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Citrus Soil pH Testing Procedures[1]

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Figure 1. Collect soil sample.



Figure 2. Mix soil and distilled water in a 1:1 ratio by volume.

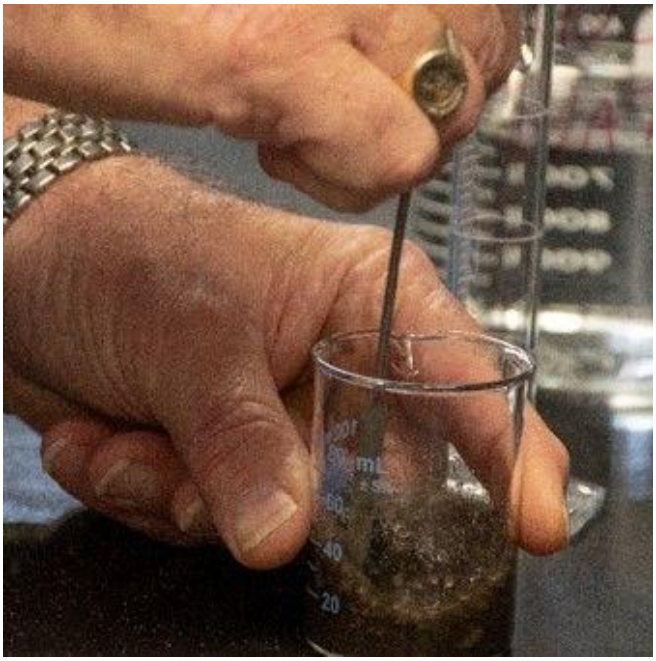


Figure 3. Continuously stir for 1 minute, then let stand for 15–30 minutes.



Figure 4. Use testing equipment to gather soil pH readings.

Facts

- Maintaining the correct soil pH is essential to ensure optimal plant growth and crop yield.
- Soil samples should be taken once per year, ideally at the end of the rainy season.
- It is generally convenient to take soil samples when collecting leaf samples.
- The accuracy of soil test interpretations depends on how well soil samples represent the area tested.
- The slurry method allows you to get a representative sample and measurement of an entire area with just one test.

Soil Sample Method

- Because soil pH can vary within a small area, be sure to take samples that are representative of the production block.
- Take several soil samples to a 6-inch depth from under 15 to 20 tree canopies (irrigation zone) into a bucket.
- Mix soil and place about one handful of soil in a sample bag marked with the sample location and date.
- Samples should also be taken from between tree rows (bed tops or row middles) using the procedure above.
- Keep these two samples separate.

Soil pH Measurements

- Temperature fluctuations will cause measurement errors, so samples should be analyzed as soon as possible.
- Add equal parts of soil and distilled or deionized (DI) water in a 1:1 ratio by volume.
- Continuously stir the suspension for at least 1 minute.
- Let the soil suspension stand for about 15–30 minutes to allow most of the suspended soil to settle out.
- If electronic testing equipment is used, the electrodes must be thoroughly rinsed with deionized or distilled water between samples.

Test Strips

- pH test strips, also known as litmus paper, are paper strips that have been saturated with pH-sensitive dyes.
- When exposed to a damp substance, the strips will change color relative to that substance's pH. This color change corresponds to a color chart provided with the test strips.



Figure 5. pH test strips.

Advantage

- This method for testing is quick, easy, and inexpensive.

Disadvantage

- Test strip results are subjective because colors can look different depending on the lighting as well as from person to person. This leads to inconsistent results (+/- 0.5 pH).

Chemical Test Kits

- pH chemical test kits are like test strips one would use to determine the pH of pool water.
- Using a soil test kit involves adding your soil, distilled or DI water, and some chemicals to a tube.
- The chemicals react with the pH levels in your sample to create a color change.



Figure 6. Electronic pH tester.

Advantage

- Test kits are easy to use.

Disadvantage

- Readings depend on interpretation of color, which may vary for different people and are therefore subjective.

Electronic Measurements

- Each instrument/electrode system described below must be calibrated at a minimum of two points that bracket the expected pH of the samples and are approximately three pH units or more apart to obtain the best results.

Digital Pocket Testers

- Soil pH pocket testers are digital, portable testing instruments that utilize a pH electrode.
- The pH electrode takes a pH reading in your soil or soil slurry and displays it on an LCD screen.
- Many testers also have a much higher resolution and accuracy than chemical options, generally between 0.1 and 0.01 pH units.

Advantage

- The integration of a pH electrode in the durable casing of a tester allows for much greater accuracy than test kits or strips.

Portable Soil pH Meters

- A bit larger than the digital pocket testers, portable soil pH meters offer many functions, including measuring salinity and data logging.
- Most portable pH meters have automatic temperature compensation; they will come with either an integrated temperature sensor or a separate temperature probe.
- Portable soil pH meter measurements have resolutions as low as 0.001 pH units.

Advantage

- Portable pH meters are a convenient way to have laboratory accuracy in field testing.

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