Cover Crops make $ense

"Fine Tuning inputs to increase profits"

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USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Agriculture Model in the SE

- Tools/inputs = Yield
- Increase inputs = more yield = more income
- The more tools you can use or afford the more yield you CAN make
- More yield = More income

Yield is maxed out, so need more acres for more yield

SH method of increasing profits:

1) 6" Soil Sampling
2) Crop specific w/ realistic Yield Predictions
3) Using *reasonable calculations* for fertilizer
4) Adopt a cover crop System
3) Deep Soil Sampling
*Incorporate manure, when possible

Key Idea: How much does it cost $/bu or what is break-even yield?

Fertility Ranges

Sufficient: soil plant nutrient element level is in that range adequate to meet the crop requirement as well as that ***needed for consistent high crop yield production***. A maintenance application rate is recommended to compensate for **expected crop removal**.

Soil Test Rating	P		K
	Soil Groups 1,2,3&6	Soil Groups 4&5	All Soil Groups
	lbs/acre		
Low	<31	<21	<71
Medium	31 – 60	21 – 40	71 – 156
Sufficient	61 – 80	41 – 54	157 – 182
High	81 – 120	55– 80	183 – 235
Excessive	>120	>80	>235

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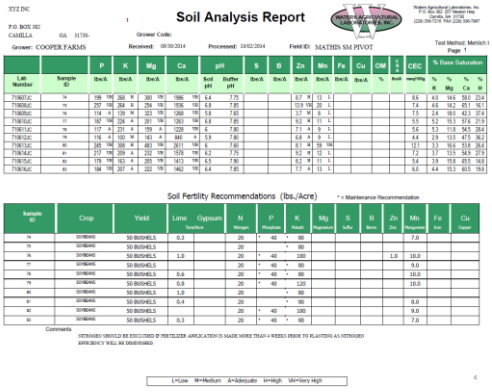
PUBLIC SERVICE ACTIVITIES


Soil Analysis Report

Soil Fertility Recommendations (lbs./Acre)

Yield Goal: 100 bu/A

Soil Groups 1, 2, 3, 4 or 6					Desired pH 6.0-6.5
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	pounds of N-P_2O_5-K_2O per acre				
Low	120-80-110	120-80-80	120-80-40	120-80-0	120-80-0
Medium	120-55-110	120-55-80	120-55-40	120-55-0	120-55-0
Sufficient	120-30-110	120-30-80	120-30-40	120-30-0	120-30-0
High	120- 0-110	120- 0-80	120- 0-40	120- 0-0	120- 0-0
Excessive	120- 0-110	120- 0-80	120- 0-40	120- 0-0	120- 0-0

Crop Code No. C230

Corn, Grain

Yield Goal: 230 bu/A

Soil Groups 1, 2, 3, 4 or 6					Desired pH 6.0-6.5
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	pounds of N P K per acre				
Low	250-145-200	250-145-135	250-145-80	250-145-50	250-145-0
Medium	250-120-200	250-120-135	250-120-80	250-120-50	250-120-0
Sufficient	250- 95-200	250- 95-135	250- 95-80	250- 95-50	250- 95-0
High	250- 0-200	250- 0-135	250- 0-80	250- 0-50	250- 0-0
Excessive	250- 0-200	250- 0-135	250- 0-80	250- 0-50	250- 0-0

77 Subsoil potassium test level is medium. Reduce potash recommended rate based on topsoil potassium test by one-forth. In-row subsoiling needs to be part of routine cultural practice for row crops if clay layer is within 20 inches of the surface. (When subsoil test potassium is medium.)

78 Subsoil potassium test level is excessive. Reduce recommended potash rate based on the topsoil potassium test by three-fourths. In-row subsoiling needs to be part of routine cultural practice for row crops if clay layer is within 20 inches of the surface. (When subsoil test potassium is excessive.)

Soil Sampling, Contd.

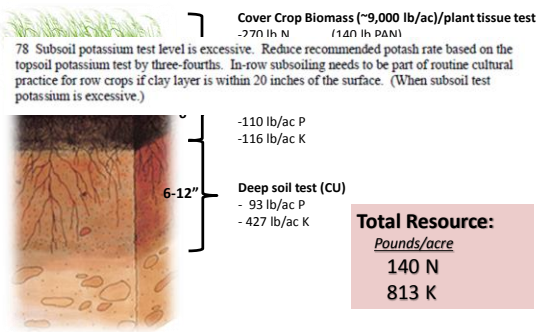
56 COMMENTS FOR SUBSOIL SAMPLES

Subsoil is sufficient in magnesium for good plant growth ***if hardpans disrupted***,
depth to the subsoil no greater than 20 inches,
subsoil soil pH not less than 5.0, **and the *crop capable of growing roots into the subsoil*.**

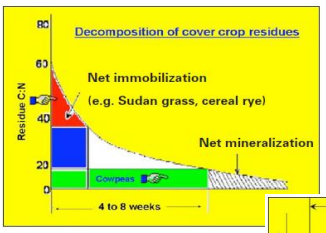
CLEMSON PUBLIC SERVICE ACTIVITIES

NRCS South Carolina

Consider it all…. Top & Bottom



"Knee-High"
4,500 lbs. Dry Matter / ac

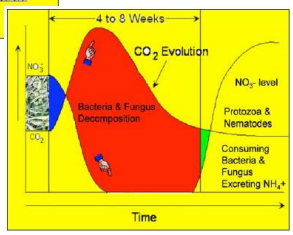


THE OHIO STATE UNIVERSITY EXTENSION

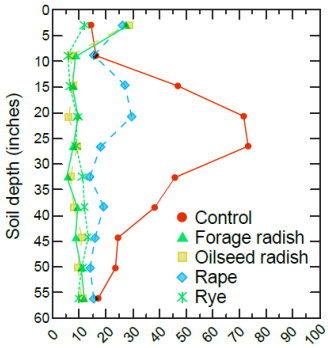
FACT SHEET

Understanding Soil Microbes and Nutrient Recycling

Rafiq Islam
James J. Hoorman



Nutrient Cycling



Measured Mid November, Control had only winter weeds

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Radish

- Ability to harvest 100-150# N/acre
- Increase P availability and mining currently unavailable P, (MD, 2010)

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Legumes

- Fix 80-90# N/acre
- Assist with breakdown of Carbon Sources

Case Study: 1,000 ac. row crop

2012: Lab recs minus maintenance
2013: Fertilizer company's proprietary equation
2014: Custom fertilizer equation using min levels
2015: Clemson Recs → *sufficient is SUFFICIENT*
2016: Clemson RECs minus maintenance
2017: No P and K *except LOW, no lime*
2018: No P and K, no lime
$70/acre → $0/acre *net $40 savings

Questions??

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Sources:

Ohio State
NC State
Auburn University
University of Maryland
Clemson University
University of SC, Arnold School of Public Health

NRCS South Carolina