MEASURING SOIL HEALTH: SOIL TEMPERATURE

The earth's soil layer is critical in maintaining plant life, offering structural support and supplying water and nutrients. Soil also stores heat, acting as a energy sink during the day and a heat source at the soil surface at night. In annual terms, the soil stores energy during the warm season and releases it to the air during the colder portions of the year. Soil temperature is simply the measurement of the warmth in the soil.

WHY IS SOIL TEMPERATURE IN IMPORTANT?

Soil temperature is the factor that drives germination of seeds. Soil temperature directly affects plant growth. Most soil organisms function best at an optimum soil temperature.Soil temperature impacts the rate of nitrification.It also influences soil moisture content, aeration and availability of plant nutrients.

METHOD OF MEASURING TEMPERATURE:

Soil thermometers are the most common tool for measuring soil tempeatures. There are special soil temperature gauges used by some farmers and soil sample companies, but a standard digital thermometer will work for general soil health assessment.

TIPS FOR MEASURING SOIL TEMPERATURE

Date: Best to measure in June, July and August during the growing season to reflect soil health benefits.
Time of day: Between 1 and 2 p.m.
Depth: 4 inches below the soil surface, under bare soil
Location: Be consistent (same area of field, soil type, weather and precipitation.)

WHEN SOIL TEMPEATURE REACHES:

140 F Soil bacteria dies.

130 F 100% moisture is lost through evaporation or transpiration.

113 F Some bacteria species start dying.

100 F 15% moisture used for growth, 85% moisture lost through evaporation and transpiration.

90 F Plant growth slows.

70 F 100% moisture is used for plant growth.

Ideal range for nitrification, plant growth and planting (65 to 86 F)