

STRATEGIES FOR TIGHT BUDGETS AND MINIMAL RISK

Using Poultry Litter for Fertility

Using Poultry Litter for Fertility on Pastures and Hayfields

Julia Gaskin, Sustainable Agriculture Coordinator
Agricultural Pollution Prevention Program
Biological & Agricultural Engineering Dept.
Cooperative Extension Service
University of Georgia



Characteristics of Poultry Litter

- "3-2-2"
- *Varies* with type of bird, ration, # of growouts, feed efficiency, storage & handling

Characteristics of Poultry Litter

- Nitrogen both "available" and "unavailable"
 - Total nitrogen = 64 lbs/ton
 - Ammonium nitrogen = 10 lbs/ton
- Most N is organic form
- Has to be mineralized before plant available

Characteristics of Poultry Litter

- Ammonium-nitrogen ($\text{NH}_4\text{-N}$) "volatilized"
- Lost to the atmosphere
- Higher losses in hot, dry conditions

Characteristics of Poultry Litter

Availability:
N 50-60% P_2O_5 80-100 K_2O 90-100%

The Value of Litter

2009 Prices

$$60\#\text{N} \quad \times 0.50 \times 0.6 = 18.00$$

$$40\#\text{P}_2\text{O}_5 \quad \times 0.80 \times 0.8 = 25.60$$

$$40\#\text{K}_2\text{O} \quad \times 0.70 \times 0.8 = 22.40$$

$$\gg \text{Total} = \$66.00$$



Slow release? Other Nutrients ?
Organic Matter ? Liming ?



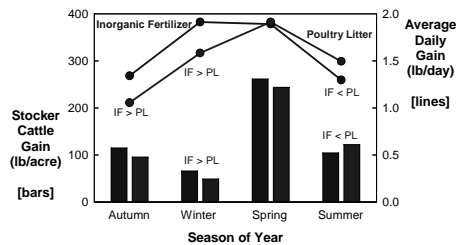
STRATEGIES FOR TIGHT BUDGETS AND MINIMAL RISK

Using Poultry Litter for Fertility

Slow Release

- 80% organic N
- Released slowly over growing season

Cattle Gains



Franzluebbers AJ, and Stuedemann JA.
USDA ARS J. Phil Campbell, Sr. Natural Resource Center

Other Nutrients

Calcium	43 lbs/ton
Magnesium	9 lbs/ton
Sulfur	15 lbs/ton

Micronutrients

Manganese	327 ppm
Copper	287 ppm
Zinc	262 ppm

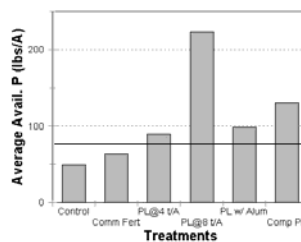
Liming

- Calcium provides some liming value
 - about 1/10th strength of limestone
- NW Georgia after 4 years
 - PL at 4 t/ac pH= 5.76
 - NO₃NH₄ (no lime) pH= 5.18
- NE Georgia after 5 years
 - PL at 4 t/ac pH= 6.6
 - NO₃NH₄ + lime pH= 6.0

Organic Matter

- Does provide some organic matter
 - Higher organic matter soils help prevent compaction
 - Increasing infiltration into soil

Redbud Test Plots 2000 – 2003 Soils



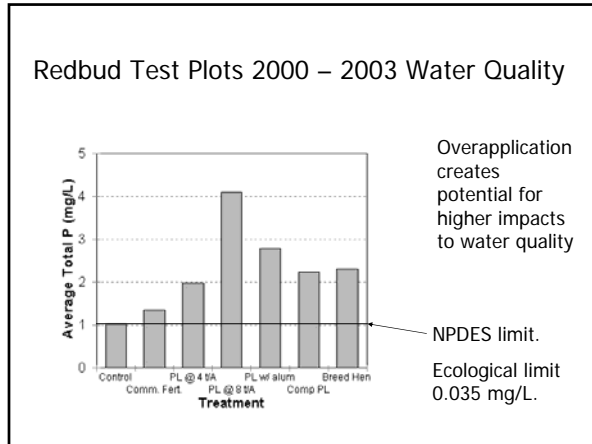
Overapplication quickly increases soil test P to problem levels. Notice increase in composted poultry litter.

Very high fertility range



STRATEGIES FOR TIGHT BUDGETS AND MINIMAL RISK

Using Poultry Litter for Fertility



Litter Utilization

- Best Value = Straight from house
- # 2 = Cover with plastic or stackhouse

Timing and Amount of Application

Apply when plant needs it
Early application = Loss of N and K
Calibrate spreaders

Proper Use

- Do soil and litter testing
- Apply at agronomic rate
- Follow setbacks from sensitive areas
- Good neighbor relations

Weeds

Studies indicate no weed seeds in PL, BUT nutrients can stimulate weed growth

STRATEGIES FOR TIGHT BUDGETS AND MINIMAL RISK

Using Poultry Litter for Fertility

Importance of Mineral Supplements

Nutrients in Poultry Litter

Potassium	40 lbs/ton
Calcium	43 lbs/ton
Magnesium	9 lbs/ton
Sulfur	15 lbs/ton

Potential for grass tetany (Calcium/Magnesium)

Potential for copper deficiencies (Sulfur)

Need to use proper mineral supplements with any fertilization program!

AGRICULTURAL POLLUTION PREVENTION PROGRAM

Sponsored by the Georgia Pollution
Prevention Assistance Division



www.agp2.org

Cooperative Extension Service

Biological & Agricultural Engineering Dept.

College of Agricultural & Environmental Sciences

University of Georgia



Julia Gaskin,
University of Georgia



THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL &
ENVIRONMENTAL SCIENCES

