality by following some basic agronomic principles. They are:

1. Use soil tests, nutrient management, pest management, crop rotations, etc.
2. Leave adequate amounts of crop residue on the soil surface each year (at least 2 to 4 tons/acre/year).
3. Use cover crops, especially on fields where low residue producing crops such as soybeans and sunflowers are grown.
4. Eliminate all tillage, even light disking.
5. Practice continuous long-term conservation tillage.

Also, talk with other conservation tillage farmers. They can give you some ideas on how they are changing the quality of their land.

About this Card

The *Soil Quality Card for Kansas* is an adapted field tool developed by the USDA Natural Resources Conservation Service.

It was developed for farmer use in evaluating changes in soil quality as affected by field management.

Regular use of the *Card* allows you to record long-term improvements in soil quality on different fields and with various farming and management systems.

In addition to farmers, agricultural professionals such as soil conservationists, soil scientists, county agents, crop advisors, consultants, and agribusiness representatives can use the *Card*. Educators, students, garden clubs, and others may also find this card useful.

How to Use the Kansas Soil Quality Card Tools Required: shovel and a soil probe or wire flag

- Turn over a shovel full of soil (about 6-8" deep). Rate each indicator by making an "**X**" or shading out the box that best represents the value for that indicator.
- Determine soil compaction by simply pushing the wire flag or probe into undistrubed soil and noting the resistance.

Date_____ Evaluation by_____ County_____ Farm_____ Field_____ Crop(s)_____

Tillage System_____ Soil Moisture Level (check one) ___Good for planting; ___Too wet for planting; ___Too dry for planting

Indicator	Observations	Preferred 1/ 1 2 3 4 5 6 7 8 9 10	Indicator Values		
			1	5	10
1. Crop Growth			Uneven stand; stunted crop growth; discoloring common	Some uneven stand; stunted growth; slight discoloring	Even stand; vigorous and uniform crop growth
2. Soil Erosion			Excessive soil movement by water and/or wind	Some visible soil movement by water and or wind	Little or no soil erosion by water and/or wind
3. Soil pH 2/			pH 1.0 lower than needed	pH 0.5 lower than needed	Proper pH for the crops
4. Soil Fertility 2/			Soil amendments severely lacking desired crop recommendations	Soil amendments slightly lacking for desired crop recommendations	All soil amendments are adequate for desired crops
5. Surface Soil Color			White or reddish brown	Dark gray or brown	Dark brown or black
6. Soil Tilth/Structure			Cloddy; hard; crusty; Difficult to work	Some visible crumbly structure	Crumbly; mellow or loamy and easily worked
7. Water Infiltration Water Holding Capacity			Excessive runoff; ponding; or very low water holding capacity	Some runoff; some ponding; or poor water holding capacity	Very little runoff/ponding; Good water holding
8. Biological Activity			Little or no sign of animal life in the soil	Some living organisms or signs of animal activity in the soil	Numerous signs of animal life in the soil
9. Compaction/Crusting			Can not push probe or wire flag into soil; crusting is prevalent	Can push probe or wire flag in soil with force; some soil crusting	Probe or flag enters soil easily; no soil crusting
10. Crop Residue (right after planting)			0-30% of soil surface is covered with crop residue	50-70% of soil surface is covered with crop residue	>70% of soil surface covered with crop residue
11. Winter Cover Crop			No living or dead cover on the soil surface	50-90% of soil surface covered by cover crop or winter weeds	>90% of soil surface covered with cover crop
12. Surface Organic Matter			No visible roots or residue in soil	Some roots and residue in soil	Abundant roots/residue in stages of decomposition
13. Roots Indicator(s)			Vertical roots stop at plow layer	Root growth through plow layer, but stunted	Abundant deep vertical and horizontal root growth
14. Salinity/Alkalinity			Visible salt/alkali, dead plants	Stunted growth, some leaf burn	No salt/alkali damage noted

1/ Ratings 1 to 10 are comparitive and are determined by the user.

2/ Lab analysis is needed.