Heavy Metals

Soil Report

Mehlich-3 Extraction

Sampled: 10/12/2012 **Received:** 10/30/2012 **Completed:** 11/01/2012

Client: Bobby C Raynor
PO Box 365
GARNER, NC 27529

County: Wake

Farm:

Advisor: Everette Coates
Wake County Dept. Envir. He
PO Box 550
Raleigh, NC 27602

Links to Helpful Information

Agronomist's Comments:

The heavy metal report is found on a separate page. Using Mehlich 3 as a soil test extractant, background levels of these metals typically seen in NC soils when analyzed are as follows: arsenic (As)- 4.5 ppm, cadmium (Cd)- 0.1 ppm, chromium (Cr)- 0.2 ppm, lead (Pb)- 4.2 ppm, nickel (Ni)- 0.8 ppm, & selenium (Se)- 0.2 ppm (FY2005-2007). Although the above metals here are not believed to pose a concern for plant growth, continue to monitor these and note where elevated above background levels. Note any lime and fertilizer recommendations. Where soil test phosphorus (P) is very high (P-I > 100), crops will not respond to additional P applied. Where the sulfur index (S-I) is 25 or less, sulfur at a rate of 20 to 25 lbs per acre may be of benefit.

Sample ID: 008

Lime History:

Recommendations: Crop	Lime (tons/acre)	Nutrients (lb/acre) N	P_2O_5	K_2O	Mg	S	Mn	Zn	Cu	B	More Information
1 - Fes/OG/Tim,M	0.0	120-200	10	50	0	0	pH$	0	0	0	Note: 12 Note: $
2 - Fes/OG/Tim,M	0.0	120-200	10	50	0	0	pH$	0	0	0	Note: 12 Note: $

Test Results [units - W/V in g/cm^3; CEC and Na in meq/100 cm^3; NO_3-N in mg/dm^3]: **Soil Class:** Mineral

HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-I	Na	ESP	SS-I	NO_3-N
0.36	1.12	9.7	99	0.1	7.0	59	45	88	8	42	65	41	41	217	217	228	0.1	1		

Heavy Metals (parts per million): **Arsenic,** 0.1 **Cadmium,** 0.1 **Nickel,** 0.3 **Chromium,** 0.3 **Lead,** 3.2 **Selenium,** 0.1

Sample ID: 009

Lime History:

Recommendations: Crop	Lime (tons/acre)	Nutrients (lb/acre) N	P_2O_5	K_2O	Mg	S	Mn	Zn	Cu	B	More Information
1 - Fes/OG/Tim,M	0.0	120-200	0	60	0	0	pH$	0	0	0	Note: 12 Note: $
2 - Fes/OG/Tim,M	0.0	120-200	0	60	0	0	pH$	0	0	0	Note: 12 Note: $

Test Results [units - W/V in g/cm^3; CEC and Na in meq/100 cm^3; NO_3-N in mg/dm^3]: **Soil Class:** Mineral

HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-I	Na	ESP	SS-I	NO_3-N
0.32	1.08	9.6	94	0.6	6.7	168	41	82	10	35	113	74	74	994	994	997	0.1	1		

Heavy Metals (parts per million): **Arsenic,** 0.2 **Cadmium,** 0.1 **Nickel,** 0.2 **Chromium,** 0.2 **Lead,** 5.2 **Selenium,** 0.0

North Carolina Tobacco Trust Fund Commission

Reprogramming of the laboratory-information-management system that makes this report possible is being funded through a grant from the North Carolina Tobacco Trust Fund Commission.

Thank you for using agronomic services to manage nutrients and safeguard environmental quality.

- *Steve Troxler, Commissioner of Agriculture*

Sample ID: 010

Lime History:

Recommendations: Crop	Lime (tons/acre)	Nutrients (lb/acre) N	P_2O_5	K_2O	Mg	S	Mn	Zn	Cu	B	More Information
1 - Small Grains	0.0	80-100	0	110	0	20	pH$	0	0	0	Note: 3 Note: $
2 - Milo (Grain Sorg)	0.0	80-100	0	110	0	20	pH$	0	0	0	Note: 3 Note: $

Test Results [units - W/V in g/cm^3; CEC and Na in meq/100 cm^3; NO_3-N in mg/dm^3]: **Soil Class:** Mineral

HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-I	Na	ESP	SS-I	NO_3-N
0.32	1.07	6.2	92	0.5	6.7	101	15	82	8	24	305	182	189	465	465	521	0.1	2		

Heavy Metals (parts per million): **Arsenic,** 0.1 **Cadmium,** 0.1 **Nickel,** 0.2 **Chromium,** 0.2 **Lead,** 4.9 **Selenium,** 0.0

Sample ID: 011

Lime History:

Recommendations: Crop	Lime (tons/acre)	Nutrients (lb/acre) N	P_2O_5	K_2O	Mg	S	Mn	Zn	Cu	B	More Information
1 - Small Grains	0.0	80-100	0	70	0	0	pH$	0	0	0	Note: 3 Note: $
2 - Milo (Grain Sorg)	0.0	80-100	0	70	0	0	pH$	0	0	0	Note: 3 Note: $

Test Results [units - W/V in g/cm^3; CEC and Na in meq/100 cm^3; NO_3-N in mg/dm^3]: **Soil Class:** Mineral

HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-I	Na	ESP	SS-I	NO_3-N
0.27	1.08	8.2	94	0.5	6.8	248	36	83	9	32	142	83	90	955	955	1036	0.1	1		

Heavy Metals (parts per million): **Arsenic,** 0.2 **Cadmium,** 0.2 **Nickel,** 0.2 **Chromium,** 0.2 **Lead,** 5.8 **Selenium,** 0.1

Sample ID: 012

Lime History:

Recommendations: Crop	Lime (tons/acre)	Nutrients (lb/acre) N	P_2O_5	K_2O	Mg	S	Mn	Zn	Cu	B	More Information
1 - Small Grains	0.0	80-100	0	80	0	0	pH$	0	0	0	Note: 3 Note: $
2 - Milo (Grain Sorg)	0.0	80-100	0	80	0	0	pH$	0	0	0	Note: 3 Note: $

Test Results [units - W/V in g/cm^3; CEC and Na in meq/100 cm^3; NO_3-N in mg/dm^3]: **Soil Class:** Mineral

HM%	W/V	CEC	BS%	Ac	pH	P-I	K-I	Ca%	Mg%	S-I	Mn-I	Mn-Al1	Mn-Al2	Zn-I	Zn-Al	Cu-I	Na	ESP	SS-I	NO_3-N
0.27	1.04	7.3	91	0.7	6.5	202	28	80	9	30	144	88	95	860	860	908	0.1	1		

Heavy Metals (parts per million): **Arsenic,** 0.2 **Cadmium,** 0.1 **Nickel,** 0.3 **Chromium,** 0.2 **Lead,** 4.7 **Selenium,** 0.1

Understanding the Soil Report: explanation of measurements, abbreviations and units

Recommendations

Lime

If testing finds that soil pH is too low for the crop(s) indicated, a ***lime recommendation*** will be given in units of either ton/acre or lb/1000 sq ft. For best results, mix the lime into the top 6 to 8 inches of soil several months before planting. For no-till or established plantings where this is not possible, apply no more than 1 to 1.5 ton/acre (50 lb/1000 sq ft) at one time, even if the report recommends more. You can apply the rest in similar increments every six months until the full rate is applied. If MG is recommended and lime is needed, use dolomitric lime.

Fertilizer

Recommendations ***for field crops or other large areas*** are listed separately for each nutrient to be added (in units of lb/acre unless otherwise specified). Recommendations for N (and sometimes for B) are based on research/field studies for the crop being grown, not on soil test results. K-I and P-I values are based on test results and should be > 50. If they are not, follow the fertilizer recommendations given. If Mg is needed and no lime is recommended, 0-0-22 (11.5% Mg) is an excellent source; 175 to 250 lb per acre alone or in a fertilizer blend will usually satisfy crop needs, SS-I levels appear only on reports for greenhouse soil or problem samples.

Farmers and other commercial producers should pay special attention to ***micronutrient levels***. If *$*, *pH$*, *$pH*, *C* or *Z* notations appear on the soil report, refer to *$Note: Secondary Nutrients and Micronutrients*. In general, homeowners do not need to be concerned about micronutrients. Various crop notes also address lime fertilizer needs; visit ncagr.gov/agronomi/pubs.htm.

Recommendations ***for small areas, such as home lawns/gardens,*** are listed in units of lb/1000 ft . If you cannot find the exact fertilizer grade recommended on the report, visit *www.ncagr.gov/agronomi/obpart4.htm#fs* to find information that may help you choose a comparable alternate. For more information, read *A Homeowner's Guide to Fertilizer.*

Test Results

The first seven values [soil class, HM%, W/V, CEC, BS%, Ac and pH] describe the soil and its degree of acidity. The remaining 16 [P-I, K-I, Ca%, Mg%, Mn-I, Mn-AI1, Mn-AI2, Zn-I, Zn-AI, Cu-I, S-I, SS-I, Na, ESP, SS-I, NO_3-N (not routinely available)] indicate levels of plant nutrients or other fertility measurement. Visit *www.ncagr.gov/agronomi/uyrst.htm* for more information.

Report Abbreviations

Ac	exchangeable acidity
B	boron
BS%	% CEC occupied by basic cations
Ca%	% CEC occupied by calcium
CEC	cation exchange capacity
Cu-I	copper index
ESP	exchangeable sodium percent
HM%	percent humic matter
K-I	potassium index
K_2O	potash
Mg%	% CEC occupied by magnesium
MIN	mineral soil class
Mn	manganese
Mn-AI1	Mn-availability index for crop 1
Mn-AI2	Mn-availability index for crop 2
Mn-I	manganese index
M-O	mineral-organic soil class
N	nitrogen
Na	sodium
NO_3-N	nitrate nitrogen
ORG	organic soil class
pH	current soil pH
P-I	phosphorus index
P_2O_5	phosphate
S-I	sulfur index
SS-I	soluble salt index
W/V	weight per volume
Zn-AI	zinc availability index
Zn-I	zinc index