

Nano-Ag Answer® Soil Nutrient Release Study

Summary

Bachman Inc., 2003

- Nano-Ag increases the release of soil nutrients (NPK) for uptake by any photosynthetic object.
- Applications of Nano-Ag created the most efficient use of Nitrogen by the photosynthetic object.
- A 700 ppm (minimum accepted standard) Stalk Nitrate-N may be higher than needed if a moist soil and active Nitrogen fixing bacteria are present late in the growing season.

4-Year NITROGEN PROGRAM STUDY

MIDWEST STATES (2000 - 2003)

Lbs Nitrogen/ Acre	Lbs Nitrogen/ bushel	Nano-Ag Applied	Number of Reps	Yield/Acre (bushels)	Tissue Nitrate Nitrogen			
					2"	6'	MilkStage	Stalk
20	0.1	Yes	2	194.0	9290	1183	159	236
30	0.17	Yes	7	176.3	4431	801	106	333
60	0.33	Yes	41	183.0	4914	1545	176	3747
70	0.36	Yes	3	194.0	9298	1184	159	236
125	0.70	No	3	178.0	3877	1125	125	902
0	0.00	Yes	24	171.3	410	449	68	3801
80	0.47	No	3	170.2	312	899	78	11773
160	0.98	No	3	163.9	---	952	90	12420

—28% Nitrogen was used in all tests. The red ppm numbers for tissue Nitrate Nitrogen are our accepted standards.
—86 total replications were used in this summary study.

Observations:

The highest yields have the lowest stalk nitrate nitrogen levels

Recommendations:

Non-manure grass plants, corn, small grains, and pastures -- 0.4 to 0.5 lbs Nitrogen/Acre/Yield goal.
Manure grass plants, corn, small grains, and pastures -- 0.3 lbs Nitrogen/Acre/Yield goal.

3-Year Nutrient Release Study

MIDWEST STATES (1997-1999)

Nutrient	Control ppm	Treatment ppm	Percent Change
PhosphorusP1	35.	44	+25.7%Increase
PhosphorusP2	54.	75.5	+39.8%Increase
Potassium	148.	242	+3.5%Increase
Calcium	2572.	2650	+3.0%Increase
Magnesium	574.	633	+10.3%Increase
CEC	14.24	15.55	+9.2%Increase
ExchangeableCalcium	67.5	66.	2.2%Decrease
ExchangeableMagnesium	24.1	25.5	+5.8%Increase
ExchangeablePotassium	2.56	3.23	+52.3%Increase

During 1997-1999, three soil tests were taken in silty or clay loam in NE and SE Iowa and NE Missouri. Each test had several sub-samples and were treated either with EC&S products (treatment), or not (control); samples were taken four months to two years later. Two of the test fields had the same level of phosphorus and potassium applied to control and treatment areas. The third had twice the phosphorus and potassium applied to the control area (150-50-50) vs. the treated area (75-25-25) as a broadcast spring application. Tests were performed by I & L Labs, Atlantic, Iowa, and Fort Wayne, Indiana.