Soil Sampling and Nitrate Quick Test

Supplies
1. Soil probe or trowel
2. Buckets
3. Distilled water
4. Calcium chloride (CaCl₂)
5. 50 ml centrifuge tubes
6. Nitrate quick test strips

Sample
- Mix the samples together in a bucket. Use this homogenized soil sample for the nitrate quick test.
- Prepare test tube. Add 30 ml of solution to a 50 ml centrifuge tube.
- Add soil and shake. Add soil sample to the tube until solution rises to 40 ml. Cap tube and shake vigorously.
- Test. Dip test strip into clear solution for 1 second. Shake off excess water and wait 60 seconds. Compare color to color chart.
- Wait. Let solution sit until particles settle. Time will vary depending on clay content of soil.

Create solution. Add 5.6 grams (about 1 tsp) of calcium chloride to 1 gallon of distilled water.

Nitrate Quick Test
Interpreting Results

The in-field nitrate quick test (NQT) is a cost-effective tool to determine residual soil nitrate concentration. When done correctly, the test provides an estimate of residual soil nitrate, which can be used to improve fertilizer management decisions to meet crop needs.

Meaning of the result

Soils with less than 10 ppm NO\textsubscript{3}-N are considered low. Levels above 20 ppm show that there is available nitrogen to meet immediate crop needs.

However, late in the season, low soil NO\textsubscript{3}-N values may not indicate insufficient nitrogen. Low NO\textsubscript{3}-N may indicate efficient crop uptake or movement of nitrate below the sampled layer of soil. Tissue testing (petiole sample) may help to confirm nitrogen status.

Use the generated number to convert nitrate in the soil to existing pounds (lbs) of available nitrogen per acre. If you take soil samples to a depth of 6 inches, multiply your reading by 2. If your soil samples were taken at 12 inches, multiply the number (13.9 in the example) by 4:

$$13.9 \times 4 = 55.6 \text{ lbs nitrogen/acre available to your crop}$$

Nitrate measurements may change depending on soil texture, precipitation and irrigation. By becoming familiar with the NQT, you can confidently make efficient changes to your fertilization plan.

More NQT information

See details about NQT supplies and process at:
www.cdfa.ca.gov/is/ffldrs/frep/Resources.html