

Pre-Sidedress Nitrate Test: for Sampling

The pre-sidedress nitrate test (PSNT) (also known as the June Nitrate Test) can help you to determine the current level of nitrogen in the soil. If you have a soil probe, the sampling takes about 20 minutes per field. (Probes are available from many ag suppliers for \$40 to \$75.) The amount of nitrate-N (reported as parts per million N03-N) in the soil is a good indicator of whether more N will be needed to complete crop growth.

To take a sample for nitrate testing, take 15 to 20 subsamples or cores from the field. Sample slices or cores should be taken to a depth of twelve inches if possible. Avoid sampling fertilizer bands or other areas which have high concentrations of N fertilizer. Generally the best place to sample is between the rows. If plastic mulch is used, samples should be taken from under the plastic. With a soil probe you can just sample through the plastic, leaving small holes which cause no problem. Be sure to avoid any trickle irrigation tape under the plastic. Mix all the samples together and submit about one cupful to the **UMass Soil Testing Lab, West Experiment Station, University of Massachusetts, Amherst MA 01003**.

Cloth bags are available for sending PSNT samples to the Soil Testing Laboratory. These bags are more convenient to use because it is not necessary to dry the samples, as long as the laboratory receives them within four days. With other bags you should dry the samples unless you can deliver them within 24 hours. The lab will do the PSNT within one working day of receipt and inform you of the results. There is no charge for the bags, but you must send payment along with the samples. The charge for this test is \$6.00 (include a check made out to the University of Massachusetts). Be sure to request a Nitrate (PSNT) test. To obtain bags, contact either Frank Mangan at (978)422-6374, John Howell at 413-259-1203, or Steve Bodine at 413- 545-2311 (FAX 545-1931). Frank Mangan and John Howell are available to consult with growers about the test results.

The PSNT is a tool growers can use to optimize N application. Research conducted for several years at UMass, along with several years of on-farm experience, indicates that an appropriate threshold for peppers and winter squash is about 30 ppm nitrate-N. Above this level, sidedressing or topdressing supplemental N would be of no value and will likely decrease yield of butternut squash and peppers. Research in Connecticut has shown similar results in pumpkins. There is increasing agreement that a threshold of 30 ppm is appropriate for most vegetables except for sweet corn, for which the threshold is 25 ppm. Using the PSNT can save money and time, improve crop yield, and reduce the likelihood of N leaching and water contamination. Barring unusual weather conditions, PSNT levels in a field tend to be fairly consistent from year to year. Once these values are known for a field, a grower probably does not need to test every year. As a tool, the PSNT should be used along with a grower's experience and knowledge of fields. Interpretation of PSNT results should be made with regard to weather conditions such as leaching rains or soil temperatures.

- John Howell, Frank Mangan & Ruth Hazzard