



# EXTENSION

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## Oklahoma Lawn and Garden Soil Test Summary 2015-2019

**Casey Hentges**  
 Extension Specialist  
 for Oklahoma Gardening

**Hailin Zhang**  
 Extension Specialist for Soil, Water  
 and Forage Testing Laboratory

**Barbara McCray**  
 Data Management, Soil, Water  
 and Forage Analytical Laboratory

**Brian Arnall**  
 Extension Specialist  
 for Precision Nutrient Management

The OSU Extension's Soil, Water and Forage Analytical Laboratory (SWFAL) analyzes soil samples and archives testing results for all 77 Oklahoma counties. This document is a statewide and county summary of all lawn and garden soil samples taken from 2015-2019. The summary from 2015-2019 consists of 25,274 samples with results presented in Tables 1 and 2. Samples identified as agriculture, consultant, campus or research were excluded in the summary, since most of them do not represent typical residential environments. Soil samples were analyzed for pH, buffer index (BI) if pH was less than 6.3, nitrate-nitrogen (NO<sub>3</sub>-N, pounds per acre), soil test phosphorus (STP) index, and soil test potassium (STK) index. Methods used for the tests can be found in [PSS-2901, Procedures Used by OSU Soil, Water and Forage Analytical Laboratory](#). Medians are given along with the average because most of the data do not have normal distributions, and sometimes averages give a false impression about where the center of the distribution lies. Outliers were also removed from the database (NO<sub>3</sub>-N>1000, STP>2000, and STK>2000) because some samples marked as lawn or garden but might be from fertilizer disposal sites or composts.

This summary is a valuable index of the soil fertility status of Oklahoma home lawns and gardens. However, soil samples still need to be collected and analyzed for an individual gardener to better manage soil fertility and pH. Similar summaries for individual counties are also available. To request a copy for a specific county, please contact the authors at 405-744-6630, [soiltesting@okstate.edu](mailto:soiltesting@okstate.edu) or [hailin.zhang@okstate.edu](mailto:hailin.zhang@okstate.edu).

### Soil pH and Lime Requirements

The pH of Oklahoma lawn and garden soils tends to be near neutral with a median of 7.1. That means 50% of the lawns and gardens tested had a pH less than 7.1 and 50% tested were above 7.1. Soil pH of all samples is divided into four groups, as shown in Figure 1. Nearly 64% of soils tested are in the pH range 5.6 to 7.5. The remaining 36% are outside this range, with 29% above 7.5 and only 7% are below 5.5. Many plants will begin to show signs of reduced vigor with

**Table 1. Median, average, and ranges of nitrate-nitrogen (NO<sub>3</sub>-N), soil test phosphorus (STP) and soil test potassium (STK) for all lawn and garden soil samples tested by SWFAL between 2015-2019.**

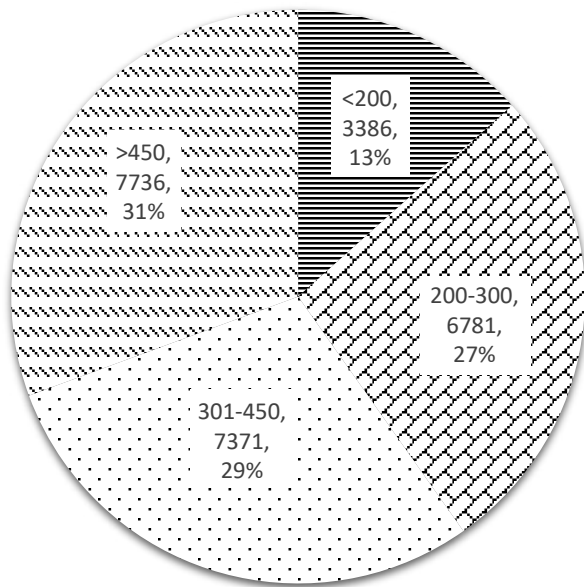
	Soil pH	NO <sub>3</sub> -N (lbs./A)	STP Index	STK Index
Count	25,274	25,274	25,274	25,274
Average	7.0	28	205	403
Min	3.1	0	0	4
Max	9.9	986	1995	1999
Median	7.1	14	127	344

**Table 2. Distributions of soil pH, NO<sub>3</sub>-N (pounds per acre), Soil Test P Index (STP) and Soil Test K (STK) Index analyzed from 2015-2019.**

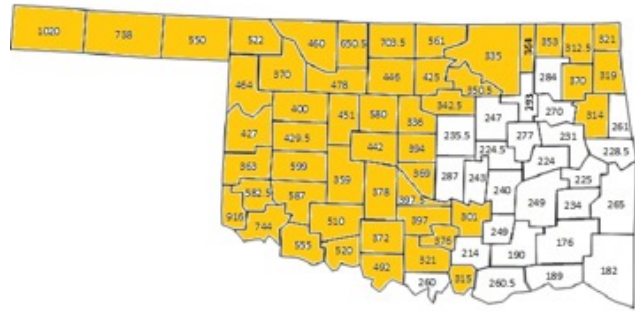
Soil pH	<= 5.5	5.6-6.5	6.6-7.5	> 7.5
Count	1,735	5,681	10,505	7,353
Percent	6.86%	22.48%	41.56%	29.09%
NO <sub>3</sub> -N (lbs./A)	<10	10-25	26-40	>40
Count	9,403	8,429	2,923	4,519
Percent	37.20%	33.35%	11.57%	17.88%
STP Index	<65	65-120	121-300	> 300
Count	9,378	2,847	7,543	5,506
Percent	37.11%	11.26%	29.84%	21.79%
STK Index	<200	200-300	301-450	>450
Count	3,386	6,781	7,371	7,736
Percent	13.40%	26.83%	29.16%	30.61%







**Figure 8. Distribution of soil test potassium index of Oklahoma lawn and garden soils tested from 2015-2019.**



**Figure 9. Median Soil Test potassium (STK) index values of soil samples tested from 2015-2019 for Oklahoma Counties. Shaded counties had an STK index 300 and greater.**

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