Contact & location:
4702 University Avenue
Madison, WI 53705
(608) 262-4364
soil-lab@mailplus.wisc.edu

FIELD SOIL TESTING

Field Crop, Commercial Vegetable and Fruit Crop Soil Testing

Routine Analysis: $8 per sample. Includes pH, lime requirement, organic matter, phosphorus, potassium, and nutrient recommendations.

Optional ($ per sample): Calcium + Magnesium ($3) | Boron ($3) | Zinc ($3) | Manganese ($3) | Sulfur-Sulfate ($3)

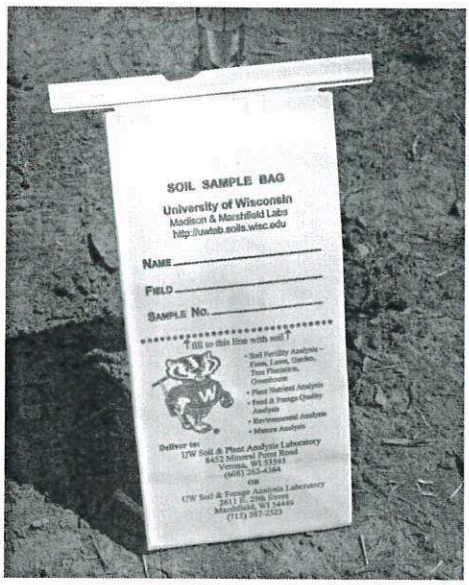
Volume discounts are also available.

Forms:

A2100

Sampling soils for testing

John B. Peters and Carrie A.M. Laboski



A soil test is the only practical way of determining whether lime and fertilizer are needed for a specific crop. However, if a soil sample does not represent the general soil conditions of the field, the recommendations based on the sample may be misleading. An acre of soil to a 6-inch depth weighs about 1,000 tons, yet less than 1 ounce of soil is used for each test in the laboratory. Therefore, it is very important that the soil sample be representative of the entire field.

Before collecting soil samples, you should determine the overall approach of the nutrient management program. This will affect the number of samples needed and method by which samples will be taken. Specifically, will nutrient and lime applications be made at a single uniform rate for the whole field being tested or will applications be made at variable rates to field areas that have been identified as having different soil test levels?

Goals of a soil sampling program

When sampling soils for testing and obtaining fertilizer and lime recommendations, the most common objectives are to:

1. Obtain samples that accurately represent the field from which they were taken.
2. Estimate the amount of nutrients that should be applied to provide the greatest economic return to the grower.
3. Estimate the variation that exists within the field and how the nutrients are distributed spatially.
4. Monitor the changes in nutrient status of the field over time.

Selecting a soil sampling strategy

Before selecting a sampling strategy, consider analytical costs, time and equipment available, field fertilization history, and the likelihood of a response to applied nutrients.

Sampling fields for a single whole field (uniform) recommendation

With conventional sampling, you will receive a single set of nutrient and lime application guidelines that are based on sample averages. The sampling guidelines in Table 1 are based on when a field was last tested (more or less than 4 years ago) and whether the field was responsive or nonresponsive the last time it was tested. The field is considered to be in the responsive range if either soil test phosphorus (P) or potassium (K) levels are in the high (H) category or lower. A nonresponsive field is one where both soil test P and K levels are in the very high (VH) or excessively high (EH) categories.

Table 1. Recommended sample intensity for uniform fields.

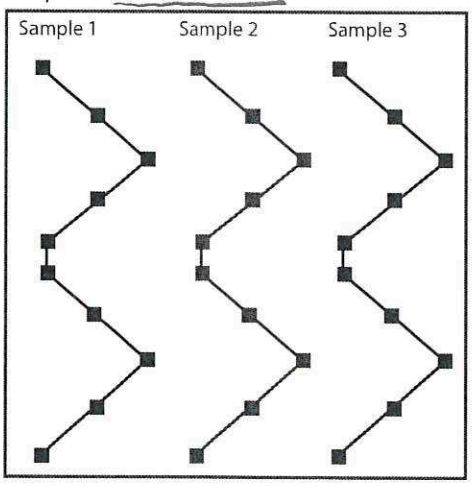
Field characteristics	Field size (acres)	Suggested number of samples[a]
Fields tested more than 4 years ago **OR** fields testing in the responsive range	All fields	1 sample/5 acres
Nonresponsive fields tested within past 4 years	5–10	2
	11–25	3
	26–40	4
	41–60	5
	61–80	6
	81–100	7

[a] Collect a minimum of 10 cores per sample.

Each sample should be made up of a minimum of 10 cores to ensure accurate representation of the nutrient needs of the field. Research has shown that taking 10 to 20 cores provides a more representative sample of the area than when samples are made up of fewer cores. When gathering soil cores to make a composite sample, use a W-shaped sampling pattern (as shown in Figure 1) over the whole area the sample represents. Be sure to thoroughly mix the cores before placing approximately 2 cups in the sample bag.

For best results, submit multiple samples for all fields. When at least three samples are provided for a field, samples that are significantly higher than the field average may be discarded and an adjusted average calculated. Using an adjusted

Figure 1. Recommended W-shaped sampling pattern for a 15-acre field. Each sample should be composed of at least 10 cores.



average helps ensure that no part of the field is under-fertilized.

Where only one or two samples are taken in a field, no sample will be discarded, whereas one sample can be discarded if three or four samples are taken, and up to two samples may be discarded from fields having five or more samples. The criteria that determine if soil samples should be omitted from the field average include:

- If the average soil test P for a field is 35 parts per million (ppm) or less, samples that exceed the field average by more than 5 ppm may be removed and the field average recalculated.
- If the field average is greater than 35 ppm P, no samples will be discarded.
- If the average soil test K for a field is 175 ppm or less, samples that exceed the field average by more than 20 ppm may be discarded and the field average recalculated.
- If the field average is greater than 175 ppm K, no samples will be discarded.

It is not appropriate to vary nutrient application rates across sampling areas when using the whole field (uniform) soil sampling scheme.

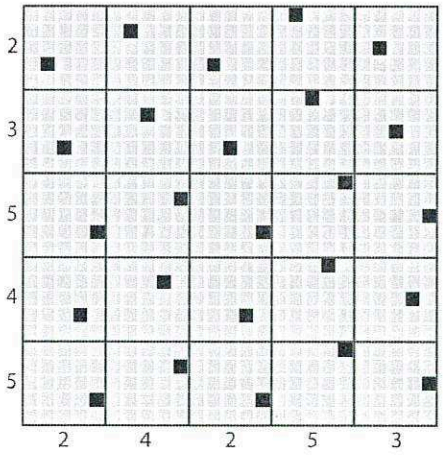
Sampling fields for site-specific management

Site-specific management requires a distinct picture of the magnitude and location of soil test variability. Sampling soils for site-specific management usually involves taking many more composite samples than sampling for a single recommendation. A global positioning system (GPS) is used to record the geographical coordinates of each sample. This information is used to generate an application map by using various mathematical techniques to interpolate the nutrient application rate between sampling points. Using variable rate application technology, these fields can be managed more intensively than the conventional approach of one fertilizer and lime rate per field. A careful evaluation of the economics of this intensive of a sampling system needs to be done before proceeding.

When using a site-specific approach to soil sampling, sample handling and testing are similar to the traditional system, but recommendations may vary from one part of the field to another, and these areas must be managed separately to realize the potential advantages of intensive soil sampling.

Several sampling strategies can be used to guide variable-rate fertilizer and lime applications. Grid sampling uses a systematic approach that divides the field into squares of approximately equal size (grid cells). The sampling technique used is known as **grid-point sampling**. A grid-point sample consists of at least 10 cores collected from a small area (10-foot radius) around a geo-referenced point. When using a grid sampling approach, Wisconsin research recommends a sampling strategy based on an unaligned systematic grid (Figure 2). Sampling points should be unaligned because sampling in a uniform grid arrangement may lead to biased results if aligned with row patterns. Fields that have soil test P and K levels in the nonresponsive categories should be grid-point sampled on a 300-foot grid. This is equivalent to one soil sample for every 2 to 2.5 acres. Where there is no information about the P or K status of the field or where previous tests were in the responsive range, a 200-foot grid size should be used. This is equivalent to approximately one soil sample per acre. Wisconsin research indicates these small grid cell sizes are needed to adequately characterize the variability in soil fertility. A larger grid cell size (such as 5 acres) may not adequately describe the field variability and may limit the potential economic benefits of site-specific management.

Figure 2. An example of an unaligned grid pattern for grid sampling fields.



Other considerations in selecting a sampling strategy

Select the sampling strategy appropriate for the field size and topography.

Contour strips. On contour strip fields, sample each strip separately if it is approximately 5 acres or more in size, following the sampling intensity guidelines provided in Table 1. Cores from two or three small strips that have identical cropping and management histories may be combined following these same recommended sampling intensity guidelines. Using a grid-point sampling approach on contour strips or small fields is not appropriate, regardless of grid cell size. This is because a grid technique may result in many soil samples being collected from one contour strip but none in other strips; additionally, grid-point samples may be on the edge of the strips and not adequately represent the strip.

Five-acre grid-point sampling. The 5-acre grid point sampling system for whole field management recommendations has recently become popular with soil samplers because it takes less time to collect cores, compared to the traditional W pattern. Another advantage of this approach is its ability to track changes in soil test levels over time, because soil samples are collected from the same geo-referenced point each time the field is sampled. Five-acre grid-point sampling can likely be used in some situations and not in others. For example, in fields that were soil sampled within the past 4 years and tested in the nonresponsive range, averaging the soil test results from 5-acre grid-point sampling is reasonable. This is because there previously had not been a fertilizer recommendation on these fields and some variability at excessively high soil test levels does not change the fact that no fertilizer was recommended. For fields that were sampled more than 4 years ago or where past soil test results were in the responsive range, 5-acre grid-point sampling may not be the best choice of sampling techniques. This is because 5-acre grid-point sampling may not adequately represent the variability within a field, and a comparatively small change in soil test level of 5 to 10 ppm could mean a large change in the amount of nutrients recommended. For

small fields and contour strips, taking a few 5-acre grid-point samples in each field and averaging them likely does not provide a representative sample of the field. Additionally, the total number of samples may be so few that none of them can be eliminated from the field average if it appears one is an outlier.

Smart (zone or directed) sampling. Another approach gaining support among researchers is smart sampling, also known as directed or management zone sampling. This approach uses information that has been collected using other precision agricultural technologies such as yield maps, aerial photographs of bare soil or crop canopy, or soil electrical conductivity measurements. Directed sampling evaluates the spatial distribution of several factors that may influence nutrient availability and crop productivity to help define sampling areas with similar characteristics. With previous comments in mind, either the W pattern or grid-point method can be used to collect samples within management zones. If the results of grid or management zone sampling do not warrant variable-rate application (for example, relatively little between-sample variation), average them to determine the appropriate single-rate treatment.

Procedures for taking soil samples

When to take soil samples

Take soil samples at any convenient time. Studies examining the effect of sampling time on soil test results suggest that test values for pH and phosphorus (P) are typically slightly higher in early spring samples than in fall samples. The effect of time of sampling on soil test potassium (K) results is dependent upon clay mineralogy and soil test level. Soil test K results may be higher in spring compared to fall on lower testing soils, but on higher testing soils, soil test K may be lower in spring compared to fall. To receive your recommendations early enough to enable you to apply the lime and fertilizer needed, it may be best to sample in the fall. Another benefit of fall testing is that fertilizer prices are more likely to be discounted then. Hayfields can be sampled after any cutting. Regardless of when you sample, it is best to be consistent from one year to the next.

Winter sampling, or sampling when the soil is frozen, is permissible only when it is possible to take a uniform boring or core of soil to the appropriate depth. This may require using a portable power boring tool. Using a pick or spade to remove a few chunks of frozen soil from the surface will give inaccurate results.

How to take soil samples

Certain government agency programs require nutrient management plans prepared according to the current USDA-NRCS nutrient management standard (590). Soil sampling and testing procedures and nutrient application rates based on these soil tests must be consistent with the provisions of the 590 standard to be eligible for many cost-sharing programs. These provisions currently include: following the soil sampling techniques outlined above, soil testing by a Wisconsin certified laboratory, and use of nutrient application rates consistent with the guidelines contained in the University of Wisconsin-Extension publication *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin* (A2809).

When ready to sample, use a sampling probe or auger. You can obtain these tools on loan from most county Extension offices (counties.uwex.edu) or fertilizer dealers. Avoid sampling the following areas:

- Dead furrows or back furrows
- Lime, sludge, or manure piles
- Animal droppings
- Near fences or roads
- Rows where fertilizer has been banded
- Eroded knolls
- Low spots
- Where stalks or large bales were stacked
- Headlands

In addition, avoid sampling areas that vary widely from the rest of the field in color, fertility, slope, texture (sandy, clayey, etc.), drainage, or productivity. If the distinctive area is large enough to receive lime or fertilizer treatments different from the rest of the field, sample it separately.

These steps will help you take full advantage of the Wisconsin nutrient application guidelines and must be followed to be consistent with the 590 standard.

1. If manure or crop residues are on the surface, push them aside to keep from including them in the soil sample.
2. Insert the probe or auger into the soil to plow depth or at least 6 inches. The sampling depth should be consistent. To aid year-to-year comparisons, it is important to take repeated samplings from the same field to exactly the same depth.
3. Take at least 10 soil cores or borings for each composite sample and, preferably, at least two composite samples for every field. For nonresponsive fields greater than 5 acres in size, obtain, at a minimum, the number of samples specified in Table 1. For responsive fields, as well as all fields that have not been sampled in the past 4 years, take one composite sample for every 5 acres.
4. Thoroughly mix the sample, then place about 2 cups of soil in a sample bag.
5. Identify the bag with your name, field identification, and sample number.
6. Record the field and sample location on an aerial photo or sketch of the farm and retain for your reference. Record the GPS coordinates, if available.
7. Fill out the soil information sheet. A completely and carefully filled out information sheet will provide the most accurate nutrient recommendations.

Always include a soil test information/sample submission form when submitting soil samples to a laboratory for testing. Provide the soil name and field history whenever possible for more accurate recommendations. Information about legume crops previously grown on the soil and manure application history is essential for proper nutrient crediting from these sources. Include soil names and/or map unit symbols from county soil survey reports,

web soil survey (http://websoilsurvey.nrcs.usda.gov/app/), or individual farm conservation plans. To obtain this information, contact an Extension educator, NRCS district conservationist, or the County Land Conservation Department (LCD).

How often to sample

Most fields should be retested at least every 4 years to monitor soil fertility levels of immobile nutrients and pH to prevent nutrient deficiencies and avoid excess nutrient accumulation. Crop nutrient removals over a 4-year period in most cropping systems will not change soil test levels enough to affect recommended nutrient application rates. Exceptions include sands and loamy sands, which should be tested every 2 years. Also, depending on the initial soil test P and K levels, cropping systems such as high-yielding corn silage or alfalfa may require more frequent testing to adequately monitor changes in soil test levels.

What to do with soil samples

To receive nutrient application rate guidelines consistent with those found in A2809, submit your soil samples and a completed soil information/sample submission form to a Wisconsin Department of Agriculture, Trade, and Consumer Protection (WDATCP) certified laboratory. WDATCP maintains a list of certified soil testing labs at: https://datcp.wi.gov/Documents/NMSoilManureLabs.pdf. Contact labs directly to obtain additional details about the submission process. To become certified, laboratories must use the soil testing methods and nutrient application rate guidelines specified by WDATCP and must also meet quality control standards through periodic analysis of quality control soil samples.

Tillage system considerations when sampling

Moldboard plowing. Sample to the depth of tillage.

Chisel plowing and offset disking. Take soil samples to ¾ of the tillage depth. When possible, take soil samples before spring or fall tillage. Sampling before tillage lets you determine the sampling depth more accurately and avoid fertilizer bands applied for the previous crop.

Till-plant and ridge tillage. Sample ridges to a 6-inch depth and furrows (between rows) to a depth of 4 inches. Combine equal numbers of soil cores from ridges and furrows to make up the composite sample.

No-till. Fields that have not been tilled for 5 or more years may develop an acid layer on the surface from the use of nitrogen fertilizer. This acid layer could reduce the effectiveness of triazine herbicides. Unincorporated phosphorus (P) and potassium (K) are also likely to build up in the surface soil. If an acid layer is suspected, take a separate sample to a depth of only 2 inches. When sending the soil to the lab, indicate that the sampling depth was only 2 inches. This sample will be tested for pH only, unless P and K are specifically requested. For fertilizer recommendations, take a separate sample to a depth of 6 to 7 inches. Fertilizer recommendations require this sampling depth because fertilizer calibration studies are based on plow-depth sampling. Sample between rows to avoid fertilizer bands.

Extension
UNIVERSITY OF WISCONSIN-MADISON

Authors: Carrie Laboski is professor of soil science and John Peters is director emeritus of the University of Wisconsin–Madison soil testing lab. Dr. Laboski holds a joint appointment with the College of Agricultural and Life Sciences and Division of Extension at the University of Wisconsin–Madison. Division of Extension publications are subject to peer review.

University of Wisconsin–Madison Division of Extension, in cooperation with the U.S. Department of Agriculture and Wisconsin counties, publishes this information to further the purpose of the May 8 and June 30, 1914, Acts of Congress. An EEO/AA employer, University of Wisconsin–Madison Division of Extension provides equal opportunities in employment and programming, including Title VI, Title IX, the Americans with Disabilities Act (ADA), and Section 504 of the Rehabilitation Act requirements. For communicative accommodations in languages other than English, please contact oaic@extension.wisc.edu. Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact Heather Lipinski Stelljes at heather.stelljes@wisc.edu.

This publication is available from your Wisconsin county Extension office (counties.extension.wisc.edu) or from Division of Extension Publishing (learningstore.extension.wisc.edu).

Soil & Forage Analysis Lab
4702 University Avenue
Madison, WI 57305
(608) 262-4364
uwlab.soils.wisc.edu

University of Wisconsin – Madison/Extension
College of Agricultural and Life Sciences
Department of Soil Science

Soil Submission Sheet for Field, Vegetable and Fruit Crops

For Lab Use Only:	Please check how you would like to receive your results:	**Method of Payment:**
Date:	☐ U.S. Mail ☐ Email :	Account ID
	Name:	OR Amount Paid $
Lab No:	Address:	☐Cash
	City: State: Zip: Phone:	☐Check No.
TOTAL # SAMPLES:	**PLOW DEPTH:** **COUNTY OF SOIL ORIGIN (required):**	☐Credit Card *We'll call for number.*

								4-YEAR CROP ROTATION		FERTILIZER CREDIT INFORMATION						
										Previous Legume Crop			Manure Applied to Field Since Last Crop			
FIELD ID	SAMPLE NO(S)	Check if Irrigated	Check if tiled	Check if 0-2" pH Samples	SOIL NAME (required)	Acres in Field	Slope %	Sequence to be Grown (crop code)	Yield Goal	Legume Crop (crop code)	Legume Forage % stand (circle)	Check if more than 8" regrowth in fall	Manure Code (See below)	Application Rate T/a gal/a	Time to Incorp (Circle one)	Consec. Years of Application (circle)
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+
											< 30 30-70 > 70				>72 hrs 1 -72 hrs < 1 hr	1 2 3+

Tests include: pH, lime requirement, organic matter, Bray-1 phosphorus (P) and Bray-1 potassium (K).

Special Soil Tests (for an additional fee)
(List field or sample number)

Calcium/Magnesium	Zinc
Boron	Sulfate
Manganese	Other

Soil tests recommended if:

- growing corn (field or sweet) **Zn and SO_4-S**
- growing legume forage **B and SO_4-S**
- growing small grain or soybean (with soil pH >7.0) **Mn**
- growing potato or apple (with pH < 5.5) **Ca/Mg**
- growing specialty or vegetable crops **B, Zn, and Mn**
- acid or sandy soil with high amounts of applied K **Ca/Mg**

Manure Code List

Solid	Liquid
1 Dairy: semi	11 Dairy: liquid
2 Dairy: solid	12 Dairy: slurry
3 Beef	13 Veal calf
4 Swine	14 Beef
5 Duck	15 Swine, indoor pit
6 Chicken	16 Swine, outdoor pit
7 Turkey	17 Swine, farrow-nursery indoor pit
8 Sheep	18 Poultry
9 Horse	
10 Goat	19 Goat

INSTRUCTIONS

Madison Lab: 608-262-4364 **Marshfield Lab: 715-387-2523**

CHECK how you wish to receive your results. **PRINT YOUR NAME - Please Print clearly**
Fill in the county from which the sample(s) were taken. Please fill out separate forms for **each** county. Fill in your address and the e-mail address if you would like the results emailed to you.

METHOD OF PAYMENT

Fill in your Account ID **or** your payment (cash, credit card, or check payable to: **UW Soil Testing Lab**)

FIELD ID and SAMPLE NUMBER(S)

Please number samples consecutively.

Record the field and sample identification for each field on the same line.

EXAMPLE

Field ID	Sample No(s)
1	1-4
2	5
3	6-8

SOIL NAME [REQUIRED]

Write the **full** soil name (**NOT** the abbreviation) from an FSA farm plan or county soil survey map.
Example: Fayette silt loam, write "Fayette". If the field has more than one soil type, use the most predominant soil found in the field. A more precise soil test recommendation can be given if the soil name is included.

4-YEAR CROP ROTATION

Indicate the intended crops to be grown for the next four years (**one** crop code per year).
Use the crop codes(s) listed in the table below.
Enter a yield goal no more than 10-15% higher than the prior 5-year average for each crop. Base the yield goal for corn on yield of No. 2 corn at 15.5% moisture. Yield goal for alfalfa should be based on dry matter in T/a. Base yield of other crops on the yield unit shown in parenthesis ( ). Give yield goals to the nearest ½ T for crop units expressed in T/a.

Crop Code	Crop Name	Yield Unit
1	Alfalfa, established	(ton)
2	Alfalfa, seeding	(ton)
60	Apple, establishment	(all)
3	Asparagus	(lb)
74	Barley, grain	(bu)
4	Barley, grain + straw	(bu)
5	Bean, dry (kidney, navy)	(cwt)
6	Bean, lima	(lb)
44	Bean, snap	(ton)
7	Beet, table	(ton)
61	Blueberry, estab.	(all)
8	Brassica, forage	(ton)
9	Broccoli	(ton)
10	Brussels sprouts	(ton)
11	Buckwheat	(lb)
12	Cabbage	(ton)
13	Canola	(bu)
14	Carrot	(ton)
15	Cauliflower	(ton)
16	Celery	(ton)
62	Cherry, establishment	(all)
42	Clover, red	(ton)
17	Corn, grain	(bu)
38	Corn, popcorn	(bu)
18	Corn, silage	(ton)
19	Corn, sweet	(ton)
63	Cranberry, estab.	(all)
66	CRP, alfalfa	(n/a)
68	CRP, grass	(n/a)
67	CRP, red clover	(n/a)
20	Cucumber	(ton)
21	Flax	(bu)
22	Ginseng	(lb)
79	Grape, establishment	(all)
84	Grass, hay	(ton)
41	Grass, reed canarygrass	(ton)
45	Grass, sod for turf, est.	(all)
85	Grass, switchgrass	(ton)
86	Hop	(lb)
23	Lettuce	(ton)
24	Lupine	(bu)
25	Melon	(ton)
26	Millet	(bu)
27	Mint, oil	(lb)
75	Oats, grain	(bu)
28	Oats, grain + straw	(bu)
31	Onion	(cwt)
34	Past.,legume(<30%)-grass	(ton)
83	Past.,legume(>30%)-grass	(ton)
33	Pasture, grass	(ton)
32	Pasture, unimproved	(ton)
35	Pea, canning	(lb)
36	Pea, chick/field/cow	(ton)
37	Pepper	(ton)
39	Potato	(cwt)
40	Pumpkin	(ton)
64	Raspberry, estab.	(all)
76	Rye, grain	(bu)
43	Rye, grain + straw	(bu)
82	Sm grain & legume silage	(ton)
30	Sm grain/leg slg, w/alf sdg	(ton)
81	Small grain silage	(ton)
29	Sm grain silage, w/alf sdg	(ton)
46	Sorghum, grain	(bu)
47	Sorghum-sudan, forage	(ton)
48	Soybean, grain	(bu)
77	Soybean, grain + straw	(bu)
49	Spinach	(ton)
50	Squash	(ton)
65	Strawberry, estab.	(all)
51	Sunflower	(lb)
52	Tobacco	(lb)
53	Tomato	(ton)
54	Trefoil, birdsfoot	(ton)
55	Triticale, grain	(lb)
80	Triticale, grain + straw	(lb)
56	Truck crops	(all)
57	Vetch, crown/hairy	(ton)
78	Wheat, grain	(bu)
58	Wheat, grain + straw	(bu)

FERTILIZER CREDIT INFORMATION: Legume-sod plowdown or manure application may reduce nutrient need.
Previous Legume Crop: Enter the crop code for the previous legume crop grown on the field. For all forage crops that were plowed down, indicate the % legume remaining in stand and check if there was more than 8 inches of regrowth in the fall before the stand is killed.
Manure Applied to Field Since Last Crop: If manure was applied to the field since harvesting the last crop, choose manure code from **Manure Code List** on front of Information Sheet. Specify the approximate rate of application in T/a for solid or 1000 gal/a for liquid manure, time to incorporation and the number of consecutive years manure has been applied to this field.

SPECIAL SOIL TESTS: Special tests may be run on individual samples, or all the samples from the same field may be combined at the lab for a single field analysis. If the special test(s) is requested on a field basis only, enter the field ID.
If the special test(s) is requested for each sample, enter the field ID and sample number.

Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

SOIL TEST REPORT

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 54321 access code: mtwbx

This Report is for:
Bucky Badger

LAB #: 54321

County	Account No.
Dane	556996

Date Received	Date Processed
8/1/2007	8/10/2007

Slope	Acres	Plow Depth
0%	1.3	7"

Soil Name
Antigo

Field Name
Randall

Previous Crop
Alfalfa, established

NUTRIENT RECOMMENDATIONS

Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilzer Credit				Nutrients to Apply		
		N	P2O5	K2O	Legume N	Manure N	P2O5	K2O	N	P2O5	K2O
	per acre	lbs/a			lbs/a	lbs/a			lbs/a		
Corn, grain	131-150 bu	see below	30	85	120	45	45	108	see below	0	0
Soybean, grain	46-55 bu	0	0	130	0	15	8	14	0	0	120
Alfalfa, seeding	1-2.5 ton	0	25	155	0	8	4	7	0	25	150
Alfalfa, established	4.6-5.5 ton	0	65	350	0	0	0	0	0	65	350

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop	N:Corn Price Ratio ($/lb N:$/bu)							
Medium/Low Yield Potential Soils	0.05		0.10		0.15		0.20	
	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	120	100-140	105	90-120	95	85-110	90	80-100
Soybean, Small grains[4]	90	75-110	60	45-70	50	40-60	45	35-55

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN.pdf.

ADDITIONAL INFORMATION

First year legume N credit is based on a previous fair stand of alfalfa, established with less than 8" of regrowth, as specified on sample submission form.

Fertilizer credit based on 1 year(s) of 15 tons/acre of surface dairy manure.

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

This soil should be monitored more closely because of it has a relatively low potassium buffering capacity.

Starter fertilizer (e.g. 10+20+20 lbs $N+P_2O_5+K_2O$/a) is advisable for row crops on soils slow to warm in the spring.

Year 1: If corn is harvested for silage instead of grain add extra 30 lbs P_2O_5 per acre and 90 lbs K_2O per acre to next crop.

If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

TEST INTERPRETATION

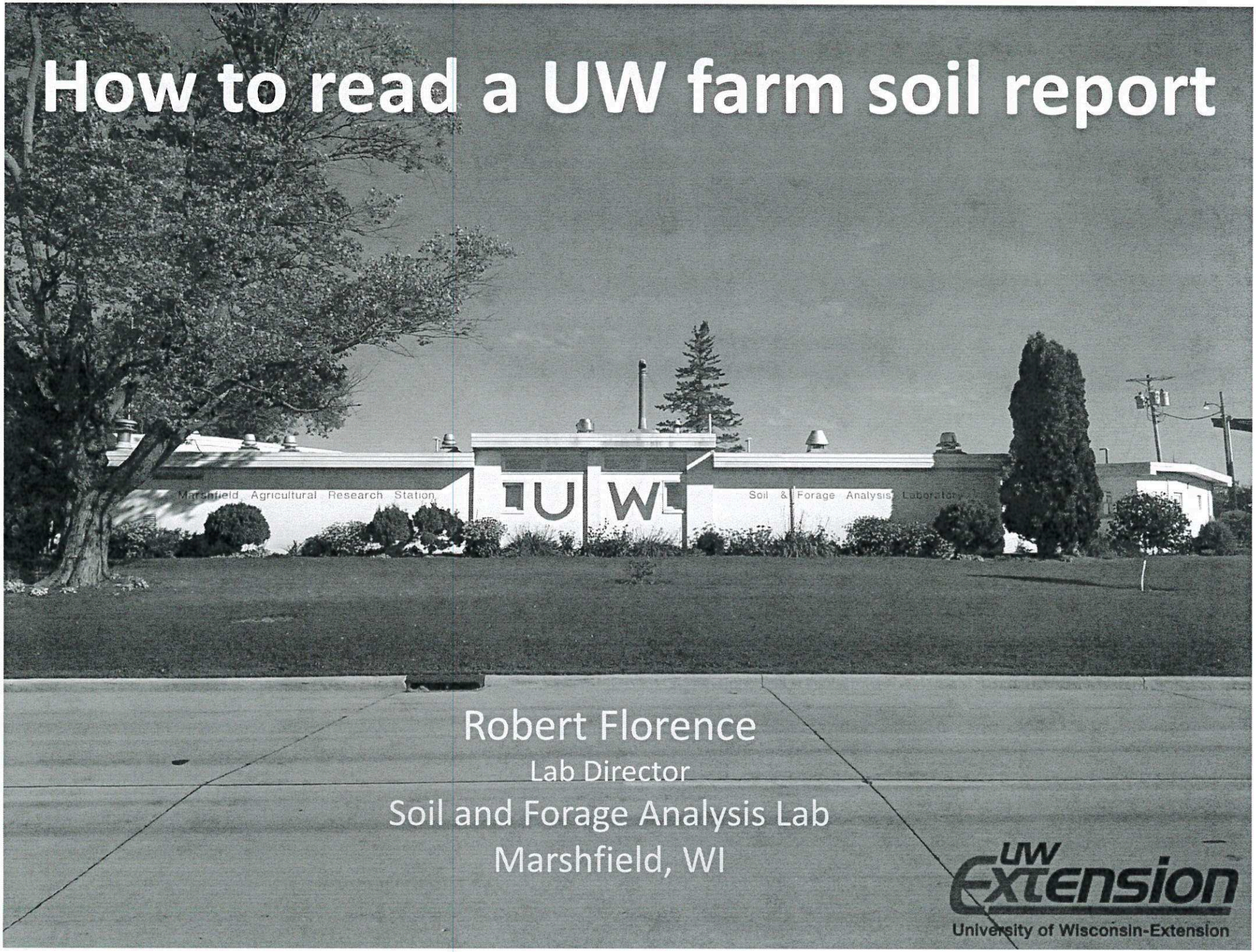
Cropping Sequence	Very Low / Low / Optimum / High / Very High / Excessive
Corn, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKK
Soybean, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKK
Alfalfa, seeding	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKK
Alfalfa, established	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKK
Rotation pH	XXXXXXX

LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Estimated CEC	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail. Index	Texture Code	Sample Density	Buffer pH
1	5.8	2.1	23	65	19.8									2	1.01	6.2
Adjusted Averages	5.8	2.1	23	65												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

How to read a UW farm soil report



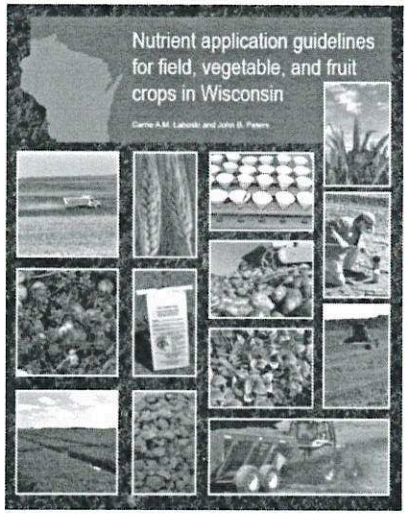
Robert Florence
Lab Director
Soil and Forage Analysis Lab
Marshfield, WI

UW Extension
University of Wisconsin-Extension

Introduction

Use a Wisconsin Dept. of Agriculture, Trade and Consumer Protections (DATCP) certified lab.

Recommendations are based off University of Wisconsin publication Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin A2809.



UW Extension
University of Wisconsin-Extensi

Information

Information →

Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

LAB #: 12346

County	Account No.
Dane	556996

Date Received	Date Processed
9/1/2011	9/6/2011

Slope	Acres	Plow Depth	Irrigated
0%	10	7"	No

Soil Name: Antigo

Field Name: 1

Previous Crop: no crop

SOIL TEST REPORT

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 12346 access code: 9xqfc

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

This Report Is for:
Bucky Badger

NUTRIENT RECOMMENDATIONS

Cropping Sequence	Yield Goal	Crop Nutrient Need N	Crop Nutrient Need P2O5	Crop Nutrient Need K2O	Legume N	Fertilizer Credit Manure N	Fertilizer Credit P2O5	Fertilizer Credit K2O	Nutrients to Apply N	Nutrients to Apply P2O5	Nutrients to Apply K2O
	per acre	lb/a			lb/a	lb/a			lb/a		
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop — Medium/Low Yield Potential Soils	N:Corn Price Ratio ($/lb N:$/bu) 0.05 Rate[1]	0.05 Range	0.10 Rate[1]	0.10 Range	0.15 Rate[1]	0.15 Range	0.20 Rate[1]	0.20 Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

This soil should be monitored more closely because it has a relatively low potassium buffering capacity.

Starter fertilizer (e.g. 10+20+20 lbs N+P_2O_5+K_2O/a) is advisable for row crops on soils slow to warm in the spring.

Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.

If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

TEST INTERPRETATION

Cropping Sequence — Very Low — Low — Optimum — High — Very High — Excessive

Corn, grain
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK

Soybean, grain
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK

Alfalfa, seeding
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK

Alfalfa, established
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK

Rotation pH
XXXXXXX

LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M. %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail. Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

Farmer's Copy

UW Extension
University of Wisconsin-Extension

Information

Check That your information is correct

lime recommendations are based off Plow depth, crop rotation, and soil type

N rate adjustments are based off previous crop, soil series, county, irrigation, and tile drainage

P and K nutrient recommendations are based off soil type

Samples Analyzed By:
UW Soil and Forage Lab
2611 Yellowstone Dr.
Marshfield, WI 54449 715-387-2523

SOIL TE

sults also available on-line :
lab number: 1234

LAB #: 12346

County	Account No.
Dane	556996

Date Received	Date Processed
9/1/2011	9/6/2011

Slope	Acres	Plow Depth	Irrigated
0%	10	7"	No

Soil Name
Antigo

Field Name
1

Previous Crop
no crop

Cropping Sequence	Yield Goal (per acre)
Corn, grain	131-150 bu
Soybean, grain	46-55 bu
Alfalfa, seeding	1-2.5 ton
Alfalfa, established	4.6-5.5 ton

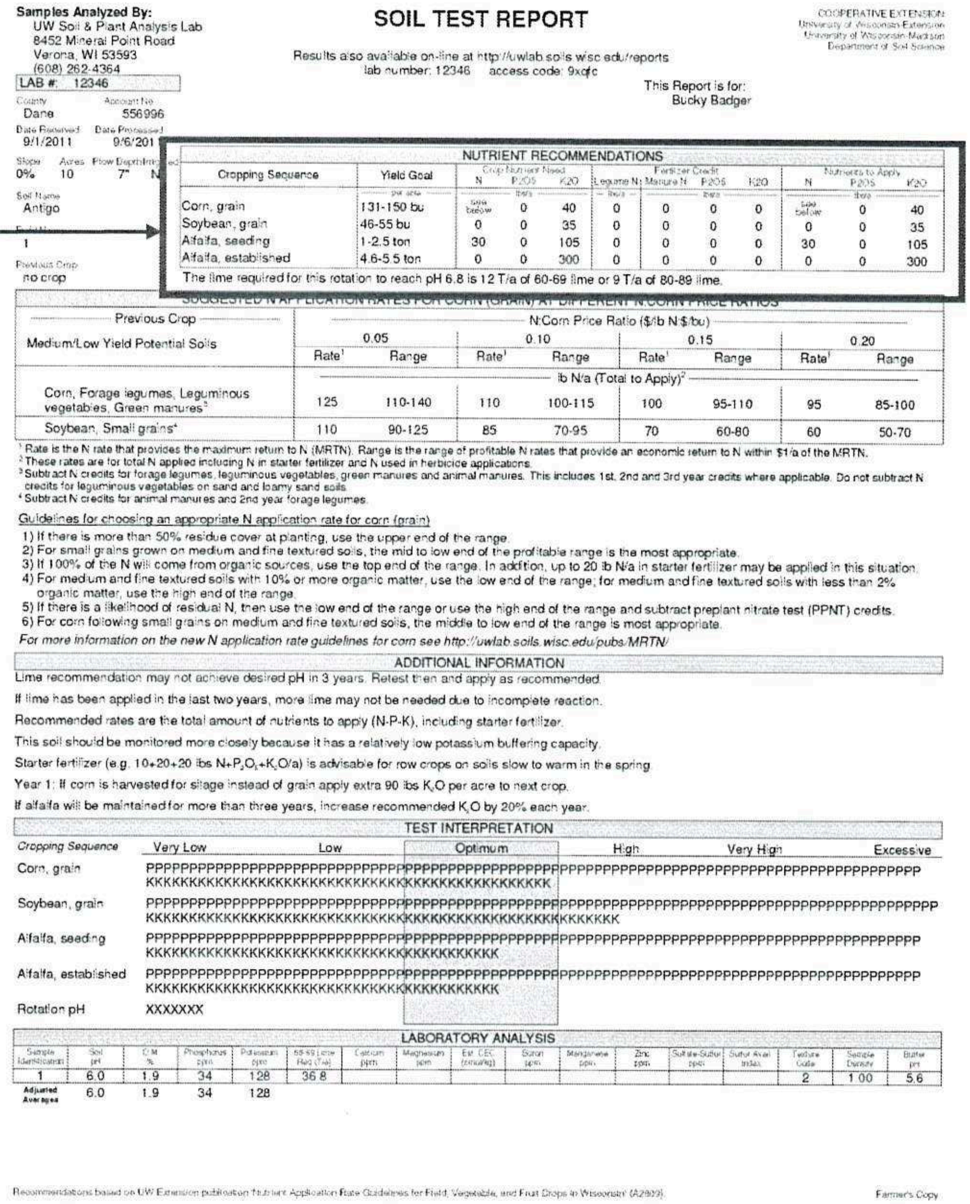
The lime required for this rotation to reach pH 6.8

UW Extension
University of Wisconsin-Extensi

Nutrient Recommendations

Information

P, K, and lime Recommendations



Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

SOIL TEST REPORT

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 12346 access code: 9xqfc

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

This Report is for:
Bucky Badger

LAB #: 12346
County: Dane
Account No: 556996
Date Received: 9/1/2011
Date Processed: 9/6/201
Slope: 0%
Acres: 10
Plow Depth: 7"
Soil Name: Antigo
1
Previous Crop: no crop

NUTRIENT RECOMMENDATIONS												
Cropping Sequence	Yield Goal	Crop Nutrient Need			Legume N	Fertilizer Credit			Nutrients to Apply			
		N	P2O5	K2O		Manure N	P2O5	K2O	N	P2O5	K2O	
	per acre	lb/a			lb/a	lb/a			lb/a			
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40	
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35	
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105	
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300	

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop	N:Corn Price Ratio ($/lb N:$/bu)							
Medium/Low Yield Potential Soils	0.05		0.10		0.15		0.20	
	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)
1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.
For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.
If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.
Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.
This soil should be monitored more closely because it has a relatively low potassium buffering capacity.
Starter fertilizer (e.g. 10+20+20 lbs N+P_2O_5+K_2O/a) is advisable for row crops on soils slow to warm in the spring.
Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.
If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

TEST INTERPRETATION

Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
Corn, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK					
Soybean, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK					
Alfalfa, seeding	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK					
Alfalfa, established	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK					
Rotation pH	XXXXXXX					

LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M. %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail. Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

Farmer's Copy

UW Extension
University of Wisconsin-Extensi

Nutrient Recommendations

NUTRIENT RECOMMENDATIONS											
Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilzer Credit				Nutrients to Apply		
		N	P2O5	K2O	Legume N	Manure N	P2O5	K2O	N	P2O5	K2O
	per acre	lbs/a			lbs/a	lbs/a			lbs/a		
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

Nutrient needs – Based off soil test values and crop removal rates

Fertilizer credits – From previous crop or manure applications

Nutrients to apply – Difference between nutrient needs and fertilizer credits
Given in lbs. of N, P_2O_5 or K_2O equivalents / acre

Lime requirement – To the most limiting crop in rotation
Based off current pH, buffer pH, and target pH
Given in Tons/acre of 60-69 or 80-89 grade lime

Nitrogen Rates

Information

P, K, and lime Recommendations

N rates →

Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

LAB #: 12346

SOIL TEST REPORT

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 12346 access code: 9xqfc

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

This Report is for:
Bucky Badger

County	Account No
Dane	556996

Date Received	Date Processed
9/1/2011	9/6/2011

Slope	Acres	Plow Depth	Irrigated
0%	10	7"	No

Soil Name: Antigo
Field Name: 1
Previous Crop: no crop

NUTRIENT RECOMMENDATIONS												
Cropping Sequence	Yield Goal	Crop Nutrient Need N	P2O5	K2O	Legume N	Fertilizer Credit Manure N	P2O5	K2O	Nutrients to Apply N	P2O5	K2O
	per acre	lb/a			lb/a	lb/a			lb/a		
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop	N:Corn Price Ratio ($/lb N:$/bu)							
Medium/Low Yield Potential Soils	0.05		0.10		0.15		0.20	
	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

This soil should be monitored more closely because it has a relatively low potassium buffering capacity.

Starter fertilizer (e.g. 10+20+20 lbs N+P_2O_5+K_2O/a) is advisable for row crops on soils slow to warm in the spring.

Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.

If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

TEST INTERPRETATION

Cropping Sequence	Very Low / Low / Optimum / High / Very High / Excessive
Corn, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Soybean, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, seeding	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, established	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Rotation pH	XXXXXXX

LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M. %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail. Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

Farmer's Copy

UW Extension
University of Wisconsin-Extension

Nitrogen Rates

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS								
Previous Crop	N:Corn Price Ratio ($/lb N:$/bu)							
Medium/Low Yield Potential Soils	0.05		0.10		0.15		0.20	
	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

For crops other than corn grain and wheat, a single N rate is given.

UW Extension
University of Wisconsin-Extensi

Comments

Information

P, K, and lime Recommendations

N rates

Comments →

Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

SOIL TEST REPORT

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 12346 access code: 9xqfc

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

This Report is for:
Bucky Badger

LAB #: 12346

County: Dane — Account No: 556996
Date Received: 9/1/2011 — Date Processed: 9/6/2011
Slope: 0% — Acres: 10 — Plow Depth: 7" — Irrigated: No
Soil Name: Antigo
Field Name: 1
Previous Crop: no crop

NUTRIENT RECOMMENDATIONS

Cropping Sequence	Yield Goal	Crop Nutrient Need N	P2O5	K2O	Legume N	Fertilizer Credit Manure N	P2O5	K2O	Nutrients to Apply N	P2O5	K2O
	per acre	lb/a			lb/a	lb/a			lb/a		
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop	N:Corn Price Ratio ($/lb N:$/bu) 0.05		0.10		0.15		0.20	
Medium/Low Yield Potential Soils	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.
If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.
Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.
This soil should be monitored more closely because it has a relatively low potassium buffering capacity.
Starter fertilizer (e.g. 10+20+20 lbs $N+P_2O_5+K_2O$/a) is advisable for row crops on soils slow to warm in the spring.
Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.
If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

TEST INTERPRETATION

Cropping Sequence	Very Low — Low — Optimum — High — Very High — Excessive
Corn, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Soybean, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, seeding	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, established	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Rotation pH	XXXXXXX

LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M. %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

Farmer's Copy

UW Extension
University of Wisconsin-Extension

Comments

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

This soil should be monitored more closely because it has a relatively low potassium buffering capacity.

Starter fertilizer (e.g. 10+20+20 lbs $N+P_2O_5+K_2O$/a) is advisable for row crops on soils slow to warm in the spring.

Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.

If alfalfa will be maintained for more than three years, increase recommended K_2O by 20% each year.

Important notes on:

- lime and nutrient applications
- Alternatives one may choose
- Note on rotational considerations
- Can save you time and money so please read

Test Results

Information

P, K, and lime Recommendations

N rates

Comments

Test results →

Samples Analyzed By:
UW Soil & Plant Analysis Lab
8452 Mineral Point Road
Verona, WI 53593
(608) 262-4364

SOIL TEST REPORT

COOPERATIVE EXTENSION
University of Wisconsin-Extension
University of Wisconsin-Madison
Department of Soil Science

Results also available on-line at http://uwlab.soils.wisc.edu/reports
lab number: 12346 access code: 9xqfc

This Report is for:
Bucky Badger

LAB #: 12346

County: Dane
Account No: 556996
Date Received: 9/1/2011
Date Processed: 9/6/2011
Slope: 0% Acres: 10 Plow Depth: 7" Irrigated: No
Soil Name: Antigo
Field Name: 1
Previous Crop: no crop

NUTRIENT RECOMMENDATIONS

Cropping Sequence	Yield Goal	Crop Nutrient Need N	P2O5	K2O	Legume N	Fertilizer Credit Manure N	P2O5	K2O	Nutrients to Apply N	P2O5	K2O
	per acre	lb/a	lb/a	lb/a	lb/a	lb/a	lb/a	lb/a	lb/a	lb/a	lb/a
Corn, grain	131-150 bu	see below	0	40	0	0	0	0	see below	0	40
Soybean, grain	46-55 bu	0	0	35	0	0	0	0	0	0	35
Alfalfa, seeding	1-2.5 ton	30	0	105	0	0	0	0	30	0	105
Alfalfa, established	4.6-5.5 ton	0	0	300	0	0	0	0	0	0	300

The lime required for this rotation to reach pH 6.8 is 12 T/a of 60-69 lime or 9 T/a of 80-89 lime.

SUGGESTED N APPLICATION RATES FOR CORN (GRAIN) AT DIFFERENT N:CORN PRICE RATIOS

Previous Crop	N:Corn Price Ratio ($/lb N:$/bu) 0.05		0.10		0.15		0.20	
Medium/Low Yield Potential Soils	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range	Rate[1]	Range
	lb N/a (Total to Apply)[2]							
Corn, Forage legumes, Leguminous vegetables, Green manures[3]	125	110-140	110	100-115	100	95-110	95	85-100
Soybean, Small grains[4]	110	90-125	85	70-95	70	60-80	60	50-70

[1] Rate is the N rate that provides the maximum return to N (MRTN). Range is the range of profitable N rates that provide an economic return to N within $1/a of the MRTN.
[2] These rates are for total N applied including N in starter fertilizer and N used in herbicide applications.
[3] Subtract N credits for forage legumes, leguminous vegetables, green manures and animal manures. This includes 1st, 2nd and 3rd year credits where applicable. Do not subtract N credits for leguminous vegetables on sand and loamy sand soils.
[4] Subtract N credits for animal manures and 2nd year forage legumes.

Guidelines for choosing an appropriate N application rate for corn (grain)

1) If there is more than 50% residue cover at planting, use the upper end of the range.
2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
4) For medium and fine textured soils with 10% or more organic matter, use the low end of the range; for medium and fine textured soils with less than 2% organic matter, use the high end of the range.
5) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
6) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.

For more information on the new N application rate guidelines for corn see http://uwlab.soils.wisc.edu/pubs/MRTN/

ADDITIONAL INFORMATION

Lime recommendation may not achieve desired pH in 3 years. Retest then and apply as recommended.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

This soil should be monitored more closely because it has a relatively low potassium buffering capacity.

Starter fertilizer (e.g. 10+20+20 lbs $N+P_2O_5+K_2O$/a) is advisable for row crops on soils slow to warm in the spring.

Year 1: If corn is harvested for silage instead of grain apply extra 90 lbs K_2O per acre to next crop.

TEST INTERPRETATION

Cropping Sequence	Very Low — Low — Optimum — High — Very High — Excessive
Corn, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Soybean, grain	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, seeding	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Alfalfa, established	PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
Rotation pH	XXXXXXX

LABORATORY ANALYSIS

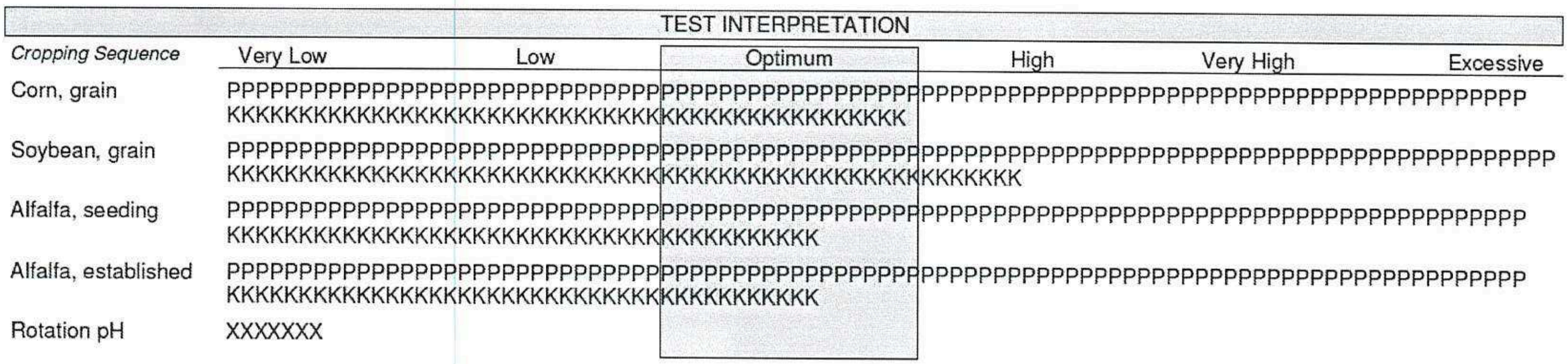
Sample Identification	Soil pH	O.M. %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Recommendations based on UW Extension publication 'Nutrient Application Rate Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin' (A2809).

Farmer's Copy

University of Wisconsin-Extensi

Test Results



LABORATORY ANALYSIS

Sample Identification	Soil pH	O.M %	Phosphorus ppm	Potassium ppm	60-69 Lime Req (T/a)	Calcium ppm	Magnesium ppm	Est. CEC (cmol/kg)	Boron ppm	Manganese ppm	Zinc ppm	Sulfate-Sulfur ppm	Sulfur Avail. Index	Texture Code	Sample Density	Buffer pH
1	6.0	1.9	34	128	36.8									2	1.00	5.6
Adjusted Averages	6.0	1.9	34	128												

Graph: Soil test P and K levels for each crop
Rotation pH

Table: Raw result values

Questions?

Robert Florence
Rflorence@wisc.edu
715-387-2523 x 13

Lab Director
UW- Soil and Forage Analysis Lab
2611 Yellowstone Dr.
Marshfield, WI 54449

UW Extension
University of Wisconsin-Extension