

Oregon State University Lime Requirement Testing Updates for Western Oregon in 2019

Situation:

There have been an increasing number of recent reports from western Oregon where buffer pH values seem much higher than they have in the past. Many soil testing labs in the U.S. are switching from the SMP to the Sikora buffer test. As a result of this change, some soil testing labs serving Oregon are showing higher buffer test values from the Sikora test than the SMP test, while other labs are not reporting a difference between the two tests.

Implications:

If buffer pH is artificially high, than the lime recommendation will be artificially low. This could result in soil tests recommending less lime than needed, which could lead to yield and quality issues created by nutrient toxicities (Al and Mn) and deficiencies (P, Ca, Mg, Mo) that are caused by acidic soil conditions.

What is OSU doing to fix the problem?

OSU Soil Fertility Specialist, Dr. Amber Moore, has dedicated funding received from the Oregon Tall Fescue Commission to calibrate the Sikora and other lime requirement tests to accurately estimate the amount of lime required to reach a specific target pH for western Oregon soils. A wide range of Willamette Valley soils are currently being collected and analyzed at OSU. We expect to provide updated information to soil test labs and growers by the summer of 2020.

What to do until the problem is addressed?

Follow current OSU lime recommendations, which includes using the 1:2 soil:water pH test and the SMP buffer test. The SMP buffer test has been validated for Oregon soils and conditions, while the Sikora test is still under evaluation. At this time, we can only recommend the SMP test for lime requirement estimates for Oregon soils. Soil testing labs do not always indicate the lime requirement test method in soil test reports, so it is important to contact the lab manager about which buffer test is being used.

When in doubt:

Apply lime. If soil pH is below the minimum threshold for your crop and lime is not being recommended for your field, it may be prudent to consider adding lime. Adding additional lime at agronomic and economic rates is unlikely to compromise crop growth. Adding lime is a long-term investment because it will remain in the soil for several years, while nitrate-N from fertilizers can leach out of the system after a few heavy rainfalls. It is especially important to apply lime during establishment years for perennial cropping systems, because lime can be incorporated into the soil and applied at higher rates than what can be done with top dress applications once the crops are established.

For more information:

- Soil Test labs serving Oregon: <https://catalog.extension.oregonstate.edu/em8677>.
- Western Oregon Lime Guide: <https://catalog.extension.oregonstate.edu/em9057>
- Recommendations for target pH, buffer tests, and lime applications can be found in OSU nutrient management guides for your crop of interest
<https://catalog.extension.oregonstate.edu/>
- Contact Nicole Anderson (nicole.anderson@oregonstate.edu) or Amber Moore (amber.moore@oregonstate.edu) if you have additional questions.

Recommendations above are described in greater detail in OSU Extension Publication EM 9057, Applying Lime to Raise Soil pH for Crop Production (Western Oregon).