Nutrient Management Spear Program

2025 New York Soil Test Conversion Program

3-31-2025

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New York Soil Test Conversion Program

New Initiative in 2025:

With new soil testing labs marketing and offering services to CAFO Permitted farms in New York, in partnership with state agencies NYSDEC, NYSAGM and NY NRCS, the Nutrient Management Spear Program is embarking on a 2025 New York Soil Test Conversion Program for existing and new laboratories to further collaborate on developing conversion equations to Cornell Morgan equivalents for nutrient management planning via the NRCS-NY 590 conservation practice standard.

New York Soil Test Conversion Program

Steps:

1. Collect 230-250 soil samples, representing 40-50 soil types and all major soil groups across New York
   - 5-gallon (full) buckets
   - 0-8 inches depth (collect with a spade…)
   - Georeferenced location
   - Field history form (crops, manure history, drainage, cover crops, tillage, etc.)
2. Transport to NMSP at Cornell; team will dry and grind samples and subsample and create batches for participating lab
3. Each sample will be analyzed for soil pH, buffer pH, soil organic matter (500^{o}C), and Morgan extractable P, K, Ca, Mg, Mn, Fe, Al, B, and Zn. S could be added if labs agree. All lab results will be compared to these.

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4. Participating labs will share analytical protocols implemented in the lab for record keeping and analyze samples using their standard method (e.g. Mehlich-3, Modified Morgan, or Morgan) and analyze for soil pH, buffer pH, soil organic matter, P, K, Ca, Mg, Mn, Fe, Al, B and Zn (and S if they would like to)
5. Each participating lab will receive a set of comparisons for the analytical method that they participate with. This could be more than one method per laboratory
6. A master conversion equation tool will be developed and made available through the NMSP website

New York Soil Test Conversion Program

Ontario/Erie/St Lawrence-Lake Champlain Plains-High Lime Glacial Till (MLRAs 101, 142)	Ontario/Erie/St Lawrence-Lake Champlain Plains-Acid Glacial Till (MLRAs 101, 142)	Ontario/Erie/St Lawrence-Lake Champlain Plains-Glacial Till (MLRAs 101, 142)	Ontario/Erie/St Lawrence-Lake Champlain Plains-Glacial Lacustrine/Marine/Glacial fluvial/Deltaic Sediments (MLRAs 101, 142)	Ontario/Erie/St Lawrence-Lake Champlain Plains-Outwash (MLRAs 101, 142)
A. Well and Moderately Well Drained	A. Well and Moderately Well Drained	A. Well and Moderately Well Drained	A. Well and Moderately Well Drained	A. Well and Moderately Well Drained-High pH
Honeoye	Madric	Ontario	Colonie	Arkport
Lima	Schroon	Bombay	Collamer	Howard
Hogansburg		Farmington	Hudson	Palmyra
			Williamson	
			Vergennes	
B. Somewhat Poorly and Poorly Drained	B. Somewhat Poorly and Poorly Drained	B. Somewhat Poorly and Poorly Drained	B. Somewhat Poorly and Poorly Drained	B. Somewhat Poorly and Poorly Drained
Ovid	Orpark	Angola	Minoa	Swanton
Appleton			Muskellunge	
			Niagara	
			Rhinebeck	
			Raynham	

Dan Ufnar, State Soil Scientist NRCS

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Lake Erie-Allegany Plateaus/Catskills-Acid Glacial Till (MLRAs 139, 140)	Lake Erie-Allegany Plateaus/Catskills-Acid Outwash (MLRAs 139, 140)	Hudson Valley/Long Island Till (MLRAs 144a, 149B)	Hudson Valley/Long Island Outwash (MLRAs 144a, 149B)	Alluvium (All MLRAs)
A. Well and Moderately Well Drained	A. Well and Moderately Well Drained	A. Well and Moderately Well Drained-Acid	A. Well Drained-Acid	A. Well Drained-Acid
Bath	Chenango	Bernardston	Riverhead	Barbour
Lewbeach	Tunkhannock	Pittstown		
Lordstown		Montauk		
Mongaup		Oakville		
Chautauqua				
Willowemoc				
B. Somewhat Poorly and Poorly Drained		A. Well and Moderately Well Drained		B. Well Drained
Busti		Stockbridge		Hamlin
Fremont				Tioga
Volusia				

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- To get a range in fertility levels, per soil series:
  - Low to medium P (<9 lbs/acre)
  - optimum P (9-19 lbs P/acre)
  - high P (20-39 lbs P/acre)
  - Very high P (40-80 lbs P/acre)
  - Very high (>80 lbs P/acre)
- Select whatever you think you could collect (enter on google doc)
- https://docs.google.com/spreadsheets/d/13MNd_wo0ppuBsX-hX2dbSsaQCh_niJwQ/edit?usp=sharing&ouid=116910914563647058489&rtpof=true&sd=true

Field History Form

- Project instructions:
  - http://nmsp.cals.cornell.edu/Announcements/SoilSampling_ProjectDescription_3_31_2025.pptx
  - http://nmsp.cals.cornell.edu/Announcements/SoilSampling_ProjectDescription_3_31_2025.pdf
- Please include a completed field history form for each bucket you collect for this project. The field history form asks for rotation information, field management, and manure history.
  - http://nmsp.cals.cornell.edu/Announcements/SoilSampling_Blank_FieldHistory_3_31_2025.docx
  - http://nmsp.cals.cornell.edu/Announcements/SoilSampling_Blank_FieldHistory_3_31_2025.pdf

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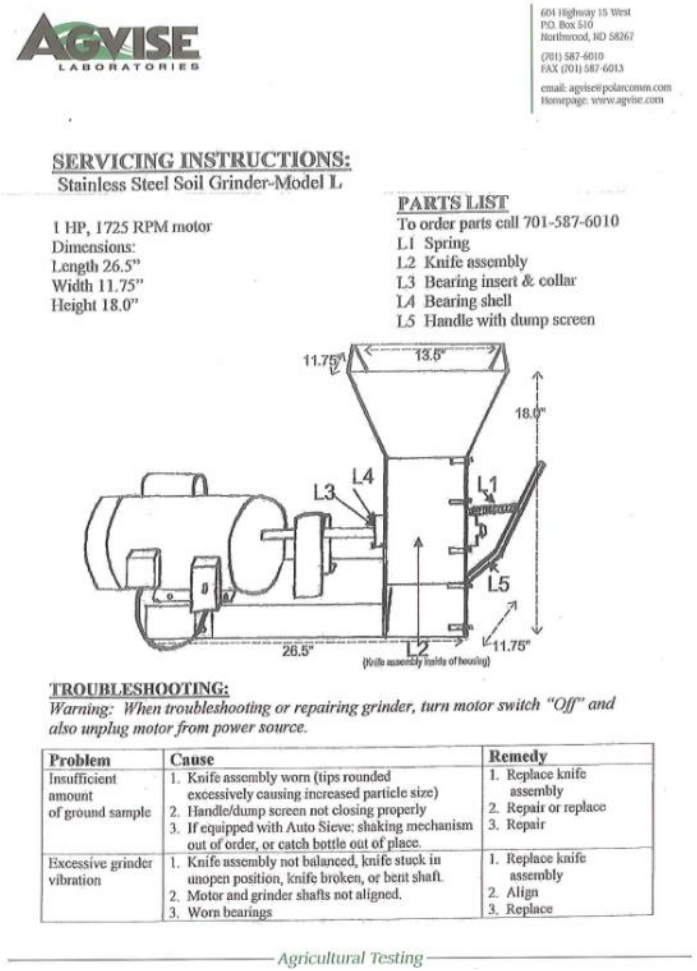
Labs with confirmed interest:

- Dairy One
- Waypoint
- Spectrum
- Integrated Ag Services
- Radical Agronomics
- Maine
- Penn State

Additional labs welcome!



AGVISE LABORATORIES

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SERVICING INSTRUCTIONS:
Stainless Steel Soil Grinder-Model L

1 HP, 1725 RPM motor
Dimensions:
Length 26.5"
Width 11.75"
Height 18.0"

PARTS LIST
To order parts call 701-587-6010
L1 Spring
L2 Knife assembly
L3 Bearing insert & collar
L4 Bearing shell
L5 Handle with dump screen

TROUBLESHOOTING:
Warning: When troubleshooting or repairing grinder, turn motor switch "Off" and also unplug motor from power source.

Problem	Cause	Remedy
Insufficient amount of ground sample	1. Knife assembly worn (tips rounded excessively causing increased particle size) 2. Handle/dump screen not closing properly 3. If equipped with Auto Sieve: shaking mechanism out of order, or catch bottle out of place.	1. Replace knife assembly 2. Repair or replace 3. Repair
Excessive grinder vibration	1. Knife assembly not balanced, knife stuck in unopen position, knife broken, or bent shaft. 2. Motor and grinder shafts not aligned. 3. Worn bearings	1. Replace knife assembly 2. Align 3. Replace

Agricultural Testing

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