2018 Georgia Grazing School:
How to use soil testing and plant tissue analyses in grazing systems

Dr. Dennis Hancock
Prof. & Forage Ext. Specialist

How to use soil testing and plant tissue analyses in grazing systems

UNIVERSITY OF GEORGIA EXTENSION

GRASS www.georgiaforages.com

Dr. Dennis Hancock
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Take care of the soil and it will take care of you.

Plant Nutrients

Macro- (Primary)

Element	Available Form
Oxygen	O_2, OH^-
Carbon	CO_3^{-2}, HCO_3 , CO_2
Hydrogen	H^+, OH^-
Nitrogen	NO_3^- , NH_4^+
Phosphorus	HPO_4^{-2}, $H_2PO_4^-$
Potassium	K^+

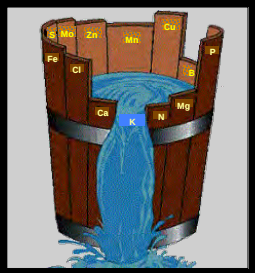
Meso- (Secondary)

Element	Available Form
Calcium	Ca^{+2}
Magnesium	Mg^{+2}
Sulfur	SO_4^{-2}

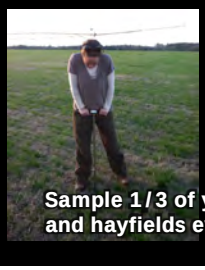
Micro- (Trace)

Element	Available Form
Iron	Fe^{+2} , Fe^{+3}
Copper	Cu^{+2} , Cu^+
Zinc	Zn^{+2}
Manganese	Mn^{+2} , MnO_4^-
Molybdenum	$HMoO_4^-$, MoO_4^{-2}
Boron	H_3BO_3, $B_4O_7^{-2}$
Chlorine	Cl^-

Liebig's Law of the Minimum



Soil Test and Follow Fertility Recommendations



Sample 1/3 of your pastures each year and hayfields every year.

Soil Sampling – *What You Need*

- Soil probe(s)
  - Mark at 4" depth
- Clean plastic bucket
- UGA soil test bags
- Knife or flathead screwdriver
- Piece of scrapwood
  - To crush cores and mix.

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THE UNIVERSITY OF GEORGIA COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

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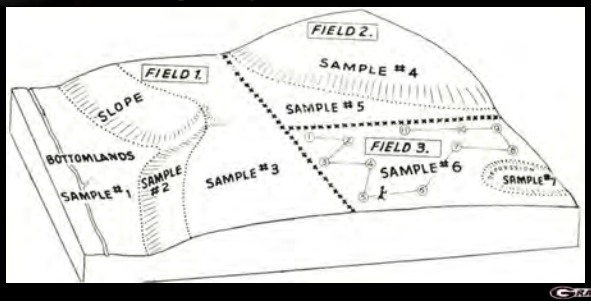
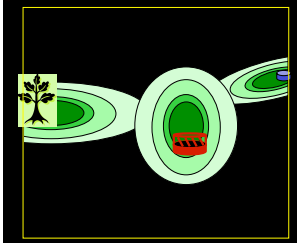
Soil Sampling – *The Sample*

- 1 sample should represent 5 to not more than 15 acres.
  - Tremendous variability
    - Soil types, slope, drainage, past mgmt., etc.
- 1 sample should consist of 15-20 cores from random locations around the field.
  - Place in bucket, mix thoroughly, and "move mountains" until you've gotten it down to a size that fills the soil test bag.

Soil Sampling – *Defining Locations*



Soil Sampling – *Ensure Representation*



Soil Test Ranges

	Low	Med	High	V. High
Phosphorus	0-20	21-40	41-75	75+
Potassium	0-100	101-200	201-350	350+

	Low	Adequate
Calcium	0-400	401+

	Low	Med	High
Magnesium	0-60	61-120	121+

Piedmont

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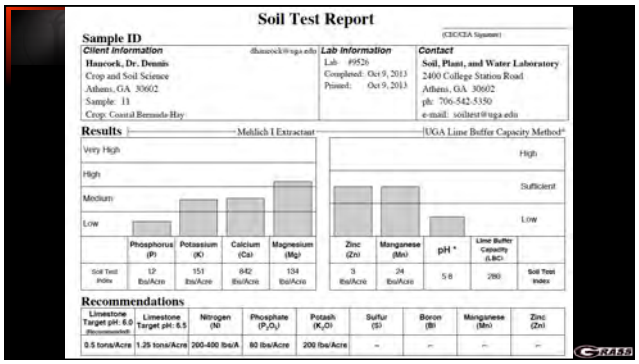

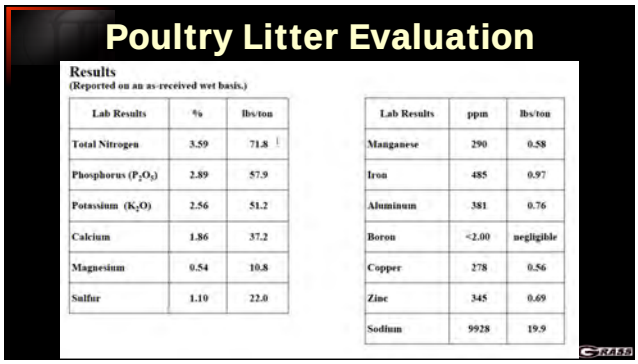

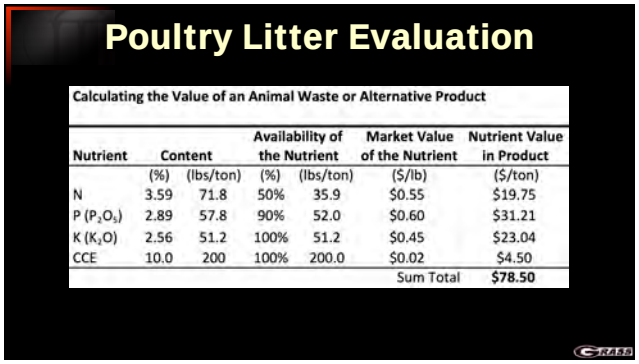

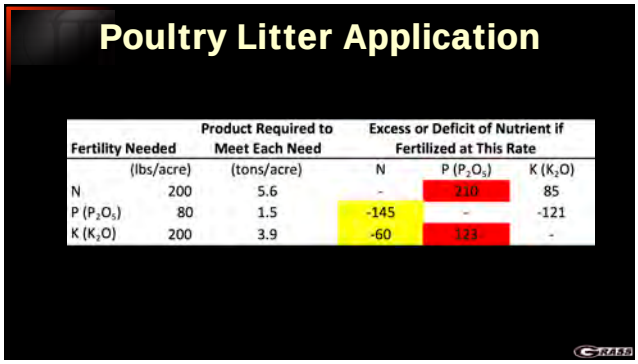

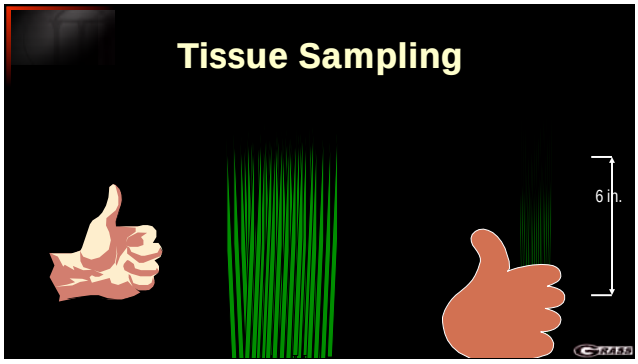

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