



## CORNELL NUTRIENT ANALYSIS LABORATORY

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### Directions for Soil Sample Collection

#### 1. Obtain a soil test kit and full information.

Cornell soil sampling kits may be obtained from local county Cooperative Extension offices or by contacting Cornell Nutrient Analysis directly. Each kit includes a submission form to be completed by the grower, a mailing bag with an attached envelope for sending in the soil sample, a plastic liner bag to contain the soil, and a submission form.

#### 2. Establish a regular sampling time.

For most crops, the soil should be sampled every 2 to 3 years. For soils under intensive use, as in high-value cash crops or where nutritional problems persist, the soil should be tested prior to planting each crop. Soil samples may be taken at any time during the year, however avoid extremely wet soil conditions unless absolutely necessary. It is suggested that any given field be sampled at about the same time of the year.

#### 3. Use proper sampling tools.

There are two important requirements. First, that a uniform slice be taken to the desired depth (usually the plow layer), and second, the same depth and volume of soil be taken from each spot sampled. A soil probe or augur is best; if not available use a garden spade or shovel. The technique for using a spade is to dig a hole to the sampling depth, cut a 1/2 inch thick slice of soil from the face of the hole, and trim both vertical sides of the slice so as to obtain a strip of soil about 1 inch wide from top to bottom. Do not use galvanized tools or containers because of probable zinc contamination.

#### 4. Sample to the proper depth.

*Cultivated agronomic crops and home gardens:* Soil samples are ordinarily taken to the tillage depth. This depth is usually 6-10 inches but may be deeper. The tillage depth is important since lime and fertilizer are mixed within the tilled layer.

*No-till or minimum till crops:* it is best to take a small sample from the 0-1 inch depth and another sample from 1-8 inch depth. The surface and the normal depth sample should be placed in separate plastic bags labeled clearly as "surface 0-1 inch" and "normal depth 1-8 inch", and sent to the laboratory in the same outer cloth bag with one submission form.

*Lawns and pastures:* a sample from the upper four to six inches of soil is satisfactory. Thatch and other visible plant residue should be removed.

*Tree and fruit crops:* for deep-rooted tree crops, two samples should be sent to the laboratory: (a) a surface soil sample from the 0- to 8-inch depth, and (b) a subsoil sample from the 8- to 24-inch depth. The two samples are needed because these crops obtain many of their nutrients from the subsoil. The samples should be sent in separate mailing bags, with separate, completed submission forms. To keep these two samples together for analyses and recommendations, record the bag numbers for both samples on each submission form.

*Greenhouse and potting soils:* each batch of soil and growth-medium mixture should be sampled separately.

#### 5. Obtain a representative sample.

Each soil sample sent to the CNAL should be a composite consisting of the soil from cores taken randomly at several places across the field. The purpose of this sampling procedure is to minimize the effects of any local non-uniformity in the soil. Cores or slices of soil, from about 10-20 locations over the area, should be taken for each soil sample. The soil cores should be mixed well in a paper or plastic bag or plastic bucket. Metal containers, i.e. galvanized metal will contaminate the sample. Small, unusual areas should be avoided when the intent is to estimate the fertility level of the field. Areas that should be avoided include: dead or back furrows, near windbreaks, trees, fence lines, old manure and lime pits, wet spots, areas near lime rock roads, or boundaries between slopes and bottomland. To trouble-shoot a small area with poor crop growth, a separate sample of the unusual area is needed.

#### 6. Prepare the sample for submission to the laboratory.

DO NOT SEND WET SAMPLES TO THE LABORATORY. They may leak in the mail, provide inappropriate results, and delay analysis. If it is necessary to sample wet soil, spread the sample in a thin layer on an aluminum pie pan or on a clean sheet of wrapping paper or waxed paper, and allow to dry out at room temperature. Do not use heat to hasten drying. A fan blowing across the sample usually speeds drying. In a wet sample, rapid

biological transformations of the amounts and forms of soil nutrients (particularly forms of inorganic nitrogen) can occur. Drying is an effective means of preserving the field chemical characteristics of the soil sample. Place about two-thirds to one pint of the composited sample in a plastic bag and close, then enclose in the cloth bag supplied with the kit. The plastic bag should contain sufficient soil to fill at least 2/3 of the bag. Tie the cloth bag securely with the drawstring.

**7. Fill out the appropriate submission form.**

The submission form appropriate for your crop must be completed and sent along with the sample to the laboratory. The recommendations may not be accurate if the submission form is not filled out properly. Seal the completed submission form into the envelope. Do not detach the envelope from the bag.

- Form A: Standard Soil Fertility Test for Commercial Field Crops
- Form F: Standard Soil Fertility Test Package For Commercial Fruit Crops and Christmas Trees
- Form H: Standard Soil Fertility Test Package For Home Gardens
- Form I: Illinois Soil N Test (ISNT) and Loss-On-Ignition (LOI) For Corn
- Form P: Pre-Sidedress Nitrate Test (PSNT) For Field Crops and Vegetables
- Form RS: Research Soil Analysis
- Form T: Standard Soil Fertility Test Package For Commercial Turf

- Form V: Standard Soil Fertility Test for Commercial Vegetable Crops

Additional submission forms for download are available on our website: <http://cnal.cals.cornell.edu>.

**8. Mail it in.**

Send the sample and submission form to the laboratory. Print your name and complete address on the envelope. Check the type of submission form enclosed. Apply correct postage and mail; several samples can be packaged together in a carton and sent by mail or UPS, at less cost per sample than when sent individually.

**9. Follow recommendations and keep records.**

Complete the blocks below and keep this sheet for your records. Do not send this page to the laboratory. Study your fertilizer recommendations carefully. If you have any questions, discuss them with your local Cooperative Extension agent. The name, address, and phone number of your Cooperative Extension agent is printed on your laboratory report. Make soil test results a part of your field records. Then you will know when soil fertility levels rise or fall. For questions concerning the status of your sample, contact the Cornell Nutrient Analysis Laboratory. Please indicate client's name, county, date sample sent to laboratory, field name and sample bag number.

Client name										County					
[Grid for Client name]										[Grid for County]					
Sample bag number				Sample identification						Date sampled					
[Grid for Sample bag number]				[Grid for Sample identification]						[Grid for Month]	[Grid for Day]	[Grid for Year]			
										Month	Day	Year			

County	Telephone	County	Telephone	County	Telephone
Albany	(518) 765-3500	Hamilton	(518) 548-6191	Rockland	(845) 429-7085
Allegany	(716) 268-7644	Herkimer	(315) 866-7920	St. Lawrence	(315) 379-9192
Broome	(607) 772-8953	Jefferson	(315) 788-8450	Saratoga	(518) 885-8995
Cattaraugus	(716) 699-2377	Lewis	(315) 376-5270	Schenectady	(518) 372-1622
Cayuga	(315) 255-1183	Livingston	(716) 658-3250	Schoharie	(518) 234-4303
Chautauqua	(716) 664-9502	Madison	(315) 684-3001	Schuyler	(607) 535-7161
Chemung	(607) 734-4453	Monroe	(716) 461-1000	Seneca	(315) 539-9251
Chenango	(607) 334-5841	Montgomery	(518) 762-3909	Steuben	(607) 776-9631
Clinton	(518) 561-7450	Nassau	(516) 228-0426	Suffolk	(631) 727-7850
Columbia	(518) 828-3346	Niagara	(716) 433-8839	Sullivan	(845) 292-6180
Cortland	(607) 753-5077	Oneida	(315) 736-3394	Tioga	(607) 687-4020
Delaware	(607) 865-6531	Onondaga	(315) 424-9485	Tompkins	(607) 272-2292
Dutchess	(845) 677-8223	Ontario	(585) 394-3977	Ulster	(845) 340-3990
Erie	(716) 652-5400	Orange	(845) 344-1234	Warren	(518) 623-3291
Essex	(518) 962-4810	Orleans	(585) 798-4265	Washington	(518) 746-2560
Franklin	(518) 483-7403	Oswego	(315) 963-7286	Wayne	(315) 331-8415
Fulton	(518) 762-3909	Putnam	(607) 547-2536	Westchester	(914) 285-4620
Genesee	(716) 343-3040	Putnam	(845) 278-6738	Wyoming	(585) 786-2251
Greene	(518) 622-9820	Rensselaer	(518) 272-4210	Yates	(315) 536-5123
NY city	(212) 340-2900				