Soil Test Recommendations Handbook

For Agronomic Crops

Agricultural Analytical Services Laboratory
Penn State University College of Agricultural Sciences

v.03.2021

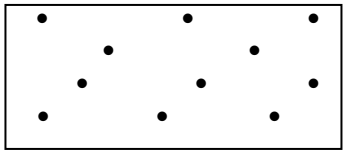
SOIL SAMPLING INSTRUCTIONS
Follow STEPS 1-3 Below

STEP 1 A soil test is no better than the soil sample submitted for analysis. Take samples as follows:

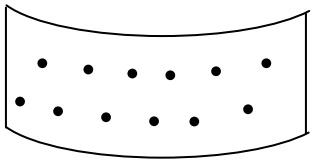
AGRONOMIC • VEGETABLES • SMALL FRUIT • AND HOME GARDEN CROPS

Using a trowel, shovel, or auger, and a clean pail, obtain thin slices or borings of soil from at least 13 places in a given area. Follow the diagram below to properly locate the samples. For contour strips, take 6 samples 20 feet in from the edge of the entire strip and 6 samples from the opposite side of the strip. Sample to plow depth in cultivated land; 3 to 4 inches in permanent pastures. If the field varies in kind of soil, previous fertilizer or lime treatment, or cropping history, sample each area separately.

Square, Rectangular Field or Garden



Contour Strips

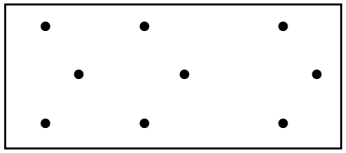


TURF SOILS

Using a soil sampling tube, auger or trowel, and a clean pail, obtain thin slices or borings of soil from 12 or more locations. Follow the diagram below to properly locate the samples. Sample to a depth of 2 to 3 inches.

If the area varies in kind of soil, previous fertilizer or lime treatments, use separate mailing kits for each different area. Discard all grass and accumulated thatch material. Do not contaminate soil with fertilizer or other materials.

If you have a situation where a maintenance recommendation for an existing turf area is desired and also a recommendation for establishing a new turf area is desired, you must use separate soil test kits for each area.



TREE FRUITS

Collect soil cores to an 8-inch depth just inside the drip line of the canopy. Collect soil cores from at least 15 to 20 locations to form a representative composite sample. Avoid unusual areas that are not representative of the whole area.

STEP 2 Mix the soil taken into one composite sample. Spread soil on newspaper in a warm room to air dry overnight. Do not heat.

STEP 3 Take a 1/3 pint representative sample and place in the soil mailing kit bag. Turn back to front page and complete steps 2 through 4 of the instructions.

PennState Extension

Agricultural Analytical Services Laboratory
The Pennsylvania State University
111 Ag Analytical Svcs Lab
University Park, PA 16802

(814) 863-0841 aaslab@psu.edu www.aasl.psu.edu

	Customer Name (Please Print Clearly):			Additional copy to:	
	Business Name:			Business Name:	
↑ SERIAL NO. ↑ (From front of bag) *Please record here*	Street or R.D. No.:			Street or R.D. No.:	
	City, State, and Zip:	County (sample location)		City, State, Zip:	
	Telephone No.:	Fax No.:	E-mail:	Telephone no.:	Fax no.:	Email:

USE THIS FORM FOR AGRONOMIC CROPS

NOTE: PAYMENT OF $9.00 MUST BE SUBMITTED WITH YOUR SOIL SAMPLE FOR THE STANDARD FERTILITY ANALYSIS.
Enclose check made payable to Penn State University for $9.00 plus fee(s) for the optional tests listed below you may request.

Optional Field/Sample ID (10 characters or less):	**Number of Acres:**	**Soil Series Name:**

The standard fertility report includes results for pH, acidity, Mehlich 3 phosphorus, potassium, calcium, magnesium, and lime and fertilizer recommendations. The nitrogen recommendation is based on crop removal. Results for Mehlich 3 copper, zinc, and sulfur are also reported and general interpretive guidelines for these elements provided.

Optional Tests: Optional tests available for an additional fee are listed below. Most of these tests do not include an interpretation or recommendation. If you would like any of the optional tests listed, check the test requested and submit check or money order with your sample.

Plow Depth (check one):

☐ No till or minimum till ☐ 9-11 inches

☐ Less than 9 inches ☐ 12 inches or more

CROP INFORMATION: See back of this sheet for crop codes

Last year's crop if legume:

Crop Code ☐☐☐☐ Crop Name: _____

Fertilizer Recommendations will be made for the following:
(List up to three crops)

Year	Crop Code	Yield Goal		Crop Name:
1	☐☐☐☐	☐☐☐	Bu/A T/A	_____
2	☐☐☐☐	☐☐☐	Bu/A T/A	_____
3	☐☐☐☐	☐☐☐	Bu/A T/A	_____

__ Organic Matter*	$5.00
__ Soluble Salts	$5.00
__ Nitrate Nitrogen*	$5.00
__ Total Nitrogen (Combustion)*	$10.00
__ Ammonium Nitrogen*	$10.00
__ Total Carbon *	$15.00
__ Particle Size Analysis*	$20.00
__ Aluminum Stress Test for Forest Soils....	$9.00
__ DEP Chapter 271 General Permit*	$235.00
__ Total Sorbed Metals*	$65.00
__ Mercury*	$35.00
__ Selenium*	$27.00
__ Arsenic*	$27.00
__ Molybdenum*	$27.00
__ Lead	$27.00
__ PCBs*	$80.00
__ Fax/Email Report (In addition to a hard copy, cost per page) ..	$1.00

___ Email report only: Check here and record your email address if you would prefer to have your report sent to you by email rather than surface mail. Emailed reports are received by customers 2-3 days earlier than mail reports.

Total Cost for Optional Tests: _____

*Results only. No interpretations or recommendations

Enclose check made payable to Penn State University. for total cost of optional tests requested.

LOCATE CROP NAME BELOW

Write code number (4 digits) into "Crop Code" Blocks on Opposite side of the page. Note the Acceptable Yield Range for each Crop

CROP CODE	CROP NAME	YIELD RANGE
ALFALFA GROUP		
1020	Planting Alfalfa	2-6 Ton/A
1023	Planting Alfalfa (no-till)	2-6 Ton/A
1035	Planting Alfalfa in Oats	2-6 Ton/A
1032	Planting Alfalfa in Wheat	2-6 Ton/A
1022	Planting Alfalfa-Trefoil	2-6 Ton/A
1021	Planting Alfalfa-Grass	2-6 Ton/A
1001	Established Alfalfa	4-8 Ton/A
1072	Established Alfalfa-Grass	4-8 Ton/A
LEGUME GROUP		
1030	Planting Crownvetch	2.5-4 Ton/A
1031	Planting Crownvetch (no till)	2.5-4 Ton/A
1029	Planting Ladino Clover	2-4 Ton/A
1027	Planting Red Clover	2-4 Ton/A
1028	Planting Red Clover (no-till)	2-4 Ton/A
1037	Planting Red Clover in Oats	2-4 Ton/A
1034	Planting Red Clover in Wheat	2-4 Ton/A
1073	Planting Red Clover-Grass	2-4 Ton/A
1024	Planting Trefoil	1-3 Ton/A
1026	Planting Trefoil (no-till)	1-3 Ton/A
1036	Planting Trefoil in Oats	1-3 Ton/A
1033	Planting Trefoil in Wheat	1-3 Ton/A
1025	Planting Trefoil-Grass	2-4 Ton/A
1011	Established Crownvetch	2.5-4 Ton/A
1014	Established Ladino Clover	2-6 Ton/A
1015	Established Red Clover	2-6 Ton/A
1074	Established Red Clover-Grass	2-6 Ton/A
1005	Established Trefoil	2-6 Ton/A
1006	Established Trefoil-Grass	2-6 Ton/A
GRAIN GROUP		
1068	Spring Barley	60-100 Bu/A
1060	Winter Barley	50-130 Bu/A
1069	Buckwheat	30-70 Bu/A
1059	Oats	60-120 Bu/A
1061	Rye	50-90 Bu/A
1064	Soybeans	40-80 Bu/A
1071	Sunflowers	10-30 CWT/A
1058	Wheat	40-120 Bu/A
1012	Canola	30-80 Bu/A
1013	Spelt	70-150 Bu/A
1050	Barley/Soybean Double Crop	50-130 Bu/A
1051	Small Grain Silage	4-12 T/A

CROP CODE	CROP NAME	YIELD RANGE
CORN, SORGHUM & MILLET GROUP		
1042	Corn for Grain	110-270 Bu/A
1044	Corn for Grain (no-till)	110-270 Bu/A
1043	Corn for Silage	17-38 Ton/A
1045	Corn for Silage (no-till)	17-38 Ton/A
1057	Sorghum for Grain	90-170 Bu/A
1063	Sorghum for Forage	15-31 Ton/A
1048	Millet for Grain	30-70 Bu/A
1049	Millet for Forage	2-6 Ton/A
GRASS GROUP		
1038	Planting Bluegrass	1-2 Ton/A
1039	Planting Bromegrass	1-5 Ton/A
1062	Planting Mixed Grasses	1-5 Ton/A
1040	Planting Orchardgrass	1-5 Ton/A
1085	Planting Reed Canarygrass	1-5 Ton/A
1041	Planting Timothy	1-5 Ton/A
1075	Planting Tall Fescue	1-5 Ton/A
1077	Planting Warm Season Grasses	1-4 Ton/A
1010	Established Bluegrass	1-4 Ton/A
1016	Established Bromegrass	3-7 Ton/A
1019	Established Mixed Grasses	3-7 Ton/A
1017	Established Orchardgrass	3-7 Ton/A
1086	Established Reed Canarygrass	3-7 Ton/A
1018	Established Timothy	3-7 Ton/A
1076	Established Tall Fescue	3-7 Ton/A
1078	Established Warm Season Grasses	3-7 Ton/A
1066	Sudangrass	1-5 Ton/A
1067	Sorghum-Sudangrass	15-27 Ton/A
1080	Renovating Pasture (with legume)	2-4 Ton/A
1081	Established Pasture (without legume)	2-4 Ton/A
1082	Established Pasture (with legume)	2-4 Ton/A
1083	Planting Pasture (without legume)	2-4 Ton A
1084	Planting Pasture (with legume)	2-4 Ton A
CONSERVATION RESERVE PROGRAM		
1054	CRP Cool Season Grasses	------
1053	CRP Warm Season Grasses	------
MISCELLANEOUS		
1079	Brassicas	2-6 Ton/A
1800	Disturbed Lands	------
1055	Horticultural Cover Crop	------
1065	Tobacco	1-1.5 Ton/A
1056	Wildlife Food Plot	------
1052	Hops	------

PennState Extension

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University Park, PA 16802

Phone: 814-863-0841
Fax: 814-863-4540
Web: www.aasl.psu.edu

SOIL TEST INFORMATION FORM FOR AGRONOMIC CROPS

Grower Name (Please Print):			Send copy to:
Business Name:		ASCS Farm ID:	Business Name:
Street or R.D. No.:			Street or R.D. No.:
City, State, and Zip:		County	City, State, Zip:
Telephone No.:	Fax No.:	E-mail:	

☐ ***Email report only:*** Check this box and record your email address if you would prefer to have your report sent to you by email rather than surface mail.

Note: Please submit payment of $9 per sample (check payable to Penn State University) if NOT submitting samples in pre-paid kits.

Sample/Field Info For plow depth,use code 7, 9, or 12 7 = < 9 " 9 = 9-11" 12 = > 12"			**Last Year's Crop** If legume, complete this column.	**Recommendations** will be made for 3 crop years. For each sample, complete crop and yield goal information for years 1, 2, and 3. See back of form for crop codes and yield ranges.			**Additional Analyses** See back of form for additional analyses not listed below. Enclose payment for additional tests with checks made payable to **Penn State.**
			Last yr's crop	**Crop-Year 1**	**Crop-Year 2**	**Crop-Year 3**	
Field ID (10 digits or less)	Plow Depth (7,9, or 12)	# Acres	Last yr's crop code if legume	Crop Code 1	Crop Code 2	Crop Code 3	__ Organic Matter ($5.00) __ Soluble Salts ($5.00) __ Nitrate Nitrogen ($5.00) __ DEP Permit 271 ($235.00) __ ________________ __ ________________
Sample bag serial #	Soil Type			Yield goal Crop 1	Yield goal Crop 2	Yield goal Crop 3	
Field ID (10 digits or less)	Plow Depth (7,9, or 12)	# Acres	Last yr's crop code if legume	Crop Code 1	Crop Code 2	Crop Code 3	__ Organic Matter ($5.00) __ Soluble Salts ($5.00) __ Nitrate Nitrogen ($5.00) __ DEP Permit 271 ($235.00) __ ________________ __ ________________
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Sample bag serial #	Soil Type			Yield goal Crop 1	Yield goal Crop 2	Yield goal Crop 3	
Field ID (10 digits or less)	Plow Depth (7,9, or 12)	# Acres	Last yr's crop code if legume	Crop Code 1	Crop Code 2	Crop Code 3	__ Organic Matter ($5.00) __ Soluble Salts ($5.00) __ Nitrate Nitrogen ($5.00) __ DEP Permit 271 ($235.00) __ ________________ __ ________________
Sample bag serial #	Soil Type			Yield goal Crop 1	Yield goal Crop 2	Yield goal Crop 3	
Field ID (10 digits or less)	Plow Depth (7,9, or 12)	# Acres	Last yr's crop code if legume	Crop Code 1	Crop Code 2	Crop Code 3	__ Organic Matter ($5.00) __ Soluble Salts ($5.00) __ Nitrate Nitrogen ($5.00) __ DEP Permit 271 ($235.00) __ ________________ __ ________________
Sample bag serial #	Soil Type			Yield goal Crop 1	Yield goal Crop 2	Yield goal Crop 3	
Field ID (10 digits or less)	Plow Depth (7,9, or 12)	# Acres	Last yr's crop code if legume	Crop Code 1	Crop Code 2	Crop Code 3	__ Organic Matter ($5.00) __ Soluble Salts ($5.00) __ Nitrate Nitrogen ($5.00) __ DEP Permit 271 ($235.00) __ ________________ __ ________________
Sample bag serial #	Soil Type			Yield goal Crop 1	Yield goal Crop 2	Yield goal Crop 3	

Rev. 1/17

CROP CODES AND ADDITIONAL ANALYSES

Write Code Number (4 digits) into "Crop Code" blocks on opposite side of this page. Note also the acceptable yield range for each crop. If additional analyses are requested, record additional test request in column next to soil samples on opposite side of the page and submit payment for additional tests with sample. **Make checks payable to Penn State**

CROP CODE	CROP NAME	YIELD RANGE
ALFALFA GROUP		
1020	Planting Alfalfa	2-6 Ton / A
1023	Planting Alfalfa (no-till)	2-6 Ton / A
1035	Planting Alfalfa in Oats	2-6 Ton / A
1032	Planting Alfalfa in Wheat	2-6 Ton / A
1022	Planting Alfalfa-Trefoil	2-6 Ton / A
1021	Planting Alfalfa-Grass	2-6 Ton / A
1001	Established Alfalfa	4-8 Ton / A
1072	Established Alfalfa-Grass	4-8 Ton / A
CORN & SORGHUM GROUP		
1048	Millet for Grain	30-70 Bu / A
1049	Millet for Forage	2-6 T / A
1042	Corn for Grain	110-270 Bu / A
1044	Corn for Grain (no-till)	110-270 Bu / A
1043	Corn for Silage	17-38 Ton / A
1045	Corn for Silage (no-till)	17-38 Ton / A
1057	Sorghum for Grain	90-170 Bu / A
1063	Sorghum for Forage	15-31 Ton / A
LEGUME GROUP		
1030	Planting Crownvetch	2.5-4 Ton / A
1031	Planting Crownvetch (no-till)	2.5-4 Ton / A
1029	Planting Ladino Clover	2-4 Ton / A
1027	Planting Red Clover	2-4 Ton / A
1028	Planting Red Clover (no-till)	2-4 Ton / A
1037	Planting Red Clover in Oats	2-4 Ton / A
1034	Planting Red Clover in Wheat	2-4 Ton / A
1073	Planting Red Clover-Grass	2-4 Ton / A
1024	Planting Trefoil	1-3 Ton / A
1026	Planting Trefoil (no till)	1-3 Ton / A
1036	Planting Trefoil in Oats	1-3 Ton / A
1033	Planting Trefoil in Wheat	1-3 Ton / A
1025	Planting Trefoil-Grass	2-4 Ton / A
1011	Established Crownvetch	2.5-4 Ton / A
1014	Established Ladino Clover	2-6 Ton / A
1015	Established Red Clover	2-6 Ton / A
1074	Established Red Clover-Grass	2-6 Ton / A
1005	Established Trefoil	2-6 Ton / A
1006	Established Trefoil-Grass	2-6 Ton / A
GRAIN GROUP		
1068	Spring Barley	60-100 Bu / A
1060	Winter Barley	50-130 Bu / A
1069	Buckwheat	30-70 Bu / A
1059	Oats	60-120 Bu / A
1061	Rye	50-90 Bu / A
1064	Soybeans	40-80 Bu / A
1071	Sunflowers	10-30 CWT / A
1058	Wheat	40-120 Bu / A
1012	Canola	30-80 Bu / A
1013	Spelt	70-150 Bu / A
1050	Barley/Soybean Double	50-130 Bu / A
1051	Small Grain Silage	4 – 12 T / A

CROP CODE	CROP NAME	YIELD RANGE
GRASS GROUP		
1038	Planting Bluegrass	1-2 Ton / A
1039	Planting Bromegrass	1-5 Ton / A
1062	Planting Mixed Grasses	1-5 Ton / A
1040	Planting Orchardgrass	1-5 Ton / A
1085	Planting Reed Canarygrass	1-5 Ton / A
1041	Planting Timothy	1-5 Ton / A
1075	Planting Tall Fescue	1-5 Ton / A
1077	Planting Warm Season Grasses	1-5 Ton / A
1010	Established Bluegrass	1-4 Ton / A
1016	Established Bromegrass	3-7 Ton / A
1019	Established Mixed Grasses	3-7 Ton / A
1017	Established Orchardgrass	3-7 Ton / A
1086	Established Reed Canarygrass	3-7 Ton / A
1018	Established Timothy	3-7 Ton / A
1076	Established Tall Fescue	3-7 Ton / A
1078	Established Warm Season Grasses	3-7 Ton / A
1066	Sudangrass	1-5 Ton / A
1067	Sorghum-Sudangrass	15-27 Ton / A
1080	Renovating Pasture (with legume)	2-4 Ton / A
1081	Established Pasture (without legume)	2-4 Ton / A
1082	Established Pasture (with legume)	2-4 Ton / A
1083	Planting Pasture (without legume)	2-4 Ton / A
1084	Planting Pasture (with legume)	2-4 Ton / A
CONSERVATION RESERVE PROGRAM		
1054	CRP Cool Season Grass	---
1053	CRP Warm Season Grass	---
MISCELLANEOUS		
1052	Hops	---
1056	Wildlife Food Plots	---
1079	Brassicas	2-6 Ton / A
1800	Disturbed Lands	---
1055	Horticultural Cover Crop	---
1065	Tobacco	1 -1.5 Ton / A
1002	Hemp, for seed production	1000-2000 lbs / A
1003	Hemp, for fiber production	6-10 Ton / A

ADDITIONAL ANALYSES AND SERVICES		
Organic Matter	$	5.00
Soluble Salts	$	5.00
Nitrate Nitrogen	$	5.00
Ammonium Nitrogen	$	10.00
Total Nitrogen (combustion)	$	10.00
DEP Chapter 271 Individual Permit[1]	$	235.00
Total Sorbed Metals I[2]	$	65.00
Total Sorbed Metals II plus mercury[3]	$	160.00
Mercury	$	35.00
Selenium	$	27.00
Arsenic	$	27.00
Molybdenum	$	27.00
Lead	$	27.00
PCBs	$	80.00

[1]Includes arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, and PCBs

[2]Includes total sorbed cadmium, copper, lead, nickel, zinc, and chromium (EPA Method 3050B/3051 + 6010)

[3]Includes total sorbed arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, chromium, selenium, zinc (EPA Method 3050B/3051 + 6010)

Pre-sidedress Soil Nitrate Test for Corn

Soil Test Information and Report Form

PENNSTATE

The Pennsylvania State University
111 Ag Analytical Srvcs Lab University
Park, PA 16802

Phone: 814-863-0841
Fax: 814-863-4540
Web: www.aasl.psu.edu

Grower _____ Date _____
Address _____ Copy to _____
City, State, Zip _____ Address _____
County _____ City, State, Zip _____

NOTE: PLEASE SEND $6.00 PAYMENT WITH SAMPLE.

Please list a telephone, email or fax number for the person who should be contacted with the results. If no number is given, results will be mailed.

Person to contact_____ Phone, Email or Fax (circle one): Phone:_____ - _____ - _____

Best time to call (8am – 4:30 pm): _____ Fax # _____ - _____ - _____

Email: _____

Sample #	Lab No.		Field ID	Expected Yield **Bu/A** or **T/A**	Recent Manure[1]	Previous Manure[2]	Previous Crop	Soil Nitrate-N (ppm)	N lb/A Recommendation
Lab Use Only		Please complete all of the information in the sections below						Lab Use Only	
1					__ None __ Any	__ None __ Any	__ Corn __ Soybeans __ Forage Legume __ Other		
2					__ None __ Any	__ None __ Any	__ Corn __ Soybeans __ Forage Legume __ Other		
3					__ None __ Any	__ None __ Any	__ Corn __ Soybeans __ Forage Legume __ Other		
4					__ None __ Any	__ None __ Any	__ Corn __ Soybeans __ Forage Legume __ Other		
5					__ None __ Any	__ None __ Any	__ Corn __ Soybeans __ Forage Legume __ Other		

[1]Manure applied since last harvest. [2]Manure applied in the previous three years. **Complete this form and return with soil samples.**

Sampling Procedure for the Pre-sidedress Soil Nitrogen Test (PSNT)

1. Sample only those fields that have received 40 pounds of N or less as fertilizer prior to sampling for the N soil test. This test is best suited for those fields where some residual N availability is suspected because of previous manure applications, forage legume crops, or heavy N fertilizer applications.

2. Take soil samples when the corn is approximately 12 inches tall or at least a week before sidedressing is planned.

3. Sample soil by taking 10 to 20 cores across the field, to a 12 inch-depth if possible. If not, sample as deep as you can. Samples should be obtained between rows to avoid starter fertilizer bands. Also, avoid sampling any atypical areas such as wet spots, weedy areas, or those areas receiving excessive manure in the field.

4. Crumble the cores and dry samples as thoroughly and quickly as possible by spreading thinly on newspaper in a warm place and stirring occasionally. Unlike regular soil samples, these samples can be heated to speed drying. Samples should be completely dry within 24 hrs.

5. Place the dried sample in the soil test bag, complete the reverse side of this form for all of your samples, and mail or deliver the form and all samples immediately to the Agricultural Analytical Services Laboratory, Penn State University, University Park, PA 16802.

6. Be sure to include one phone number, email or fax of the individual who should be contacted with the results along with the best time to contact this person between 8 am and 4:30 pm. Results of the test and N fertilizer recommendations will be sent to this individual as soon as possible after the test has been run.

Please note: Send $6.00 payment with the sample. The fee that you pay for analysis covers priority analysis of the sample for nitrate-N only and for the telephoning, emailing or faxing of the soil sample results.

PENNSTATE

(814) 863-0841 Fax (814) 863-4540

Agricultural Analytical Services Laboratory
The Pennsylvania State University
University Park PA 16802
www.aasl.psu.edu

SOIL TEST REPORT FOR:	ADDITIONAL COPY TO:
JOHN JONES JONES FAMILY FARM GREENVILLE PA 22222	SAM COOK TOP GROW ENTERPRISES 111 ALFALFA RD WATERTOWN PA 11111

DATE	LAB #	SERIAL #	COUNTY	ACRES	ASCS ID	FIELD ID	SOIL
06/11/2014	S01-19627	55	Centre	40		Back 40	

SOIL NUTRIENT LEVELS			Below Optimum	Optimum	Above Optimum
[1]Soil pH	5.4				
[2]Phosphorus (P)	40	ppm			
[2]Potassium (K)	175	ppm			
[2]Magnesium (Mg)	50	ppm			

RECOMMENDATIONS: *(See back messages for important information)*

Limestone*: 4000 lb/A for a target pH of 7.0. **Magnesium (Mg):** 20 lb/A

Calcium Carbonate equivalent

Plant Nutrients:

(If manure will be applied, adjust these recommendations accordingly. See back of report.)

Year	Crop	Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P_2O_5/A)	Potash (lb K_2O/A)	
1	Established Alfalfa	5 T/A	0	40	50	*See ST2 for other crop recommendations*

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.
Apply 2 lbs boron per acre with the fertilizer.

2	Corn for Silage	21 T/A	150	50	50	*See ST2 for other crop recommendations*

A N credit for the previous Established Alfalfa crop should be subtracted from the base N recommendation listed above. Credits based on precent stand of the legume crop are as follows: less than 25 % stand -40 lb/A, 25-50 % stand - 80lb/A, greater than 50 % stand - 110lb/A
Use a starter fertilizer. (See Back)

3	Corn for Grain	130 Bu/A	130	30	0	*See ST2 for other crop recommendations*

Use a starter fertilizer. (See Back)

ADDITIONAL RESULTS:						Optional Tests:			[2]Trace Elements		
[2]Calcium (ppm)	[3]Acidity (meq/100 g)	[4]CEC (meq/100 g)	% Saturation of the CEC K	Mg	Ca	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	*See back for comments* Zinc ppm	Copper ppm	Sulfur ppm
1021	3.9	9.9	4.5	4.2	51.7				4.2	1.7	14.0

Test Methods: [1]1:1 soil:water pH, [2]Mehlich 3 (ICP), [3]Mehlich Buffer pH, [4]Summation of Cations

Recommendation Messages

Enclosures

ST-2 Fertilizer Recommendation Table- Guidelines for making recommendations for other crops and for adjusting for a different expected yield.

ST-4 Interpreting Soil Tests for Agronomic Crops-Explains the soil test report and provides additional information on the recommendations.

Soil Nutrient Levels Soil nutrient levels are given as parts per million (ppm) elemental P, K , and Mg. As a rule of thumb to convert ppm to lb/A multiply ppm x 2. The elemental results in lb/A can be converted to oxide forms using the following conversions: P x 2.3=P_2O_5, K x 1.2=K_2O, Mg x 1.6=MgO

Below Optimum-Nutrient is deficient. There should be an economic response to adding the recommended nutrient.	**Optimum-**Nutrient is adequate. There will be no yield response to adding more of a nutrient but a recommendation is made to replace what the crop removes and thus maintain the soil test in the optimum range.	**Above Optimum-**The nutrient is more than adequate. Not only will there not be a yield response but the soil nutrient levels are also adequate to accommodate crop removal.

Recommendations N,P, and K recommendations are made for three crop years on this field. New samples should be taken after 3 years. The recommendations for the 2nd and 3rd year assume that the earlier recommendations were followed. These recommendations are based on the results of the soil test and the information provided with the sample. If you think that there is an error on the report, contact the lab at the address on the front of the report. Tables that can be used to adjust or change recommendations for all crops based on the soil test can be found on the web at: www.aasl.psu.edu.

Limestone Recommendations The recommended limestone application should be adequate for 3 years. Limestone recommendations are based on 100% calcium carbonate equivalent limestone and assume "Fine-sized" limestone with 95% passing 20 mesh, 60% passing 60 mesh and 50% passing 100 mesh. Use "ST-2 Liming Materials Conversion Table (enclosed) to adjust for limestone quality. Also see Agronomy Facts #3 "Soil Acidity and Aglime".

Magnesium Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may results in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can results in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

Starter Fertilizer Starter fertilizer is important to get a corn crop off to a good start when planting in cold, wet conditions. However, on optimum or higher testing soils, as planting dates get later and soils warm up, the benefit from starter fertilizer goes down. An N only starter is often adequate when soil test levels are above optimum. The correct material, rate, and placement for starter fertilizer are critical to be effective. See Agronomy Facts #51 "Starter Fertilizer".

Nitrogen Nitrogen recommendations on this report are not based on a soil test. They are based on crop requirements for the expected yield of the crop to be grown. The pre-sidedress nitrate soil tests (PSNT) and the Chlorophyll meter test are both available for improving nitrogen recommendations on corn especially when manure is being applied. See: Agronomy Facts 17 "Pre-sidedress Soil Nitrate Test for Corn" and Agronomy Facts 53 "The Early-season Chlorophyll Meter Test for Corn". For optimum efficiency, N should be applied as close to the time of crop need as practical. For corn apply 50-90% of the N when the corn is 10-20" tall. For winter grains apply the N in the spring prior to growth stage 5. For forage grasses split the recommended N for each cutting.

Manure Manure is a very important part of a fertility program. Manure applications may supply all or most of the nutrients recommended and in some cases may apply significantly more than the crop requires. Manure nutrients should be taken into account in developing your fertility program. Fore details on how to do this see the Penn State Agronomy Guide. Manure analysis kits are available through your county agent.

Very High Soil Test Levels Very high soil test levels should be avoided as much as possible. High soil nutrient levels might not only represent an economic loss but they may also indicate potential crop, animal or environmental problems.

Very high pH can results in micronutrient deficiencies and may affect the activity of some pesticides resulting in injury or poor pest control.

Very high phosphorus levels in the soil may lead to crop production problems especially with no manure and may result in potentially harmful P loss to the environment. Best management practices may be necessary to reduce the potential for environmental problems with P.

Zinc, Copper and Sulfur Results The normal ranges for zinc (Zn) copper (Cu), and sulfur (S) in Pennsylvania soils are listed below. Cu, Zn and S deficiencies are uncommon in PA, but may occur on soils testing below the normal range. Cu, Zn and S toxicities may occur at levels testing well above the normal range, but have not been observed in Pennsylvania in agronomic crops even on soils testing 2 to 3 times above the normal range. For additional information, see ST4.

Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)		
Zn (ppm)	Cu (ppm)	S (ppm)
1.1-9.4	1.2-5.5	10-25

Distribution of Soil Test Results Summaries of soil test results may be used in educational programs. However, individual results will not be released outside of Penn State without permission of the client. Electronic copies of your results are available to you, contact the lab for more information.

For additional information on these topics please see the current **Penn State Agronomy Guide** or the **AASL website**: www.aasl.psu.edu. This soil test is part of an ongoing research and extension program of Penn State. If you have any questions or comments about this program or would like copies of publications referenced here, please contact your Penn State County Extension agent.

Soil Testing for Agronomic Crops ST-4

Penn State Agricultural Analytical Services Laboratory

The Penn State soil test report is divided into four parts:

SOIL TEST REPORT FOR: Sample Information

The top of the report provides information used to identify the sample including, the FIELD ID you provided and a unique LAB #. Check the FIELD ID to be sure that it is correct. Consistently identifying fields simplifies comparison of soil tests on the same fields over time to determine and react to trends.

The LAB # is important if you have a question or concern related to your lab results or recommendations. Should laboratory personnel need to retrieve your sample or soil test report to check a problem or answer a question, they will need to know the LAB #. Prompt action is important if you think there is a problem with your results, because soil samples are not retained indefinitely. If you suspect a problem with your soil analysis, contact the Agricultural Analytical Services Laboratory at (814) 863-0841.

Summaries of soil test results may be used in educational programs. However, individual results will not be released outside of Penn State without permission of the client. Password-protected access to your soil test report and soil test data is also available through the laboratory web site (www.aasl.psu.edu). Contact the laboratory for additional information and to obtain a password.

SOIL NUTRIENT LEVELS: Interpreting the Results

Soil nutrient levels are given as parts per million (ppm) elemental P, K, and Mg. The results of the laboratory analysis are meaningless by themselves; they must be interpreted by relating the lab values to known crop response under local conditions. Interpretation of results, based on crop response research, is given as a bar chart that indicates whether the level for each nutrient is below optimum, optimum, or above optimum for the crop to be grown. The definition for each category is given below.

Below Optimum soil test level indicates that the nutrient is probably deficient and that the deficiency will likely limit crop growth. There is a high probability of a profitable return from correcting a low level. The recommendation for a low-testing soil is designed to gradually build up the nutrient level to optimum and to maintain it at that level.

Optimum soil test level indicates that the nutrient is probably adequate and will likely not limit crop growth in a typical growing season. There is a low probability of a profitable return from increasing the soil test level above optimum. The recommendation for an optimum-testing soil is designed to offset crop removal in order to maintain the nutrient in the optimum range. If you are soil testing on an annual basis, no maintenance fertilizer is needed when the soil tests in the optimum range.

Above Optimum soil test level indicates that the nutrient is more than adequate and will not limit crop growth. There is a very low probability of a profitable return from applying a nutrient to a soil testing above optimum. Consequently, no fertilizer is recommended on these soils. Too much of a plant nutrient may cause a nutrient imbalance in the soil and, as a result, in the plant. Additional applications of fertilizers or manures to soils that are very high not only result in unsatisfactory economic returns, but they can also adversely affect plant growth and environmental quality.

RECOMMENDATIONS

The recommendations on the soil test report are made for a three year sequence of crops. These recommendations are made based on the soil test results and on the information you provided such as crop to be grown, expected yield, crop rotation and plow depth. Typical nutrient recommendations and guidelines for changing them to a different crop and/or yield level are given in ST-2 “Fertilizer Recommendation Table”. Complete recommendation tables are also available on the lab web site: www.aasl.psu.edu

Limestone Recommendation

Limestone is applied to neutralize the acidity in the soil and thus raise the soil pH to the optimum range for crop growth. The limestone recommendation is based on the amount of exchangeable acidity measured in the soil and the optimum soil pH level for the crop. The recommended limestone application is a one-time application for the three years on the report. For most agronomic crops the optimum pH is 6.5. For alfalfa and barley the pH goal

is 7.0. However, because only one limestone recommendation is made for three years, the recommendation on the report will adjust the pH for the most sensitive crop to be grown during this period. The actual pH goal used to make the limestone recommendation is indicated on the report.

The limestone recommendation is based on a liming material that is 100% calcium carbonate equivalent (CCE) in neutralizing power and based on liming an acre furrow slice approximately 7 inches deep. If a liming material is used that is not near to 100% CCE (90–110% CCE), the rate should be adjusted for lime quality. ST-2 "Liming Materials Conversion Table" gives the details for making this simple but important adjustment. If the limestone is going to be mixed with a larger volume of soil by deeper tillage, the recommendation is increased to account for this. Any adjustment for tillage depth is indicated on the report.

See PSU Agronomy Facts #3 "Soil Acidity and Aglime" for details on Limestone recommendations, liming material quality and liming practices.

Magnesium (Mg) Recommendation

If the soil magnesium level is below the optimum level, magnesium will be recommended to raise the level to optimum. Agricultural limestone is generally the most economical and convenient source of magnesium for agronomic crops. In addition to the actual amount of magnesium recommended (lb Mg/A), the magnesium recommendation is also given as the minimum percentage of Mg in the recommended amount of limestone required to meet the magnesium needs. Mg requirements vary from crop to crop. However, because the Mg recommendation is linked to the limestone recommendation, only one Mg recommendation is made. This recommendation is based on the needs of the most sensitive crop to be grown during the three years.

Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing in this situation. Apply the recommended Mg; however, be aware that if the K is very high and the Mg is low it may not be possible to correct this soil imbalance immediately. Therefore, it is critical that your feed rations are properly balanced based on the actual forage mineral content.

Nitrogen (N) Recommendation

No soil analysis is used to make the N recommendations on the report. These recommendations are based on estimates of crop requirements for N as determined by crop response research under PA conditions. Most recommendations are based on the information you provided about the crop to be grown and the expected yield. The recommendations are given as pounds of N required per acre for each crop.

Growing a legume in a rotation preceding an N-requiring crop may result in a high level of residual N in the soil that can be utilized by the following crop. The N recommendations must be adjusted using the credits indicated on the report to take into account this residual N.

Nitrogen supplied by manure should also be considered. Residual N from past manure applications may reduce the amount of N required for the current crop. The N in manure applied for the current crop must also be accounted for. Manure N availability varies depending on how it is handled and applied. See the Manure Management section of the Penn State Agronomy Guide for details. Manure analysis is available from the Agricultural Analytical Services Lab at Penn State.

Nitrogen testing is not possible as part of a routine soil testing program. N is very dynamic in the soil plant system and the available N changes throughout the season. For N testing to be valid it must be conducted very near to the time when the crop has the most demand for N. Two in-season N tests, the Pre-sidedress Soil Nitrate Test (PSNT) and the Chlorophyll Meter Test are available to help with N management in corn. These tests are especially useful where manure is expected to contribute significantly to the N needs of the crop and can help guide sidedress N applications if necessary. See PSU Agronomy Facts #17 "Pre-sidedress Soil Nitrate Test for Corn" or PSU Agronomy Facts #53 "The Early-Season Chlorophyll Meter Test for Corn" for details.

Phosphorus (P) and Potassium (K) Recommendations

Recommendations are given as pounds of P_2O_5 and K_2O required per acre for each crop. The P and K recommendations are based on building below optimum testing soils up into the optimum range. Once an optimum level has been established the recommendation is designed to maintain that level by applying P and K to offset the amount that is removed by the harvested crop. The optimum

ranges for agronomic crops are 30-50 ppm P and 100-150 ppm K for grain crops and 150 -200 ppm K for forage crops. Once the soil level is above optimum no P or K is recommended.

Very high soil test levels should be avoided as much as possible. High soil nutrient levels not only represent an economic loss but they may also indicate potential crop, animal, or environmental problems. Very high P levels in the soil may result in potentially harmful P loss to the environment. Best management practices may be necessary to reduce the potential for environmental problems with P. Very high K levels in the soil can lead to nutrient imbalances in forage crops which can cause serious health problems in animals. Use caution when grazing forage crops especially if the soil magnesium is not also in the high range. It may not be possible to correct these soil imbalances in the short term. Feed rations must be balanced accordingly.

Very high soil test levels are often a side effect of utilizing manure to supply the N needs of crops. Usually when manure is applied to meet the N requirements of a crop excess P and K will be applied. Over time this can lead to very high P and K levels in the soil. This should be monitored with regular soil testing and appropriate management action should be taken to limit applications in excess of crop needs or to minimize potential negative crop, animal or environmental consequences.

Recommendation Messages

An important part of the reports are the messages and comments that accompany the recommendations. Immediately under the amounts of nutrients needed are several messages specific for the actual results and recommendations. Important general comments about the results and recommendations are found on the back of the report. These comments and the material enclosed with the report are all part of the recommendation.

ADDITIONAL RESULTS

Test levels for calcium (Ca) and exchangeable acidity; and optional tests for organic matter, nitrate nitrogen and soluble salts are provided in this section. Also included here are calculated values for the soil cation exchange capacity (CEC) and percent saturation of the CEC by K, Mg, and Ca. These calculated values are not used in making recommendations. They are provided for reference only.

Zinc (Zn), copper (Cu), and sulfur (S) results are also given. Deficiencies of these nutrients are rare in Pennsylvania. Consequently, reliable interpretations and recommendations based solely on soil test results are not possible; however, results can be compared to ranges normally observed in PA soils (see Table below). Soil test levels below the normal range may indicate a possible deficiency, but do not guarantee a response to additions of these nutrients. Plant tissue analysis should be used to determine if the plants are deficient and to help guide fertilizer applications.

Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3 soil test)		
Zn (ppm)	Cu (ppm)	S (ppm)
1.1 – 9.4	1.2 – 5.5	10 – 25

Zinc deficiency is most likely to occur on soils with below- normal Zn levels, high pH, a sandy texture or where soil P is high from fertilizer additions. If both soil and plant zinc levels are below normal and especially if any of the above conditions exist, the recommendation is to broadcast and incorporate 8 to 10 lb/A Zn once every 5 years or apply 2 lb/A of Zn in the starter. Copper deficiency has not been observed in Pennsylvania.

Sulfur deficiency is rare in Pennsylvania because of the significant amount of S that is deposited in our rainfall. As the acid rain problem is reduced, S may become more limiting in the future. If both soil and plant S levels are below normal, it is recommended that part of the fertilizer N requirement of the crop be met with ammonium sulfate. A rate to supply 10 to 20 lb /A of S should be adequate for most crops in this situation. There is a higher likelihood of a sulfur deficiency on soils with below normal S levels that are also very low in organic matter and/or sandy-textured.

Copper and Zinc can accumulate in soil to levels that are toxic to plants. Toxicity to agronomic crops has not been observed in Pennsylvania even on soils testing 2 – 3 times the normal range, but has occurred in soils contaminated by industrial activity. Plant tissue analysis should be conducted on soils with more than 2 times the normal range to determine if levels are above normal. If both soils and crop tissues are above the normal range steps should be taken to prevent further addition of these elements to the soil. Certain agricultural practices, such as use of copper or zinc sulfate hoof baths, can

add these elements to soil.

OTHER INFORMATION

The soil testing procedures currently used by the Penn State soil testing program are listed on the report. This information is useful if you compare analytical results from different labs. Direct comparisons can be made only between labs using *exactly* the same procedures. There are many different methods in use around the country, each with strong and weak points. Which test will be used in a given area is based on research to determine how well the test works under local conditions. The tests used by the Agricultural Analytical Services Lab at Penn State have been determined to work best for Pennsylvania conditions.

Keeping Records

Keeping good records of soil test results can be very helpful for fine-tuning fertility management. To make the most of the result, collect samples regularly and consistently (e.g., same time of year, same depth). Once optimum soil test levels are attained, the goal is to maintain those levels. A decrease or increase in soil test level at a relatively constant yield might indicate under- or over-fertilization, respectively. Nutrient applications should be adjusted according to the observed trends. Soil test levels will vary from one test to the next; but if an unusual value is observed, the soil testing lab can recheck the results and/or you can submit a new sample for confirmation.

As with all Penn State Cooperative Extension programs your feedback and suggestions for improvement of the soil testing program are always welcome.

Prepared by: Douglas Beegle, Distinguished Professor of Agronomy; Richard Stehouwer, Professor of Environmental Soil Science; Ann Wolf, Director AASL (retired); and John Spargo, Director AASL
ST-4 (Revised 6/14)

Adams	(717) 334-6271
Allegheny	(412) 473-2540
Armstrong	(724) 548-3447
Beaver	(724) 774-3003
Bedford	(814) 623-4800
Berks	(610) 378-1327
Blair	(814) 940-5989
Bradford	(570) 265-2896
Bucks	(215) 345-3283
Butler	(724) 287-4761
Cambria	(814) 472-7986
Cameron	(814) 486-3350
Carbon	(570) 325-2788
Centre	(814) 355-4897
Chester	(610) 696-3500
Clarion	(814) 223-9028
Clearfield	(814) 765-7878
Clinton	(570) 726-0022
Columbia	(800) 851-9710
Crawford	(814) 333-7460
Cumberland	(717) 240-6500
Dauphin	(717) 921-8803
Delaware	(610) 690-2655
Elk	(814) 776-5331
Erie	(814) 825-0900
Fayette	(724) 438-0111
Forest	(814) 755-3544
Franklin	(717) 263-9226
Fulton	(717) 485-4111
Greene	(724) 627-3745
Huntingdon	(814) 643-1660
Indiana	(724) 465-3880
Jefferson	(814) 849-7361
Juniata	(717) 436-7744
Lackawanna	(570) 963-6842
Lancaster	(717) 394-6851
Lawrence	(724) 654-8370
Lebanon	(717) 270-4391
Lehigh	(610) 391-9840
Luzerne	(570) 825-1701
Lycoming	(570) 433-3040
McKean	(814) 887-5613
Mercer	(724) 662-3141
Mifflin	(717) 248-9618
Monroe	(570) 421-6430
Montgomery	(610) 489-4315
Montour	(800) 851-9710
Northampton	(610) 746-1970
Northumberland	(800) 851-9710
Perry	(717) 582-5150
Philadelphia	(215) 471-2200
Pike	(570) 296-3400
Potter	(814) 274-8540
Schuylkill	(570) 622-4225
Snyder	(570) 837-4252
Somerset	(814) 445-8911
Sullivan	(570) 928-8941
Susquehanna	(570) 278-1158
Tioga	(570) 724-9120
Union	(570) 966-8194
Venango	(814) 437-7607
Warren	(814) 563-9388
Washington	(724) 228-6881
Wayne	(570) 253-5970
Westmoreland	(724) 837-1402
Wyoming	(570) 836-3196
York	(717) 840-7408

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FERTILIZER RECOMMENDATION TABLE

The recommendations in the table below are to be used only if you are growing a crop different from that given on your report form. These recommendations cannot be as specific as those on your report. Detailed recommendations for all agronomic crops can also be found on our website, www.aasl.psu.edu

To use the table, follow these steps:

1. Select the *Soil test level* column that best represents the soil nutrient levels from your report.
2. Next, select the *Crop* you intend to grow from the first column.
3. Follow the *Crop* row across the sheet until you come to the proper *Soil test level* column selected in step 1. Your fertilizer recommendation is in this block, expressed as N-P_2O_5-K_2O lbs/A.

The total amount of required plant nutrients is given. Application instructions, such as those for using a starter fertilizer, or fall versus spring application are also noted. Adjustments for expected yields are given below.

Adjustments to recommendations

EXPECTED YIELD—Adjust the recommendation in the table for different expected yield by increasing or decreasing the recommendation in the table proportionally. For example, to determine a corn grain recommendation for an expected yield of 210 bu/A, multiply the 150 bu/A recommendation in the table by 1.4 (210÷150=1.4). For the low P and low K category, the new recommendation is 210-140-170.

MANURE—It is important to consider nutrient credits from manure applied previously or to the current crop and adjust fertilizer rates accordingly. To determine how to account for nutrient inputs from manure, see the *Manure Nutrient Management* section of the Penn State Agronomy Guide (http://extension.psu.edu/agronomy-guide).

PREVIOUS LEGUME—Reduce application of N according to guidelines provided in Table 1.2.8 of the Penn State Agronomy Guide.

Crop (expected yield)	*Soil test level**								
	Low P, Low K	*Low P, Opt K*	*Low P, Hi K*	*Opt P, Low K*	*Opt P, Opt K*	*Opt P, Hi K*	*Hi P, Low K*	*Hi P, Opt K*	*Hi P, Hi K*
Corn Grain (150 bu/A)	**150-100-120**	**150-100-50**	**150-100-0**	**150-60-120**	**150-60-50**	**150-60-0**	**150-0-120**	**150-0-50**	**150-0-0**
Corn Silage (22 T/A) or **Forage Sorghum** (19 T/A)	**160-120-250**	**160-120-180**	**160-120-0**	**160-90-250**	**160-90-180**	**160-90-0**	**160-0-250**	**160-0-180**	**160-0-0**
Notes for corn grain, corn silage, forage sorhum: Use 100 to 300 lb/A of a starter fertilizer. On soils with excessive nutrient levels or for late planting on soils with optimum or higher nutrient levels, a starter fertilizer may not be necessary. For corn following a legume, reduce the N recommendation according to Table 1.2-8. For more efficient utilization, apply 50 to 90 percent of the nitrogen when the corn is 10 to 20 inches tall. When double cropping corn with rye, you can apply an additional 50 to 90 lb/A of nitrogen to the rye. For sorghum-sudangrass, apply all of the fertilizer before seeding. The N recommendation for forage sorhum would be 130 lb N/A.									
Alfalfa (5 T/A)	**0-130-280**	**0-130-250**	**0-130-0**	**0-80-280**	**0-80-250**	**0-80-0**	**0-0-280**	**0-0-250**	**0-0-0**
Clover, Trefoil, Crown-Vetch (4 T/A)	**0-120-190**	**0-120-160**	**0-120-0**	**0-60-190**	**0-60-160**	**0-60-0**	**0-0-190**	**0-0-160**	**0-0-0**
Notes: Alfalfa, clover, trefoil, crown-vetch: For establishment, especially under adverse conditions, banding 100 to 300 lb/A of a starter fertilizer may be beneficial. For no-till, use no starter nitrogen									
Cool-Season Grasses: Orchardgrass, Brome, Timothy, Reed Canary (4 T/A)	**200-110-230**	**200-110-200**	**200-110-0**	**200-60-230**	**200-60-200**	**200-60-0**	**200-0-230**	**200-0-200**	**200-0-0**
Notes: Grasses: For establishment, especially under adverse conditions, banding 100 to 300 lb/A of a starter fertilizer at planting may be beneficial. Apply 30 lb of nitrogen in late summer of the establishment year. For established stands, split the nitrogen into three applications before each cutting: spring, early summer (with P2O5 and K2O), and early fall. Base the amount applied at each application time on the expected yield for the next cutting.									
Soybean (50 bu/A)	**0-90-130**	**0-90-70**	**0-90-0**	**0-50-130**	**0-50-70**	**0-50-0**	**0-0-130**	**0-0-70**	**0-0-0**
Notes: Soybeans—Do not use a starter fertilizer with soybeans. When double cropping, add the P and K to the barley.									
Wheat** (60 bu/A) or **Rye** (40 bu/A)	**60-90-120**	**60-90-110**	**60-90-0**	**60-60-120**	**60-60-110**	**60-60-0**	**60-0-120**	**60-0-110**	**60-0-0**
Barley** (80 bu/A)	**60-90-150**	**60-90-120**	**60-90-0**	**60-50-150**	**60-60-120**	**60-50-0**	**60-0-150**	**60-0-120**	**60-0-0**
Notes: Wheat, rye, barley—At planting time, 100 to 300 lb/A of a starter fertilizer may be applied, especially on low-testing soils or under adverse growing conditions. Do not apply more than 15 lb of nitrogen or 30 lb of nitrogen + potash through the drill. If plants didn't tiller well in fall, apply the N by mid-March; otherwise, apply the N any time up to growth stage 5.									
Oats, Grain Sorghum** (80 bu/A)	**60-90-140**	**60-90-120**	**60-90-0**	**60-70-140**	**60-70-120**	**60-70-0**	**60-0-140**	**60-0-120**	**60-0-0**
Notes: Oats or grain sorghum—Apply 100 to 300 lb/A of a starter fertilizer. Do not apply more than 20 lb of nitrogen or 45 lb of nitrogen + potash through the drill. Apply the N with the other fertilizer before planting.									

*Mehlich 3 soil test levels used to calculate recommendations in this table are as follows:

Test level	*P (ppm)*	K(ppm)
Low	15	50
Optimum	30	100
High	60	200

**Because of serious potential for lodging, it is very important to take the full credit for manure and residual N from previous manure applications for small grain crops.

For more information consult the current Penn State Agronomy Guide (http://extension.psu.edu/agronomy-guide) or contact your local Penn State Cooperative Extension office.

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University Park PA 16802

LIMING MATERIAL CONVERSIONS TABLE FOR FIELD CROPS

The limestone recommendation on your soil test report is based on the use of a liming material equivalent in neutralizing power to 100% calcium carbonate limestone. The recommendations are in pounds of calcium carbonate equivalent (CCE) per acre. Use of a liming material that is not equivalent in neutralizing power to pure calcium carbonate limestone (100% CCE) must be adjusted so that you actually apply enough liming material to neutralize the acidity in your soil. All agricultural liming materials sold in Pennsylvania are required by law to be labeled with their CCE. Using the CCE of your liming material, the amount required to supply the recommended amount of neutralizing power (CCE) for your soil may be calculated as shown below or read directly from the table.

It is also very important that a liming material be ground fine enough to be effective. Pennsylvania aglime regulations classify agricultural liming materials into the following three groups based on fineness:

1. Fine-sized:
   95% passing 20-mesh screen
   60% passing 60-mesh screen
   50% passing 100-mesh screen
2. Medium-sized:
   90% passing 20-mesh screen
   50% passing 60-mesh screen
   30% passing 100-mesh screen
3. Course-sized: all liming materials that fail to meet one of the above minimums for fineness.

A material meeting the standard for a fine-sized liming material is considered adequate for meeting soil test recommendations in most situations. It is assumed that fine-sized liming materials will react rapidly enough to effect a change in soil pH in the year of application and will typically remain effective for about three years.

The medium- and coarse-sized materials will be slower to react and thus less effective in changing soil pH in the year of application and will take longer to completely react. The actual fineness must be printed on the liming material label.

Calculation of Actual Lime Requirement:

$$\textit{Actual Liming Material Required} = \frac{\textit{Soil test limestone recommendation}}{\textit{CCE of liming material to be used}} \times 100$$

Example:
Soil Test Recommendation
Limestone—Apply 4,000 lbs. of calcium carbonate equivalent per acre.

Liming Material Label:
Calcium Carbonate Equivalent (CCE) = 80%

$$\textit{Actual Liming Material Required} = \frac{4000}{80} \times 100 = 5000\ \textit{lbs liming material per acre}$$

The calculations and table for adjusting your recommendations for the CCE of your liming material assume that the material meets the minimum fineness standards for fine-sized limestone. In selecting a liming material, there is generally little advantage in using material much finer than the minimum standards for fine-sized material. In emergency situations where a very rapid change in soil pH is required, paying extra for a finer material may be warranted. However, planning ahead by using a less expensive material and allowing it time to react will generally give better and more economical results.

Directions for using the conversion table:
Find your soil test limestone recommendation in the left hand column and then read across the table on that line until you come to the column headed by the % CCE nearest to that of your liming material. The number at that point is the pounds of liming material required to meet the limestone recommendation on your soil test.

Because there generally is little advantage to applying more than 8,000 pounds of CCE per acre in any one application to agricultural land, this table is divided into three sections suggesting how the total liming material required can be split over time for more efficient use. Separate the applications by 6 months or at least by tillage operations. (See the right hand column).

Pounds per acre of calcium carbonate equivalent recommendation on your soil test	Percent Calcium Carbonate Equivalent (CCE) of Your Liming Material								Divide total into the following number of applications
	70	75	80	85	90	95	100	105	
1000	1400	1300	1200	1200	1100	1100	1000	1000	
2000	2900	2700	2500	2400	2200	2100	2000	1900	
3000	4300	4000	3700	3500	3300	3200	3000	2900	
4000	5700	5300	5000	4700	4400	4200	4000	3800	1
5000	7100	6700	6200	5900	5600	5300	5000	4800	
6000	8600	8000	7500	7100	6700	6300	6000	5700	
7000	10000	9300	8700	8200	7800	7400	7000	6700	
8000	11400	10700	10000	9400	8900	8400	8000	7600	
9000	12900	12000	11200	10600	10000	9500	9000	8600	
10000	14300	13300	12500	11800	11100	10500	10000	9500	
11000	15700	14700	13700	12900	12200	11600	11000	10500	
12000	17100	16000	15000	14100	13300	12600	12000	11400	2
13000	18600	17300	16200	15300	14400	13200	13000	12400	
14000	20000	18700	17500	16500	15600	14700	14000	13300	
15000	21400	20000	18700	17600	16700	15800	15000	14300	
16000	22900	21300	20000	18800	17800	16800	16000	15200	
17000	24300	22700	21200	20000	18900	17900	17000	16200	
18000	25700	24000	22500	21200	20000	18900	18000	17100	3
19000	27100	25300	23700	22400	21100	20000	19000	18100	
20000	28600	26700	25000	23500	22200	21100	20000	19000	

To convert to 1000 sq. ft. rate, divide the recommended value in the table by 43.5.

For more information consult the current Penn State Agronomy Guide (**http://extension.psu.edu/agronomy-guide**) or contact your local Penn State Cooperative Extension office**.**

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Lime Recommendations

Limestone recommendations are made based on the pH goal and the amount of exchangeable acidity measured by the Mehlich Buffer soil test. The pH goal varies with the crop.

The pH goal is given on the crop sheet for each crop in this handbook. If the soil pH is already at or above the pH goal, no limestone is recommended. If the soil pH is below the pH goal for the crop, look in the left hand column and find the acidity as reported on the bottom of the soil test report then go across to the appropriate "pH Goal" column to determine the limestone recommendation. The recommendations are given as pounds of calcium carbonate equivalent (CCE) per acre.

If the limestone to be used is significantly different from 100% CCE, the recommendation must be adjusted for this difference. ST-2 "Liming Material Conversion Table" explains how to make this adjustment.

Table 1. Lime Recommendation (lb CCE/A)

Acidity (meq/100 g)	pH Goal 7.0	pH Goal 6.5	pH Goal 6.0	pH Goal 5.5	pH Goal 5.0
2.0	2,000	2,000	2,000	2,000	2,000
2.6	3,000	2,000	2,000	2,000	2,000
3.3	3,000	2,000	2,000	2,000	2,000
3.9	4,000	3,000	2,000	2,000	2,000
4.6	5,000	3,000	2,000	2,000	2,000
5.2	5,000	4,000	2,000	2,000	2,000
5.8	6,000	4,000	2,000	2,000	2,000
6.5	7,000	5,000	3,000	2,000	2,000
7.1	7,000	5,000	4,000	2,000	2,000
7.8	8,000	6,000	4,000	2,000	2,000
8.4	8,000	6,000	5,000	3,000	2,000
9.0	9,000	7,000	5,000	3,000	3,000
9.7	10,000	8,000	6,000	4,000	3,000
10.3	10,000	8,000	6,000	4,000	3,000
11.0	11,000	9,000	7,000	4,000	3,000
11.6	12,000	9,000	7,000	5,000	4,000
12.3	12,000	10,000	8,000	5,000	4,000
12.9	13,000	11,000	8,000	6,000	4,000
13.5	14,000	11,000	9,000	6,000	5,000
14.2	14,000	12,000	9,000	6,000	5,000
14.8	15,000	12,000	10,000	7,000	6,000
15.5	16,000	13,000	10,000	7,000	6,000
16.1	16,000	14,000	11,000	8,000	6,000
16.8	17,000	14,000	11,000	8,000	6,000
17.4	17,000	15,000	12,000	8,000	7,000
18.0	18,000	15,000	12,000	9,000	7,000
18.7	19,000	16,000	13,000	9,000	7,000
19.3	19,000	17,000	13,000	10,000	8,000
20.0	20,000	17,000	14,000	10,000	8,000
20.6	21,000	18,000	14,000	10,000	8,000

Table 1. Lime Recommendation (lb CCE/A)					
Acidity (meq/100 g)	**pH Goal 7.0**	**pH Goal 6.5**	**pH Goal 6.0**	**pH Goal 5.5**	**pH Goal 5.0**
21.2	21,000	18,000	15,000	11,000	9,000
21.9	22,000	20,000	15,000	11,000	9,000
22.5	23,000	20,000	16,000	12,000	9,000
23.2	23,000	20,000	16,000	12,000	10,000
23.8	24,000	21,000	17,000	12,000	10,000
24.5	25,000	21,000	17,000	13,000	10,000
25.1	25,000	22,000	18,000	13,000	11,000
25.7	26,000	23,000	18,000	14,000	11,000

Magnesium Recommendations

The optimum magnesium (Mg) level varies with the crop. The optimum Mg is given on the crop sheet for each crop in this handbook. Look in the left hand column and find the soil test Mg level in ppm as reported on the bar chart in the middle of the soil test report then go across to the appropriate "Optimum Mg" column for that crop to determine the amount of Mg recommended.

Because of potential animal health problems due to an imbalance between potassium (K) and Mg, a higher Mg recommendation is made for some crops when the soil K level is greater than 200 ppm. The need for this adjustment is noted on the appropriate crop sheets in this manual. For crops where this adjustment applies, when the K soil test level as reported on the bar chart in the middle of the soil test report is above 200 ppm, then use the far right hand column in this table to determine the Mg recommendation.

Since the most common source of Mg is magnesium containing limestone, the Mg recommendation is also given on the soil test report as the percent Mg required in the recommended limestone to meet the Mg requirement. To calculate this percentage divide the Mg recommendation determined from this table by the limestone recommendation determined from table 1 and multiply by 100.

Recommendations are given as elemental Mg because limestone is required by PA law to be labeled with the elemental Mg analysis. You can convert the Mg recommendation to MgO by multiplying the Mg recommendation times 1.6.

Table 2. Magnesium Recommendation (lb Mg/A)

Soil Test Mg Level (ppm)	Optimum Mg Level (ppm)				Mg recommendation for grasses when soil test K is greater than 200 ppm
	50	**60**	**100**	**120**	
0	100	125	200	250	500
5	95	110	190	240	490
10	90	105	180	230	480
15	85	95	170	220	470
20	80	80	155	205	460
25	75	75	150	200	450
30	70	60	140	190	440
35	60	50	125	175	430
40	60	45	120	170	425
45	50	60	105	155	420
50	0	20	95	140	405
55	0	15	90	140	400
60	0	0	75	125	390
65	0	0	65	105	380
70	0	0	55	105	370
75	0	0	45	95	360
80	0	0	30	80	350
85	0	0	25	75	340

Table 2. Magnesium Recommendation (lb Mg/A)

Soil Test Mg Level (ppm)	Optimum Mg Level (ppm)				Mg recommendation for grasses when soil test K is greater than 200 ppm
	50	60	100	120	
90	0	0	15	60	330
95	0	0	0	50	320
100	0	0	0	45	315
105	0	0	0	30	300
110	0	0	0	20	295
115	0	0	0	15	285
120	0	0	0	0	275
125	0	0	0	0	265
130	0	0	0	0	255
135	0	0	0	0	245
140	0	0	0	0	240
145	0	0	0	0	230
150	0	0	0	0	220
155	0	0	0	0	210
160	0	0	0	0	200
165	0	0	0	0	190
170	0	0	0	0	180
175	0	0	0	0	170
180	0	0	0	0	160
185	0	0	0	0	155
190	0	0	0	0	145
195	0	0	0	0	135
200	0	0	0	0	125
205	0	0	0	0	115
210	0	0	0	0	105
215	0	0	0	0	95
220	0	0	0	0	90
225	0	0	0	0	80
230	0	0	0	0	70
235	0	0	0	0	60
240	0	0	0	0	50
245	0	0	0	0	40
250	0	0	0	0	30
255	0	0	0	0	20
260	0	0	0	0	15
265	0	0	0	0	5
270	0	0	0	0	0

Crop & Crop Code List

Alfalfa Group
1001 Established Alfalfa
1020 Planting Alfalfa
1021 Planting Alfalfa-Grass
1022 Planting Alfalfa-Trefoil
1023 Planting Alfalfa (no-till)
1032 Planting Alfalfa in Wheat
1035 Planting Alfalfa in Oats
1072 Established Alfalfa-Grass

Legume Group
1005 Established Trefoil
1006 Established Trefoil-Grass
1011 Established Crownvetch
1014 Established Ladino Clover
1015 Established Red Clover
1024 Planting Trefoil
1025 Planting Trefoil-Grass
1026 Planting Trefoil (no-till)
1027 Planting Red Clover
1028 Planting Red Clover (no-till)
1029 Planting Ladino Clover
1030 Planting Crownvetch
1031 Planting Crownvetch (no-till)
1033 Planting Trefoil in Wheat
1034 Planting Red Clover in Wheat
1036 Planting Trefoil in Oats
1037 Planting Red Clover in Oats
1073 Planting Red Clover-Grass
1074 Established Red Clover-Grass

Corn, Sorghum and Millet Group
1042 Corn for Grain
1043 Corn for Silage
1044 Corn for Grain (no-till)
1045 Corn for Silage (no-till)
1046 Small Grain Silage/Corn Grain Double Crop
1047 Small Grain Silage/Corn Silage Double Crop
1048 Millet for Grain
1049 Millet for Forage
1057 Sorghum for Grain
1063 Sorghum for Forage

Grain Group
1012 Canola
1013 Spelt
1050 Barley/Soybean Double Crop
1051 Small Grain Silage
1058 Wheat
1059 Oats
1060 Barley, Winter
1061 Rye
1064 Soybeans
1068 Barley, Spring
1069 Buckwheat
1071 Sunflowers

Grass Group
1010 Established Bluegrass
1016 Established Bromegrass
1017 Established Orchardgrass
1018 Established Timothy
1019 Established Mixed Grasses
1038 Planting Bluegrass
1039 Planting Bromegrass
1040 Planting Orchardgrass
1041 Planting Timothy
1062 Planting Mixed Grasses
1066 Sudangrass
1067 Sorghum-Sudangrass
1075 Planting Tall Fescue
1076 Established Tall Fescue
1077 Planting Warm Season Grasses
1078 Established Warm Season Grasses
1080 Renovating Pasture (with legume)
1081 Established Pasture (without legume)
1082 Established Pasture (with legume)
1083 Planting Pasture (without legume)
1084 Planting Pasture (with legume)
1085 Planting Reed Canarygrass
1086 Established Reed Canarygrass

Miscellaneous
1002 Hemp for Seed
1003 Hemp for Fiber
1052 Hops
1053 CRP Warm Season Grass
1054 CRP Cool Season Grass
1055 Horticultural Cover Crop
1056 Wildlife Food Plot
1065 Tobacco
1079 Brassicas
1800 Disturbed Lands

ESTABLISHED ALFALFA **Crop Code:** 1001

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.
Apply 2 lbs boron per acre with the fertilizer.

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
4	**5**	**6**	**7**	**8**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	4	**5**	**6**	**7**	**8**
0	170	185	200	215	230
5	150	170	180	200	210
10	130	150	160	180	190
15	120	130	150	160	180
20	100	110	130	140	160
25	80	90	110	120	140
30	60	80	90	110	120
35	50	60	70	80	90
40	30	40	50	50	60
45	20	20	20	30	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED ALFALFA **Crop Code:** 1001

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	4	5	6	7	8
0	250	300	350	400	450
10	250	300	350	400	450
20	240	290	340	390	440
30	240	290	340	390	440
40	230	280	330	380	430
50	230	280	330	380	430
60	220	270	320	370	420
70	220	270	320	370	420
80	210	260	310	360	410
90	210	260	310	360	410
100	200	250	300	350	400
110	180	230	270	320	360
120	160	200	240	280	320
130	140	180	210	250	280
140	120	150	180	210	240
150	100	130	150	180	200
160	80	100	120	140	160
170	60	80	90	110	120
180	40	50	60	70	80
190	20	30	30	40	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

HEMP, FOR SEED PRODUCTION **Crop Code:** 1002

Standard Message:

Apply up to 50 lbs of N at planting and the remainder about 30 days later. You must account for residual N from previous legumes in the rotation or manure applications, if any.
We have limited experience with hemp production in our region. These recommendations are based on the most current information available. As we learn more about nutrient needs of hemp, recommendations will be revised as-needed.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (lbs/A)				
1000	**1250**	**1500**	**1750**	**2000**
150	150	150	150	150

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (lbs/A)				
	1000	**1250**	**1500**	**1750**	**2000**
0	190	190	190	190	190
5	160	160	160	160	160
10	130	130	140	140	140
15	100	110	110	110	110
20	80	80	80	90	90
25	50	50	60	60	60
30	20	20	30	30	40
35	10	20	20	30	30
40	10	10	10	20	20
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than or equal to 300 ppm:
Very high P may lead to crop production problems and may result in P loss to the environment.

HEMP, FOR SEED PRODUCTION **Crop Code:** 1002

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (lbs/A) 1000	1250	1500	1750	2000
0	200	200	200	200	200
10	180	180	180	180	180
20	160	160	160	160	160
30	140	140	140	150	150
40	120	130	130	130	130
50	110	110	110	110	110
60	90	90	90	90	90
70	70	70	70	70	70
80	50	50	50	50	60
90	30	30	30	40	40
100	10	10	20	20	20
110	10	10	10	10	10
120	10	10	10	10	10
130	0	10	10	10	10
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K can lead to imbalances in forage crops grown later in the rotation which can cause serious health problems in animals (See Back)

HEMP, FOR FIBER PRODUCTION **Crop Code:** 1003

Standard Message:

Expected yield and nutrient recommendations are for field retted stalks.
Apply up to 50 lbs of N at planting and the remainder about 30 days later. You must account for residual N from previous legumes in the rotation or manure applications, if any.
We have limited experience with hemp production in our region. These recommendations are based on the most current information available. As we learn more about nutrient needs of hemp, recommendations will be revised as-needed.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
6	**7**	**8**	**9**	**10**
80 to 120	80 to 120	80 to 120	80 to 120	80 to 120

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	6	**7**	**8**	**9**	**10**
0	190	190	190	190	190
5	160	160	160	160	160
10	130	130	130	130	130
15	100	100	110	110	110
20	70	80	80	80	80
25	50	50	50	50	50
30	20	20	20	20	30
35	10	10	20	20	20
40	10	10	10	10	10
45	0	0	10	10	10
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than or equal to 300 ppm:
Very high P may lead to crop production problems and may result in P loss to the environment.

HEMP, FOR FIBER PRODUCTION **Crop Code:** 1003

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (T/A) 6	7	8	9	10
0	200	200	200	200	200
10	180	180	180	180	180
20	160	160	160	160	160
30	140	150	150	150	150
40	130	130	130	130	130
50	110	110	110	110	110
60	90	90	90	90	100
70	70	70	70	80	80
80	50	50	60	60	60
90	30	40	40	40	40
100	20	20	20	20	30
110	10	10	20	20	20
120	10	10	10	10	10
130	10	10	10	10	10
140	0	0	0	0	10
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K can lead to imbalances in forage crops grown later in the rotation which can cause serious health problems in animals (See Back)

ESTABLISHED TREFOIL **Crop Code:** 1005

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	170	185	200	215	230
5	150	160	180	190	210
10	120	140	150	170	180
15	100	120	130	150	160
20	80	90	110	120	140
25	50	70	80	100	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED TREFOIL **Crop Code:** 1005

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	120	160	200	240	280
10	120	160	200	240	280
20	110	150	190	230	270
30	110	150	190	230	270
40	100	140	180	220	260
50	100	140	180	220	260
60	100	140	180	220	260
70	90	130	170	210	250
80	90	130	170	210	250
90	80	120	160	200	240
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED TREFOIL-GRASS **Crop Code:** 1006

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	170	185	200	215	230
5	150	160	180	190	210
10	120	140	150	170	180
15	100	120	130	150	160
20	80	90	110	120	140
25	50	70	80	100	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED TREFOIL-GRASS **Crop Code:** 1006

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	120	160	200	240	280
10	120	160	200	240	280
20	110	150	190	230	270
30	110	150	190	230	270
40	100	140	180	220	260
50	100	140	180	220	260
60	100	140	180	220	260
70	90	130	170	210	250
80	90	130	170	210	250
90	80	120	160	200	240
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED BLUEGRASS **Crop Code:** 1010

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each harvest, cutting or grazing. As a guide, apply 40 lb N/A per ton of expected yield for each harvest. Any recommended P and K can be applied after first harvest or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1**	**2**	**3**	**4**
40	40	80	120	160

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1**	**2**	**3**	**4**
0	120	120	130	140	150
5	100	100	110	120	130
10	80	80	90	100	110
15	70	70	80	90	100
20	50	50	60	70	80
25	30	30	40	50	60
30	10	10	20	30	40
35	10	10	20	20	30
40	10	10	10	20	20
45	0	0	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED BLUEGRASS **Crop Code:** 1010

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	1	2	3	4
0	110	110	140	170	200
10	100	100	130	160	190
20	90	90	120	150	180
30	90	90	120	150	180
40	80	80	110	140	170
50	70	70	100	130	160
60	60	60	90	120	150
70	50	50	80	110	140
80	50	50	80	110	140
90	40	40	70	100	130
100	30	30	60	90	120
110	30	30	50	80	110
120	20	20	50	70	100
130	20	20	40	60	80
140	20	20	40	50	70
150	20	20	30	50	60
160	10	10	20	40	50
170	10	10	20	30	40
180	10	10	10	20	20
190	0	0	10	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED CROWNVETCH **Crop Code:** 1011

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2.5	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2.5	**2.5**	**3**	**3.5**	**4**
0	185	185	190	195	200
5	160	160	160	170	170
10	130	130	140	140	150
15	110	110	110	120	120
20	80	80	80	90	90
25	50	50	60	60	70
30	30	30	30	40	40
35	20	20	20	30	30
40	10	10	20	20	20
45	10	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED CROWNVETCH **Crop Code:** 1011

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2.5	2.5	3	3.5	4
0	190	190	210	230	250
10	180	180	200	220	240
20	170	170	190	210	230
30	160	160	180	200	220
40	150	150	170	190	210
50	150	150	170	190	210
60	140	140	160	180	200
70	130	130	150	170	190
80	120	120	140	160	180
90	110	110	130	150	170
100	100	100	120	140	160
110	90	90	110	130	140
120	80	80	100	110	130
130	70	70	80	100	110
140	60	60	70	80	100
150	50	50	60	70	80
160	40	40	50	60	60
170	30	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

CANOLA Crop Code: 1012

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
30	**40**	**50**	**60**	**80**
60	80	100	120	160

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**80**
0	110	120	130	140	150
5	100	100	110	120	130
10	80	90	100	110	120
15	70	70	80	90	100
20	50	60	70	70	90
25	40	40	50	60	70
30	20	30	40	40	60
35	20	20	30	30	40
40	10	10	20	20	30
45	10	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.F

CANOLA Crop Code: 1012

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**80**
0	100	110	120	130	140
10	90	100	110	120	130
20	80	90	100	110	120
30	70	80	90	100	110
40	70	70	80	90	100
50	60	70	70	80	90
60	50	60	60	70	80
70	40	50	60	60	70
80	30	40	50	50	60
90	20	30	40	40	50
100	20	20	30	30	40
110	10	20	20	30	40
120	10	10	20	20	30
130	10	10	10	10	20
140	0	0	10	10	10
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

SPELT Crop Code: 1013

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
70	**90**	**110**	**130**	**150**
35	45	55	65	75

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	70	**90**	**110**	**130**	**150**
0	60	70	80	90	100
5	60	70	80	90	100
10	50	60	70	80	90
15	50	60	70	80	90
20	40	50	60	70	80
25	40	50	60	70	80
30	40	50	60	70	80
35	30	30	40	50	60
40	20	20	30	30	40
45	10	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

SPELT Crop Code: 1013

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	70	**90**	**110**	**130**	**150**
0	170	190	210	230	250
10	160	180	200	220	240
20	150	170	190	210	230
30	140	160	180	200	220
40	130	150	170	180	200
50	120	140	150	170	190
60	110	120	140	160	180
70	100	110	130	150	170
80	80	100	120	140	160
90	70	90	110	130	150
100	60	80	100	120	140
110	50	60	80	90	110
120	40	50	60	70	80
130	30	30	40	50	50
140	10	20	20	20	30
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

ESTABLISHED LADINO CLOVER **Crop Code:** 1014

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	185	193	200	208	215
5	160	170	180	180	190
10	140	150	150	160	170
15	120	120	130	140	150
20	90	100	110	110	120
25	70	80	80	90	100
30	50	50	60	70	80
35	30	40	50	50	60
40	20	30	30	30	40
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED LADINO CLOVER **Crop Code:** 1014

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	160	180	200	220	240
10	160	180	200	220	240
20	150	170	190	210	230
30	150	170	190	210	230
40	140	160	180	200	220
50	140	160	180	200	220
60	140	160	180	200	220
70	130	150	170	190	210
80	130	150	170	190	210
90	120	140	160	180	200
100	120	140	160	180	200
110	110	130	140	160	180
120	100	110	130	140	160
130	80	100	110	130	140
140	70	80	100	110	120
150	60	70	80	90	100
160	50	60	60	70	80
170	40	40	50	50	60
180	20	30	30	40	40
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED RED CLOVER **Crop Code:** 1015

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	170	185	200	215	230
5	150	160	180	190	210
10	120	140	150	170	180
15	100	120	130	150	160
20	80	90	110	120	140
25	50	70	80	100	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED RED CLOVER **Crop Code:** 1015

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	120	160	200	240	280
10	120	160	200	240	280
20	110	150	190	230	270
30	110	150	190	230	270
40	100	140	180	220	260
50	100	140	180	220	260
60	100	140	180	220	260
70	90	130	170	210	250
80	90	130	170	210	250
90	80	120	160	200	240
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED BROMEGRASS **Crop Code:** 1016

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED BROMEGRASS **Crop Code:** 1016

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

Revised: 10/10/2002

ESTABLISHED ORCHARDGRASS **Crop Code:** 1017

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED ORCHARDGRASS **Crop Code:** 1017

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED TIMOTHY **Crop Code:** 1018

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED TIMOTHY **Crop Code:** 1018

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED MIXED GRASSES **Crop Code:** 1019

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED MIXED GRASSES **Crop Code:** 1019

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA **Crop Code:** 1020

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA **Crop Code:** 1020

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA-GRASS **Crop Code:** 1021

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA-GRASS **Crop Code:** 1021

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA-TREFOIL **Crop Code:** 1022

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA-TREFOIL **Crop Code:** 1022

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA (NO TILL) **Crop Code:** 1023

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA (NO TILL) **Crop Code:** 1023

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TREFOIL **Crop Code:** 1024

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1.5**	**2**	**2.5**	**3**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	170	180	185	190	200
5	140	150	160	170	170
10	120	130	130	140	150
15	90	100	110	120	120
20	70	70	80	90	100
25	40	50	60	60	70
30	20	20	30	40	50
35	10	20	20	30	30
40	10	10	20	20	20
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING TREFOIL **Crop Code:** 1024

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	120	140	160	180	200
10	110	130	150	170	190
20	100	120	140	160	180
30	100	120	140	160	180
40	90	110	130	150	170
50	80	100	120	140	160
60	70	90	110	130	150
70	60	80	100	120	140
80	60	80	100	120	140
90	50	70	90	110	130
100	40	60	80	100	120
110	40	50	70	90	110
120	30	50	60	80	100
130	30	40	60	70	80
140	20	40	50	60	70
150	20	30	40	50	60
160	20	20	30	40	50
170	10	20	20	30	40
180	10	10	20	20	20
190	0	10	10	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TREFOIL-GRASS **Crop Code:** 1025

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	180	185	195	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING TREFOIL-GRASS **Crop Code:** 1025

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TREFOIL (NO-TILL) **Crop Code:** 1026

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1.5**	**2**	**2.5**	**3**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	170	180	185	190	200
5	140	150	160	170	170
10	120	130	130	140	150
15	90	100	110	120	120
20	70	70	80	90	100
25	40	50	60	60	70
30	20	20	30	40	50
35	10	20	20	30	30
40	10	10	20	20	20
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING TREFOIL (NO-TILL) **Crop Code:** 1026

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	120	140	160	180	200
10	110	130	150	170	190
20	100	120	140	160	180
30	100	120	140	160	180
40	90	110	130	150	170
50	80	100	120	140	160
60	70	90	110	130	150
70	60	80	100	120	140
80	60	80	100	120	140
90	50	70	90	110	130
100	40	60	80	100	120
110	40	50	70	90	110
120	30	50	60	80	100
130	30	40	60	70	80
140	20	40	50	60	70
150	20	30	40	50	60
160	20	20	30	40	50
170	10	20	20	30	40
180	10	10	20	20	20
190	0	10	10	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING RED CLOVER **Crop Code:** 1027

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING RED CLOVER **Crop Code:** 1027

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING RED CLOVER (NO-TILL) **Crop Code:** 1028

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING RED CLOVER (NO-TILL) **Crop Code:** 1028

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING LADINO CLOVER **Crop Code:** 1029

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING LADINO CLOVER **Crop Code:** 1029

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING CROWNVETCH **Crop Code:** 1030

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2.5	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2.5	**2.5**	**3**	**3.5**	**4**
0	185	185	190	195	200
5	160	160	160	170	170
10	130	130	140	140	150
15	110	110	110	120	120
20	80	80	80	90	90
25	50	50	60	60	70
30	30	30	30	40	40
35	20	20	20	30	30
40	10	10	20	20	20
45	10	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING CROWNVETCH **Crop Code:** 1030

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2.5	2.5	3	3.5	4
0	190	190	210	230	250
10	180	180	200	220	240
20	170	170	190	210	230
30	160	160	180	200	220
40	150	150	170	190	210
50	150	150	170	190	210
60	140	140	160	180	200
70	130	130	150	170	190
80	120	120	140	160	180
90	110	110	130	150	170
100	100	100	120	140	160
110	90	90	110	130	140
120	80	80	100	110	130
130	70	70	80	100	110
140	60	60	70	80	100
150	50	50	60	70	80
160	40	40	50	60	60
170	30	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING CROWNVETCH (NO-TILL) **Crop Code:** 1031

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2.5	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2.5	**2.5**	**3**	**3.5**	**4**
0	185	185	190	195	200
5	160	160	160	170	170
10	130	130	140	140	150
15	110	110	110	120	120
20	80	80	80	90	90
25	50	50	60	60	70
30	30	30	30	40	40
35	20	20	20	30	30
40	10	10	20	20	20
45	10	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING CROWNVETCH (NO-TILL) **Crop Code:** 1031

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2.5	2.5	3	3.5	4
0	190	190	210	230	250
10	180	180	200	220	240
20	170	170	190	210	230
30	160	160	180	200	220
40	150	150	170	190	210
50	150	150	170	190	210
60	140	140	160	180	200
70	130	130	150	170	190
80	120	120	140	160	180
90	110	110	130	150	170
100	100	100	120	140	160
110	90	90	110	130	140
120	80	80	100	110	130
130	70	70	80	100	110
140	60	60	70	80	100
150	50	50	60	70	80
160	40	40	50	60	60
170	30	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA IN WHEAT **Crop Code:** 1032

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA IN WHEAT **Crop Code:** 1032

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TREFOIL IN WHEAT **Crop Code:** 1033

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1.5**	**2**	**2.5**	**3**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	170	180	185	190	200
5	140	150	160	170	170
10	120	130	130	140	150
15	90	100	110	120	120
20	70	70	80	90	100
25	40	50	60	60	70
30	20	20	30	40	50
35	10	20	20	30	30
40	10	10	20	20	20
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING TREFOIL IN WHEAT **Crop Code:** 1033

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	120	140	160	180	200
10	110	130	150	170	190
20	100	120	140	160	180
30	100	120	140	160	180
40	90	110	130	150	170
50	80	100	120	140	160
60	70	90	110	130	150
70	60	80	100	120	140
80	60	80	100	120	140
90	50	70	90	110	130
100	40	60	80	100	120
110	40	50	70	90	110
120	30	50	60	80	100
130	30	40	60	70	80
140	20	40	50	60	70
150	20	30	40	50	60
160	20	20	30	40	50
170	10	20	20	30	40
180	10	10	20	20	20
190	0	10	10	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING RED CLOVER IN WHEAT **Crop Code:** 1034

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING RED CLOVER IN WHEAT **Crop Code:** 1034

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ALFALFA IN OATS **Crop Code:** 1035

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	140	155	170	185	200
5	120	140	150	170	180
10	100	120	130	150	160
15	90	100	120	130	150
20	70	80	100	110	130
25	50	60	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING ALFALFA IN OATS **Crop Code:** 1035

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	150	200	250	300	350
10	150	200	250	300	350
20	140	190	240	290	340
30	140	190	240	290	340
40	130	180	230	280	330
50	130	180	230	280	330
60	120	170	220	270	320
70	120	170	220	270	320
80	110	160	210	260	310
90	110	160	210	260	310
100	100	150	200	250	300
110	90	140	180	230	270
120	80	120	160	200	240
130	70	110	140	180	210
140	60	90	120	150	180
150	50	80	100	130	150
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TREFOIL IN OATS **Crop Code:** 1036

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1.5**	**2**	**2.5**	**3**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	170	180	185	190	200
5	140	150	160	170	170
10	120	130	130	140	150
15	90	100	110	120	120
20	70	70	80	90	100
25	40	50	60	60	70
30	20	20	30	40	50
35	10	20	20	30	30
40	10	10	20	20	20
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING TREFOIL IN OATS **Crop Code:** 1036

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**1.5**	**2**	**2.5**	**3**
0	120	140	160	180	200
10	110	130	150	170	190
20	100	120	140	160	180
30	100	120	140	160	180
40	90	110	130	150	170
50	80	100	120	140	160
60	70	90	110	130	150
70	60	80	100	120	140
80	60	80	100	120	140
90	50	70	90	110	130
100	40	60	80	100	120
110	40	50	70	90	110
120	30	50	60	80	100
130	30	40	60	70	80
140	20	40	50	60	70
150	20	30	40	50	60
160	20	20	30	40	50
170	10	20	20	30	40
180	10	10	20	20	20
190	0	10	10	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING RED CLOVER IN OATS **Crop Code:** 1037

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING RED CLOVER IN OATS **Crop Code:** 1037

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING BLUEGRASS **Crop Code:** 1038

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 40 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1**	**1.5**	**2**	**2**
40	40	60	80	80

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1**	**1.5**	**2**	**2**
0	120	120	125	130	130
5	100	100	110	110	110
10	80	80	90	90	90
15	70	70	70	80	80
20	50	50	50	60	60
25	30	30	30	40	40
30	10	10	20	20	20
35	10	10	10	20	20
40	10	10	10	10	10
45	0	0	0	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING BLUEGRASS **Crop Code:** 1038

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**1**	**1.5**	**2**	**2**
0	120	120	130	140	140
10	110	110	120	130	130
20	100	100	110	120	120
30	90	90	100	120	120
40	80	80	100	110	110
50	80	80	90	100	100
60	70	70	80	90	90
70	60	60	70	80	80
80	50	50	60	80	80
90	40	40	50	70	70
100	30	30	50	60	60
110	30	30	40	50	50
120	20	20	40	50	50
130	20	20	30	40	40
140	20	20	30	40	40
150	20	20	20	30	30
160	10	10	20	20	20
170	10	10	10	20	20
180	10	10	10	10	10
190	0	0	0	10	10
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING BROMEGRASS **Crop Code:** 1039

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

PLANTING BROMEGRASS **Crop Code:** 1039

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A) 1	2	3	4	5
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING ORCHARDGRASS **Crop Code:** 1040

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

PLANTING ORCHARDGRASS **Crop Code:** 1040

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A) 1	2	3	4	5
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TIMOTHY **Crop Code:** 1041

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

PLANTING TIMOTHY **Crop Code:** 1041

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A) 1	2	3	4	5
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

CORN FOR GRAIN **Crop Code:** 1042

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
110	**150**	**190**	**230**	**270**
110	150	190	230	270

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	110	**150**	**190**	**230**	**270**
0	110	130	150	170	190
5	100	120	140	160	180
10	90	110	130	140	160
15	80	100	110	130	150
20	70	80	100	120	140
25	60	70	90	110	120
30	40	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is less than 50 ppm:
Use a starter fertilizer.

When soil test P is greater than or equal to 50 ppm P and less than 300 ppm P:
A starter fertilizer is probably not necessary.

When soil test P is greater than or equal to 300 ppm P:
A starter fertilizer is probably not necessary.
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

CORN FOR GRAIN **Crop Code:** 1042

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	110	**150**	**190**	**230**	**270**
0	180	190	200	210	220
10	170	180	190	200	210
20	150	160	170	180	190
30	140	150	160	170	180
40	120	130	140	150	160
50	110	120	130	140	150
60	90	100	110	130	140
70	80	90	100	110	120
80	60	70	90	100	110
90	50	60	70	80	90
100	30	50	60	70	80
110	30	40	50	60	60
120	20	30	30	40	50
130	10	20	20	30	30
140	10	10	10	10	20
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

CORN FOR SILAGE **Crop Code:** 1043

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
17	**22**	**27**	**33**	**38**
120	160	200	240	280

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	17	**22**	**27**	**33**	**38**
0	140	160	180	200	220
5	130	150	170	190	210
10	120	140	160	180	200
15	100	120	140	170	190
20	90	110	130	150	170
25	80	100	120	140	160
30	70	90	110	130	150
35	50	70	80	100	110
40	30	40	50	70	80
45	20	20	30	30	40
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is less than 50 ppm:
Use a starter fertilizer.

When soil test P is greater than or equal to 50 ppm P and less than 300 ppm P:
A starter fertilizer is probably not necessary.

When soil test P is greater than or equal to 300 ppm P:
A starter fertilizer is probably not necessary.
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

CORN FOR SILAGE **Crop Code:** 1043

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	17	**22**	**27**	**33**	**38**
0	280	320	360	410	450
10	270	310	350	400	440
20	250	290	330	380	420
30	240	280	320	370	410
40	220	260	300	350	390
50	210	250	290	340	380
60	190	230	270	320	360
70	180	220	260	310	350
80	160	200	240	290	330
90	150	190	230	280	320
100	140	180	220	260	300
110	120	160	190	240	270
120	110	140	170	210	240
130	100	120	150	180	210
140	80	110	130	160	180
150	70	90	110	130	150
160	50	70	90	110	120
170	40	50	60	80	90
180	30	40	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

CORN FOR GRAIN (NO-TILL) **Crop Code:** 1044

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
110	**150**	**190**	**230**	**270**
110	150	190	230	270

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	110	**150**	**190**	**230**	**270**
0	110	130	150	170	190
5	100	120	140	160	180
10	90	110	130	140	160
15	80	100	110	130	150
20	70	80	100	120	140
25	60	70	90	110	120
30	40	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is less than 50 ppm:
Use a starter fertilizer.

When soil test P is greater than or equal to 50 ppm P and less than 300 ppm P:
A starter fertilizer is probably not necessary.

When soil test P is greater than or equal to 300 ppm P:
A starter fertilizer is probably not necessary.
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

CORN FOR GRAIN (NO-TILL) **Crop Code:** 1044

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	110	**150**	**190**	**230**	**270**
0	180	190	200	210	220
10	170	180	190	200	210
20	150	160	170	180	190
30	140	150	160	170	180
40	120	130	140	150	160
50	110	120	130	140	150
60	90	100	110	130	140
70	80	90	100	110	120
80	60	70	90	100	110
90	50	60	70	80	90
100	30	50	60	70	80
110	30	40	50	60	60
120	20	30	30	40	50
130	10	20	20	30	30
140	10	10	10	10	20
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

CORN FOR SILAGE (NO-TILL) **Crop Code:** 1045

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
17	**22**	**27**	**33**	**38**
120	160	200	240	280

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	17	**22**	**27**	**33**	**38**
0	140	160	180	200	220
5	130	150	170	190	210
10	120	140	160	180	200
15	100	120	140	170	190
20	90	110	130	150	170
25	80	100	120	140	160
30	70	90	110	130	150
35	50	70	80	100	110
40	30	40	50	70	80
45	20	20	30	30	40
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is less than 50 ppm:
Use a starter fertilizer.

When soil test P is greater than or equal to 50 ppm P and less than 300 ppm P:
A starter fertilizer is probably not necessary.

When soil test P is greater than or equal to 300 ppm P:
A starter fertilizer is probably not necessary.
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

CORN FOR SILAGE (NO-TILL) **Crop Code:** 1045

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	17	**22**	**27**	**33**	**38**
0	280	320	360	410	450
10	270	310	350	400	440
20	250	290	330	380	420
30	240	280	320	370	410
40	220	260	300	350	390
50	210	250	290	340	380
60	190	230	270	320	360
70	180	220	260	310	350
80	160	200	240	290	330
90	150	190	230	280	320
100	140	180	220	260	300
110	120	160	190	240	270
120	110	140	170	210	240
130	100	120	150	180	210
140	80	110	130	160	180
150	70	90	110	130	150
160	50	70	90	110	120
170	40	50	60	80	90
180	30	40	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

SM GRAIN SIL/CORN GRAIN DBL CRP

Crop Code: 1046

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for MgO recommendations based on optimum soil test Mg*

Standard Nitrogen Recommendation (lb N/A):

Corn Yield Goal (Bu/A)				
100	**130**	**160**	**190**	**220**
100	130	160	190	220

Nitrogen Credit (lb N/A) for Previous Legume:

Legume and percent stand	Corn Yield Goal (Bu/A)				
	100	**130**	**160**	**190**	**220**
Alfalfa < 25% stand	40	40	40	80	120
Alfalfa 25-50% stand	60	80	80	120	160
Alfalfa > 50% stand	80	110	120	160	200
Clover < 25% stand	40	40	40	80	120
Clover 25-50% stand	60	80	80	120	160
Clover > 50% stand	80	110	120	160	200
Trefoil < 25% stand	40	40	40	80	120
Trefoil 25-50% stand	60	80	80	120	160
Trefoil > 50% stand	80	110	120	160	200
Soybeans	30	40	50	70	90

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Corn Yield Goal (Bu/A)				
	100	**130**	**160**	**190**	**220**
0	180	210	240	270	300
5	160	190	220	250	280
10	140	170	200	220	250
15	120	150	170	200	230
20	100	120	150	180	210
25	80	100	130	160	180
30	50	80	110	130	160
35	40	60	80	100	120
40	30	40	50	70	80
45	10	20	30	30	40
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:

Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SM GRAIN SIL/CORN GRAIN DBL CRP

Crop Code: 1046

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Corn Yield Goal (Bu/A)				
	100	**130**	**160**	**190**	**220**
0	160	220	280	340	400
10	150	210	270	330	390
20	140	200	260	320	380
30	140	200	260	320	380
40	130	190	250	310	370
50	120	180	240	300	360
60	110	170	230	290	350
70	100	160	220	280	340
80	100	160	220	280	340
90	90	150	210	270	330
100	80	140	200	260	320
110	70	130	180	230	290
120	60	110	160	210	260
130	60	100	140	180	220
140	50	80	120	160	190
150	40	70	100	130	160
160	30	60	80	100	130
170	20	40	60	80	100
180	20	30	40	50	60
190	10	10	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 10/2/2008

SM GRAIN SIL/CORN SIL DBL CROP

Crop Code: 1047

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for MgO recommendations based on optimum soil test Mg*

Standard Nitrogen Recommendation (lb N/A):

Corn Yield Goal (T/A)				
17	**21**	**25**	**29**	**33**
120	150	180	210	240

Nitrogen Credit (lb N/A) for Previous Legume:

Legume and percent stand	Corn Yield Goal (T/A)				
	17	**21**	**25**	**29**	**33**
Alfalfa < 25% stand	40	40	40	80	120
Alfalfa 25-50% stand	60	80	80	120	160
Alfalfa > 50% stand	80	110	120	160	200
Clover < 25% stand	40	40	40	80	120
Clover 25-50% stand	60	80	80	120	160
Clover > 50% stand	80	110	120	160	200
Trefoil < 25% stand	40	40	40	80	120
Trefoil 25-50% stand	60	80	80	120	160
Trefoil > 50% stand	80	110	120	160	200
Soybeans	30	40	50	70	90

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Corn Yield Goal (T/A)				
	17	**21**	**25**	**29**	**33**
0	180	210	240	270	300
5	170	200	230	260	290
10	160	190	220	250	280
15	150	180	210	240	270
20	140	170	200	240	270
25	130	160	200	230	270
30	120	150	190	220	250
35	90	110	140	160	190
40	60	80	90	110	130
45	30	40	50	50	60
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:

Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SM GRAIN SIL/CORN SIL DBL CROP

Crop Code: 1047

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Corn Yield Goal (T/A)				
	17	21	25	29	33
0	340	430	520	610	700
10	330	420	510	600	690
20	330	420	510	600	690
30	320	410	500	590	680
40	320	410	500	590	680
50	310	400	490	580	670
60	300	400	490	580	670
70	300	390	480	570	660
80	290	380	480	570	660
90	290	380	470	560	650
100	280	370	470	560	650
110	250	340	420	500	580
120	220	300	370	450	520
130	200	260	330	390	450
140	170	220	280	330	390
150	140	190	230	280	320
160	110	150	190	220	260
170	80	110	140	170	190
180	60	70	90	110	130
190	30	40	50	60	60
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 10/2/2008

MILLET FOR GRAIN **Crop Code:** 1048

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
30	**40**	**50**	**60**	**70**
50	70	90	110	130

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**70**
0	100	100	100	100	100
5	90	90	90	90	90
10	70	70	70	70	80
15	60	60	60	60	60
20	40	40	50	50	50
25	30	30	30	40	40
30	10	20	20	20	30
35	10	10	20	20	20
40	10	10	10	10	10
45	0	0	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

MILLET FOR GRAIN **Crop Code:** 1048

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**70**
0	100	100	100	100	100
10	90	90	90	90	90
20	80	80	80	80	80
30	70	70	70	70	80
40	60	60	70	70	70
50	50	60	60	60	60
60	40	50	50	50	50
70	40	40	40	40	40
80	30	30	30	30	30
90	20	20	20	20	30
100	10	10	10	20	20
110	10	10	10	10	10
120	0	10	10	10	10
130	0	0	10	10	10
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

MILLET FOR FORAGE **Crop Code:** 1049

Standard Message:

Nitrogen recommendation should be split based on the expected yield of the following harvest

Lime and Magnesium Recommendation:

pH Goal: 6.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
40	60	80	100	120

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	80	90	100	110	120
5	70	80	90	100	110
10	60	70	80	90	100
15	50	60	70	80	90
20	40	50	60	70	80
25	30	40	50	60	70
30	20	30	40	50	50
35	10	20	30	30	40
40	10	10	20	20	30
45	0	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

MILLET FOR FORAGE **Crop Code:** 1049

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	80	110	140	170	200
10	80	110	140	170	200
20	80	110	140	170	200
30	70	100	130	160	190
40	70	100	130	160	190
50	70	100	130	160	190
60	70	100	130	160	190
70	70	100	130	160	190
80	60	90	120	150	180
90	60	90	120	150	180
100	60	90	120	150	180
110	50	70	100	120	140
120	40	50	70	90	110
130	20	40	50	60	70
140	10	20	20	30	40
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

BARLEY/SOYBEAN DOUBLE CROP **Crop Code:** 1050

Standard Message:

N RECOMMENDATIONS ARE FOR BARLEY CROP. N applications should be topdressed in the early spring or split with a small amount at planting and the balance topdressed in the early spring. Account for residual N from previous manure applications if any. No N recommended on soybeans.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
50	**70**	**90**	**110**	**130**
40	55	70	85	100

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	50	**70**	**90**	**110**	**130**
0	120	140	160	180	200
5	110	130	150	170	190
10	100	120	140	160	180
15	90	110	130	150	170
20	70	90	110	130	150
25	60	80	100	120	140
30	50	70	90	110	130
35	40	50	70	80	100
40	30	40	50	60	60
45	10	20	20	30	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

BARLEY/SOYBEAN DOUBLE CROP **Crop Code:** 1050

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	50	**70**	**90**	**110**	**130**
0	140	180	220	260	300
10	140	180	220	260	300
20	130	170	210	250	290
30	130	170	210	250	290
40	130	170	210	250	290
50	120	160	200	250	290
60	120	160	200	240	280
70	120	160	200	240	280
80	110	150	200	240	280
90	110	150	190	230	280
100	110	150	190	230	270
110	80	120	150	180	220
120	60	90	110	140	160
130	40	60	80	90	110
140	20	30	40	50	50
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

SMALL GRAIN SILAGE **Crop Code:** 1051

Standard Message:

IMPORTANT: N should be topdressed in the spring or split applied with a small amount in the fall at planting and the balance topdressed in early spring.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
4	**6**	**8**	**10**	**12**
60	90	120	150	180

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	4	**6**	**8**	**10**	**12**
0	110	120	130	140	150
5	100	110	120	130	140
10	80	90	110	120	130
15	70	80	90	110	120
20	60	70	80	90	110
25	40	60	70	80	100
30	30	40	60	70	80
35	20	30	40	50	60
40	10	20	30	40	40
45	10	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SMALL GRAIN SILAGE **Crop Code:** 1051

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	4	6	8	10	12
0	200	250	300	350	400
10	190	240	290	340	390
20	180	230	280	330	380
30	170	220	270	320	370
40	160	210	260	310	360
50	150	200	250	310	360
60	140	190	240	300	350
70	130	180	240	290	340
80	120	170	230	280	330
90	110	170	220	270	320
100	100	160	210	260	310
110	90	140	190	230	280
120	80	120	170	210	250
130	70	110	150	180	220
140	60	90	120	160	190
150	50	80	100	130	160
160	40	60	80	100	120
170	30	50	60	80	90
180	20	30	40	50	60
190	10	20	20	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

HOPS Crop Code: 1052

Standard Message:

N recommendations are for established hops. At planting, only apply 75 lb N/A

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
5	**6**	**7**	**8**	**9**
100	110	120	130	140

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	5	**6**	**7**	**8**	**9**
0	100	100	100	100	100
5	90	90	90	90	90
10	70	70	70	70	80
15	60	60	60	60	60
20	40	50	50	50	50
25	30	30	30	40	40
30	20	20	20	20	30
35	10	10	20	20	20
40	10	10	10	10	10
45	0	0	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

HOPS Crop Code: 1052

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	5	**6**	**7**	**8**	**9**
0	150	150	150	150	150
10	140	140	140	140	140
20	120	120	130	130	130
30	110	110	110	110	120
40	100	100	100	100	100
50	90	90	90	90	90
60	70	70	80	80	80
70	60	60	60	70	70
80	50	50	50	60	60
90	30	40	40	40	50
100	20	20	30	30	40
110	20	20	20	30	30
120	10	10	20	20	20
130	10	10	10	10	10
140	0	0	10	10	10
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

CRP WARM SEASON GRASS **Crop Code:** 1053

Standard Message:

Do not apply any fertilizer before or at planting.
Apply fertilizer during the second growing season following germination.
Warm-season grass stands are considered established when there are one to three seedlings per square foot (may be the first or second growing season).

Lime and Magnesium Recommendation:

pH Goal: 5.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal ( )				
NA	**NA**	**NA**	**NA**	**NA**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 15 -30 ppm)

Soil test P (ppm)	Yield Goal ( )				
	NA	**NA**	**NA**	**NA**	**NA**
0	40	40	40	40	40
5	40	40	40	40	40
10	40	40	40	40	40
15	40	40	40	40	40
20	0	0	0	0	0
25	0	0	0	0	0
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

CRP WARM SEASON GRASS **Crop Code:** 1053

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 50 - 100 ppm)

Soil test K (ppm)	Yield Goal ( )				
	NA	NA	NA	NA	NA
0	40	40	40	40	40
10	40	40	40	40	40
20	40	40	40	40	40
30	40	40	40	40	40
40	40	40	40	40	40
50	40	40	40	40	40
60	0	0	0	0	0
70	0	0	0	0	0
80	0	0	0	0	0
90	0	0	0	0	0
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

CRP COOL SEASON GRASS **Crop Code:** 1054

Standard Message:

For legumes or legume grass mixtures, the N recommended above should not be required after the establishment year. CRP acreage should be evaluated periodically and if plant cover is not acceptable, the soil should be retested to determine if pH and nutrient levels are still adequate to maintain acceptable cover.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal ( )				
NA	**NA**	**NA**	**NA**	**NA**
30	30	30	30	30

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal ( )				
	NA	**NA**	**NA**	**NA**	**NA**
0	150	150	150	150	150
5	130	130	130	130	130
10	100	100	100	100	100
15	80	80	80	80	80
20	50	50	50	50	50
25	30	30	30	30	30
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

CRP COOL SEASON GRASS **Crop Code:** 1054

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal ( )				
	NA	NA	NA	NA	NA
0	200	200	200	200	200
10	180	180	180	180	180
20	160	160	160	160	160
30	140	140	140	140	140
40	120	120	120	120	120
50	100	100	100	100	100
60	80	80	80	80	80
70	60	60	60	60	60
80	40	40	40	40	40
90	20	20	20	20	20
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

HORTICULTURAL COVER CROP **Crop Code:** 1055

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal ( )				
40	40	40	40	40

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal ( )				
0	150	150	150	150	150
5	130	130	130	130	130
10	100	100	100	100	100
15	80	80	80	80	80
20	50	50	50	50	50
25	30	30	30	30	30
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

HORTICULTURAL COVER CROP **Crop Code:** 1055

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal ( )				
0	200	200	200	200	200
10	180	180	180	180	180
20	160	160	160	160	160
30	140	140	140	140	140
40	120	120	120	120	120
50	100	100	100	100	100
60	80	80	80	80	80
70	60	60	60	60	60
80	40	40	40	40	40
90	20	20	20	20	20
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

WILDLIFE FOOD PLOTS **Crop Code:** 1056

Standard Message:

Nitrogen (N) recommendations: For non-legumes such as corn, small grains, grasses, brassicas, etc. or for mixtures that contain substantial amounts of non-legumes, apply 75 lb N/A at planting time. Up to 20 lb/A of the recommended N can be applied with a similar amount of phosphorus (P) and potassium (K) at seeding as a starter fertilizer.
On poor soils with low fertility and low organic matter levels or on highly productive soils where higher yield is desired, increase the rate to 75-100 lb N/A. When following a legume the previous year or if manure is applied, reduce the rate to 50-75 lb N/A.
For legumes such as Alfalfa, Clover, Trefoil, or Soybeans or mixtures that are largely legumes, no N should be applied. Be sure to properly inoculate legume seed before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal ( )				
NA	**NA**	**NA**	**NA**	**NA**
See Below	See Below	See Below	See Below	See Below

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal ( )				
	NA	**NA**	**NA**	**NA**	**NA**
0	120	120	120	120	120
5	100	100	100	100	100
10	90	90	90	90	90
15	70	70	70	70	70
20	50	50	50	50	50
25	40	40	40	40	40
30	20	20	20	20	20
35	20	20	20	20	20
40	10	10	10	10	10
45	10	10	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to phosphorus loss to the environment.

WILDLIFE FOOD PLOTS **Crop Code:** 1056

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal ( )				
	NA	**NA**	**NA**	**NA**	**NA**
0	150	150	150	150	150
10	140	140	140	140	140
20	120	120	120	120	120
30	110	110	110	110	110
40	100	100	100	100	100
50	90	90	90	90	90
60	70	70	70	70	70
70	60	60	60	60	60
80	50	50	50	50	50
90	30	30	30	30	30
100	20	20	20	20	20
110	20	20	20	20	20
120	10	10	10	10	10
130	10	10	10	10	10
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

Revised: 1/12/2010

SORGHUM FOR GRAIN **Crop Code:** 1057

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
90	**110**	**130**	**150**	**170**
70	90	110	130	150

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	90	**110**	**130**	**150**	**170**
0	110	120	130	140	150
5	100	110	120	130	140
10	90	100	110	120	130
15	80	90	100	120	130
20	70	80	100	110	120
25	60	80	90	100	110
30	50	70	80	90	100
35	40	50	60	70	80
40	30	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SORGHUM FOR GRAIN **Crop Code:** 1057

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	90	**110**	**130**	**150**	**170**
0	120	140	160	180	200
10	120	130	150	170	190
20	110	130	150	170	190
30	110	120	140	160	180
40	100	120	140	160	170
50	100	110	130	150	170
60	90	110	130	140	160
70	90	100	120	140	160
80	80	100	120	130	150
90	80	90	110	130	140
100	70	90	100	120	140
110	60	70	80	100	110
120	40	50	60	70	80
130	30	40	40	50	50
140	10	20	20	20	30
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

WHEAT **Crop Code:** 1058

Standard Message:

You must account for residual N from previous manure applications if any.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
40	**60**	**80**	**100**	**120**
40	60	80	100	120

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	40	**60**	**80**	**100**	**120**
0	110	130	150	170	190
5	100	120	140	160	180
10	90	110	130	150	170
15	80	100	120	140	160
20	60	80	100	120	140
25	50	70	90	110	130
30	40	60	80	100	120
35	30	50	60	80	90
40	20	30	40	50	60
45	10	20	20	30	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

WHEAT **Crop Code:** 1058

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	40	**60**	**80**	**100**	**120**
0	80	120	160	200	240
10	80	120	160	200	240
20	80	120	160	200	240
30	80	120	150	190	230
40	80	120	150	190	230
50	80	110	150	190	230
60	80	110	150	190	230
70	70	1140	150	190	220
80	70	110	150	180	220
90	70	110	150	180	220
100	70	110	140	180	220
110	60	90	120	140	170
120	40	60	90	110	130
130	30	40	60	70	90
140	10	20	30	40	40
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

OATS **Crop Code:** 1059

Standard Message:

You must account for residual N from previous manure applications if any.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
60	**75**	**90**	**105**	**120**
50	60	70	85	100

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	60	**75**	**90**	**105**	**120**
0	110	120	130	140	150
5	100	110	120	130	140
10	90	100	110	120	140
15	80	90	110	120	130
20	70	90	100	110	120
25	60	80	90	100	120
30	50	70	80	90	110
35	40	50	60	70	80
40	30	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

OATS **Crop Code:** 1059

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	60	**75**	**90**	**105**	**120**
0	170	190	210	230	250
10	160	180	200	220	240
20	150	170	200	220	240
30	150	170	190	210	230
40	140	160	180	200	220
50	130	150	170	190	220
60	120	140	170	190	210
70	110	140	160	180	200
80	110	130	150	170	190
90	100	120	140	160	190
100	90	110	140	160	180
110	70	90	110	130	140
120	50	70	80	90	110
130	40	50	50	60	70
140	20	20	30	30	40
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

WINTER BARLEY **Crop Code:** 1060

Standard Message:

You must account for residual N from previous manure applications if any.

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
50	**70**	**90**	**110**	**130**
40	55	70	85	100

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	50	**70**	**90**	**110**	**130**
0	110	120	130	140	150
5	100	110	120	130	140
10	80	90	100	120	130
15	70	80	90	100	110
20	60	70	80	90	100
25	40	60	70	80	90
30	30	40	50	70	80
35	20	30	40	50	60
40	20	20	30	30	40
45	10	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

WINTER BARLEY **Crop Code:** 1060

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	50	**70**	**90**	**110**	**130**
0	130	160	190	220	250
10	120	150	180	210	240
20	120	150	180	210	240
30	110	140	170	200	230
40	110	140	170	200	230
50	100	130	160	190	220
60	100	130	160	190	220
70	90	120	150	180	210
80	90	120	150	180	210
90	80	110	140	170	200
100	80	110	140	170	200
110	60	80	110	130	160
120	50	60	80	100	120
130	30	40	50	70	80
140	20	20	30	30	40
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

RYE **Crop Code:** 1061

Standard Message:

You must account for residual N from previous manure applications if any.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
50	**60**	**70**	**80**	**90**
50	60	70	80	90

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	50	**60**	**70**	**80**	**90**
0	110	120	130	140	150
5	100	110	120	130	140
10	90	100	110	120	130
15	80	90	100	110	120
20	70	80	90	100	110
25	60	70	80	90	100
30	50	60	70	80	90
35	40	50	50	60	70
40	30	30	40	40	50
45	10	20	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

RYE **Crop Code:** 1061

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	50	**60**	**70**	**80**	**90**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	110	130	150	170	180
50	110	120	140	160	180
60	100	120	140	160	180
70	100	120	140	150	170
80	100	110	130	150	170
90	90	110	130	150	170
100	90	110	130	140	160
110	70	90	100	120	130
120	50	60	80	90	100
130	40	40	50	60	60
140	20	20	30	30	30
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

PLANTING MIXED GRASSES **Crop Code:** 1062

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

PLANTING MIXED GRASSES **Crop Code:** 1062

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

SORGHUM FOR FORAGE **Crop Code:** 1063

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
15	**19**	**23**	**27**	**31**
100	130	160	190	220

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	15	**19**	**23**	**27**	**31**
0	120	140	160	180	200
5	110	130	150	170	190
10	110	130	150	170	190
15	100	120	140	160	180
20	90	110	130	150	170
25	80	100	120	140	160
30	80	100	120	140	160
35	60	70	90	100	120
40	40	50	60	70	80
45	20	20	30	30	40
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SORGHUM FOR FORAGE **Crop Code:** 1063

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	15	**19**	**23**	**27**	**31**
0	240	280	320	360	400
10	230	270	310	350	390
20	230	270	310	350	390
30	220	260	300	340	380
40	210	250	290	330	380
50	200	240	290	330	370
60	200	240	280	320	360
70	190	230	270	320	360
80	180	220	270	310	350
90	170	220	260	300	350
100	170	210	250	300	340
110	150	190	230	270	310
120	130	170	200	240	270
130	120	150	180	210	240
140	100	130	150	180	200
150	80	100	130	150	170
160	70	80	100	120	140
170	50	60	80	90	100
180	30	40	50	60	70
190	20	20	30	30	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

SOYBEANS **Crop Code:** 1064

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
40	**50**	**60**	**70**	**80**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30-50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	40	**50**	**60**	**70**	**80**
0	120	130	140	150	160
5	110	120	130	140	150
10	90	100	110	120	130
15	80	90	100	110	120
20	70	80	90	100	110
25	50	60	70	80	90
30	40	50	60	70	80
35	30	40	50	50	60
40	20	30	30	40	40
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SOYBEANS **Crop Code:** 1064

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	40	**50**	**60**	**70**	**80**
0	180	190	200	210	220
10	170	180	190	200	210
20	160	170	180	190	200
30	140	150	170	180	190
40	130	140	150	170	180
50	120	130	140	150	170
60	110	120	130	140	160
70	90	110	120	130	140
80	80	90	110	120	130
90	70	80	100	110	120
100	60	70	80	100	110
110	40	60	70	80	90
120	30	40	50	60	70
130	20	30	30	40	40
140	10	10	20	20	20
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

TOBACCO **Crop Code**: 1065

Standard Message:

Nitrogen (N) needs vary by tobacco type. Use the following guidelines and adjust N based on expected yield and previous manure application: MD 609, 60 - 80 lbs N/A; PA-41, 90 - 120 lbs N/A; Burley, 125 - 175 lbs N/A

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**1**	**1**	**1.5**	**1.5**
See Below	See Below	See Below	See Below	See Below

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**1**	**1**	**1.5**	**1.5**
0	195	195	195	200	200
5	160	160	160	170	170
10	130	130	130	140	140
15	100	100	100	110	110
20	70	70	70	80	80
25	40	40	40	50	50
30	10	10	10	20	20
35	10	10	10	10	10
40	10	10	10	10	10
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

TOBACCO **Crop Code**: 1065

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	1	1	1.5	1.5
0	280	280	280	350	350
10	270	270	270	340	340
20	250	250	250	320	320
30	240	240	240	310	310
40	220	220	220	290	290
50	210	210	210	280	280
60	200	200	200	270	270
70	180	180	180	250	250
80	170	170	170	240	240
90	150	150	150	220	220
100	140	140	140	210	210
110	130	130	130	190	190
120	110	110	110	170	170
130	100	100	100	150	150
140	80	80	80	130	130
150	70	70	70	110	110
160	60	60	60	80	80
170	40	40	40	60	60
180	30	30	30	40	40
190	10	10	10	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K can lead to imbalances in forage crops grown later in the rotation which can cause serious health problems in animals (See Back)

SUDANGRASS **Crop Code:** 1066

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	50	50	100	100

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	160	170	180	190	200
5	140	150	160	170	180
10	110	120	140	150	160
15	90	100	110	130	140
20	60	80	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50					

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SUDANGRASS **Crop Code:** 1066

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	2	3	4	5
0	240	280	320	360	400
10	220	260	300	340	380
20	200	240	280	320	370
30	180	220	260	310	350
40	160	200	250	290	330
50	140	190	230	270	310
60	120	170	210	250	300
70	100	150	190	230	280
80	80	130	170	220	260
90	60	110	150	200	240
100	50	90	140	180	230
110	40	80	120	160	200
120	40	70	110	140	180
130	30	60	90	130	160
140	30	50	80	110	140
150	20	50	70	90	110
160	20	40	50	70	90
170	10	30	40	50	70
180	10	20	30	40	50
190	0	10	10	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

SORGHUM-SUDANGRASS **Crop Code:** 1067

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
15	**18**	**21**	**24**	**27**
120	140	160	180	200

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	15	**18**	**21**	**24**	**27**
0	120	140	160	180	200
5	120	140	160	180	200
10	120	140	160	180	200
15	110	130	150	170	190
20	110	130	150	170	190
25	110	130	150	170	190
30	110	130	150	170	190
35	80	90	110	130	140
40	50	60	70	80	90
45	30	30	40	40	50
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SORGHUM-SUDANGRASS **Crop Code:** 1067

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	15	**18**	**21**	**24**	**27**
0	320	340	360	380	400
10	300	320	340	360	380
20	280	300	320	340	360
30	260	280	300	320	340
40	230	250	270	300	320
50	210	230	250	270	290
60	190	210	230	250	270
70	170	190	210	230	250
80	150	170	190	210	230
90	130	150	170	190	210
100	110	130	150	170	190
110	90	110	130	150	170
120	80	100	120	130	150
130	70	90	100	120	130
140	60	80	90	100	110
150	50	60	70	80	90
160	40	50	60	70	80
170	30	40	40	50	60
180	20	30	30	30	40
190	10	10	10	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

SPRING BARLEY **Crop Code:** 1068

Standard Message:

You must account for residual N from previous manure applications if any.

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
60	**70**	**80**	**90**	**100**
45	55	65	75	85

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	60	**70**	**80**	**90**	**100**
0	110	120	130	140	150
5	100	110	120	130	140
10	90	90	100	110	120
15	70	80	90	100	110
20	60	70	80	80	90
25	50	60	60	70	80
30	40	40	50	50	60
35	30	30	40	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SPRING BARLEY **Crop Code:** 1068

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A) 60	70	80	90	100
0	210	220	230	240	250
10	200	210	220	230	240
20	190	200	210	220	230
30	170	190	200	210	220
40	160	170	190	200	210
50	150	160	180	190	200
60	140	150	160	180	190
70	130	140	150	170	180
80	110	130	140	160	170
90	100	120	130	150	160
100	90	110	120	140	150
110	70	80	100	110	120
120	50	60	70	80	90
130	40	40	50	50	60
140	20	20	20	30	30
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

BUCKWHEAT **Crop Code:** 1069

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (Bu/A)				
30	**40**	**50**	**60**	**70**
20	20	20	20	20

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**70**
0	150	150	150	150	150
5	130	130	130	130	130
10	100	110	110	110	110
15	80	80	90	90	90
20	60	60	60	70	70
25	40	40	40	50	50
30	10	20	20	20	30
35	10	10	20	20	20
40	10	10	10	10	10
45	0	0	10	10	10
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

BUCKWHEAT **Crop Code:** 1069

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (Bu/A)				
	30	**40**	**50**	**60**	**70**
0	160	170	180	190	200
10	150	160	170	180	190
20	140	150	160	170	180
30	130	140	150	160	170
40	110	130	140	150	160
50	100	120	130	140	150
60	90	100	120	130	140
70	80	90	110	120	130
80	70	80	100	110	120
90	60	70	90	100	110
100	50	60	80	90	110
110	40	50	60	70	80
120	30	40	50	50	60
130	20	20	30	40	40
140	10	10	20	20	20
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

SUNFLOWERS **Crop Code:** 1071

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (CWT/)				
10	**15**	**20**	**25**	**30**
70	70	70	70	70

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (CWT/)				
	10	**15**	**20**	**25**	**30**
0	110	120	130	140	150
5	100	110	120	130	140
10	80	90	100	110	120
15	70	80	90	100	110
20	50	60	70	80	90
25	40	50	60	70	80
30	20	30	40	50	60
35	20	20	30	40	50
40	10	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

SUNFLOWERS **Crop Code:** 1071

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (CWT/) 10	15	20	25	30
0	160	170	180	190	200
10	150	160	170	170	180
20	130	140	150	160	170
30	120	130	140	140	150
40	100	110	120	130	140
50	90	100	110	110	120
60	70	80	90	100	110
70	60	70	80	80	90
80	40	50	60	70	80
90	30	40	50	50	60
100	20	20	30	40	50
110	10	20	20	30	40
120	10	10	20	20	30
130	10	10	10	20	20
140	0	0	10	10	10
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).

ESTABLISHED -ALFALFA GRASS **Crop Code:** 1072

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.
Apply 2 lbs boron per acre with the fertilizer.

Lime and Magnesium Recommendation:

pH Goal: 7.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
4	**5**	**6**	**7**	**8**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	4	**5**	**6**	**7**	**8**
0	170	185	200	215	230
5	150	170	180	200	210
10	130	150	160	180	190
15	120	130	150	160	180
20	100	110	130	140	160
25	80	90	110	120	140
30	60	80	90	110	120
35	50	60	70	80	90
40	30	40	50	50	60
45	20	20	20	30	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED -ALFALFA GRASS **Crop Code:** 1072

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	4	5	6	7	8
0	250	300	350	400	450
10	250	300	350	400	450
20	240	290	340	390	440
30	240	290	340	390	440
40	230	280	330	380	430
50	230	280	330	380	430
60	220	270	320	370	420
70	220	270	320	370	420
80	210	260	310	360	410
90	210	260	310	360	410
100	200	250	300	350	400
110	180	230	270	320	360
120	160	200	240	280	320
130	140	180	210	250	280
140	120	150	180	210	240
150	100	130	150	180	200
160	80	100	120	140	160
170	60	80	90	110	120
180	40	50	60	70	80
190	20	30	30	40	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING RED CLOVER-GRASS **Crop Code:** 1073

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**2.5**	**3**	**3.5**	**4**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	170	178	185	193	200
5	150	150	160	170	180
10	120	130	140	150	150
15	100	110	120	120	130
20	80	80	90	100	110
25	50	60	70	80	80
30	30	40	50	50	60
35	20	30	30	40	50
40	20	20	20	30	30
45	10	10	10	10	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING RED CLOVER-GRASS **Crop Code:** 1073

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	**2.5**	**3**	**3.5**	**4**
0	120	140	160	180	200
10	120	140	160	180	200
20	110	130	150	170	190
30	110	130	150	170	190
40	100	120	140	160	180
50	100	120	140	160	180
60	100	120	140	160	180
70	90	110	130	150	170
80	90	110	130	150	170
90	80	100	120	140	160
100	80	100	120	140	160
110	70	90	110	130	140
120	60	80	100	110	130
130	60	70	80	100	110
140	50	60	70	80	100
150	40	50	60	70	80
160	30	40	50	60	60
170	20	30	40	40	50
180	20	20	20	30	30
190	10	10	10	10	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED RED CLOVER-GRASS **Crop Code:** 1074

Standard Message:

Apply fertilizer after first cutting or, for large recommendations, split after first cutting and in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	170	185	200	215	230
5	150	160	180	190	210
10	120	140	150	170	180
15	100	120	130	150	160
20	80	90	110	120	140
25	50	70	80	100	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED RED CLOVER-GRASS **Crop Code:** 1074

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	120	160	200	240	280
10	120	160	200	240	280
20	110	150	190	230	270
30	110	150	190	230	270
40	100	140	180	220	260
50	100	140	180	220	260
60	100	140	180	220	260
70	90	130	170	210	250
80	90	130	170	210	250
90	80	120	160	200	240
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING TALL FESCUE **Crop Code:** 1075

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

PLANTING TALL FESCUE **Crop Code:** 1075

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A) 1	2	3	4	5
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED TALL FESCUE **Crop Code:** 1076

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED TALL FESCUE **Crop Code:** 1076

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING WARM SEASON GRASSES **Crop Code:** 1077

Standard Message:

Do not apply any N at seeding unless an herbicide is used to control competition from other grasses or weeds. Once the stand is well established N can be applied. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	50	50	50	50

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 15 -30 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	60	65	70	75	80
5	40	50	50	60	60
10	20	30	30	40	40
15	10	10	20	20	30
20	0	10	10	10	20
25	0	0	10	10	10
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING WARM SEASON GRASSES **Crop Code:** 1077

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 50 - 100 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	60	70	80	90	100
10	50	60	70	80	90
20	40	50	60	70	80
30	30	40	50	60	80
40	20	30	40	60	70
50	10	20	40	50	60
60	10	20	30	40	50
70	10	10	20	20	30
80	0	10	10	10	20
90	0	0	0	0	0
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED WARM SEASON GRASSES **Crop Code:** 1078

Standard Message:

Apply one half of the recommended N in mid-May after green-up and the other half after first cutting. For grazing only apply the second N application if the forage will be used.

Lime and Magnesium Recommendation:

pH Goal: 6.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
100	100	100	100	100

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 15 -30 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	60	65	70	75	80
5	50	50	60	60	70
10	30	40	40	50	50
15	20	20	30	30	40
20	10	10	20	20	20
25	10	10	10	10	10
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED WARM SEASON GRASSES **Crop Code:** 1078

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 50 - 100 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	60	70	80	90	100
10	60	70	80	90	100
20	50	60	70	80	90
30	50	60	70	80	90
40	40	50	60	80	90
50	40	50	60	70	80
60	30	40	50	50	60
70	20	20	30	40	40
80	10	10	20	20	20
90	0	0	0	0	0
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

BRASSICAS **Crop Code:** 1079

Standard Message:

Lime and Magnesium Recommendation:

pH Goal: 6.0 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
4	**4**	**4**	**4**	**4**
75	75	75	75	75

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	4	**4**	**4**	**4**	**4**
0	150	150	150	150	150
5	130	130	130	130	130
10	100	100	100	100	100
15	80	80	80	80	80
20	50	50	50	50	50
25	30	30	30	30	30
30	0	0	0	0	0
35	0	0	0	0	0
40	0	0	0	0	0
45	0	0	0	0	0
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

BRASSICAS **Crop Code:** 1079

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	4	4	4	4	4
0	200	200	200	200	200
10	180	180	180	180	180
20	160	160	160	160	160
30	140	140	140	140	140
40	120	120	120	120	120
50	100	100	100	100	100
60	80	80	80	80	80
70	60	60	60	60	60
80	40	40	40	40	40
90	20	20	20	20	20
100	0	0	0	0	0
110	0	0	0	0	0
120	0	0	0	0	0
130	0	0	0	0	0
140	0	0	0	0	0
150	0	0	0	0	0
160	0	0	0	0	0
170	0	0	0	0	0
180	0	0	0	0	0
190	0	0	0	0	0
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

RENOVATING PASTURE (WITH LEGUME) **Crop Code**: 1080

Standard Message:

Do not add any N when renovating a pasture with a legume. Recommended P and K can be applied between grazings any time after the first grazing.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	160	170	180	190	200
5	140	150	160	170	180
10	120	130	140	150	160
15	100	110	120	130	150
20	70	90	100	110	130
25	50	70	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

RENOVATING PASTURE (WITH LEGUME) **Crop Code**: 1080

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	140	180	220	260	300
10	130	170	210	250	290
20	130	170	210	250	290
30	120	160	200	240	280
40	120	160	200	240	280
50	110	150	190	230	270
60	100	140	180	220	260
70	100	140	180	220	260
80	90	130	170	210	250
90	90	130	170	210	250
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED PASTURE (WITHOUT LEGUME) **Crop Code**: 1081

Standard Message:

For optimum efficiency, the recommended N should be split and applied between grazings in 2-4 applications based on anticipated forage growth in the pasture. As an example apply 1/3 to 1/2 of the N in the spring, 1/4 to 1/3 in the summer, and 1/3 to 1/2 in the early fall. Recommended P and K can be applied between grazings any time after the first grazing.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
100	150	200	250	300

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	160	170	180	190	200
5	140	150	160	170	180
10	120	130	140	150	160
15	100	110	120	130	150
20	70	90	100	110	130
25	50	70	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED PASTURE (WITHOUT LEGUME) **Crop Code**: 1081

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	140	180	220	260	300
10	130	170	210	250	290
20	130	170	210	250	290
30	120	160	200	240	280
40	120	160	200	240	280
50	110	150	190	230	270
60	100	140	180	220	260
70	100	140	180	220	260
80	90	130	170	210	250
90	90	130	170	210	250
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED PASTURE (WITH LEGUME) **Crop Code**: 1082

Standard Message:

Do not add any N. Recommended P and K can be applied between grazings any time after the first grazing.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	160	170	180	190	200
5	140	150	160	170	180
10	120	130	140	150	160
15	100	110	120	130	150
20	70	90	100	110	130
25	50	70	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

ESTABLISHED PASTURE (WITH LEGUME) **Crop Code**: 1082

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	140	180	220	260	300
10	130	170	210	250	290
20	130	170	210	250	290
30	120	160	200	240	280
40	120	160	200	240	280
50	110	150	190	230	270
60	100	140	180	220	260
70	100	140	180	220	260
80	90	130	170	210	250
90	90	130	170	210	250
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING PASTURE (WITHOUT LEGUME) **Crop Code**: 1083

Standard Message:

For optimum efficiency, the recommended N should be split and applied between grazings in 2-4 applications based on anticipated forage growth in the pasture. As an example apply 1/3 to 1/2 of the N at planting, 1/4 to 1/3 in the summer, and 1/3 to 1/2 in the early fall. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
100	150	200	250	300

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	160	170	180	190	200
5	140	150	160	170	180
10	120	130	140	150	160
15	100	110	120	130	150
20	70	90	100	110	130
25	50	70	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING PASTURE (WITHOUT LEGUME) **Crop Code**: 1083

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	140	180	220	260	300
10	130	170	210	250	290
20	130	170	210	250	290
30	120	160	200	240	280
40	120	160	200	240	280
50	110	150	190	230	270
60	100	140	180	220	260
70	100	140	180	220	260
80	90	130	170	210	250
90	90	130	170	210	250
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING PASTURE (WITH LEGUME) **Crop Code**: 1084

Standard Message:

Do not apply any nitrogen (N) when establishing legumes in pasture. Recommended limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
2	**3**	**4**	**5**	**6**
0	0	0	0	0

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 - 50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	2	**3**	**4**	**5**	**6**
0	160	170	180	190	200
5	140	150	160	170	180
10	120	130	140	150	160
15	100	110	120	130	150
20	70	90	100	110	130
25	50	70	80	90	110
30	30	50	60	80	90
35	20	30	50	60	70
40	20	20	30	40	50
45	10	10	20	20	20
50	0	0	0	0	0

Phosphorus Message(s)

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING PASTURE (WITH LEGUME) **Crop Code**: 1084

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	2	3	4	5	6
0	140	180	220	260	300
10	130	170	210	250	290
20	130	170	210	250	290
30	120	160	200	240	280
40	120	160	200	240	280
50	110	150	190	230	270
60	100	140	180	220	260
70	100	140	180	220	260
80	90	130	170	210	250
90	90	130	170	210	250
100	80	120	160	200	240
110	70	110	140	180	220
120	60	100	130	160	190
130	60	80	110	140	170
140	50	70	100	120	140
150	40	60	80	100	120
160	30	50	60	80	100
170	20	40	50	60	70
180	20	20	30	40	50
190	10	10	20	20	20
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

PLANTING REED CANARYGRASS **Crop Code:** 1085

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Recommended Limestone, phosphorus (P) and potassium (K) should be applied before planting.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
1	**2**	**3**	**4**	**5**
50	100	150	200	250

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	1	**2**	**3**	**4**	**5**
0	140	155	170	185	200
5	120	130	150	160	180
10	100	110	130	140	160
15	80	90	110	120	140
20	60	70	90	100	120
25	40	50	70	80	100
30	20	30	50	60	80
35	10	20	30	50	60
40	10	20	20	30	40
45	0	10	10	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

PLANTING REED CANARYGRASS **Crop Code:** 1085

Potassium Recommendation (lb K2O/A):

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	1	2	3	4	5
0	100	150	200	250	300
10	100	150	200	250	300
20	90	140	190	240	290
30	90	140	190	240	290
40	80	130	180	230	280
50	80	130	180	230	280
60	70	120	170	220	270
70	70	120	170	220	270
80	60	110	160	210	260
90	60	110	160	210	260
100	50	100	150	200	250
110	50	90	140	180	230
120	40	80	120	160	200
130	40	70	110	140	180
140	30	60	90	120	150
150	30	50	80	100	130
160	20	40	60	80	100
170	20	30	50	60	80
180	10	20	30	40	50
190	10	10	20	20	30
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

ESTABLISHED REED CANARYGRASS **Crop Code:** 1086

Standard Message:

For optimum efficiency, the recommended N should be split and applied separately for each cutting. As a guide, apply 50 lb N/A per ton of expected yield for each cutting. Any recommended P and K can be applied after first cutting or in the fall.

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 120 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Note: Special Mg recommendation is made for this crop when soil test K is greater than 200 ppm. See Table 2

Nitrogen Recommendation (lb N/A):

Yield Goal (T/A)				
3	**4**	**5**	**6**	**7**
150	200	250	300	350

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal (T/A)				
	3	**4**	**5**	**6**	**7**
0	170	185	200	215	230
5	150	160	180	190	210
10	130	140	160	170	190
15	110	120	140	150	170
20	90	100	120	130	150
25	70	80	100	110	130
30	50	60	80	90	110
35	30	50	60	70	80
40	20	30	40	50	50
45	10	20	20	20	30
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

Potassium Recommendation (lb K2O/A):

ESTABLISHED REED CANARYGRASS **Crop Code:** 1086

(Optimum soil test K: 100 - 200 ppm)

Soil test K (ppm)	Yield Goal (T/A)				
	3	4	5	6	7
0	200	250	300	350	400
10	200	250	300	350	400
20	190	240	290	340	390
30	190	240	290	340	390
40	180	230	280	330	380
50	180	230	280	330	380
60	170	220	270	320	370
70	170	220	270	320	370
80	160	210	260	310	360
90	160	210	260	310	360
100	150	200	250	300	350
110	140	180	230	270	320
120	120	160	200	240	280
130	110	140	180	210	250
140	90	120	150	180	210
150	80	100	130	150	180
160	60	80	100	120	140
170	50	60	80	90	110
180	30	40	50	60	70
190	20	20	30	30	40
200	0	0	0	0	0

Potassium Message(s) :

When soil test K is greater than 200 ppm and less than 400 ppm K:
Very high K can lead to imbalances in forages which can cause serious health problems in animals. (See Back).

When soil test K is greater than or equal to 400 ppm:
Very high K can lead to dangerous nutrient imbalances in forage crops which can cause serious health problems in animals (See Back).

DISTURBED LANDS **Crop Code:** 1800

Standard Message:

80 lb/A of the N recommendation should be from a slow release source. When available, use manure or other organic material to supply this slow release N.
Soluble Salts level is printed under Laboratory Results on the bottom of this report.
< 0.2: Low
0.2-0.8: Opimum for all but salt-sensitive plants

Lime and Magnesium Recommendation:

pH Goal: 6.5 *See Table 1 for lime recommendations based on target pH*

Opt soil test Mg (ppm): 60 *See Table 2 for Mg recommendations based on optimum soil test Mg*

Nitrogen Recommendation (lb N/A):

Yield Goal ( )				
NA	**NA**	**NA**	**NA**	**NA**
120	120	120	120	120

Phosphorus Recommendation (lb P2O5/A):

(Optimum soil test P: 30 -50 ppm)

Soil test P (ppm)	Yield Goal ( )				
	NA	**NA**	**NA**	**NA**	**NA**
0	150	150	150	150	150
5	140	140	140	140	140
10	120	120	120	120	120
15	110	110	110	110	110
20	100	100	100	100	100
25	80	80	80	80	80
30	70	70	70	70	70
35	50	50	50	50	50
40	40	40	40	40	40
45	20	20	20	20	20
50	0	0	0	0	0

Phosphorus Message(s) :

When soil test P is greater than 300 ppm:
Very high P may lead to crop production or feed quality problems and may result in P loss to the environment.

DISTURBED LANDS **Crop Code:** 1800

Potassium Recommendation (lb K2O/A):
(Optimum soil test K: 100 - 150 ppm)

Soil test K (ppm)	Yield Goal ( )				
	NA	NA	NA	NA	NA
0	200	200	200	200	200
10	190	190	190	190	190
20	180	180	180	180	180
30	180	180	180	180	180
40	170	170	170	170	170
50	160	160	160	160	160
60	150	150	150	150	150
70	140	140	140	140	140
80	140	140	140	140	140
90	130	130	130	130	130
100	120	120	120	120	120
110	100	100	100	100	100
120	70	70	70	70	70
130	50	50	50	50	50
140	20	20	20	20	20
150	0	0	0	0	0
160					
170					
180					
190					
200					

Potassium Message(s) :

When soil test K is greater than 200 ppm:
Very high K may lead to crop production or feed quality problems for the current crop or other crops in the rotation. (See Back).