Soil Health Update

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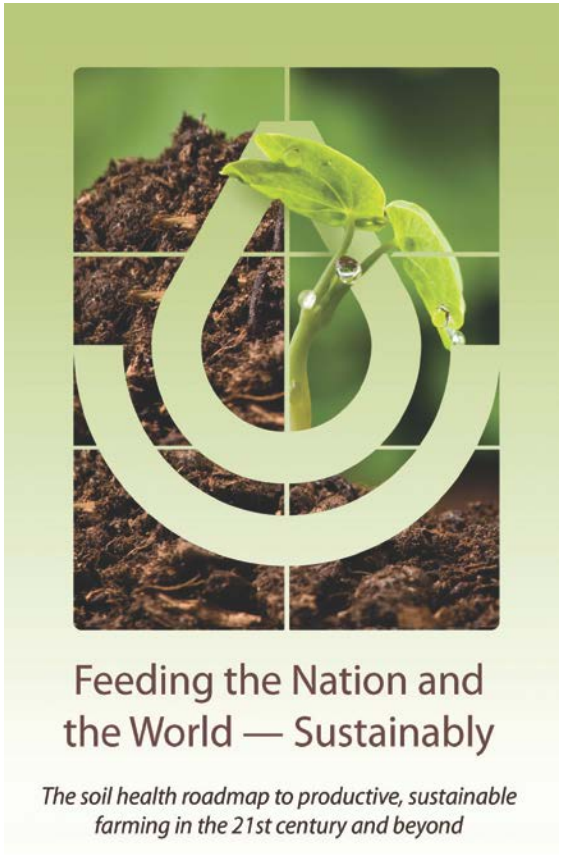
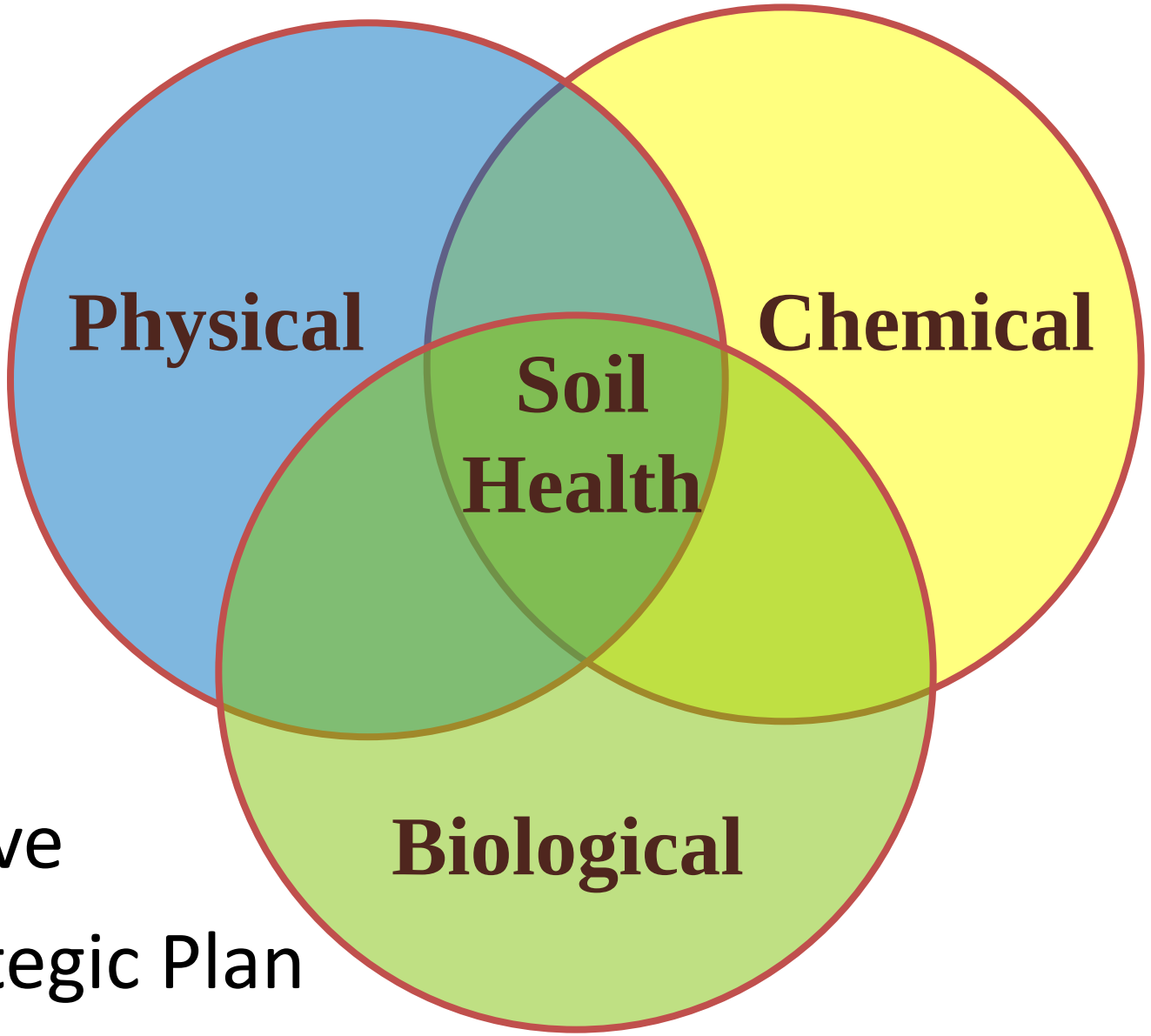
unlock the SECRETS IN THE SOIL

NRCS Soil Health Initiative



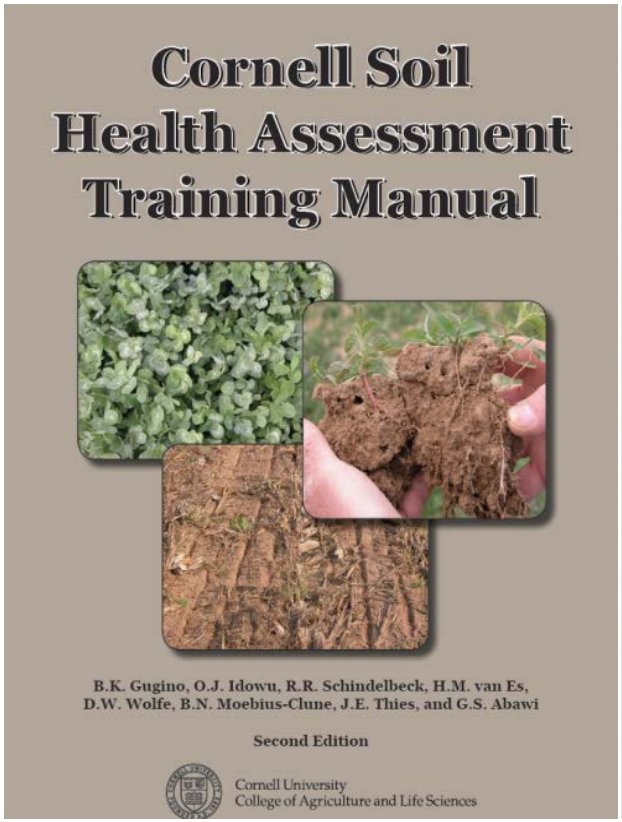


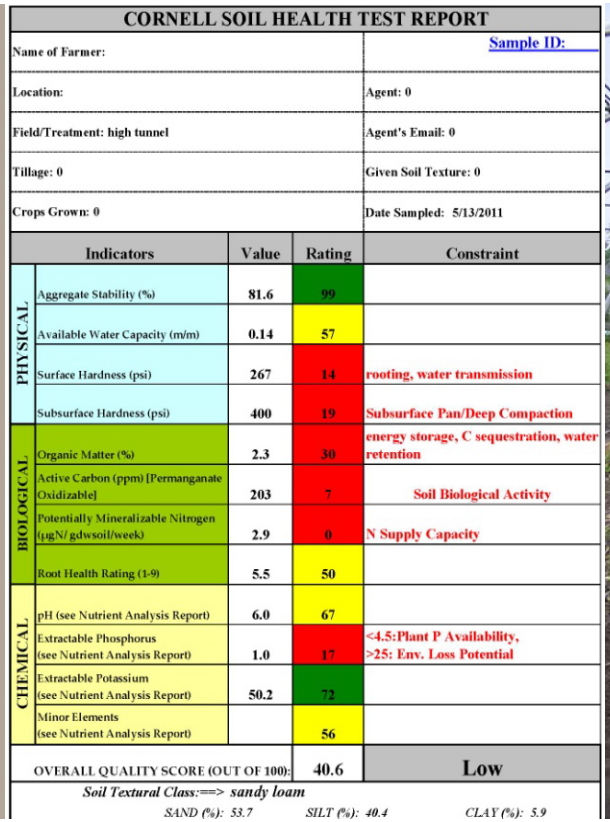
National Initiative

2011-2015 Strategic Plan

NH NRCS Soil Health

- Cornell Soil Health Testing since 2008
- Use with new Seasonal High Tunnels
- Applicable to all cropping systems





CORNELL SOIL HEALTH TEST REPORT

Name of Farmer:			Sample ID:	
Location:			Agent: 0	
Field/Treatment: high tunnel			Agent's Email: 0	
Tillage: 0			Given Soil Texture: 0	
Crops Grown: 0			Date Sampled: 5/13/2011	
	Indicators	Value	Rating	Constraint
PHYSICAL	Aggregate Stability (%)	81.6	99	
	Available Water Capacity (m/m)	0.14	57	
	Surface Hardness (psi)	267	14	rooting, water transmission
	Subsurface Hardness (psi)	400	19	Subsurface Pan/Deep Compaction
BIOLOGICAL	Organic Matter (%)	2.3	30	energy storage, C sequestration, water retention
	Active Carbon (ppm) [Permanganate Oxidizable]	203	7	Soil Biological Activity
	Potentially Mineralizable Nitrogen (µgN/ gdwsoil/week)	2.9	0	N Supply Capacity
	Root Health Rating (1-9)	5.5	50	
CHEMICAL	pH (see Nutrient Analysis Report)	6.0	67	
	Extractable Phosphorus (see Nutrient Analysis Report)	1.0	17	<4.5:Plant P Availability, >25: Env. Loss Potential
	Extractable Potassium (see Nutrient Analysis Report)	50.2	72	
	Minor Elements (see Nutrient Analysis Report)		56	
OVERALL QUALITY SCORE (OUT OF 100):			40.6	Low

Soil Textural Class:==> sandy loam

SAND (%): 53.7 SILT (%): 40.4 CLAY (%): 5.9

Soil Health Testing

- Sample Soil
- Measure Indicators
- Rate and Score
- Identify Management Decisions
- Plan NRCS practices
  - If Applicable
  - NH 590 Table

CORNELL SOIL HEALTH TEST REPORT (COMPREHENSIVE)

Name of Farmer: Beth Gugino	Sample ID: E231
Location: Plant Pathology, 630 W. North St. Geneva NY 14456	Agent: George Abawi
Field/Treatment: Gates 72	Agent's Email: 0
Tillage: 9+ INCHES	Given Soil Texture: LOAMY
Crops Grown: CLE/SWC/BNS	Date Sampled: 5/4/2007

	Indicators	Value	Rating	Constraint
PHYSICAL	Aggregate Stability (%)	26	32	
	Available Water Capacity (m/m)	0.13	29	water retention
	Surface Hardness (psi)	167	53	
	Subsurface Hardness (psi)	300	46	
BIOLOGICAL	Organic Matter (%)	2.3	18	energy storage, C sequestration, water retention
	Active Carbon (ppm) [Permanganate Oxidizable]	554	38	
	Potentially Mineralizable Nitrogen (µgN/ gdwsoil/week)	7.9	10	N Supply Capacity
	Root Health Rating (1-9)	4.3	63	
CHEMICAL	*pH	7.4	78	
	*Extractable Phosphorus (ppm) [Value <3.5 or >21.5 are downscored]	10.0	100	
	*Extractable Potassium (ppm)	50	72	
	*Minor Elements		100	
	OVERALL QUALITY SCORE (OUT OF 100):		53.3	Low

Measured Soil Textural Class:==> silt loam

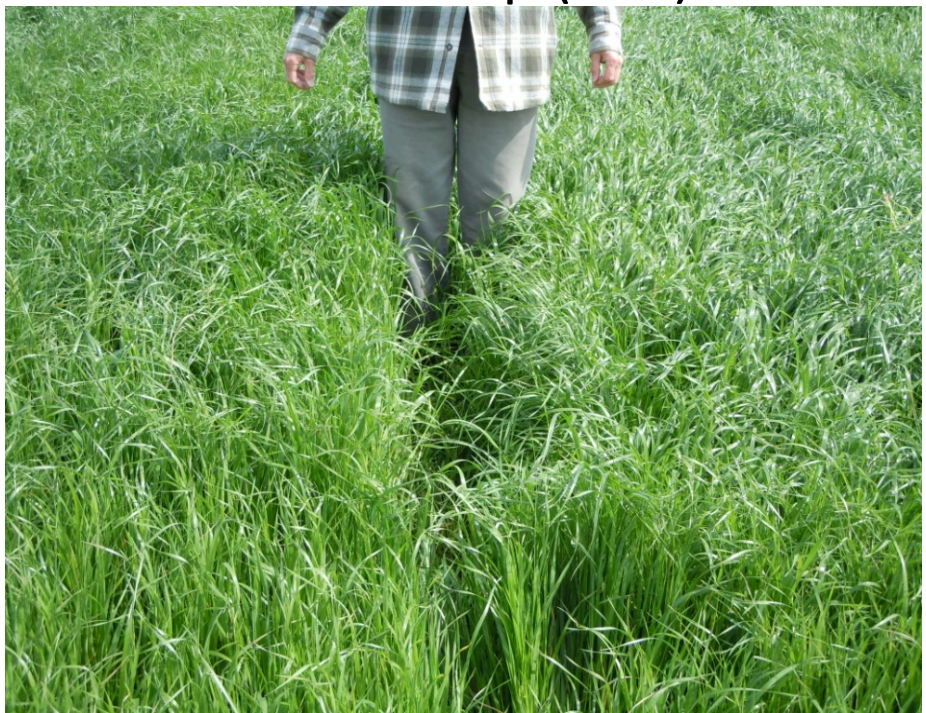
SAND (%): 44.0 SILT (%): 50.0 CLAY (%): 6.0

Location (GPS): Latitude=> 42.866667 Longitude=> -77.05

Physical: Aggregate Stability

- Soil Structure: Pore Space
- Infiltration
- Germination/Root Growth

Cover Crop (340)



Reduce Tillage(345)

Physical: Available H_2O Capacity

- Water Storage
- Soil Type
- Stable Organic Matter

No-Till (329)

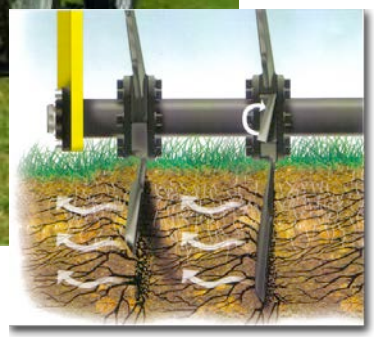
Composting Facility (329)

Physical: Compaction

- Surface (0-6”)
- Subsurface (6-18”)
- Infiltration and Rooting

Cover Crop (340)

Grazing Land Mechanical Treatment



Biological: Organic Matter

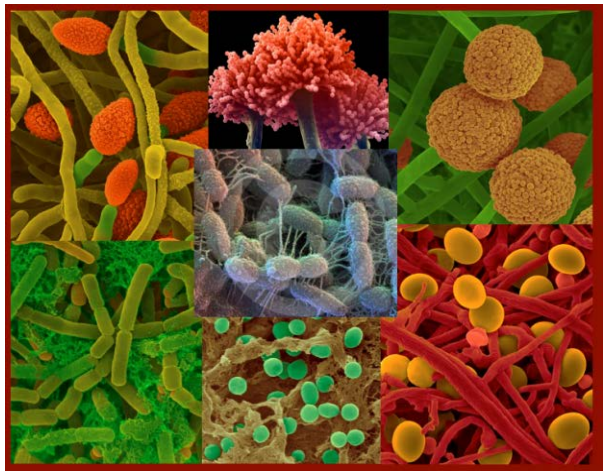
- Heart of Soil Health
- Impacts all Properties
- Stages of Decomposition

Forage & Biomass Planting (512)

Cover Crop (340)

Biological: Active Carbon

- Food Source for Microbes
- Living & Recently Dead OM
- Leading Indicator

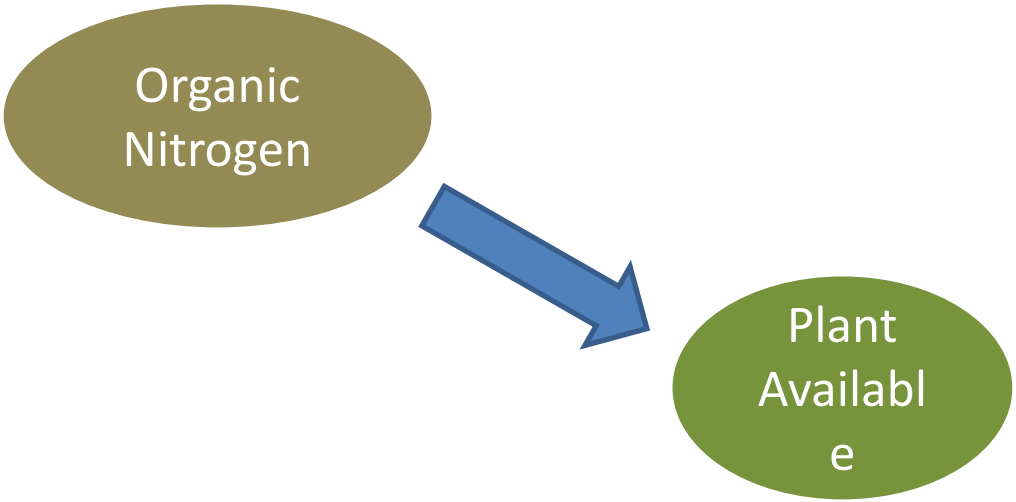


Conservation Crop Rotation (328)

Cover Crop (340)

Biological: Mineralizable Nitrogen

- N Supply &
- Microbial Conversion
- Soil Ability to Use N



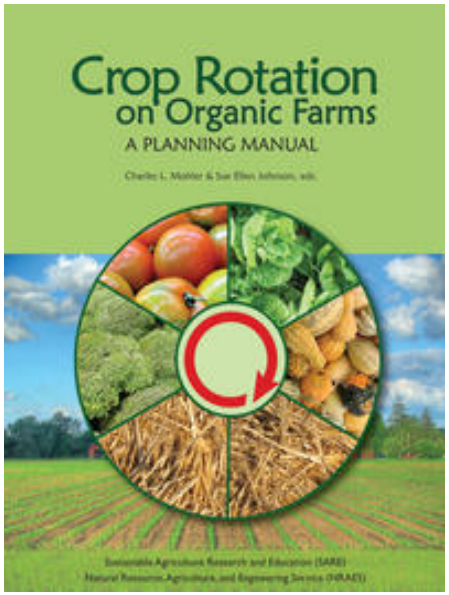
Forage & Biomass Planting (512)

Cover Crop (340)

Biological: Root Diseases

- Broad Assessment
- Range of Root Diseases
- Nutrient and H_2O Uptake

Conservation Crop Rotation (328)



Cover Crop (340)

Chemical: Soil pH and Nutrients

- pH in optimum range
  - pH controls nutrient availability
- Adequate but not excessive nutrients
- Timing, Placement, Form

Managing Soil Health

GENERAL TOOLS

1. Adjusting pH and nutrients
2. Crop Rotation
3. Growing Cover Crops
4. Reducing or Modifying Tillage

Soil Health Conservation Activity Plan

Soil Health Management Plan

7/7/2012

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