

Soil Fertility Management for Soybean

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Soil Fertility Basics

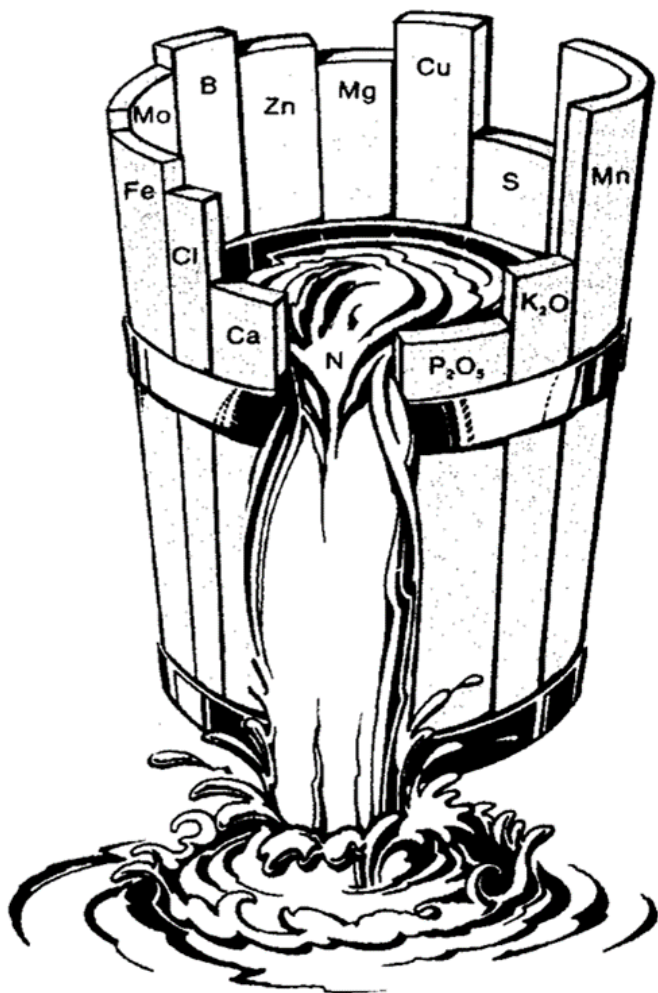
Deficiency Symptoms

Problem Diagnosis

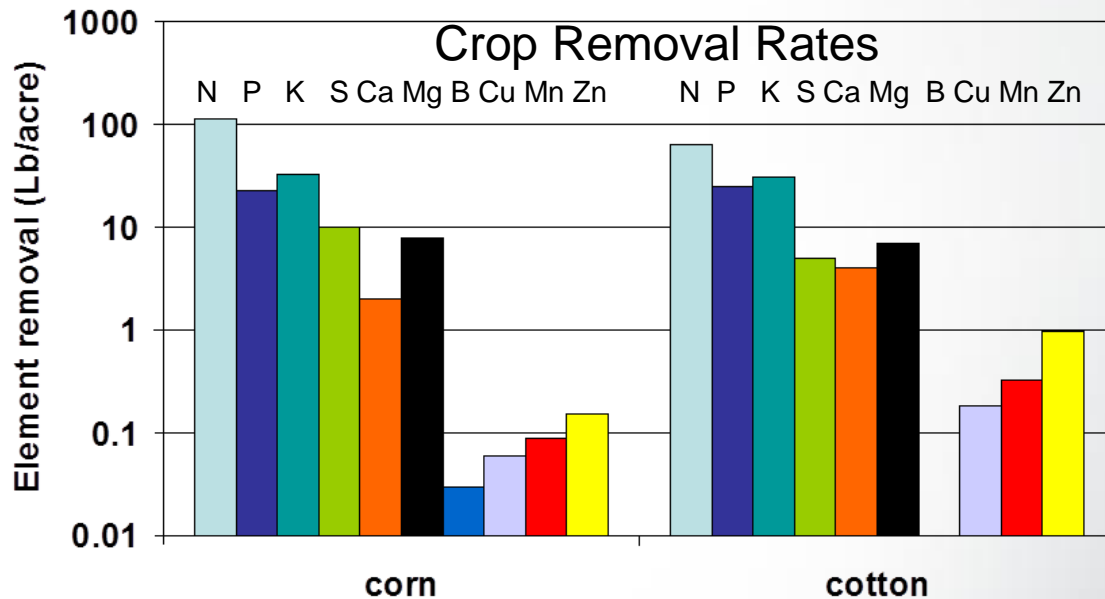
Soil Info Resources



Soil Fertility Basics



Liebig's "Law of the Minimum"



- Requirement for individual elements.
- Deficiency- shortage of an individual element that limits yield or quality.
- Crops have characteristic nutrient contents and removal rates, proportional to crop yields.

Soybean Soil Fertility Basics

- Recommendations general soil test
 - N, B, Fe not included in soil test
- Subsoil nutrients available to taproot crop?
- Historically more attention focused on other rotational crops
- Soil test calibration data
- Crop nutrient uptake/removal data

Soybean Soil Fertility Basics

- Recommendations general soil test
 - N, B, Fe not included in soil test
- Subsoil nutrients available to taproot crop?
- Planter-placement?
 - some risk of seed injury, so minimize amount if in furrow
- Micronutrients as needs documented
 - Mn, Fe (usually pH related)
 - Mo
 - B – lower requirement & more sensitive to toxicity than cotton

Soil S index typically increases with depth:

Conetoe, Bertie Co., 2005

Loamy sand topsoil- 45

Loamy sand subsoil- 55

Sandy loam subsoil- 194



Soybean Soil Fertility Basics

-Soil test calibration NC most recent published research on K: mid-1990s on 15-inch rows under irrigation on a Goldsboro soil (one year) and Dothan soil (two years) using the variety Ransom (Heckman and Kamprath, 1994).

A yield response to applied K was found only in one site-year when the initial soil test level was 100 ppm (“estimated” K-I = 50) and a yield plateau was never attained under the highest fertilization (250 lb K₂O/ac) with a yield of 78 bu / acre at this site.

Woodruff and Parks (1980) study, subsoil contributions of K to soybean yield were believed to be an important factor.

Estimated Nutrient Uptake & Removal by Corn/Wheat/Soybean (lb/ac)

Crop (yield)	Harvest			Total Uptake		
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
Corn (300 bu/ac)	224	106	80	424	180	370
Wheat (100 bu/ac)	125	50	38	175	62	125
Soybean (100 bu/ac)	376	80	148	554	112	296
Total	725	236	266	1153	354	791

Consider rotational sequence & likely contribution from prior crop residues.

Nutrient Deficiency Image Collection

<http://deficiencies.soil.ncsu.edu/>

Nutrient problem	<u>Corn</u>	<u>Cotton</u>	<u>Soybean</u>	<u>Peanut</u>	<u>Rice</u>	<u>Tobacco</u>	<u>Wheat</u>	other
Normal	<u>F</u> <u>G</u>	<u>F</u>	<u>F</u>		<u>G</u>		<u>F</u>	
N	<u>F</u> <u>F</u> <u>G</u>	<u>F</u> <u>G</u>	<u>G</u>		<u>F</u> <u>G</u>	<u>G</u>	<u>F</u>	
P	<u>F</u> <u>F</u> <u>G</u>	<u>F</u>	<u>F</u>	<u>F</u>			<u>F</u>	
K	<u>F</u> <u>G</u>	<u>G</u>	<u>F</u> <u>G</u>	<u>G</u>	<u>G</u>	<u>G</u>	<u>F</u>	
S	<u>F</u> <u>G</u>	<u>G</u>	<u>G</u>		<u>G</u>	<u>G</u>	<u>F</u>	
Mg (see low pH)	<u>F</u>	<u>G</u>	<u>G</u>			<u>G</u>		
Cu	<u>F</u> <u>G</u>		<u>G</u>				<u>F</u> <u>F</u>	
Mn (see high pH)	<u>F</u> <u>G</u>		<u>G</u>				<u>F</u>	
Zn	<u>F</u> <u>F</u> <u>G</u> <u>G</u>	<u>G</u>			<u>G</u>			
Zn excess	<u>G</u>			<u>F</u>	<u>G</u>			
B		<u>G</u>	<u>G</u>			<u>G</u>		
B toxicity	<u>F</u>							
Low pH	<u>F</u> <u>F</u>	<u>F</u>	<u>F</u>					
High pH		<u>F</u>	<u>F</u>	<u>F</u>				

F=field photo, G=greenhouse photo

N
deficiency:
typically
lower leaf
yellowing



deficiency: typically N lower, S upper leaves





**P deficiency:
typically stunting**

**K deficiency:
typically lower
leaf margin
necrosis**



Mg
deficiency:
typically
lower leaves



low pH & Mg
deficiency:
typically
lower leaves



Mn deficiency: typically interveinal chlorosis often upper leaves



Mn deficiency: typically interveinal chlorosis, often if high pH



B
deficiency:
typically
terminal or
pod
development



Cu deficiency: typically apex



Systematic Approach to Problem Diagnosis

- **Multiple Possibilities:**
 - **Crop genetics & seed source**
 - **Environment (weather)**
 - **Pests (& chemical tolerance)**
 - **Soil**
 - **physical properties (texture, wetness, compaction)**
 - **fertility/chemical property limitation**
- **Simplest explanation?**
- **Easy way to organize information?**
- **Crop Problem Diagnosis Worksheet**

Problem Diagnosis Worksheet

- Field & contact Info
- Problem distribution pattern
- Symptoms
- Site characteristics
- Crop management details
- Weather notes
- Samples & lab info

Diagnosis: Samples & lab info

(5 commodity groups fund diagnosis support for ag agents)

- Soil (consider separate surface & subsoil)
 - No-till
 - Shallow surface issues, pH problems
 - Subsoil issues due to lack of mixing
 - Deep sands leaching issues
- Plant tissue
 - Avoid severely necrotic tissue
 - Read guidelines for plant part and growth stage
- Nematode
- Disease/insect
- Most convincing – sample “problem” and “normal” areas

Basic Info

- Collecting Samples

- NCDA&CS Soil sampling basics

<http://www.ncagr.gov/agronomi/pdffiles/basics.pdf>

- NCSU Soil Facts <http://content.ces.ncsu.edu/careful-soil-sampling-the-key-to-reliable-soil-test-information>

- Understanding the Soil Test Report

- 1 page simplified handout

<http://www.ncagr.gov/agronomi/pdffiles/usoilA.pdf>

More details

- Collecting Samples
 - NCSU Soil Facts Precision Soil Sampling
<http://content.ces.ncsu.edu/soil-sampling-for-precision-farming-systems>
- Understanding the Soil Test Report
 - The entire “orange book”
<http://www.ncagr.gov/agronomi/pdffiles/obook.pdf>
 - NCSU Soil Facts <http://content.ces.ncsu.edu/soil-acidity-and-liming-for-agricultural-soils>
- Soil Test Lab options
 - Methods (ask about options)
 - Units of reporting (conversions available in “orange book”)
 - Interpretation – different strategies – look at supporting data

Plant Tissue Analysis

NCD&CS Agronomic Services Plant Tissue Analysis

<http://www.ncagr.gov/agronomi/uyrplant.htm>

Collection:

NCD&CS Plant Tissue Analysis Guide

<http://www.ncagr.gov/agronomi/pdffiles/plantguide.pdf>

Interpretation:

Reference sufficiency ranges for plant analysis in the southern region of the United States. Southern Cooperative Series Bulletin #394. July 2000

<http://www.ncagr.gov/agronomi/saaesd/scsb394.pdf>

Problem Diagnosis Support for Ag Agents

State commodity group support for lab fees: Corn, Cotton, Soybean, Tobacco, Small Grains (incl. rapeseed, sorghum)

Annual support as educational tool for Ag Agent training

NCSU PDIC- note “Ag Agent problem sample”

NCDA&CS (plant tissue, nematode)

– escrow account name “Crozier-diagnosis”

(and email me: grower, county, crop # samples)

-ideal scenario is to sample both soil & plants from “poor” and “normal” areas

Use the service & thank your commodity board members!

Soil Information Resources

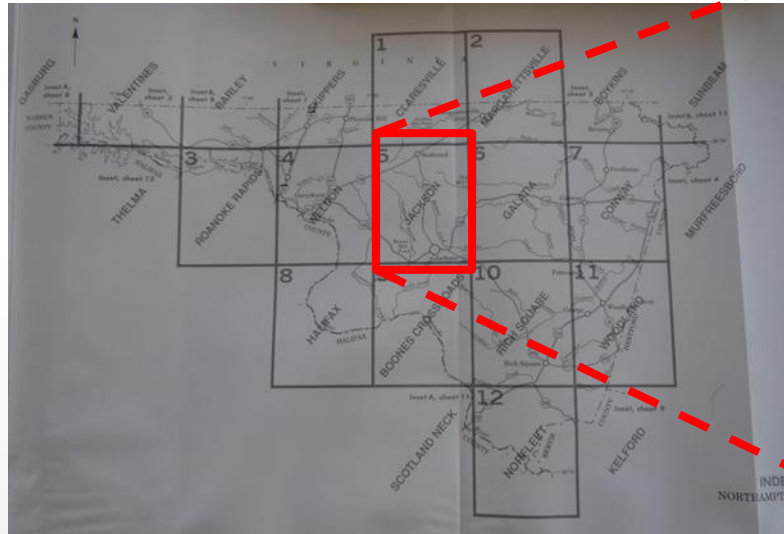
- County Soil Surveys
- Web Soil Survey
- SoilWeb app

Why Map & Classify Soils?

- Identify differences & predict behavior with land use
- Estimate productivity
- Understand most likely problems with use
- Delineate soil spatial areas

USDA Soil Surveys

Series	Scale	Notes
1925 (Northampton Co.)	1:63,000 (1"=1 mile)	USDA Bureau of Chemistry & Soils
1957 (Pasquotank Co.)	1:20,000 (3.125"=1 mile)	USDA SCS
1974 (Pitt Co.)	1:15,840 (4"=1 mile)	USDA SCS, Modern Soil Taxonomy
1994 (Northampton Co.)	1:24,000 (2 5/8"=1 mile)	USDA SCS
1995 (Beaufort Co.)	1:24,000 (2 5/8"=1 mile)	USDA NRCS



1925 vs 1994 Northampton Co

Soil Parent Material / Topographic Variability





Information in Soil Surveys

- Soil names (map units)
- Distribution & acreage
- Drainage class
- Landscapes
- Profile layers
- Textural class, color
- Permeability, moisture holding capacity
- Erosion hazards (water or wind)
- Suitability / limitations to use
- Physical & Chemical Properties

Soil names / distribution / acreage

- Soil map unit name
 - Can indicate slope, erosion
 - Smallest mapped unit? (1-3 ac)
- Soil taxonomic name
 - Technical, but generalized features (o.m., drainage, layer thickness)
- Distribution
 - Landscape position, likely inclusions
- Acreage

Soil Survey Interpretation

- Soil map units are delineated & precisely defined
- Soils on the landscape are natural objects with a characteristic variability
- Spatial resolution limits the ability to describe variability
- Sufficient information for resource plan development
- Onsite investigation needed to plan intensive uses in small areas

Access to Soil Surveys

- Hard copies
- Web Soil Survey

<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

o S... x USDA Web Soil Survey - Home x +

web soil survey

USDA United States Department of Agriculture Natural Resources Conservation Service

Web Soil Survey

Home About Soils Help Contact Us

You are here: Web Soil Survey Home

Search

Enter Keywords Go

All NRCS Sites

Browse by Subject

- Soils Home
- National Cooperative Soil Survey (NCSS)
- Archived Soil Surveys
- Status Maps
- Official Soil Series Descriptions (OSD)
- Soil Series Extent Mapping Tool
- Geospatial Data Gateway
- eFOTG
- National Soil Characterization Data
- Soil Quality
- Soil Geography

The simple yet powerful way to access and use soil data.

START WSS

Welcome to Web Soil Survey (WSS)

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

Soil surveys can be used for general farm, local, and wider area planning. Onsite investigation is needed in some cases, such as soil quality assessments and certain conservation and engineering applications. For more detailed information, contact your local [USDA Service Center](#) or your [NRCS State Soil Scientist](#).

Four Basic Steps

I Want To...

- Start Web Soil Survey (WSS)
- Know the requirements for running Web Soil Survey – will Web Soil Survey work in my web browser?
- Know the Web Soil Survey hours of operation
- Find what areas of the U.S. have soil data
- Find information by topic
- Know how to hyperlink from other documents to Web Soil Survey
- Know the SSURGO data structure

Announcements/Events

- Web Soil Survey 3.2 has been released! View description of new features and fixes.
- Web Soil Survey Release History
- Sign up for e-mail



Home

About Soils

Help

Contact Us

You are here: Web Soil Survey Home

Search

Enter Keywords

Go

All NRCS Sites

Browse by Subject

- ▶ Soils Home
- ▶ National Cooperative Soil Survey (NCSS)
- ▶ Archived Soil Surveys
- ▶ Status Maps
- ▶ Official Soil Series Descriptions (OSD)
- ▶ Soil Series Extent Mapping Tool
- ▶ Geospatial Data Gateway
- ▶ eFOTG
- ▶ National Soil Characterization Data
- ▶ Soil Quality
- ▶ Soil Geography

The simple yet powerful way to access and use soil data.



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Four Basic Steps

1

Define

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Announcements/Events

- **Web Soil Survey 3.2 has been released! View description of new features and fixes.**
- **Web Soil Survey Release History**
-  **Sign up for e-mail updates via GovDelivery**

Web Soil Survey

websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

USDA United States Department of Agriculture
Natural Resources Conservation Service

Web Soil Survey

Contact Us | Subscribe | Archived Soil Surveys | Soil Survey Status | Glossary | Preferences | Link | Logout | Help

Area of Interest (AOI) | Soil Map | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Search

Area of Interest

Import AOI

Quick Navigation

- Address
- State and County
- Soil Survey Area
- Latitude and Longitude
- PLSS (Section, Township, Range)
- Bureau of Land Management
- Department of Defense
- Forest Service
- National Park Service
- Hydrologic Unit

Area of Interest Interactive Map

View Extent: Contiguous U.S. | Scale: (not to scale)

Map showing the contiguous United States with state abbreviations: WA, OR, CA, AZ, NV, UT, CO, NM, TX, MT, WY, ND, SD, NE, KS, OK, MN, IA, MO, AR, LA, WI, IL, IN, OH, KY, TN, MS, AL, GA, SC, NC, VA, WV, PA, NJ, NY, CT, RI, MA, VT, NH, ME.

“Quick Navigation” NC, Washington Co.

The screenshot displays the 'Web Soil Survey' web application interface. At the top, there is a navigation bar with links for 'Contact Us', 'Subscribe', 'Archived Soil Surveys', 'Soil Survey Status', 'Glossary', 'Preferences', 'Link', 'Logout', and 'Help'. Below this is a secondary navigation bar with buttons for 'Area of Interest (AOI)', 'Soil Map', 'Soil Data Explorer', 'Download Soils Data', and 'Shopping Cart (Free)'. The main content area is divided into a left sidebar and a central map area.

Left Sidebar:

- Search** (collapse icon)
- Area of Interest** (expand icon)
 - Import AOI (collapse icon)
- Quick Navigation** (expand icon)
 - Address
 - State and County** (collapse icon)
 - View
 - State: North Carolina (dropdown)
 - County (optional): Washington (dropdown)
 - View
 - Soil Survey Area
 - Latitude and Longitude
 - PLSS (Section, Township, Range)
 - Bureau of Land Management
 - Department of Defense
 - Forest Service
 - National Park Service
 - Hydrologic Unit

Central Map Area:

- Area of Interest Interactive Map** (collapse icon)
- Map navigation tools: search, pan, zoom, home, print, layers, AOI, AOI, AOI, View Extent (Contiguous U.S.), Scale (not to scale), print, print, help.
- Map showing Washington County, NC, with labels for Bertie, Meckays, Roper, Plymouth, Crowell, Jam 9 mile, Martin, and Tyrell.

Tidewater Res Sta area

The screenshot shows the 'websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx' website. The page features a navigation menu with options like 'Contact Us', 'Subscribe', 'Archived Soil Surveys', 'Soil Survey Status', 'Glossary', 'Preferences', 'Link', 'Logout', and 'Help'. Below the navigation menu, there are tabs for 'Area of Interest (AOI)', 'Soil Map', 'Soil Data Explorer', 'Download Soils Data', and 'Shopping Cart (Free)'. The main content area is titled 'Area of Interest Interactive Map' and includes a search bar, a map view, and a legend. The map shows a satellite view of a rural area in Washington, North Carolina, with a yellow line indicating a road (US 64) and a blue line indicating a creek (Beaver Dam Branch). The interface also includes a search bar, a legend, and a 'View Extent' dropdown menu set to 'Contiguous U.S.'. The map shows a satellite view of a rural area in Washington, North Carolina, with a yellow line indicating a road (US 64) and a blue line indicating a creek (Beaver Dam Branch). The interface also includes a search bar, a legend, and a 'View Extent' dropdown menu set to 'Contiguous U.S.'. The map shows a satellite view of a rural area in Washington, North Carolina, with a yellow line indicating a road (US 64) and a blue line indicating a creek (Beaver Dam Branch).

Create Area of Interest (AOI) Polygon Tidewater Res Sta, Washington Co.

The screenshot displays the websoilsurvey.sc.egov.usda.gov interface. The browser address bar shows the URL: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. The main map area shows an aerial view of a rural landscape with a red hatched polygon representing the Area of Interest (AOI) overlaid on a field. The map includes a legend, navigation tools, and a search form.

Area of Interest

Quick Navigation

Address

State and County

State:

County (optional):

Soil Survey Area

Latitude and Longitude

PLSS (Section, Township, Range)

Bureau of Land Management

Department of Defense

Forest Service

National Park Service

Hydrologic Unit

Legend

View Extent: Scale:

0 6,000 ft

Soil Map Tab

Tidewater Res Sta, Washington Co.

websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Printable Version Add to Shopping Cart

Search

Map Unit Legend

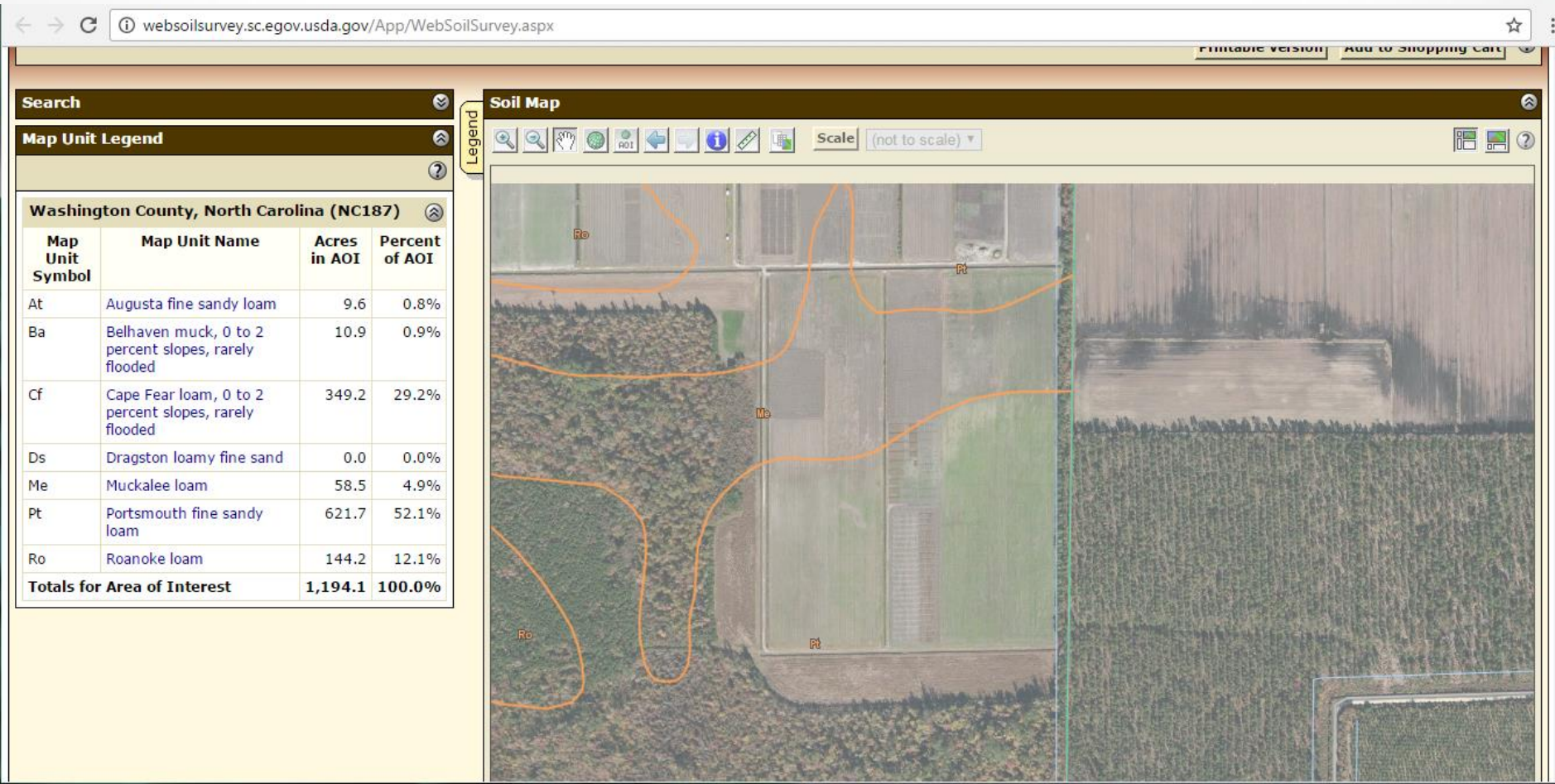
Washington County, North Carolina (NC187)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
At	Augusta fine sandy loam	9.6	0.8%
Ba	Belhaven muck, 0 to 2 percent slopes, rarely flooded	10.9	0.9%
Cf	Cape Fear loam, 0 to 2 percent slopes, rarely flooded	349.2	29.2%
Ds	Dragston loamy fine sand	0.0	0.0%
Me	Muckalee loam	58.5	4.9%
Pt	Portsmouth fine sandy loam	621.7	52.1%
Ro	Roanoke loam	144.2	12.1%
Totals for Area of Interest		1,194.1	100.0%

Soil Map

Scale (not to scale)

Soil Map, TRS O Block



TRS Soil Map

Corn Productivity Ratings

websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Recreational Development

Sanitary Facilities

Soil Quality

Vegetative Productivity

Crop Productivity Index

Forest Productivity (Cubic Feet per Acre per Year)

Forest Productivity (Tree Site Index)

Iowa Corn Suitability Rating CSR2 (IA)

Range Production (Favorable Year)

Range Production (Normal Year)

Range Production (Unfavorable Year)

Yields of Irrigated Crops (Component)

Yields of Irrigated Crops (Map Unit)

Yields of Non-Irrigated Crops (Component)

[View Description](#) [View Rating](#)

View Options

Map

Table

Description of Rating

Rating Options

Detailed Description

Basic Options

Crop ▼ Corn Bu

Advanced Options

0 7,000 ft

Tables — Yields of Non-Irrigated Crops (Component): Corn (Bu) — Summary By Map Unit

Summary by Map Unit — Washington County, North Carolina (NC187)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
At	Augusta fine sandy loam	103.12	9.6	0.8%
Ba	Belhaven muck, 0 to 2 percent slopes, rarely flooded	120.60	10.9	0.9%
Cf	Cape Fear loam, 0 to 2 percent slopes, rarely flooded	132.70	349.2	29.2%
Ds	Dragston loamy fine sand	64.50	0.0	0.0%
Me	Muckalee loam		58.5	4.9%
Pt	Portsmouth fine sandy loam	109.24	621.7	52.1%
Ro	Roanoke loam	105.78	144.2	12.1%

Shopping Cart – Free Custom Soil Resource Report

The screenshot displays a web browser window with the URL `websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx`. The browser's address bar shows navigation icons and a star icon. The website's navigation menu includes tabs for "Area of Interest (AOI)", "Soil Map", "Soil Data Explorer", "Download Soils Data", and "Shopping Cart (Free)". A "Check Out" button is visible in the top right corner of the page.

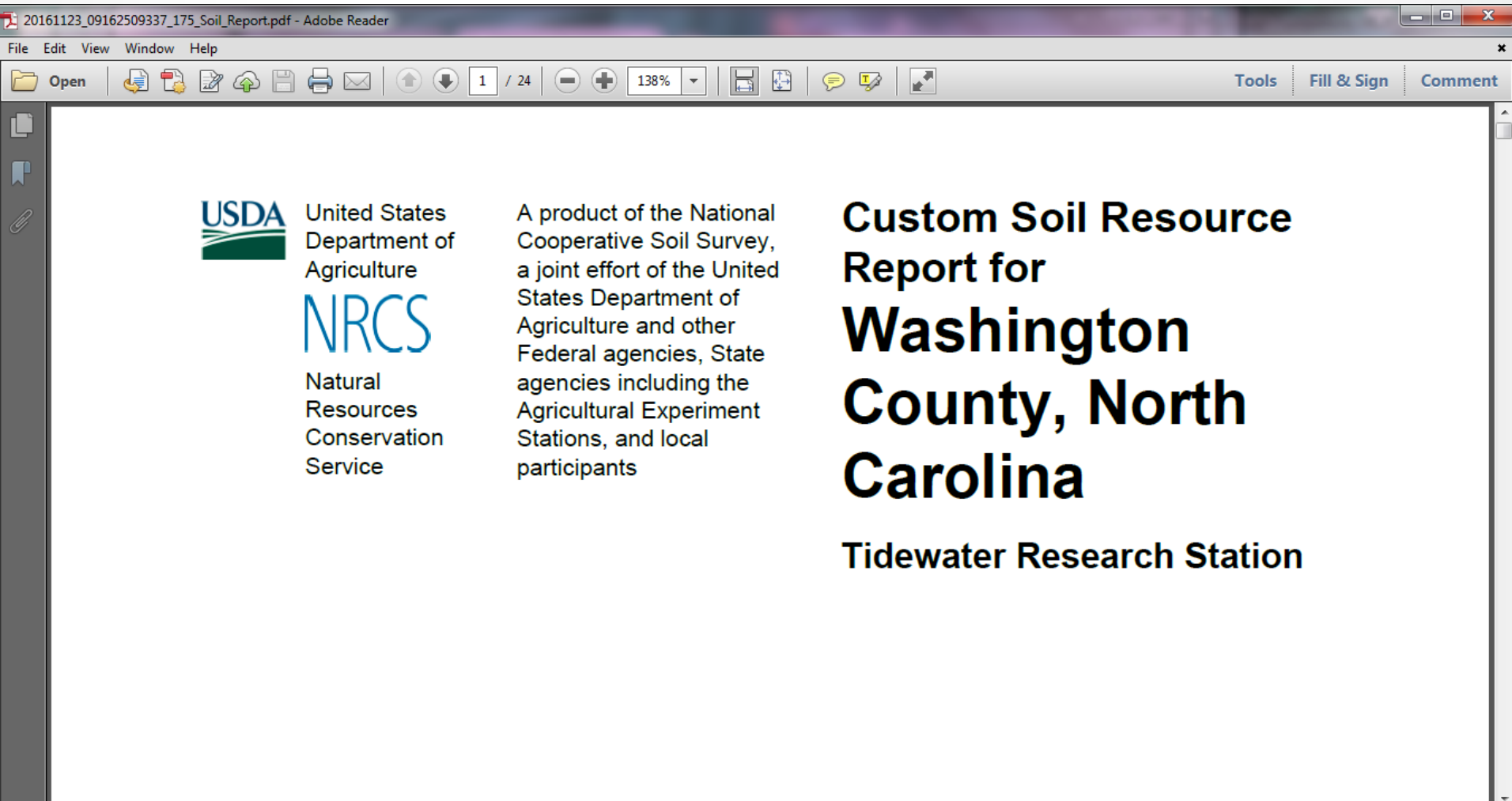
The "Shopping Cart (Free)" section is active, showing a sidebar with the following options:

- Search** (collapse icon)
- Report Properties** (expand icon)
- Title**
 - Title: Custom Soil Resource Report for Washington County, North Carolina
 - Subtitle:
 - Area of Interest Name: (none defined)
 - Custom Subtitle:
 - Tidewater Research Station
 - None
- Map Options**
 - Map Scale: Fit to page
 - Printed Sheet Size: A portrait (8.5" x 11") — 1 sheet
 - Show UTM Coordinate Ticks:
- Table of Contents** (expand icon)

The Table of Contents section is expanded, showing a list of items with checkboxes:

- Custom Soil Resource Report for Washington County, North Carolina
 - Cover
 - Preface
 - Contents


Custom Soil Resource Report download




20161123_09162509337_175_Soil_Report.pdf - Adobe Reader

File Edit View Window Help

Open | [Icons] | 1 / 24 | 138% | [Icons] | Tools Fill & Sign Comment

 United States
Department of
Agriculture

 NRCS

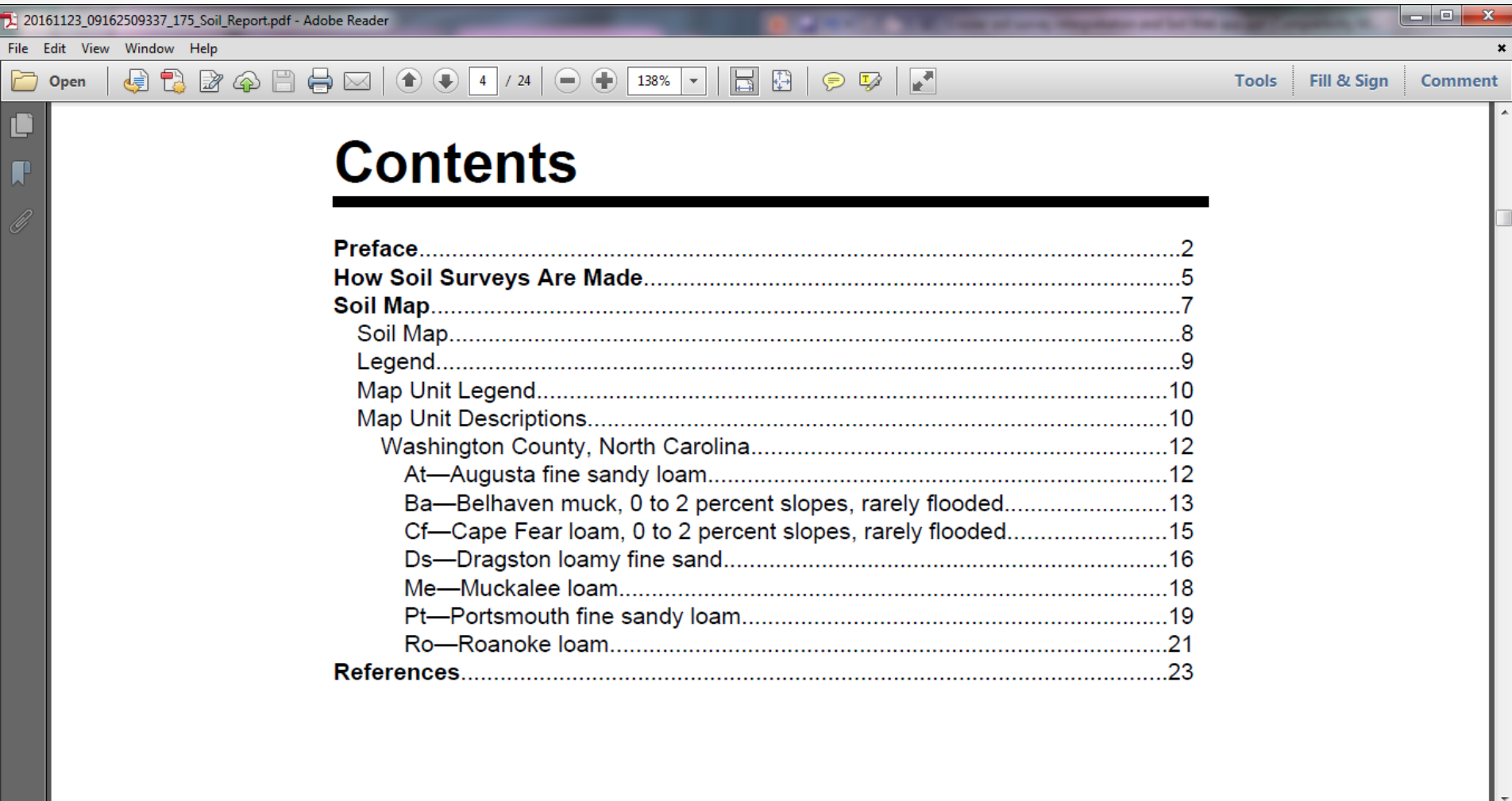
Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

**Custom Soil Resource
Report for
Washington
County, North
Carolina**

Tidewater Research Station

Typical Soil Survey Components



20161123_09162509337_175_Soil_Report.pdf - Adobe Reader

File Edit View Window Help

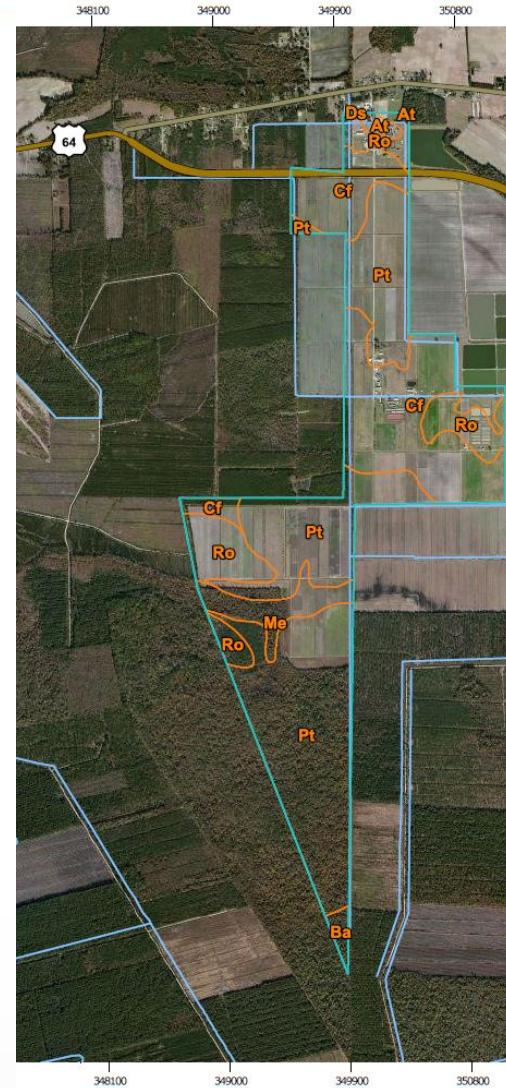
Open | [Icons] | 4 / 24 | 138% | [Icons] | Tools Fill & Sign Comment

Contents

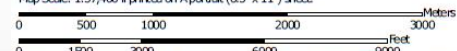
Preface	2
How Soil Surveys Are Made	5
Soil Map	7
Soil Map.....	8
Legend.....	9
Map Unit Legend.....	10
Map Unit Descriptions.....	10
Washington County, North Carolina.....	12
At—Augusta fine sandy loam.....	12
Ba—Belhaven muck, 0 to 2 percent slopes, rarely flooded.....	13
Cf—Cape Fear loam, 0 to 2 percent slopes, rarely flooded.....	15
Ds—Dragston loamy fine sand.....	16
Me—Muckalee loam.....	18
Pt—Portsmouth fine sandy loam.....	19
Ro—Roanoke loam.....	21
References	23

TRS Soil Map

(scale 1:37,400 if printed on 8.5 x 11" sheet)



Map Scale: 1:37,400 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Map Unit Legend

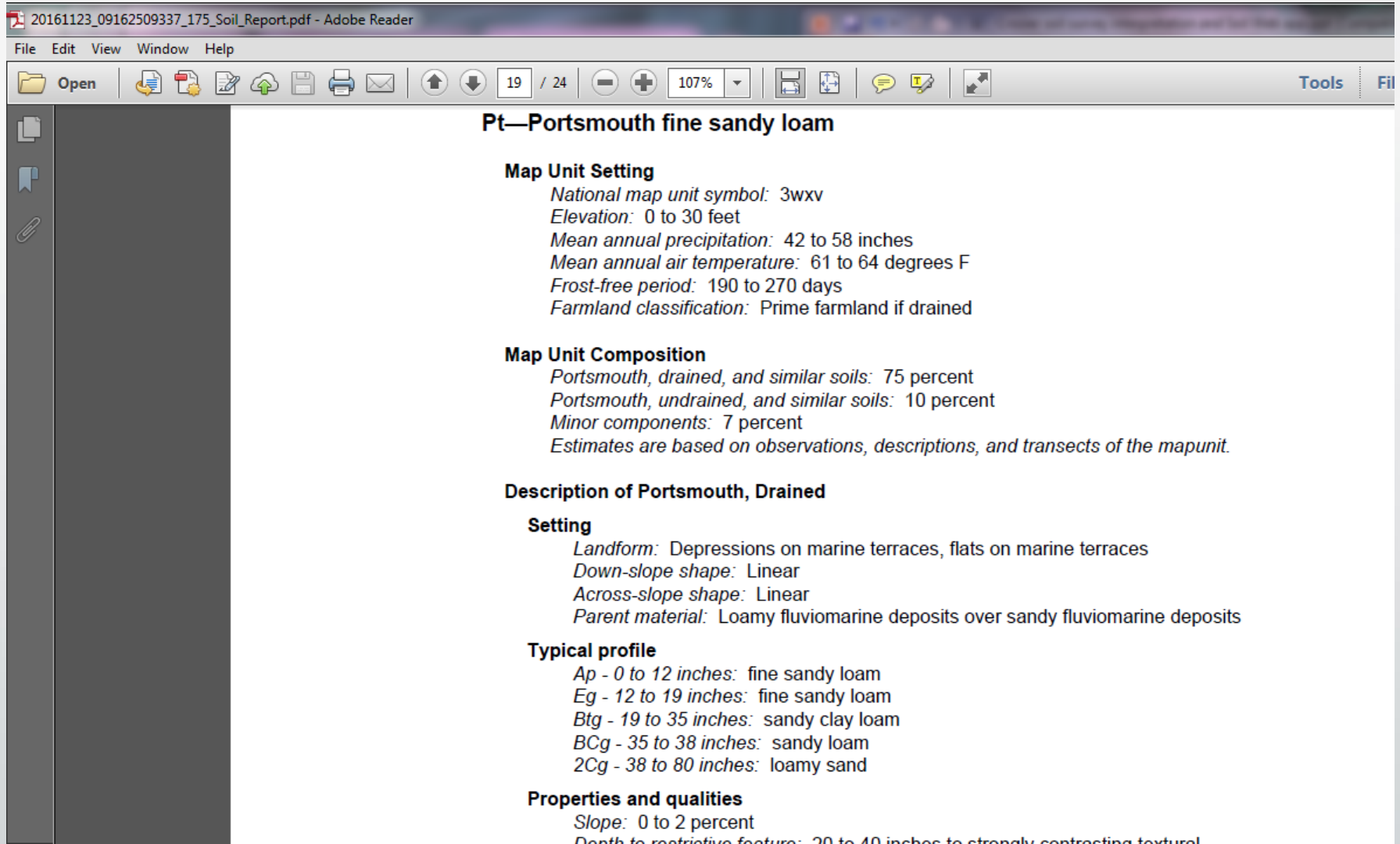
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Totals for Area of Interest		1,194.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic

Portsmouth fine sandy loam map unit



20161123_09162509337_175_Soil_Report.pdf - Adobe Reader

File Edit View Window Help

Open [Icons] 19 / 24 107% [Icons] Tools Fil

Pt—Portsmouth fine sandy loam

Map Unit Setting

National map unit symbol: 3wxv
Elevation: 0 to 30 feet
Mean annual precipitation: 42 to 58 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 190 to 270 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Portsmouth, drained, and similar soils: 75 percent
Portsmouth, undrained, and similar soils: 10 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Portsmouth, Drained

Setting

Landform: Depressions on marine terraces, flats on marine terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

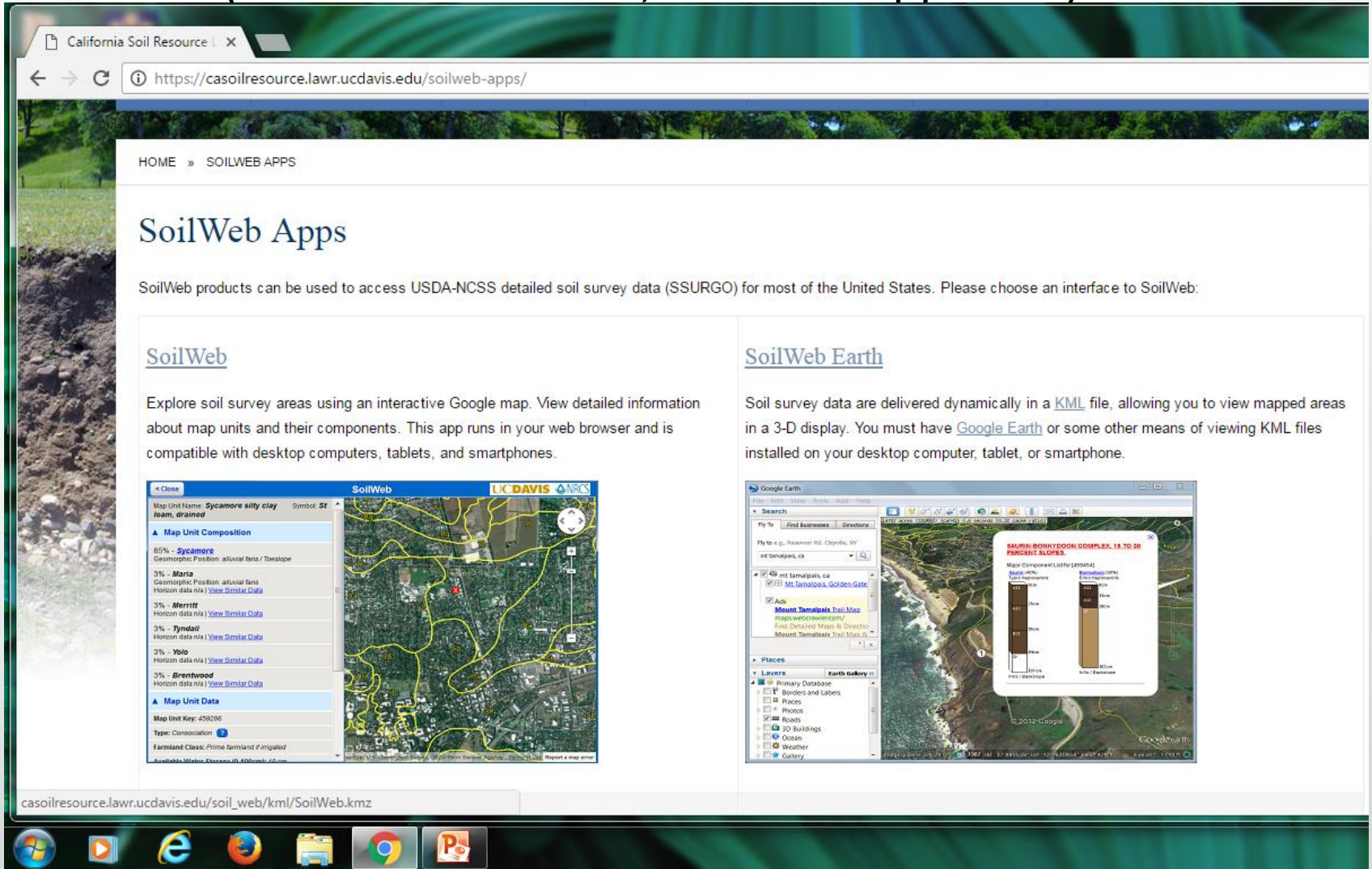
Ap - 0 to 12 inches: fine sandy loam
Eg - 12 to 19 inches: fine sandy loam
Btg - 19 to 35 inches: sandy clay loam
BCg - 35 to 38 inches: sandy loam
2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contracting textural

Soil Web Apps: UC Davis & USDA-NRCS

<https://casoilresource.lawr.ucdavis.edu/soilweb-apps/>
(link on this website, not from App store)



California Soil Resource L x

← → ↻ ⓘ <https://casoilresource.lawr.ucdavis.edu/soilweb-apps/>

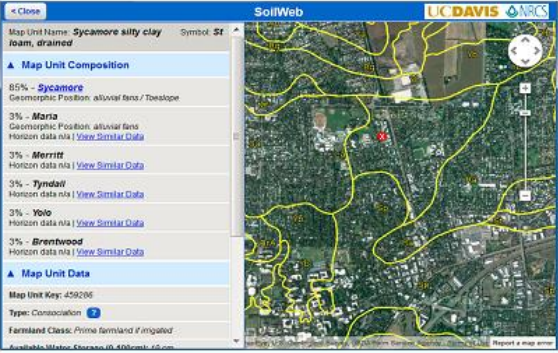
HOME » SOILWEB APPS

SoilWeb Apps

SoilWeb products can be used to access USDA-NCSS detailed soil survey data (SSURGO) for most of the United States. Please choose an interface to SoilWeb:

SoilWeb

Explore soil survey areas using an interactive Google map. View detailed information about map units and their components. This app runs in your web browser and is compatible with desktop computers, tablets, and smartphones.



Map Unit Name: **Sycamore silt clay, drained**

Map Unit Composition

- 85% - **Sycamore**
Geomorphic Position: alluvial fans / toeslope
- 3% - **Maria**
Geomorphic Position: alluvial fans
Horizon data n/a | [View Similar Data](#)
- 3% - **Merritt**
Horizon data n/a | [View Similar Data](#)
- 3% - **Tymean**
Horizon data n/a | [View Similar Data](#)
- 3% - **Yolo**
Horizon data n/a | [View Similar Data](#)
- 3% - **Brentwood**
Horizon data n/a | [View Similar Data](#)

Map Unit Data

Map Unit Key: 459206

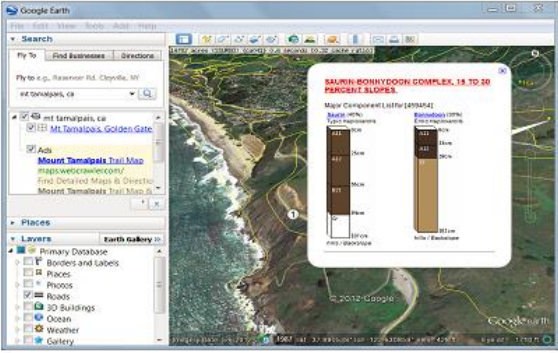
Type: Concretion

Farmstead Class: Prime farmland if irrigated

Available Water: [View Data](#)

SoilWeb Earth

Soil survey data are delivered dynamically in a [KML](#) file, allowing you to view mapped areas in a 3-D display. You must have [Google Earth](#) or some other means of viewing KML files installed on your desktop computer, tablet, or smartphone.



Google Earth

Search

Fly to: e.g., Reservoir Rd., Chappaqua, NY

Find Businesses | Directions

st donajias, ca

Map Component List for [459206]

Soil Component List for [459206]

Soil Component	Soil Component
85%	Sycamore
3%	Maria
3%	Merritt
3%	Tymean
3%	Yolo
3%	Brentwood

Primary Database

- Boilers and Labels
- Flies
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery

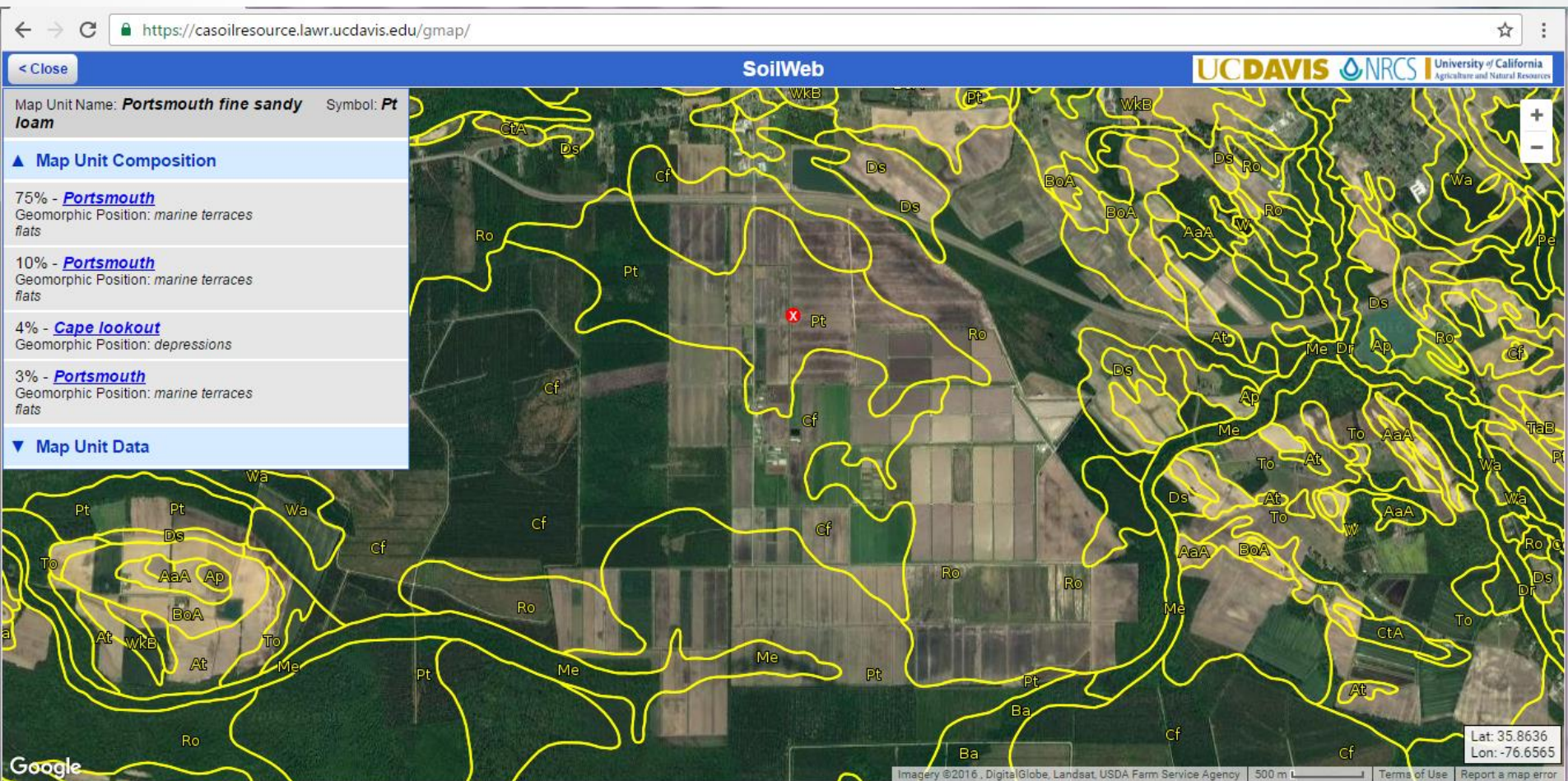
Soil Web Smartphone or PC App

- Smartphone touch “target” icon or “Get My Location” (old version)
 - Touch series name (profile characteristics)
- PC “Menu” – “Zoom to Location” or find on map
- Accuracy specified (30m default on smartphone)
- Map Unit (& components)
- Distances to map unit boundary
- Each component soil

Soil Information Link

- Soil Taxonomy
- Land Classification
- Erodibility / Drainage / Parent Material
- Geomorphology (landscape)
- Typical vegetation
- Profile graphic data
 - (organic matter, clay, sand, pH, CEC, etc.)

Tidewater Res Sta, Washington Co.



TRS, N & O Blocks

← → ↻ <https://casoilresource.lawr.ucdavis.edu/gmap/> ☆

< Close **SoilWeb** **UCDAVIS** **NRCS** University of California Agriculture and Natural Resources

Map Unit Name: **Portsmouth fine sandy loam** Symbol: **Pt**

▲ **Map Unit Composition**

- 75% - **Portsmouth**
Geomorphic Position: *marine terraces flats*
- 10% - **Portsmouth**
Geomorphic Position: *marine terraces flats*
- 4% - **Cape lookout**
Geomorphic Position: *depressions*
- 3% - **Portsmouth**
Geomorphic Position: *marine terraces flats*

▼ **Map Unit Data**

Google

Imagery ©2016, DigitalGlobe, USDA Farm Service Agency 200 m | Terms of Use Report a map error

Lat: 35.8407
Lon: -76.6638

TRS O Block

Map Unit – Muckalee loam

SoilWeb

UCDAVIS NRCS University of California
Agriculture and Natural Resources

Map Unit Name: **Muckalee loam** Symbol: **Me**

▲ Map Unit Composition

85% - **Muckalee**
Geomorphic Position: *flood plains*

▼ Map Unit Data

Map Unit Name: **Muckalee loam** Symbol: **Me**

▲ Map Unit Composition

85% - **Muckalee**
Geomorphic Position: *flood plains*

▼ Map Unit Data

Lat: 35.8422
Lon: -76.6634

Imagery ©2016, DigitalGlobe, USDA Farm Service Agency 50 m U.S. Terms of Use Report a map error

TRS O Block

Map Unit- Portsmouth fine sandy loam

The screenshot displays the SoilWeb interface for the Portsmouth fine sandy loam map unit. The browser address bar shows the URL: <https://casoilresource.lawr.ucdavis.edu/gmap/>. The page title is "SoilWeb" and the UC Davis NRCS logo is visible in the top right corner.

Map Unit Name: Portsmouth fine sandy loam
Symbol: Pt

Map Unit Composition

- 75% - Portsmouth
Geomorphic Position: marine terraces flats
- 10% - Portsmouth
Geomorphic Position: marine terraces flats
- 4% - Cape lookout
Geomorphic Position: depressions
- 3% - Portsmouth
Geomorphic Position: marine terraces flats

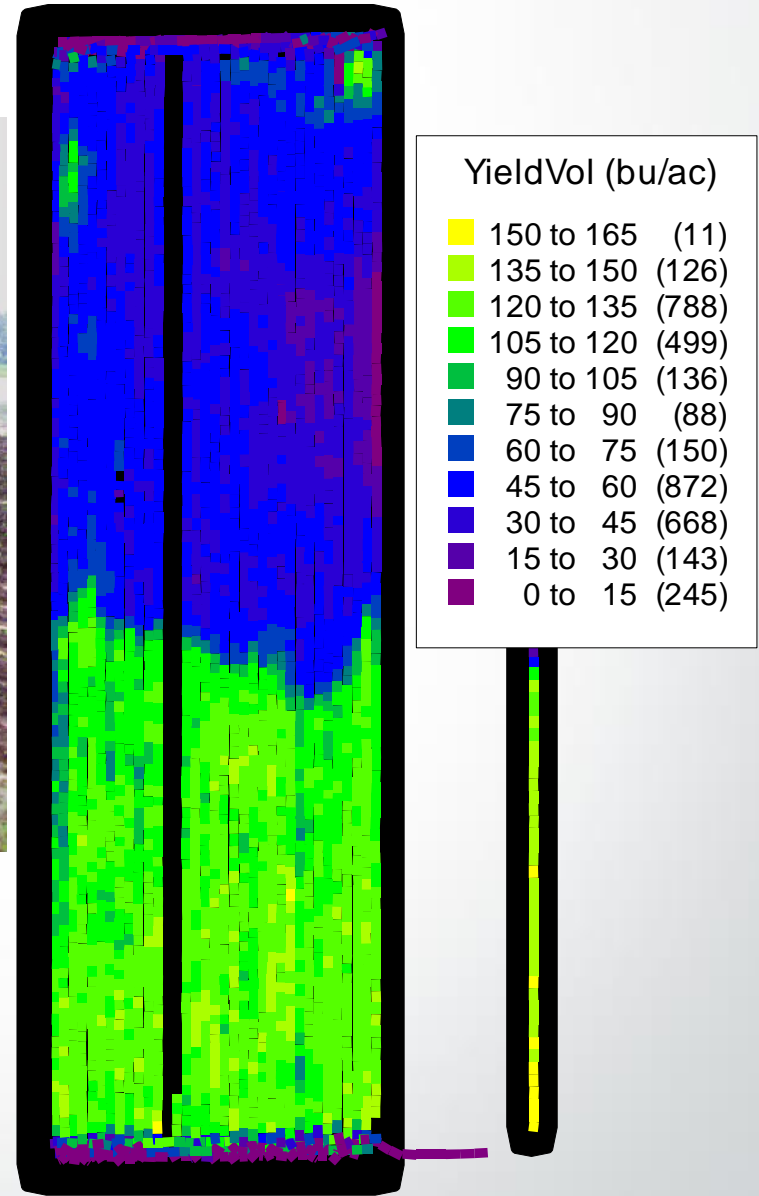
Map Unit Data

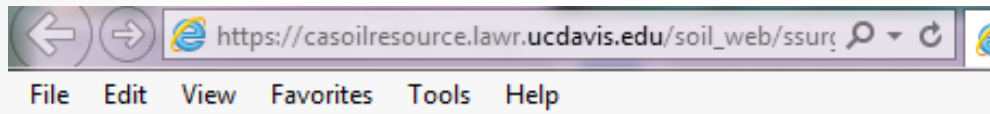
The map area shows a satellite view of agricultural fields with yellow boundary lines. Map units are labeled as Pt (Portsmouth fine sandy loam) and Me (Marine terraces flats). A red 'x' marker is located in the center of the map. The bottom right corner shows the coordinates: Lat: 35.8436, Lon: -76.6668. The bottom left corner shows the Google logo. The bottom right corner also includes the text: Imagery ©2016, DigitalGlobe, USDA Farm Service Agency, 50 m, Terms of Use, Report a map error.

Documenting yield losses, 2003 Corn



Depending on weather,
can have substantial
yield impact





Map Unit Composition

Map units consist of 1 or more soil types, commonly referred to as "components".

Component Name

[Soil Type 1 Muckalee](#)

Note: links to horizon data marked with an * are approximate.

Map Unit Data [What is a Map Unit?](#)

Cartographic information about this map unit.

Map Unit Name:	<i>Muckalee loam</i>
Map Unit Type:	Consociation
Map Unit Symbol:	<i>Me</i>
Map Unit Area:	<i>acres (2445ac. total in survey area)</i>
	Raw Map Unit Data
	Raw Component Data (All Components)

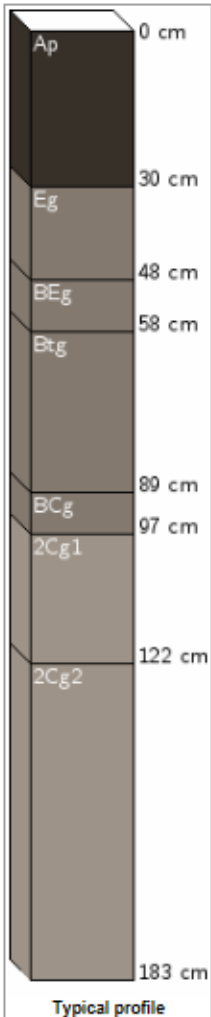
Map Unit Aggregated Data

Generalized soils information within this map unit.

Farmland Class:	<i>Not prime farmland</i>
Available Water Storage (0-100cm):	<i>11.02 cm</i>
Max Flood Freq:	<i>Frequent</i>
Drainage Class (Dominant Condition):	Poorly drained
Drainage Class (Wettest Component):	Poorly drained
Hydric Conditions:	<i>85</i>
[Annual] Min. Water Table Depth:	<i>15 cm</i>
[April-June] Min. Water Table Depth:	<i>23 cm</i>
Min Bedrock Depth:	<i>n/a</i>
	Raw Aggregated Map Unit Data

Associated Point Data

Links to any NSSL point data within this map unit.



Soil Taxonomy

Order:	Ultisols
Suborder:	Aqualts [Map of Suborders]
Greatgroup:	Umbraquults
Subgroup:	Typic Umbraquults
Family:	<i>Fine-loamy over sandy or sandy-skeletal, mixed, semiactive, thermic Typic Umbraquults</i>
Soil Series:	Portsmouth [Link to OSD] [Soil Series Explorer]
Data:	[Lab Data]
Raw Data	Component All Horizons

Land Classification

Storie Index	NOT RATED
Land Capability Class [non-irrigated]	3-w
Land Capability Class [irrigated]	-
Ecological Site Description	n/a
Forage Suitability Group	n/a

Soil Suitability Ratings

Waste Related	Engineering
Urban/Recreational	Irrigation
Wildlife	Runoff

Hydraulic and Erosion Ratings

Wind Erodibility Group	3
Wind Erodibility Index	86
T Erosion Factor	3
Runoff	Very high
Drainage	Very poorly drained
Hydic Rating / Hydrologic Group	Yes (Wooded under natural conditions) [Group B/D]
Parent Material:	loamy fluviomarine deposits over sandy fluviomarine deposits
Total Plant Available Water (cm):	17.99

Geomorphology

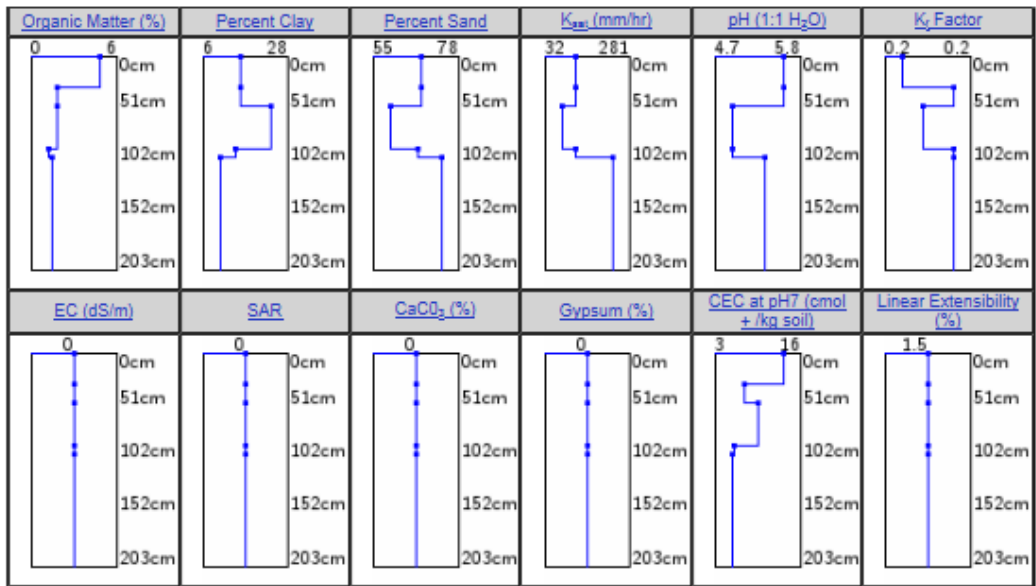
Landform	depressions
Landform	marine terraces
Landform	flats
Landscape	coastal plains

File Edit View Favorites Tools Help

<p>183 cm Typical profile</p>	Geomorphology
	Landform <i>depressions</i>
	Landform <i>marine terraces</i>
	Landform <i>flats</i>
	Landscape <i>coastal plains</i>

Plants

Symbol	Scientific Name	Common Name	Range Prod.
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Agriculture

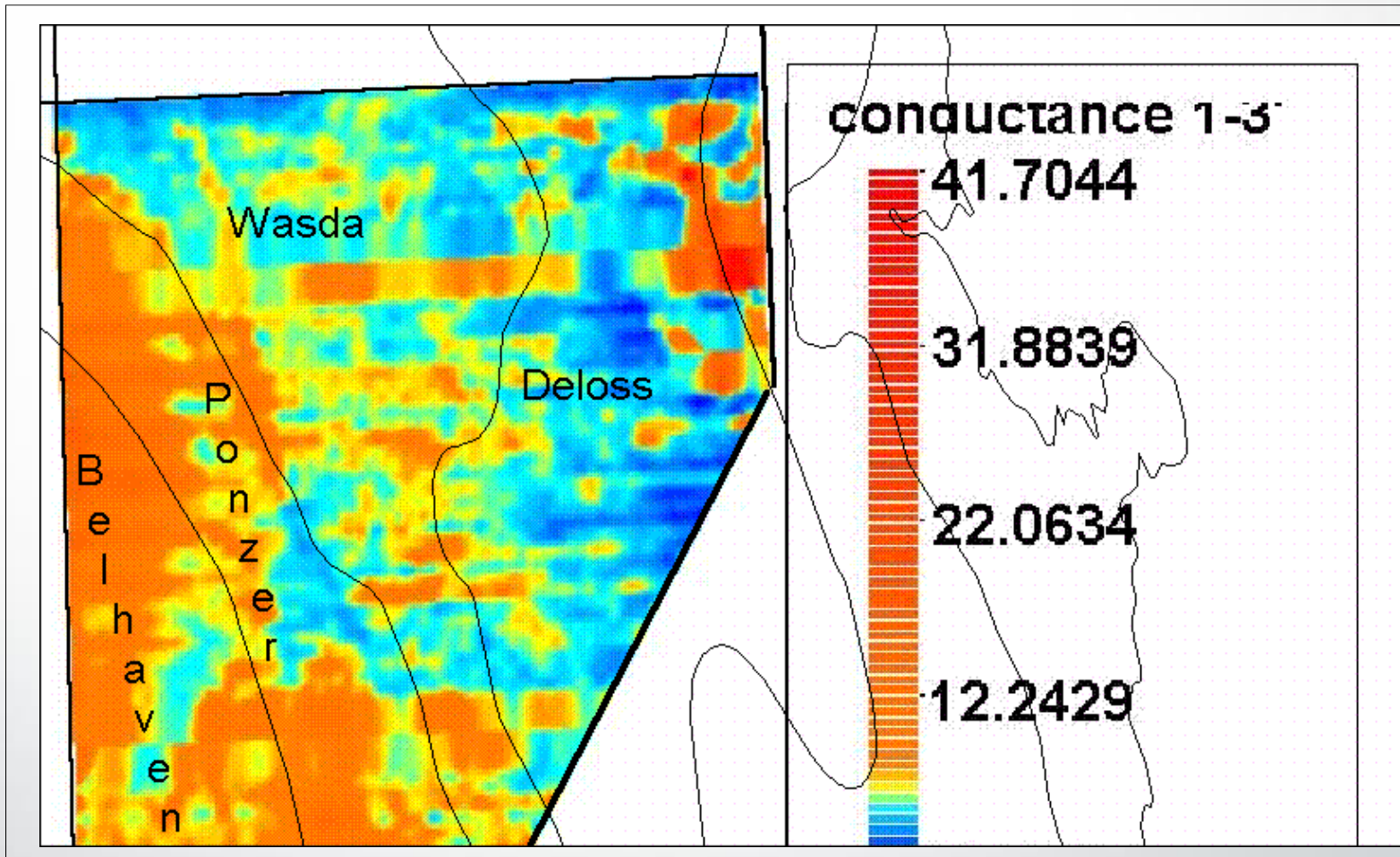
AGR - Pesticide Loss Potential-Leaching	Very limited	[1 - 1]
AGR - Pesticide Loss Potential-Soil Surface Runoff	Very limited	[1 - 1]

Irrigation

WMS - Excavated Ponds (Aquifer-fed)	Very limited	[1 - 1]
WMS - Embankments, Dikes, and Levees	Very limited	[1 - 1]
WMS - Irrigation, Surface (level)	Very limited	[1 - 1]
WMS - Irrigation, Surface (graded)	Very limited	[1 - 1]
WMS - Irrigation, Micro (above ground)	Very limited	[1 - 1]
WMS - Irrigation, Micro (subsurface drain)	Very limited	[1 - 1]

Alternative soil mapping: “Veris” soil electrical conductivity.
Ground-trothing needed: similar high conductivity values
with high CEC organic soils & low CEC mineral soils with
saltwater intrusion (Carteret Co., Open Grounds Farm, Inc.)

Block 53
1-3” layer
2/98

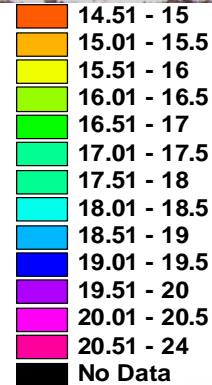
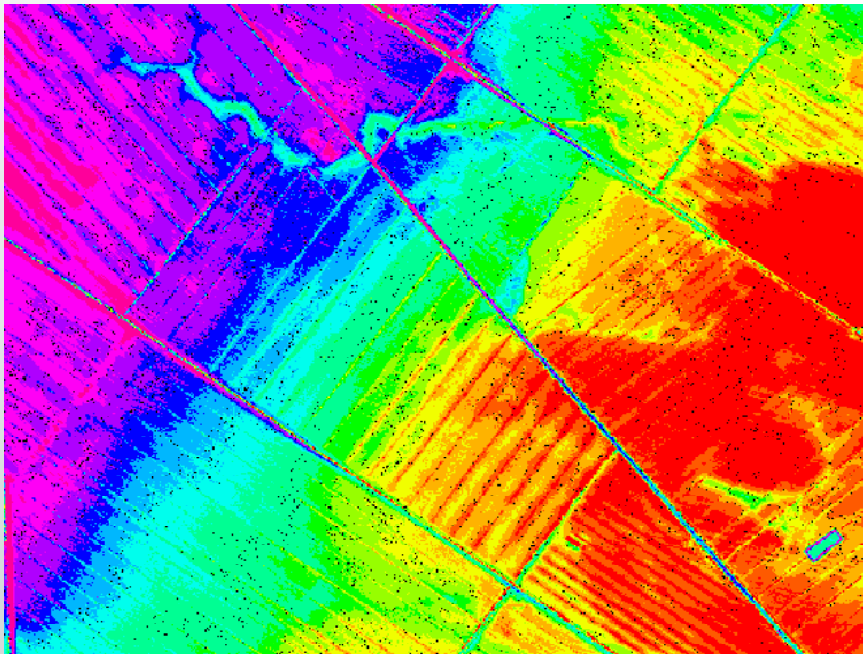


GIS: topo data

www.ncfloodmaps.com

elev (ft)

Wash. Co. (99 near 32)



* Assist in land re-leveling decisions

* \$200-400/ac estimated

