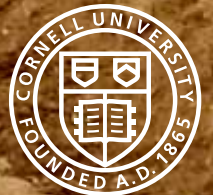
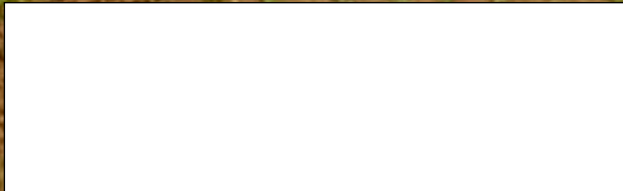


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"Every effort has been made to provide correct, complete, and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide."

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Spring greens on raised beds. Photo by Andy Senesac.

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Characterization of Soil Health in Suffolk County, Long Island

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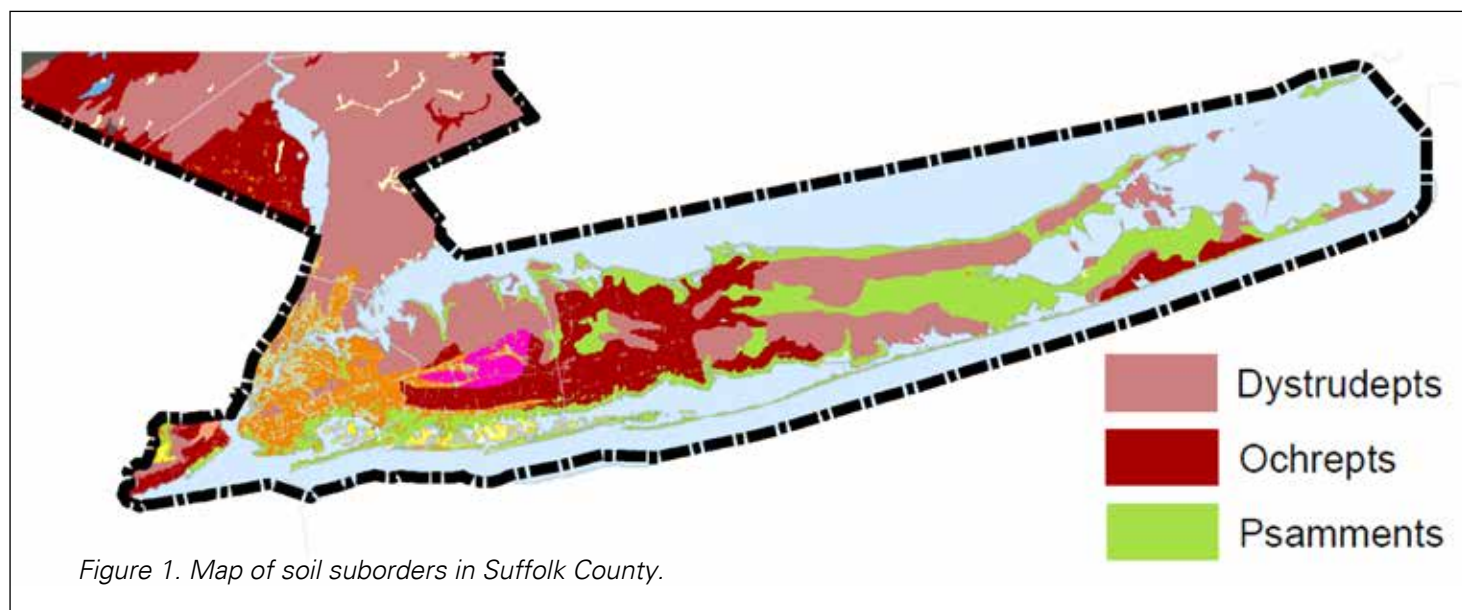
Interest in soil health concepts, practices, and testing has grown rapidly across the United States as farmers, researchers, and the general public increasingly recognize the central role of soils in food production, water quality, environmental sustainability, and climate adaptation and mitigation. Further, it is well known that land managers have a tremendous capacity to either degrade or improve the health of the soil through their management decisions.

Acknowledging the importance of healthy soil for the long-term productivity and sustainability of agriculture on Long Island specifically, the CCE Agricultural Stewardship Program partnered with the Suffolk County-Soil and Water Conservation District to offer soil health testing free of charge to all farmers in the County. This program began in spring 2018 and in just three years over 60 farms have participated, and more than 200 soil samples have been collected. In 2020, the New York Soil Health Initiative (<https://newyorksoilhealth.org/>) published a report (<https://newyorksoilhealth.org/soil-health-characterization/>) characterizing soil health across New York State (NYS), which quantified the effects of different cropping systems on soil health. We additionally characterized soil health at a smaller regional scale within the state so that farmers can compare

their soil health to similar production environments nearby.

We have summarized results from 231 soil samples collected from across Suffolk County that encompass a variety of soil types and cropping systems. The samples were approximately evenly split among sandy loam, loam, and silt loam texture classes. The County has a higher proportion of coarse-textured soils (higher percentage of sand) than much of the rest of the state. These coarser soils are indicated by the Psamment soil suborder (Figure 1). All soil samples were analyzed using the Standard Comprehensive Assessment of Soil Health (CASH) package at the Cornell Soil Health Laboratory.

Suffolk County hosts a great diversity of agriculture and remains the top producer of nursery crops, certain vegetable crops (pumpkins and tomatoes), and perennial fruits (grapes and peaches). There are also many small-scale diversified vegetable farms that largely grow fresh market vegetables and several pastured livestock operations. Additionally, the high value of land and the maritime climate creates much different conditions for agricultural production than the rest of NYS. Five cropping system categories were constructed by grouping similar crops (Figure 2). The Processing Vegetable cat-



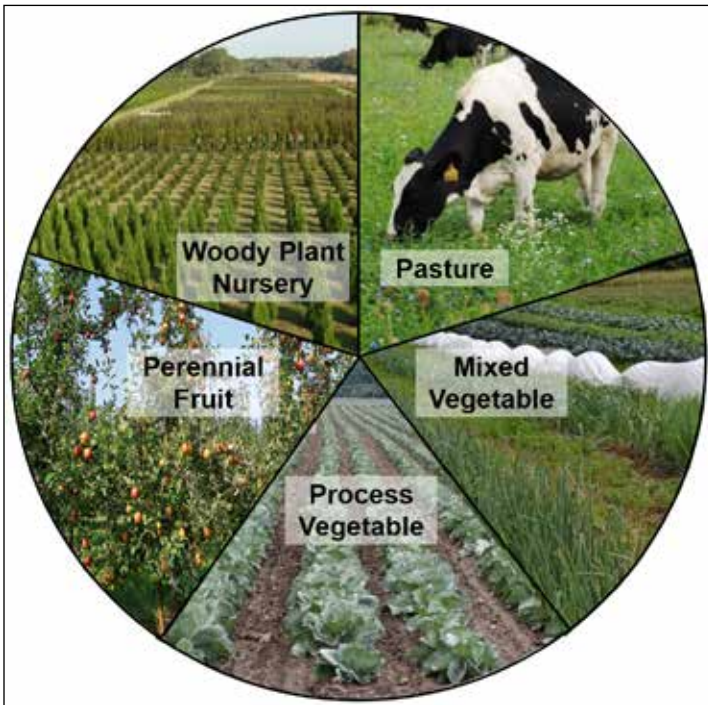



Figure 2. Cropping systems analyzed in Suffolk County.

category grouped fields where winter squash, potatoes, pumpkins, and tomatoes were grown. The Mixed Vegetable category grouped fields where several different vegetable crops were grown in the same field in a single season and sold as fresh market produce (and

also tend to be smaller farms than with processing vegetables). The Perennial Fruit category grouped all small fruit (blueberries and brambles), tree fruit orchards (apples, peaches, cherries, etc.), and vineyards. Woody Plant Nurseries included all operations producing field-grown ornamental horticulture crops (oak trees, California privet, boxwood, holly, etc.), and Pastures included the livestock operations with perennial forage crops.

The initial analysis focused on differences among cropping systems on silt loam soils, although it reinforced the concepts that soil texture and cropping system are dominant factors contributing to the overall soil health on farms (Figure 3).

For silt loams, the soil health indicators of active carbon, respiration, and aggregate stability showed differences across cropping system, whereas soil organic matter (OM) did not. This indicates that some of these more labile OM indicators (more directly related to biological activity in the soil) can better and earlier detect changes in soil health than the total soil OM level which generally changes slowly over time. Pastures had greater active carbon levels than Processing Vegetable systems. Respiration and aggregate stability were slightly more sensitive to cropping system than active carbon. Pastures had higher soil respiration than both Processing Vegetable and Mixed Vegetable systems. Furthermore,



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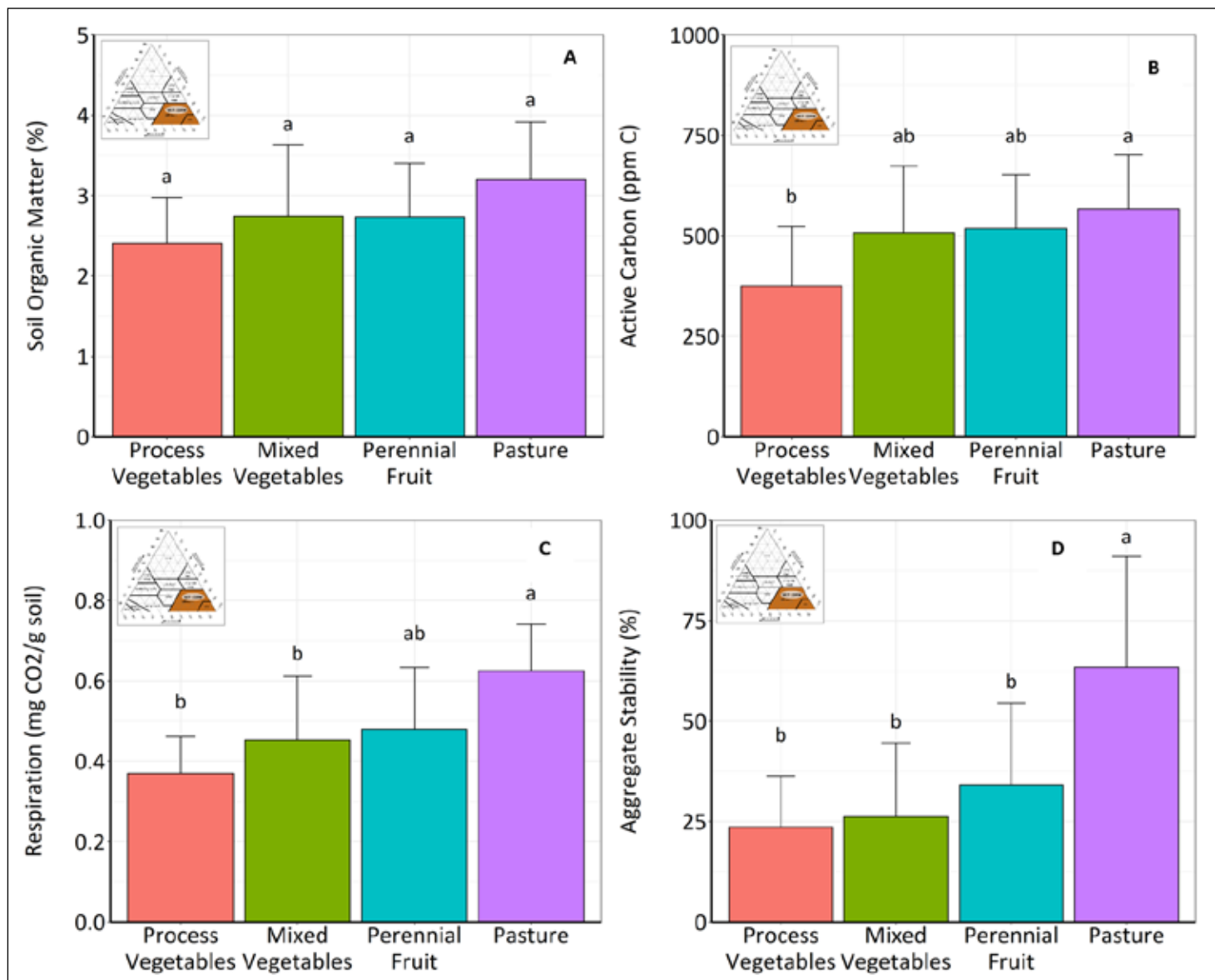


Figure 3. Mean soil organic matter (A), active carbon (B), respiration (C), and aggregate stability (D) across cropping systems on silt loam textured soils.

Pastures had more than twice the aggregate stability compared to all other systems, which highlights the importance of living roots year-round to build and stabilize soil aggregates (Figure 3).

Overall, different agricultural management practices associated with various cropping systems had a big impact on soil health status. They often reflect important differences in total carbon and nutrient balances and degrees of disturbance from tillage. Pasture and Perennial Fruit maintained the best overall soil health because these systems are largely undisturbed and have perennial vegetation (Figure 3). Pasture systems receive continuous root and shoot inputs year-round and some Perennial Fruit systems may receive wood-chip mulch. This permanent cover further protects the soil from losses due to wind and water erosion. The Mixed Vegetable farms typically have diverse rotations, practice cover cropping, and utilize various soil

amendments such as compost to supplement fertility and build OM. In contrast, Processing Vegetable systems are more intensively managed, and although they often practice cover cropping, typically don't receive sufficient organic inputs to replace the OM that is lost annually from tillage and other management activities. Typically, 40-80% of the carbon and nutrients in the aboveground biomass are exported off the farm in the form of crop harvests, which needs to be counterbalanced with soil management practices like cover cropping and organic amendment application to maintain and build soil health.

Stay tuned for the complete report that characterizes soil health across Suffolk County, which will examine the effects of soil texture, soil taxonomic unit, and cropping system on the suite of biological, physical, and chemical soil parameters included in the CASH test. Refer to the full *Characterization of Soil Health*

in New York State (<https://newyorksoilhealth.org/soil-health-characterization/>) report as an example of what will be produced for Suffolk County.

References and further reading:

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Chlorpyrifos Phase-Out in New York State

Michael Helms, Extension Support Specialist, Cornell University

The New York State Department of Environmental Conservation (DEC) recently issued a draft regulation that prohibits pesticides containing chlorpyrifos from being sold, distributed, possessed, and used in New York State after July 31, 2021. The proposed regulation was published in the State Register on January 27, 2021 and was available for public review and comment through April 5, 2021.

The DEC has already taken steps to implement the phase-out of chlorpyrifos-containing pesticides in New York State. Registrations for 29 chlorpyrifos products not approved for apple tree trunk application were canceled as of December 31, 2020. These cancelled registrations affected products used in agriculture, turf management, and indoor bait stations. However, 15 chlorpyrifos products approved for application to apple tree trunks remain registered until July 31, 2021. Since these products are still registered, they can be used according to label directions, including on any label-listed site (crop). The DEC has posted lists of canceled and currently registered chlorpyrifos products on their website for reference. It is also recommended that you consult the DEC's product registration database (NYSPAD) (<https://www.dec.ny.gov/nyspad/products>), to confirm that any chlorpyrifos product you may have on hand is currently registered.

If a pesticide is no longer registered in New York State, sales, use, or distribution within the state is prohibited and the product must be removed from the state or disposed of properly. If you have unregistered chlorpyrifos product on hand, you can contact pesticide distributors and manufacturers to see if they have disposal options available. Disposal of unregistered product might also be possible at a CleanSweepNY (<http://www.cleansweep-ny.org/>) event when they are made available. Keep in mind that open containers of unregistered pesticides are considered to be in use and either need to be disposed of, or clearly marked 'Do not use, save for disposal' and set aside until the product can be properly disposed of.

Specific details on the chlorpyrifos phase-out are available at the DEC's website. Questions on the chlorpyrifos cancellation process can be directed to the DEC's Pesticide Product Registration Section at 518-402-8768 or ppr@dec.ny.gov. Information on the chlorpyrifos prohibition regulation can be directed to the DEC's Pesticide Enforcement and Compliance Assurance Section at 518-402-8727 or pestcomp@dec.ny.gov. ●



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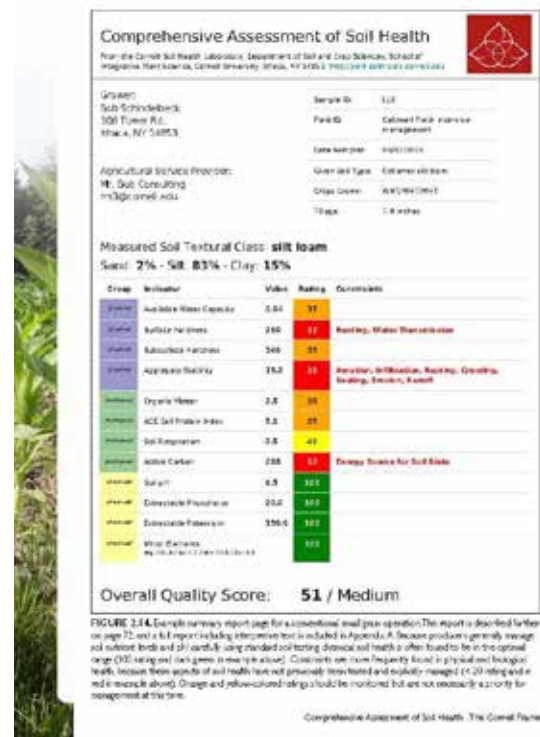
Seeking farmers interested in FREE soil health testing on their farm!

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- Samples are collected and shipped by Ag Stew/SWCD staff
- Samples are analyzed using Cornell's Comprehensive Assessment of Soil Health (CASH) test
 - Physical indicators
 - Biological indicators; and
 - Chemical indicators
- **Results** reviewed by the producer and Ag Stew/SWCD staff
- **Recommendations** given and management strategies to improve soil health discussed.

Soil Health Assessment - Part II



For more information about the CASH test visit: <https://soilhealth.cals.cornell.edu>

Interested? Contact Debbie Aller (CCE-Suffolk) at da352@cornell.edu, 631-902-1582 or Kaitlin Shahinian (SC-SWCD) at Kaitlin.Shahinian@suffolkcountyny.gov, 631-852-3289