



# Web Soil Survey

## Introduction

Soil is one of our most valuable resources and maintaining its productivity over time is essential for agricultural sustainability. Cataloging soils and their characteristics is critical for understanding management impacts and protecting the soil resource. Most counties in New York State have had a soil survey conducted and, depending on availability, hardcopies of some of the surveys can be obtained from the county Natural Resources Conservation Service (NRCS) office. In addition, NRCS maintains the Web Soil Survey (WSS) to provide online access to soils information. In this factsheet we provide general information on soil surveys and more specific details on access and use of the WSS.

## How are Soil Surveys Made?

In each county, soil scientists traverse the landscape digging soil pits and taking soil samples to describe the many characteristics of the soil (i.e. color, texture, structure, soil chemical properties, etc.) over depth. This description is called a soil profile. After the profile is compared with others in the area, the area can be classified and named through a national system of soil taxonomy. The final step in generating a soil survey is to plot the soil classification on aerial photographs and generate useful soil survey data.

## Benefits of the Web Soil Survey

The WSS always displays the most updated version of soil survey mapping and data, and it provides viewable and searchable maps. A user has the option to select only the area of interest, e.g. a specific farm or field, and get tailored soil maps, descriptions of the soils, and interpretations for the defined area.

## How to Use the Web Soil Survey

### Access and Field Selection

The Web Soil Survey can be accessed at: <http://websoilsurvey.nrcs.usda.gov/app/>. From the homepage, click the green "Start WSS" button. From the mapping page, an area of interest (AOI) must be selected to view the

soils information. The AOI can be determined by street address, county and state, soil survey area, latitude and longitude, section, township and range, federal land boundaries, and hydrologic unit. One can also just click on the United States map and continue to zoom in to locate the farm or field of interest. As seen in Figure 1, there are two ways to define the AOI for soils information: (1) using rectangular areas; and (2) selection of irregularly shaped areas or polygons. Once the AOI is defined by the red outline (limited to 10,000 acres or less), the user can select tabs for the information of interest.

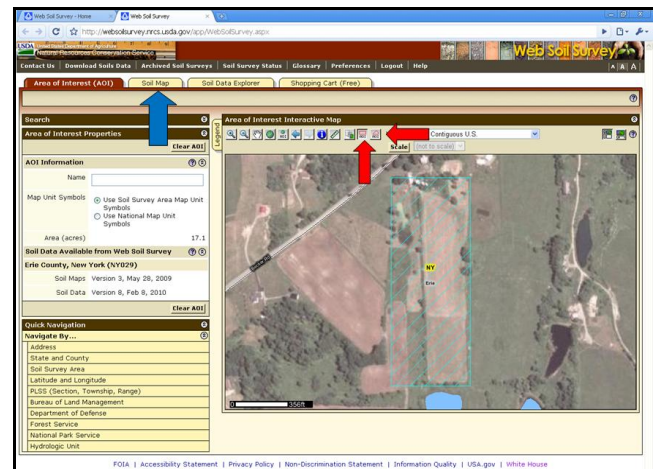


Figure 1: Screen illustrating selection of area of interest (red arrows) and soil map (blue arrow) leads to the soil maps and interpretations.

### Soil Map

The "Soil Map" tab indicated by a blue arrow in Figure 1 allows the user to view the soil series as is shown in Figure 2. Map feature, such as roads, water, aerial photo background, topographic map background, special point features, etc., can be selected by clicking on the "Legend" tab at the upper left corner of the map. The table accompanying the map lists the soil series name(s) and the acres of each series mapped in the AOI. The user can click on the soil series name (highlighted in blue) within the table and a list of properties will appear that provides information about the texture, drainage, depth to limiting layer and

other features of the soil. The three letters of the map soil symbol classify the soil. For example, the map unit symbol CeB denotes the soil name (Ce, Castile gravelly loam), and the last large letter is a slope range classification (B) which denotes a 3 to 8 percent slope in this example. A letter "C" (CeC) would have indicated the same soil type but with an 8 to 15 percent slope.

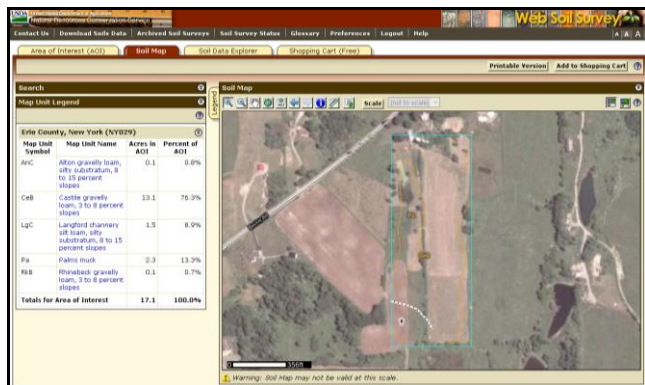


Figure 2: Screen illustrating soil map and the associated table of soil series.

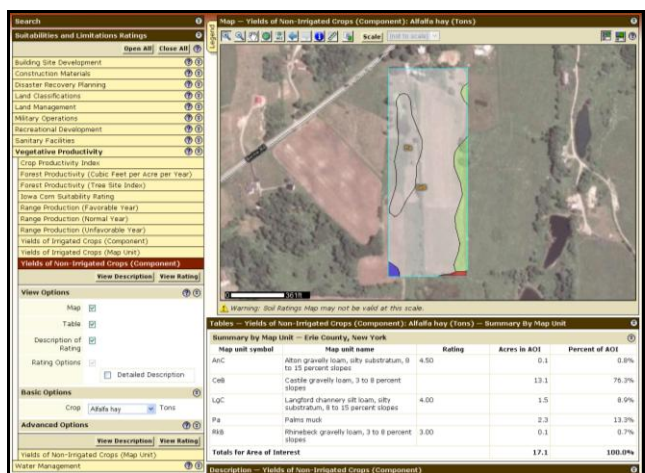


Figure 3: Illustration of soil suitability and limitations for alfalfa hay yields.

### Soil Data Explorer

The "Soil Data Explorer" tab provides information about land use suitability and limitations (Figure 3). The first tab on the left, "Intro to Soils", shows definitions of soil terms that may be useful. For example, if the user wants to know what a soil horizon is, (s)he can check that box and a definition will appear. The second tab is titled "Suitabilities and Limitations for Use". For example, clicking on "Vegetative Productivity" and selecting "Yields of Non-Irrigated Crops", will give a user two options: (1) "View Description", and (2) "View Rating". The description provides a text-based

overview of the properties and the "View Rating" provides a visual map with associated tables listing the soil names, ratings of yields, acres and percentages of area compared to the entire AOI (Figure 3). The "Soil Properties and Qualities" tab includes links to maps and tables of the specific physical, chemical, erosion, and water features of the soils in the AOI. The "Soil Reports" tab offers several summary reports of the information available on the other tabs. For example, in the "AOI Inventory" option, users can generate comprehensive soil series reports by selecting "Map Unit Description (Brief, Generated)" to view a broad range of information about soils in the AOI.

### Printing

Each page can be printed by using the printable version feature. In "Soil Reports", check the boxes of desired items to be printed and a report will be compiled. Adding maps and data to the "Shopping Cart" will ensure they will be included in the "Custom Soil Resource Report".

### In Summary

The WSS is an excellent resource for farmers and farm advisors; it helps users identify soil characteristics, as well as evaluate fields for production potential, management challenges, and environmental concerns.

### Additional Resources:

- Natural Resources Conservation Service Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) and bulletin (<http://nrb.state.vt.us/lup/publications/wssbrochure.pdf>).

### Disclaimer

This fact sheet reflects the current (and past) authors' best effort to interpret a complex body of scientific research, and to translate this into practical management options. Following the guidance provided in this fact sheet does not assure compliance with any applicable law, rule, regulation or standard, or the achievement of particular discharge levels from agricultural land.

For more information



**Cornell University**  
Cooperative Extension

Nutrient Management Spear Program  
<http://nmsp.cals.cornell.edu>

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