

SOIL TEST REPORT FOR:				ADDITIONAL COPY TO:		
JOHN JONES JONES FAMILY FARM HARMONY LANE GREENVILLE PA 22222				SAM COOK TOP GROW ENTERPRISES 111 ALFALFA RD. SMITHVILLE PA 11111		
DATE	LAB #	SERIAL #	COUNTY	ACRES	FIELD ID	SOIL
03/18/2015	S15-04459		Centre		A2	

SOIL NUTRIENT LEVELS		Below Optimum	Optimum	Above Optimum
Soil pH	5.9			
Phosphorus	20 ppm			
Potassium	123 ppm			

RECOMMENDATIONS FOR: *Home Lawn to Maintain* *Kentucky Bluegrass*

Limestone needs, lb/1000 square feet

110 Limestone Apply the quantity of limestone recommended to the left to your soil in a single application unless it exceeds 100 lb/1000 square feet. If the recommendation exceeds 100 lb/1000 square feet, split the recommended amount into 2 or more separate applications, 4 to 6 months apart. Optimum soil pH can be maintained by testing your soil every 2 to 3 years and following limestone recommendations. See additional comments on back of report for adjusting application rates, as-needed, and additional considerations.

Nutrient needs, lb/1000 square feet/year

1 to 4	3.0	2.0	Nitrogen (N), phosphorus (P ₂ O ₅) and potassium (K ₂ O) needs for optimum turf growth are listed to the left. Apply these nutrients following guidelines provided below and on the back of this report for a 2 to 3 year period and retest to determine if adjustments are needed.
N	P ₂ O ₅	K ₂ O	

Developing a turfgrass fertility program to meet your objectives

The first step is to determine how much nitrogen to apply. There is no reliable soil test to predict the amount of nitrogen needed for turfgrass throughout the growing season. The appropriate rate of nitrogen fertilizer is determined based on the grass species being grown and how intensively you wish to manage your lawn. Guidelines provided below will help you make the best decision for your conditions. See additional comments on back of report.

High maintenance program: For a high quality lawn containing predominantly Kentucky Bluegrass, apply a total of 2 to 4 lbs of nitrogen/1000 square feet/year with the annual total amount split into 2, 3, or 4 applications over the course of the growing season. New lawns (less than 4 years old), lawns growing on marginal soils, lawns receiving significant traffic, and/or where clippings are removed typically benefit from these higher rates of nitrogen.

Low to medium maintenance program: For a lawn containing predominantly Kentucky Bluegrass, apply a total of 1 to 2 lbs of nitrogen/1000 square feet/year. If using 2 lbs of nitrogen/1000 square feet/year, split the total amount into 2 applications and apply in spring and late summer or fall. Established lawns that are over 4 years old, growing on good quality soil, with minimum traffic, and where clippings are not removed typically perform adequately with these lower rates of nitrogen.

If P₂O₅ and/or K₂O are needed, try to find a fertilizer grade with N-P₂O₅-K₂O in a ratio similar to needs of your lawn. If P₂O₅ and K₂O are not needed, apply a fertilizer containing nitrogen only. Apply fertilizer to turf at a rate that will provide 0.75 to 1.0 lb nitrogen per 1000 square feet per application (this typically matches the label rate on most lawn fertilizers). See additional comments on back of report.

LABORATORY RESULTS:							Optional Tests:					
¹ pH	² P lb/A	Exchangeable Cations (meq/100g)					% Saturation of the CEC			Organic Matter %	Nitrate-N ppm	Soluble salts mmhos/cm
		³ Acidity	² K	² Mg	² Ca	⁴ CEC	K	Mg	Ca			
5.9	40	6.30	0.32	0.68	4.94	12.2	2.6	5.5	40.4	3.6		

Test Methods: ¹1:1 soil:water pH, ²Mehlich 3 (ICP), ³Mehlich Buffer pH, ⁴Summation of Cations

Limestone Application Guidelines

Limestone may be applied at any time of the year, although fall application is generally considered optimum. Aerating the lawn immediately before or after applying limestone increases its effectiveness. This is especially helpful when application rates exceed 50 lbs/1000 square feet. Use a high quality ground or pelletized agricultural limestone product to meet the limestone recommendation on this report. Manufacturers of agricultural limestone products provide a number called the calcium carbonate equivalent, or CCE, on the label. CCEs with high numerical values (close to 100% or above) indicate a pure limestone source (greater ability to neutralize soil acidity). The amount of limestone recommended on this report is based on an agricultural ground limestone with a CCE of 100%. If your limestone source is close to or equal to 100%, you don't need to adjust the recommended amount. In the event that you use a limestone source with a CCE well below or above 100, use the following formula to adjust the required amount.

$$\text{Actual liming material required} = \frac{(\text{Soil test recommendation, lbs/1000 square feet}) \times 100}{\text{CCE of liming material}}$$

Example:

Soil Test Recommendation: Apply 75 lbs limestone/1000 square feet

CCE on label: 80%

$$\begin{aligned} \text{Actual liming material required} &= \frac{(75 \text{ lbs}) \times 100}{80} \\ &= 94 \text{ lb/1000 square feet of actual liming material} \end{aligned}$$

Turfgrass Fertilizer Grades

Turfgrass fertilizers contain one or more plant nutrients. The most common nutrient in lawn maintenance fertilizers is nitrogen, but some products also contain phosphorus (designated on labels as available phosphate, or P_2O_5), and/or potassium (designated as water soluble potash, or K_2O). The amounts of these three nutrients are listed on the fertilizer container as three numbers, indicating the percentages by weight of nitrogen, phosphate, and potash—always in that order. The three numbers are referred to as the fertilizer grade or analysis. For example, a 50-lb bag of fertilizer with a grade of 30-0-10 contains 15 lb of nitrogen, no phosphate, and 5 lb of potash. A 10-lb bag of the same product would yield 3 lb nitrogen, no phosphate, and 1 lb of potash. Knowing the fertilizer grade is important in determining which nutrients, and the amount of each nutrient, are contained in your fertilizer. The majority of lawn maintenance fertilizers are now free of phosphorus, so if your soil test report indicates a need for phosphorus, you can apply a starter fertilizer. Starter fertilizers always contain P_2O_5 and usually some K_2O as well.

Get the Most Out of Your Fertilizer While Protecting Water Resources

The following are suggestions for maximizing the efficiency of your fertilizer program, while minimizing nutrient losses to water resources through leaching and runoff.

- Apply nitrogen, phosphorus, potassium, and limestone according to soil test recommendations. Do not apply more than is needed as this may harm the turf and contribute to leaching and runoff.
- On turf, apply fertilizer in two or three applications over the growing season so as to meet the needs of your turf at the appropriate time of year (mid to late spring, late summer, and late fall). Late fall fertilizer applications should take place around the same time as the last mowing of the season, and before soils freeze. An alternative to late fall fertilization is an early spring fertilizer application.
- When possible, use fertilizer containing some nitrogen in a slowly available form, as either water insoluble nitrogen (WIN), controlled-release nitrogen (CRN), or coated urea. This information is provided on the fertilizer label.
- Returning clippings to lawns can cut nitrogen fertilizer use by up to one-third.
- Keep fertilizer on the lawn and not on pavement. Shut off your spreader when moving across driveways or maintenance roads, and blow or sweep granules from pavement onto the turf. In small lawns enclosed by sidewalks and driveways, use a drop spreader for greater accuracy.
- Do not apply fertilizer to lawns under summer dormancy or on frozen surfaces in winter.
- Fill and empty fertilizer spreaders in an area where spills can be easily cleaned up. Use your spilled fertilizer; don't wash it into the street or storm sewers.

Penn State Cooperative Extension publications dealing with turfgrass management are available from your county extension office and on the PSU *Turfgrass Advice* website, <http://plantscience.psu.edu/research/centers/turf/extension>

Soil should be retested in two to three years to determine limestone requirement and nutrient needs.