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What is PaOneStop? (www. PaOneStop.org)

- Pa One Stop provides online tools to help farmers meet regulatory requirements for Conservation (E&S) and Nutrient Management Planning
- Consists of two modules:
  - Nutrient Management Planning Mapping Module – allows farmers to develop maps that are required for Nutrient Management Planning and completion of Nutrient Balance Sheets
  - Conservation Planning Module – allows farmers to develop Conservation Plans to reduce soil loss and protect water quality
- Development of Pa One Stop is ongoing and will be released to the public incrementally. A version of the Nutrient Management Planning Mapping Module has been released.

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Who is developing PaOneStop?

- Pa One Stop is being developed by Penn State Cooperative Extension in collaboration with and support from:
  - Pa State Conservation Commission
  - Pa Dept of Agriculture
  - Pa Dept of Environmental Protection
  - USDA Natural Resources Conservation Services
  - Chesapeake Bay Foundation
  - National Consortium for Rural Geospatial Innovations in America

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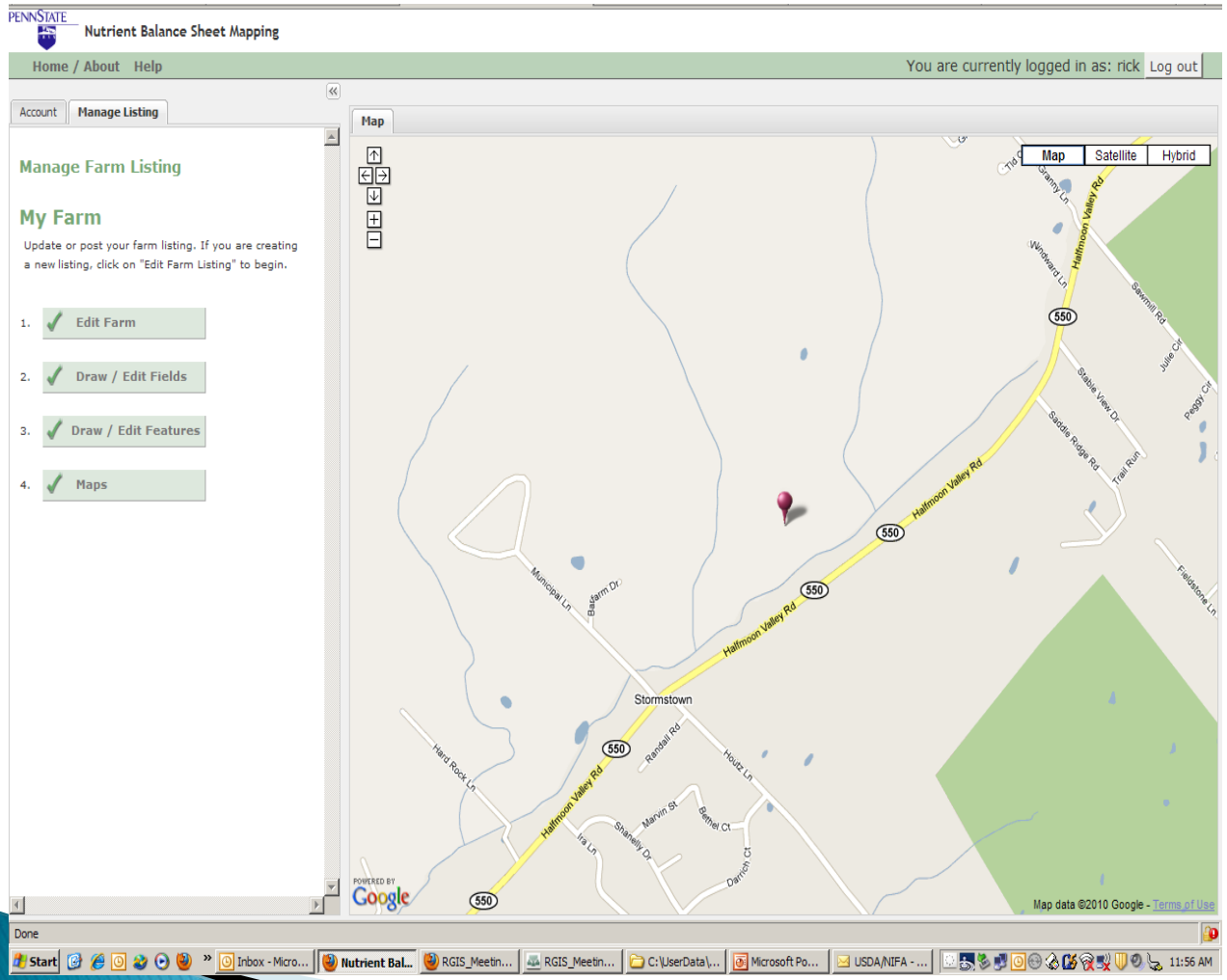
Nutrient Management Mapping

- Pa regulations require completion of Nutrient Balance Sheets for manure transfers and nutrient management plans for many farms
- Pa State Conservation Commission estimates that more than 50,000 nutrient balance sheets are completed annually
- Methods to develop Nutrient Balance Sheets and plans are available to farmers but require maps as part of the process.
- Maps are expected to contain field boundaries, acreages, stream and water features, wells, sinkholes, application setbacks and buffers, soils, aerial images and more.
- Production of maps is difficult for most farmers and costly

Create User Login



- Username
- Password
- Data secured and not shared
- Data stored on server for future access and editing
- Four easy steps !!

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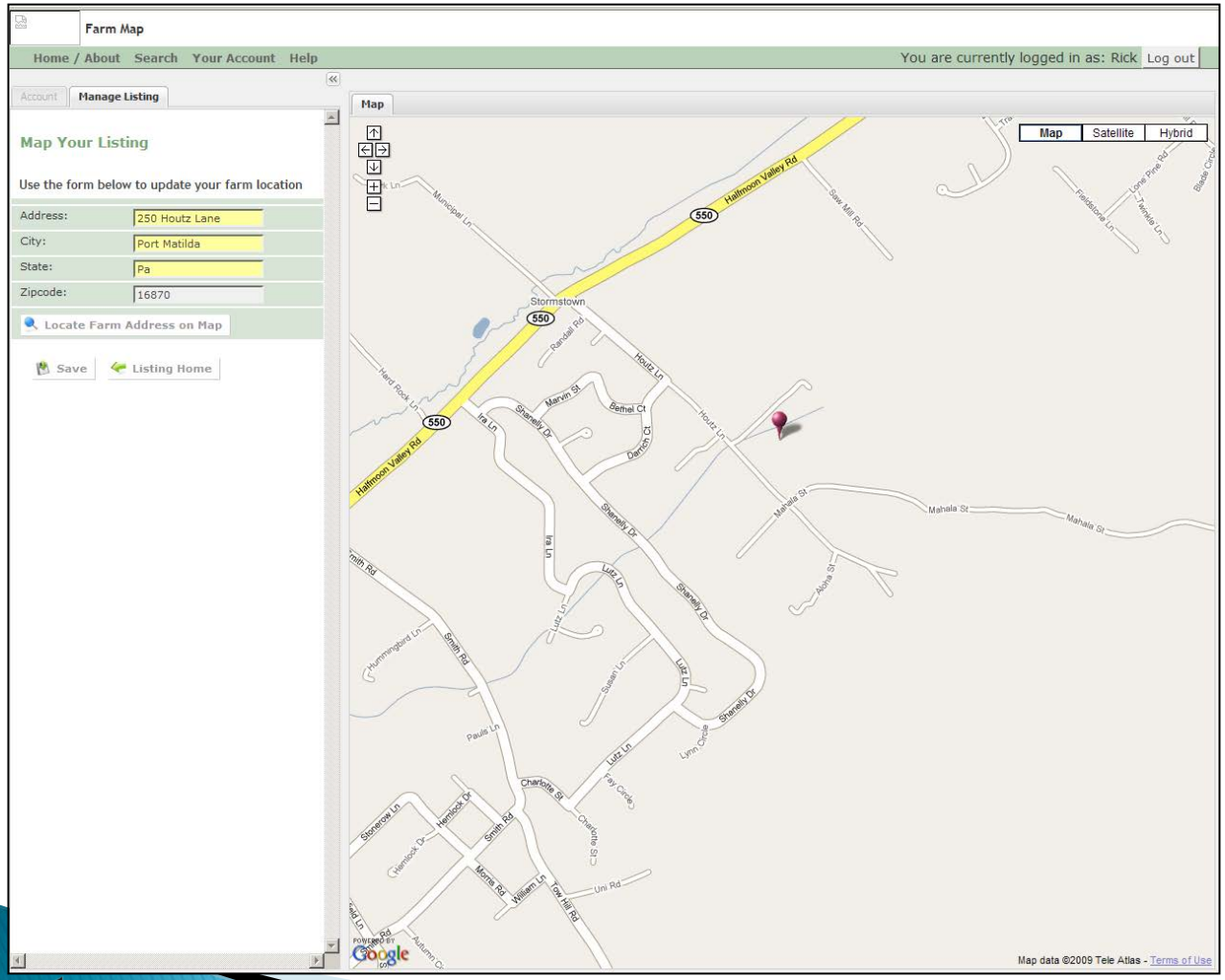
Step 1: Locate Farm



- Locate farm using address and Google maps
- Map as many farms as you like

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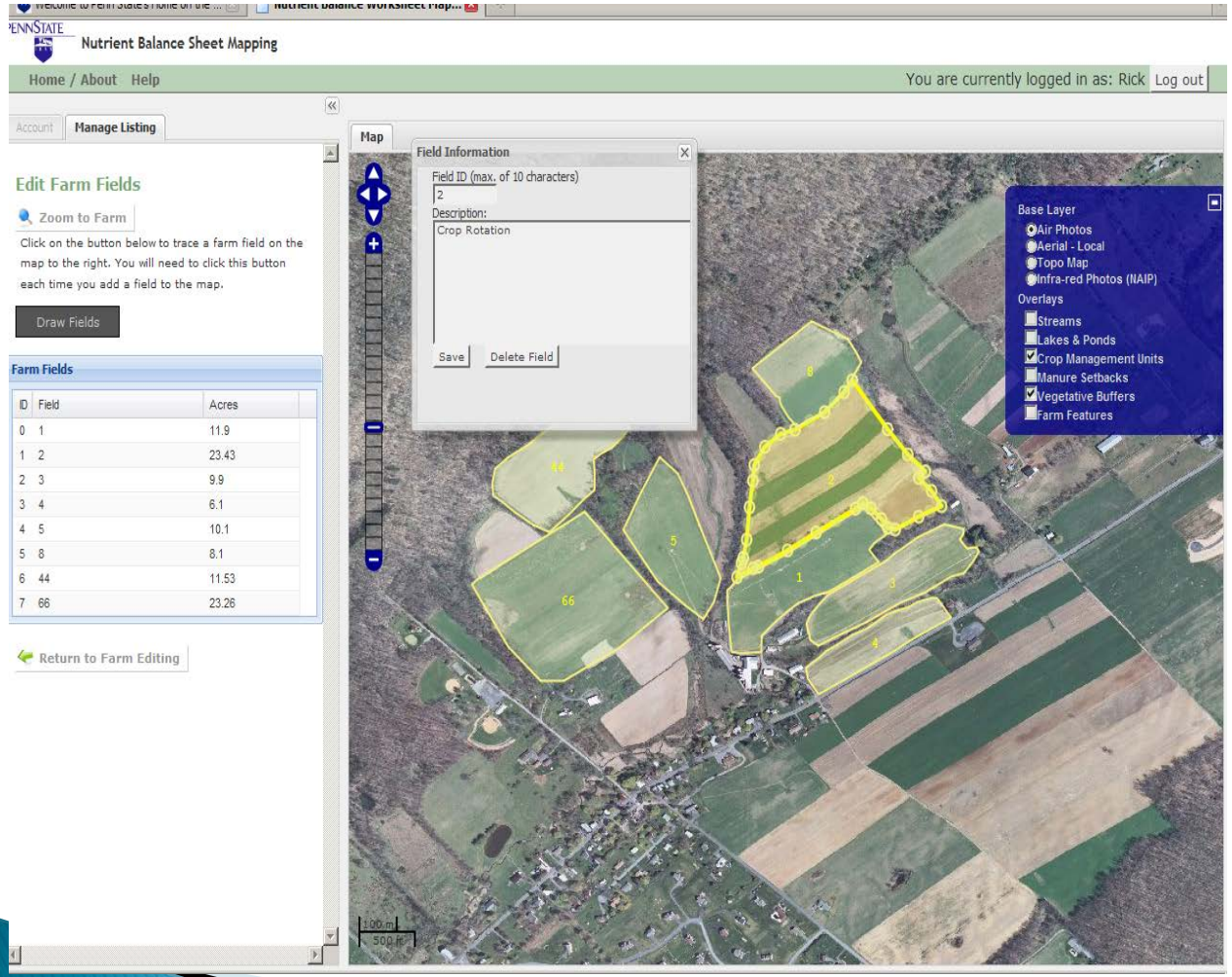
Step 2: Draw and Label Fields



- Outline field boundaries
- Describe fields
- Acreages automatically calculated
- Fields can be added, edited, or deleted as needed.
- Air photo background automatically provided

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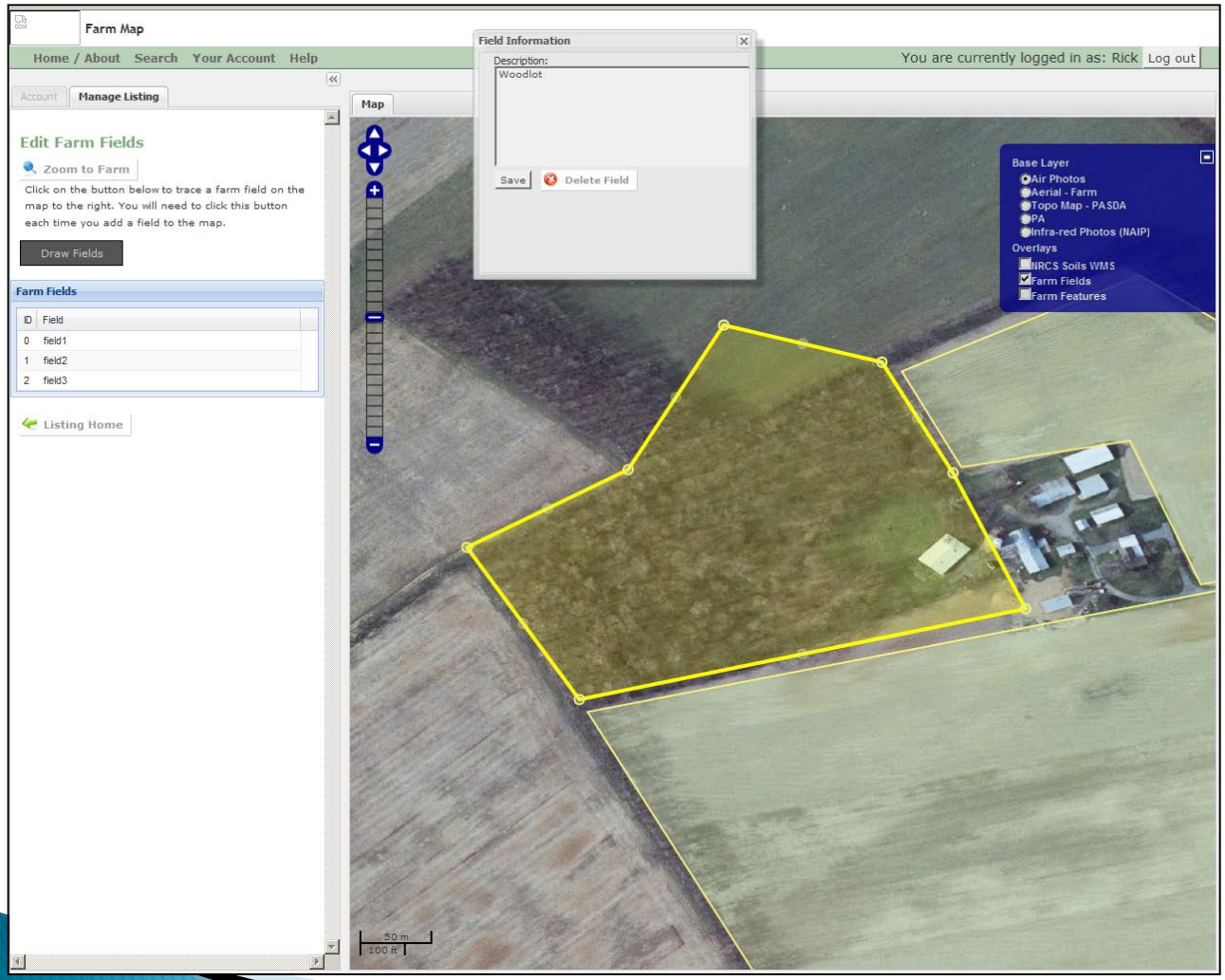
Edit Fields



Field boundaries can be edited and resaved

Errors can be deleted

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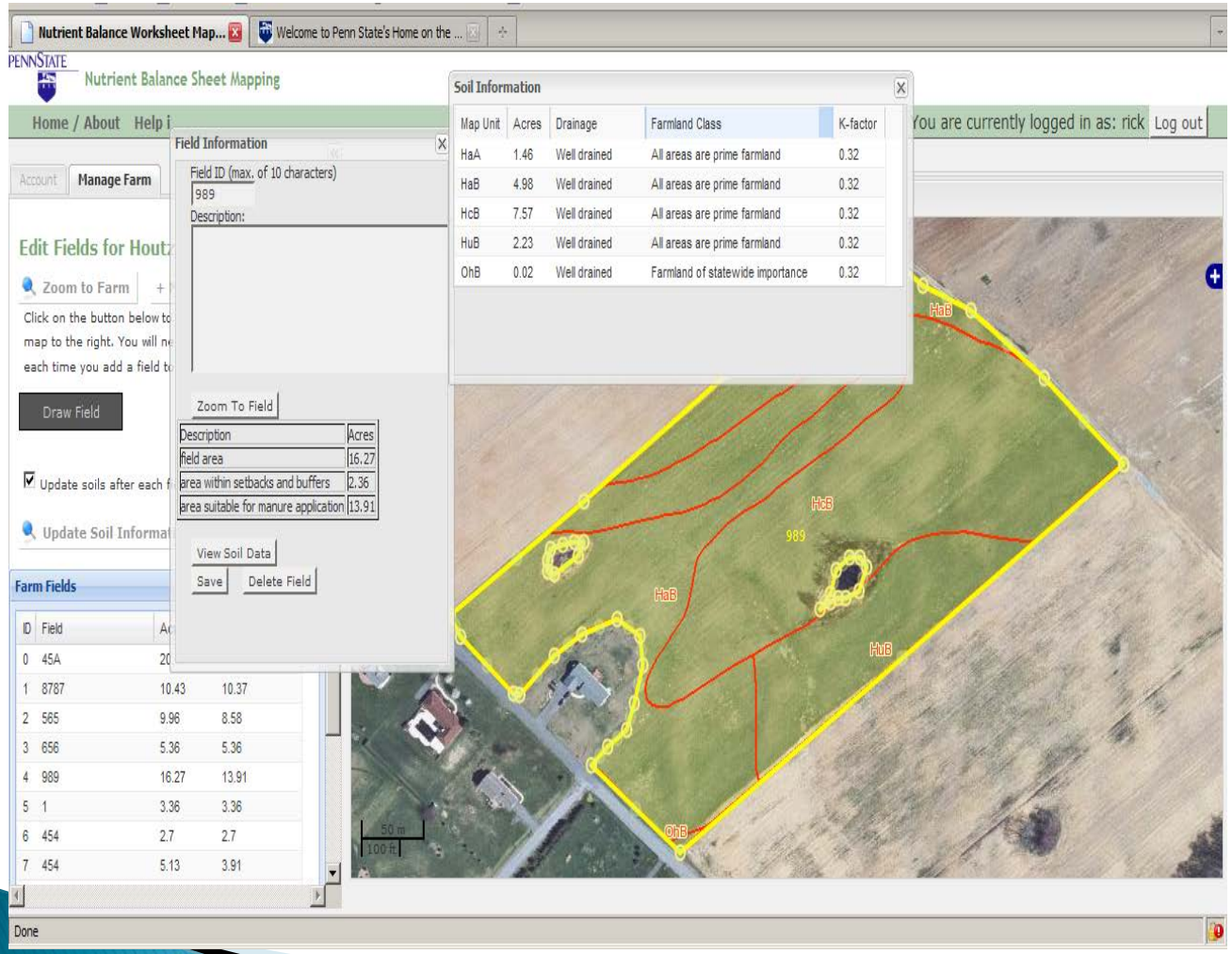
Extract Soils for Fields



- **USDA-NRCS SURGO soils data extracted via web for each field**
- soil types
- soil properties
- acreages
- updated after each field edit automatically

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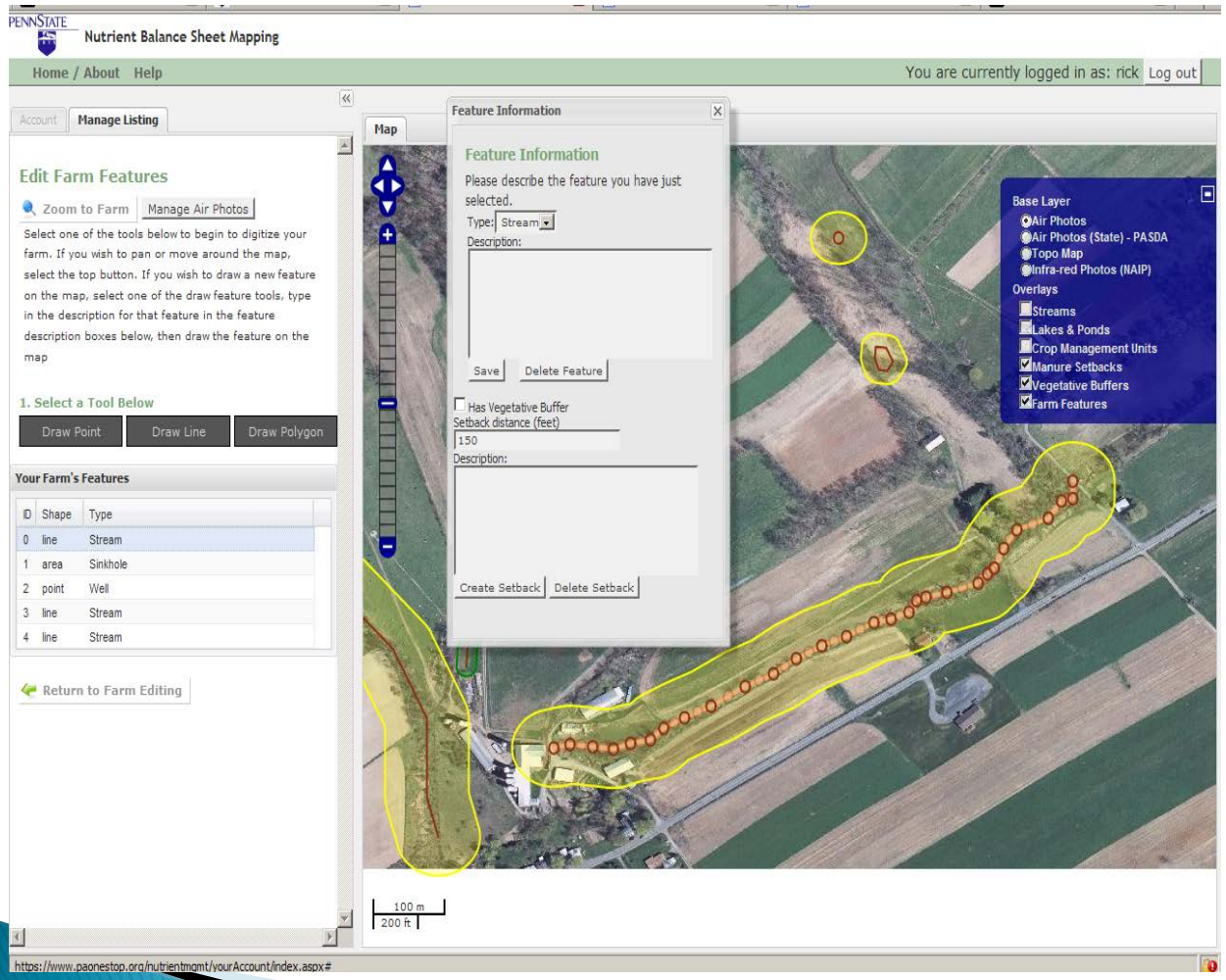
Step 3: Draw Farm Features



- **Draw other farm features needed for map**
- water wells
- sinkholes
- streams
- manure staging areas
- non-farmed areas of fields
- **Generate Manure setbacks**
- **Generate Buffers**

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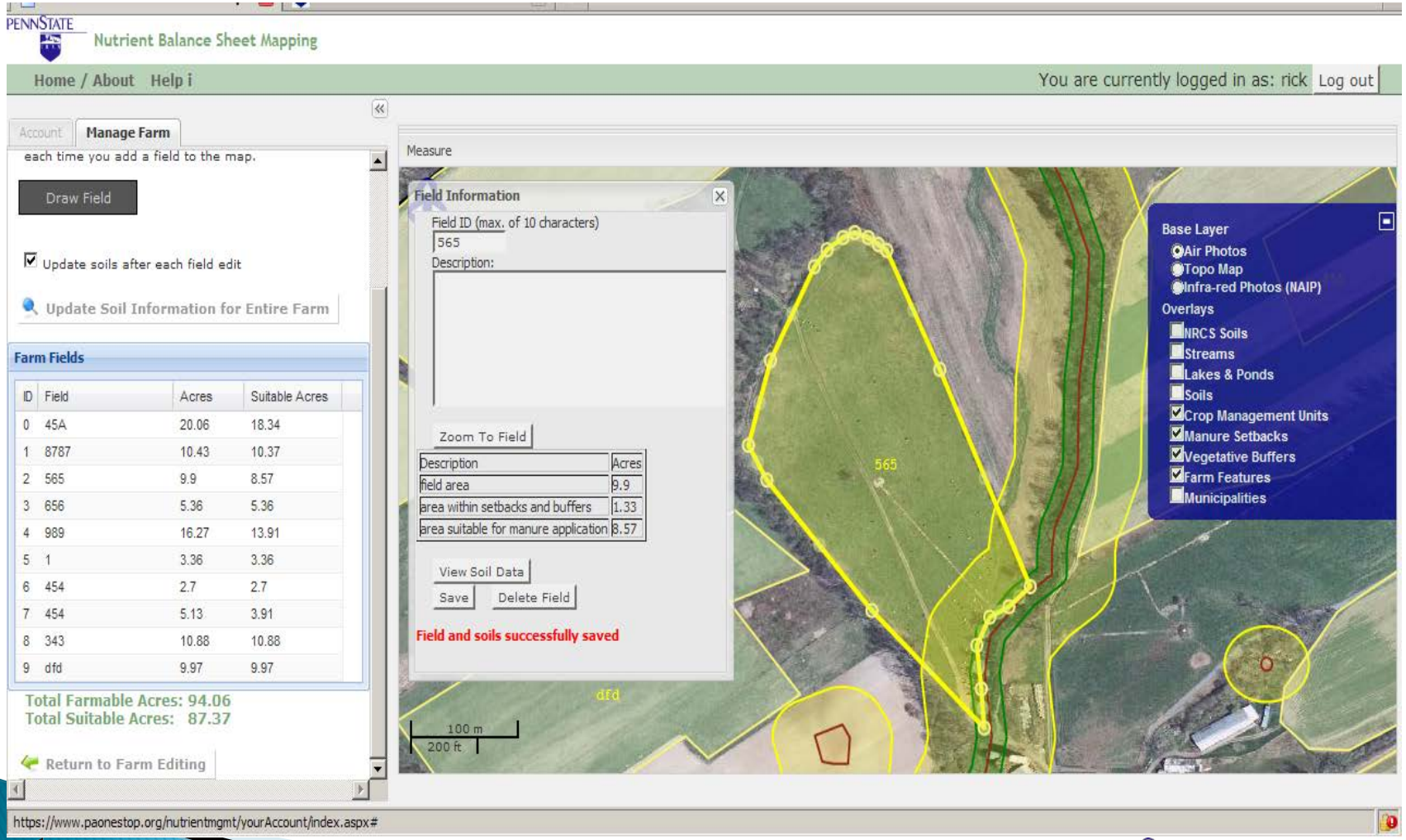
Determine Unsuitable Acreages



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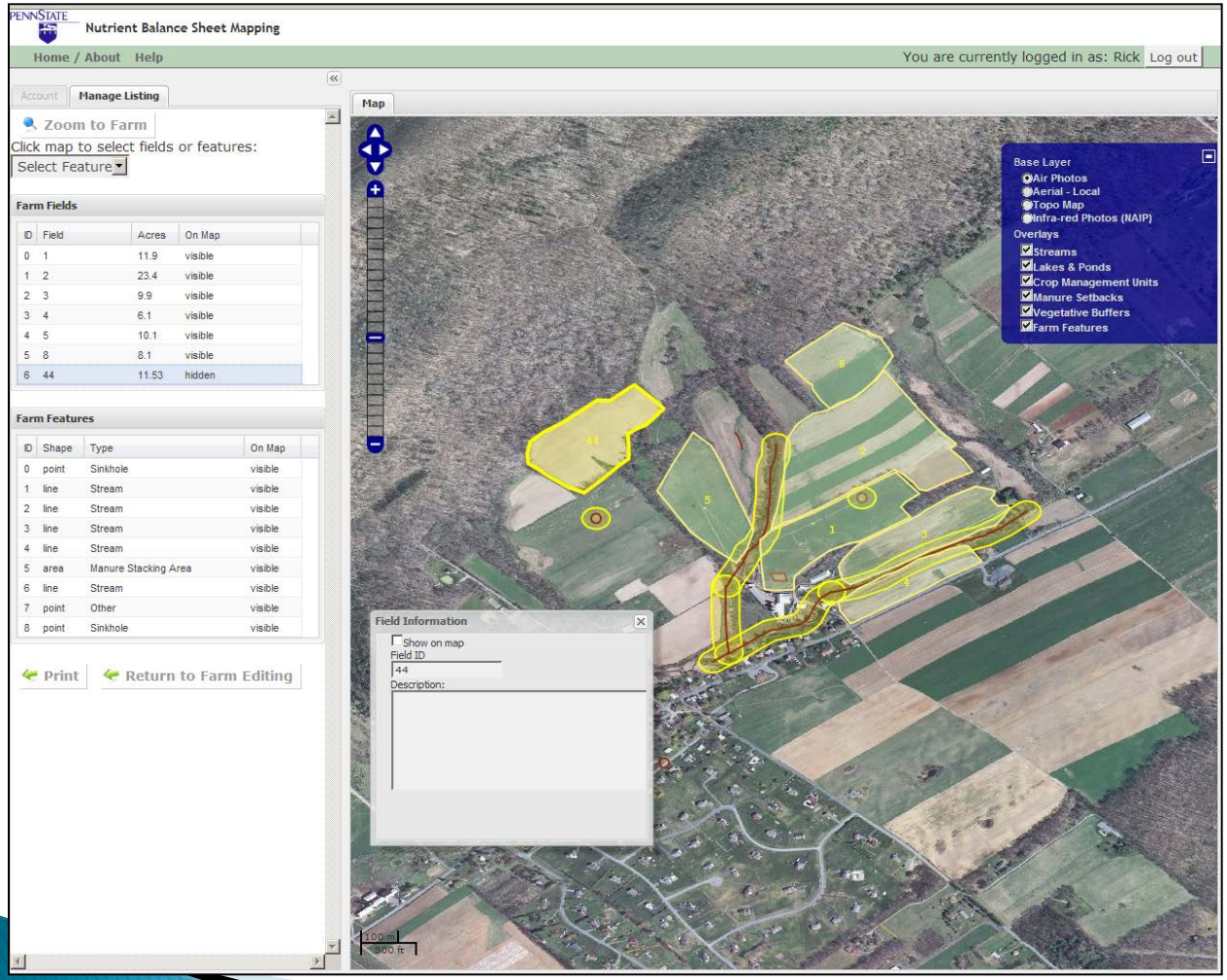
Step 4 : Create Map



- Select features to appear on map
- Only impacted fields need to be mapped
- Hide any field or feature not needed for map
- Select background for map
  - air photo
  - topography

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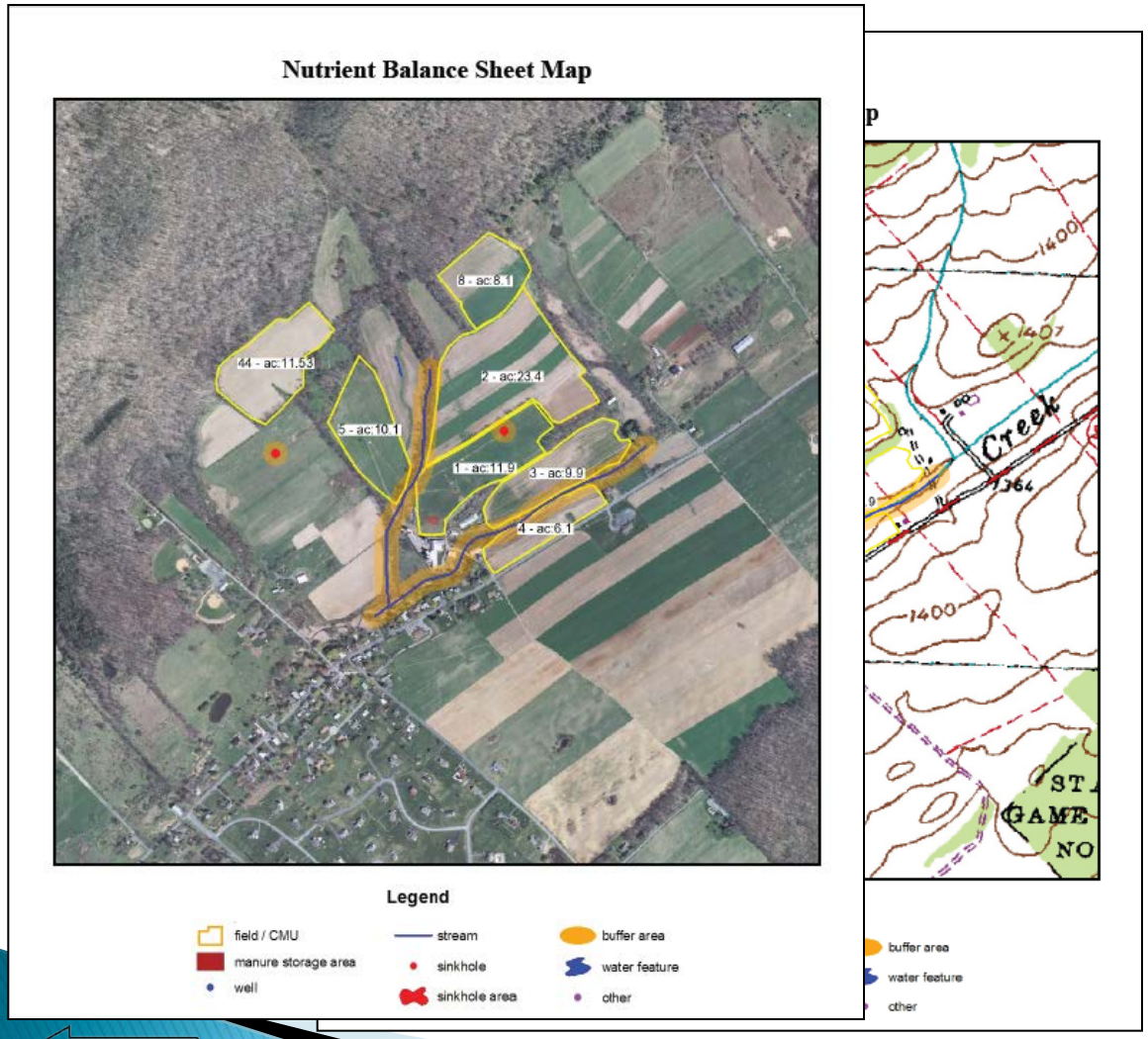
Generate Maps



- PaOneStop generates a map that is acceptable for PA Nutrient Balance Sheet submission
- Farmers can save maps for reference
- Farmers can save farm data for future mapping
- Only need to draw fields and farm features once

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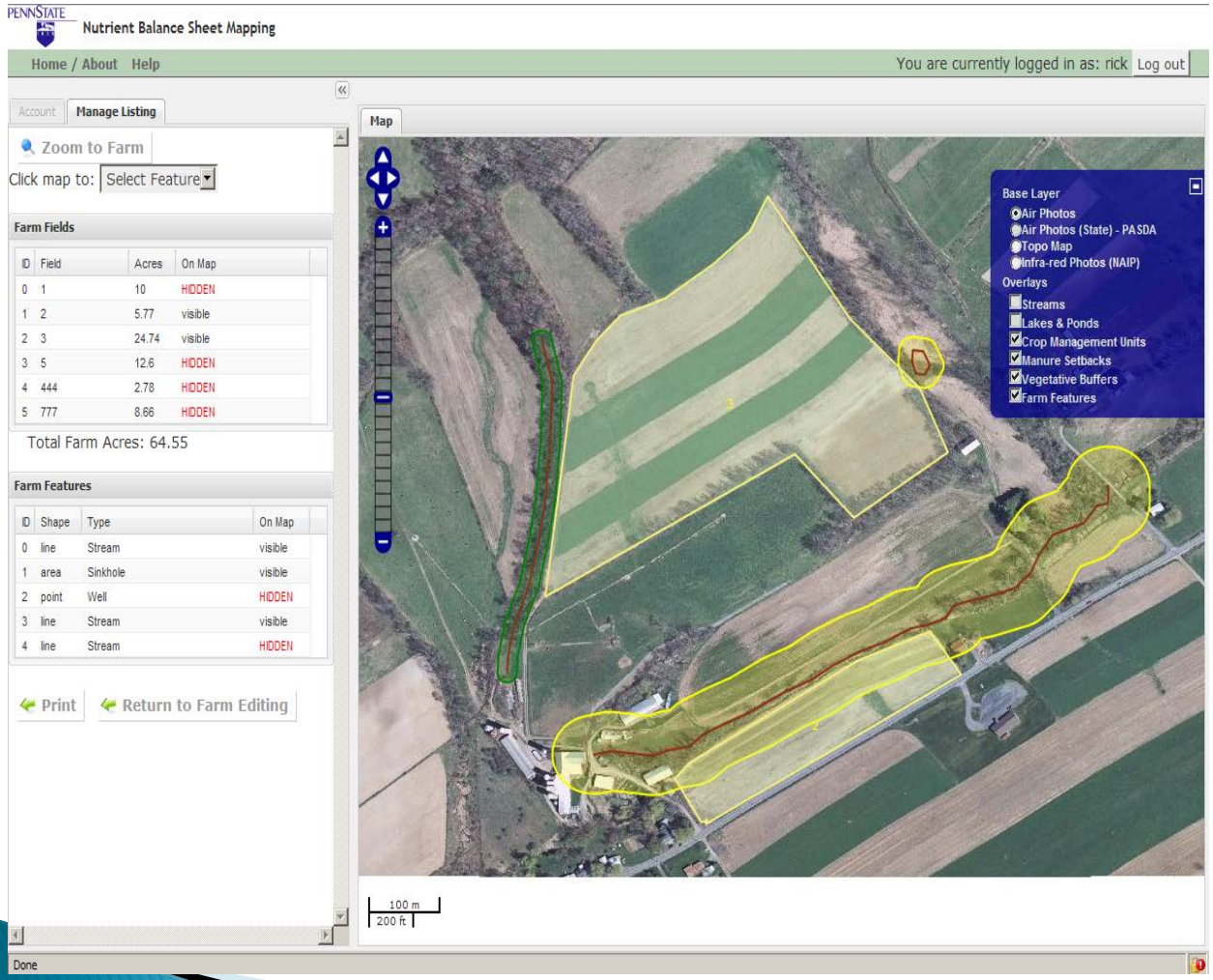
Generate Custom Maps



- Hide Features not needed for map
- Features only need to be digitized once
- Saves time

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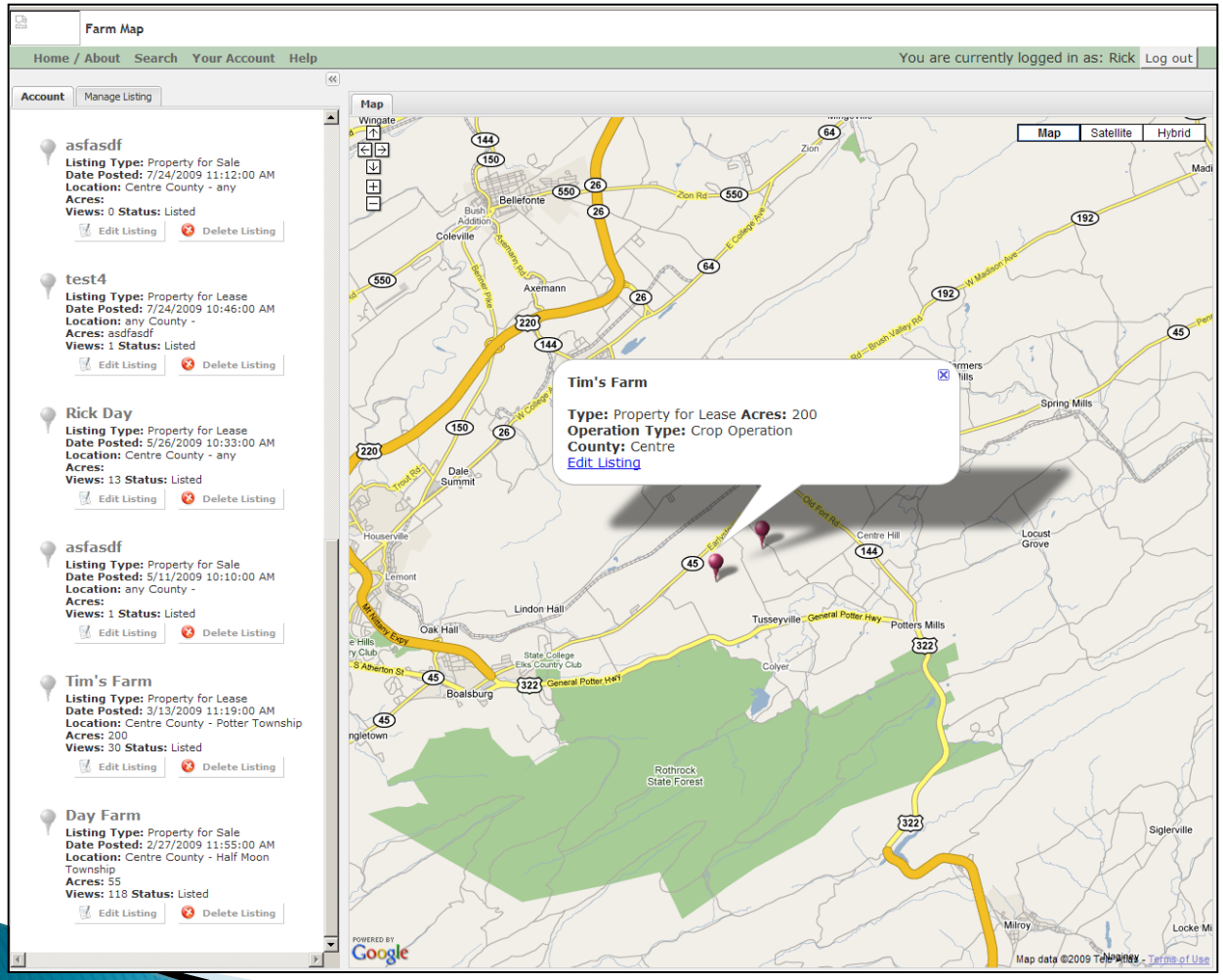
Account: Edit / Delete Farms



- User can add, edit, delete, listings as needed
- User can have one or many listings

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Benefits to Farmers

- Generate high-quality maps on aerial imagery
- No specialized software needed
- Farm information can be saved online for future usage
- Farm only needs to be drawn once
- Field acreages automatically calculated
- Helps meet regulatory requirements designed to protect PA water resources

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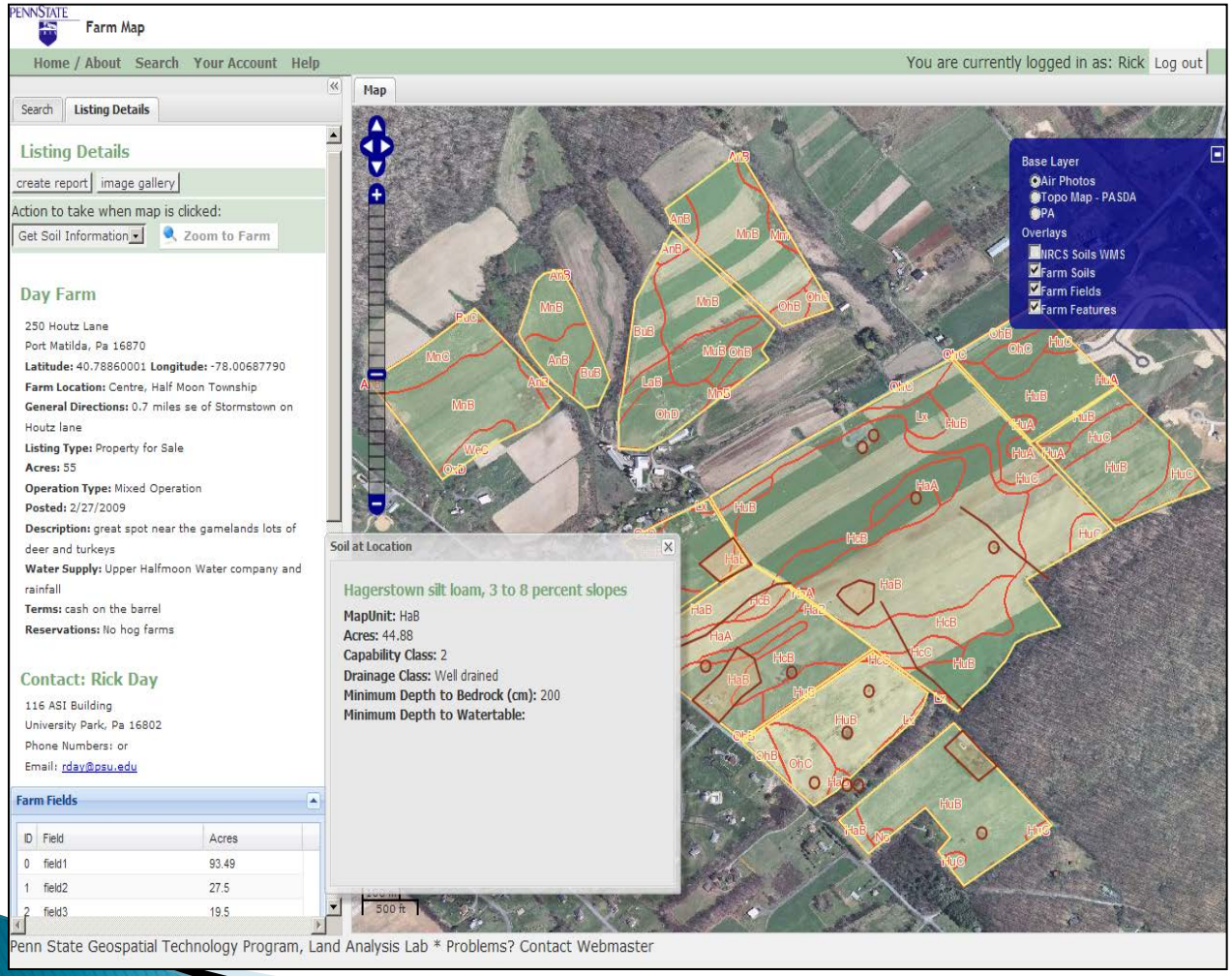
Conservation Planning Module

- Problem:
  - 59,000 Pa farms – 40,000 without current Conservation Plans
  - Current rate of plan development too slow
  - Farmers interaction limited – work done by USDA-NRCS
  - Pa must reduce nutrient loads to Chesapeake Bay or face regulatory pressure
  - EPA forcing compliance with conservation planning
  - PaOneStop will increase the rate of plan development and bring farms into regulatory compliance (Ch 102, WIP)

How will it work?

- Digitize field boundaries
- Collect farm management information from farmer (tillage, crops etc)
- Extract soil, terrain, climatic conditions from online GIS servers
- Determine soil loss for each field (RUSLE/RUSLE2 model?) A=R x K x LS x C x P
- Compare soil loss to NRCS tolerable soil loss values (T)
- Modify crop management and/or implement conservation practices necessary to achieve tolerable soil loss for each field.
- Store farm information online for future modification or access
- Print reports and maps summarizing the Conservation Plan
- Submit Conservation Plan to regulatory agencies for review

Field Characterization – Soils



- USDA-NRCS SSURGO soils
  - •K-factor
  - •T-factor
- Soils extracted from NRCS GIS service
- Soils clipped locally to field boundary
- Acreages within fields calculated
- SSURGO data tables accessed

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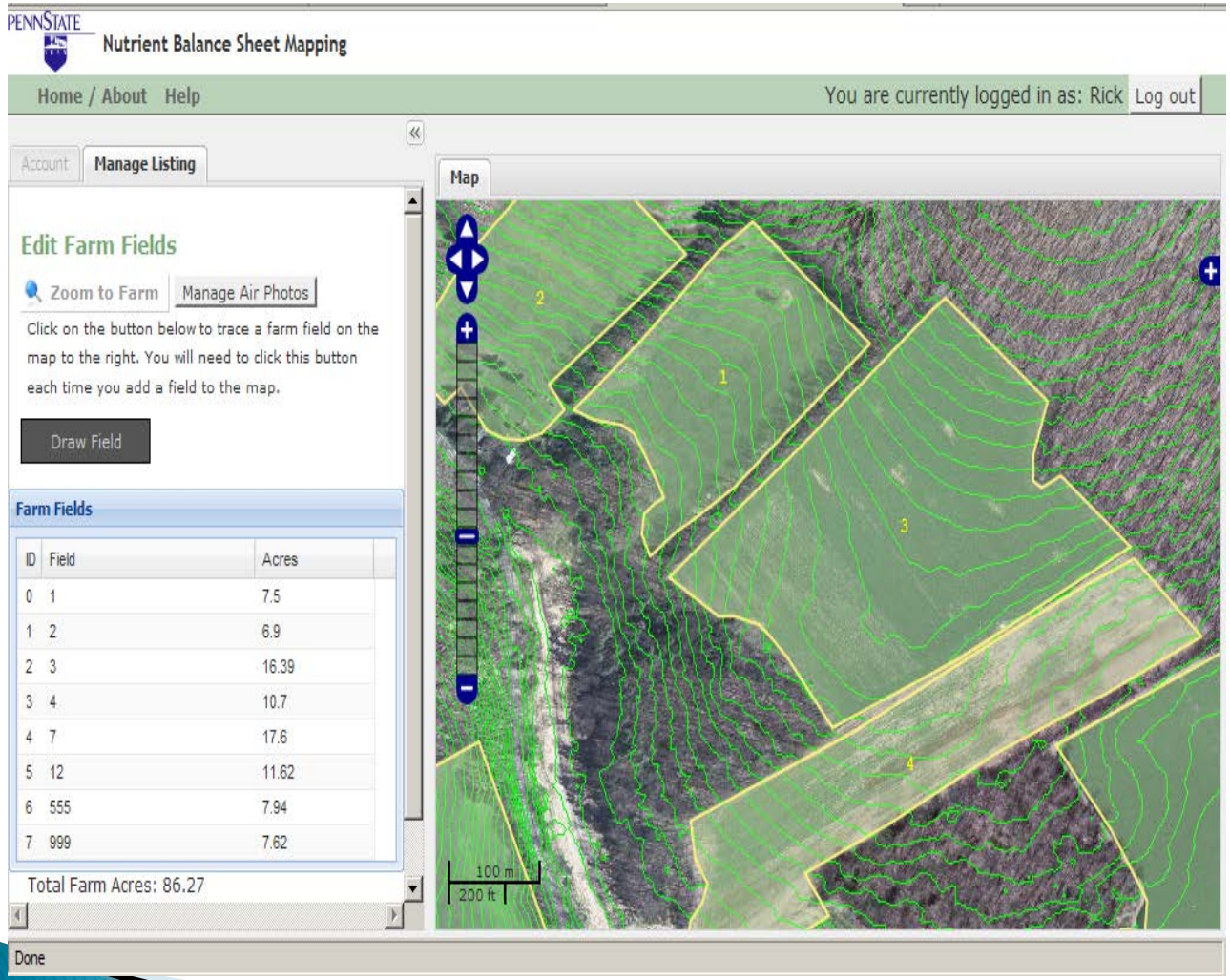
Field Topography



- Terrain Models
  - •LiDAR data
  - •10m/NED
- Slope
- Slope Length

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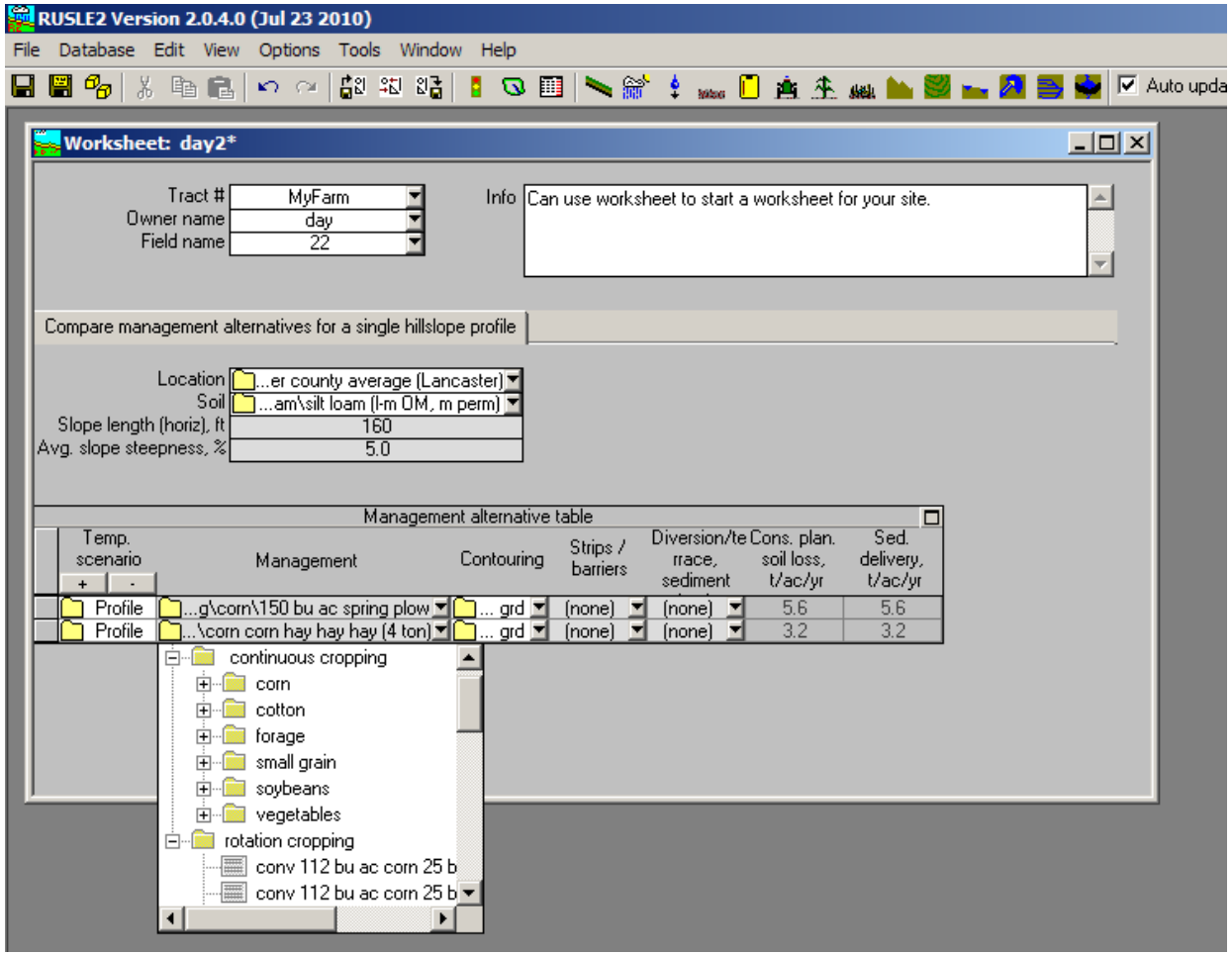
RUSLE2



- Soil loss estimates consistent with USDA-NRCS
- Multiple management scenarios
- Conservation practices
- Web operation possible

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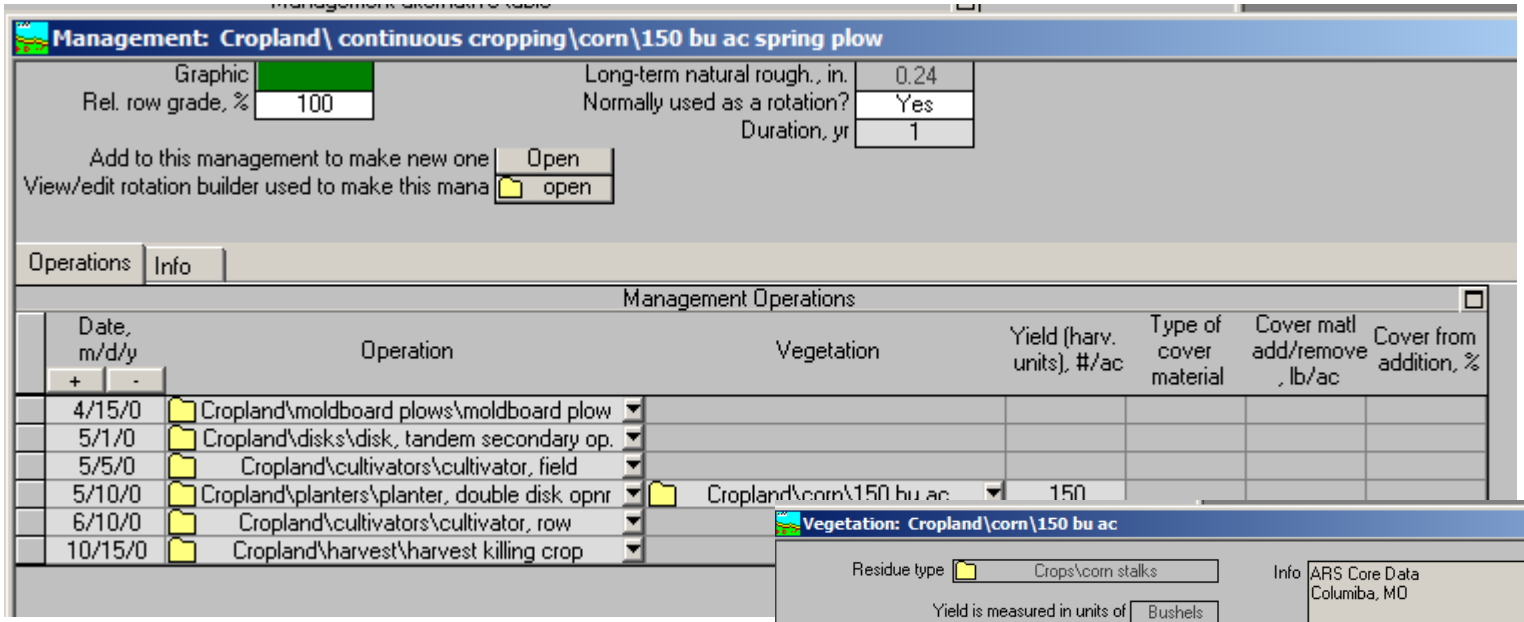
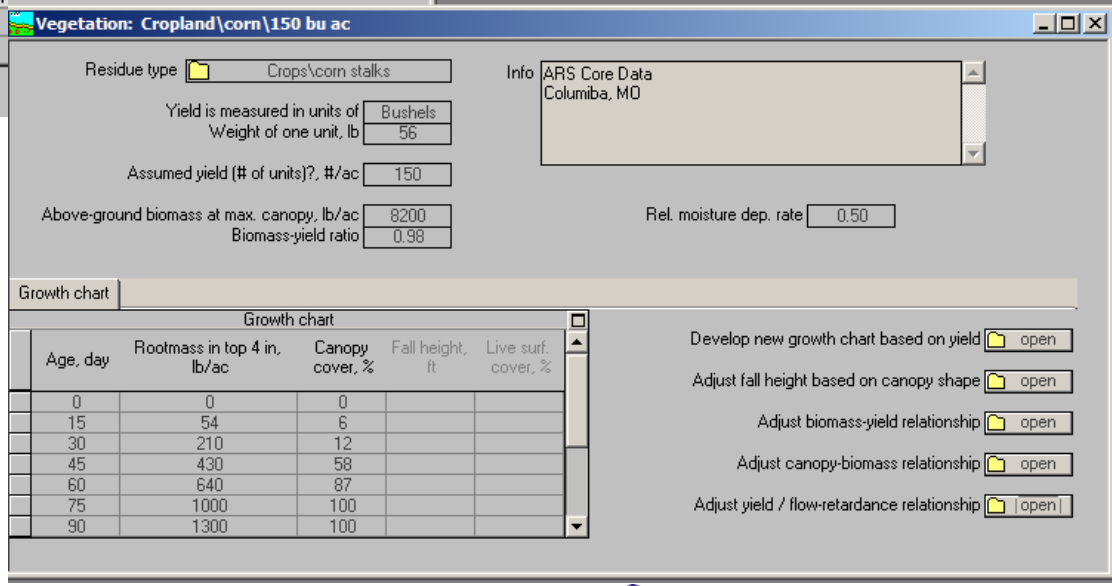
RUSLE2





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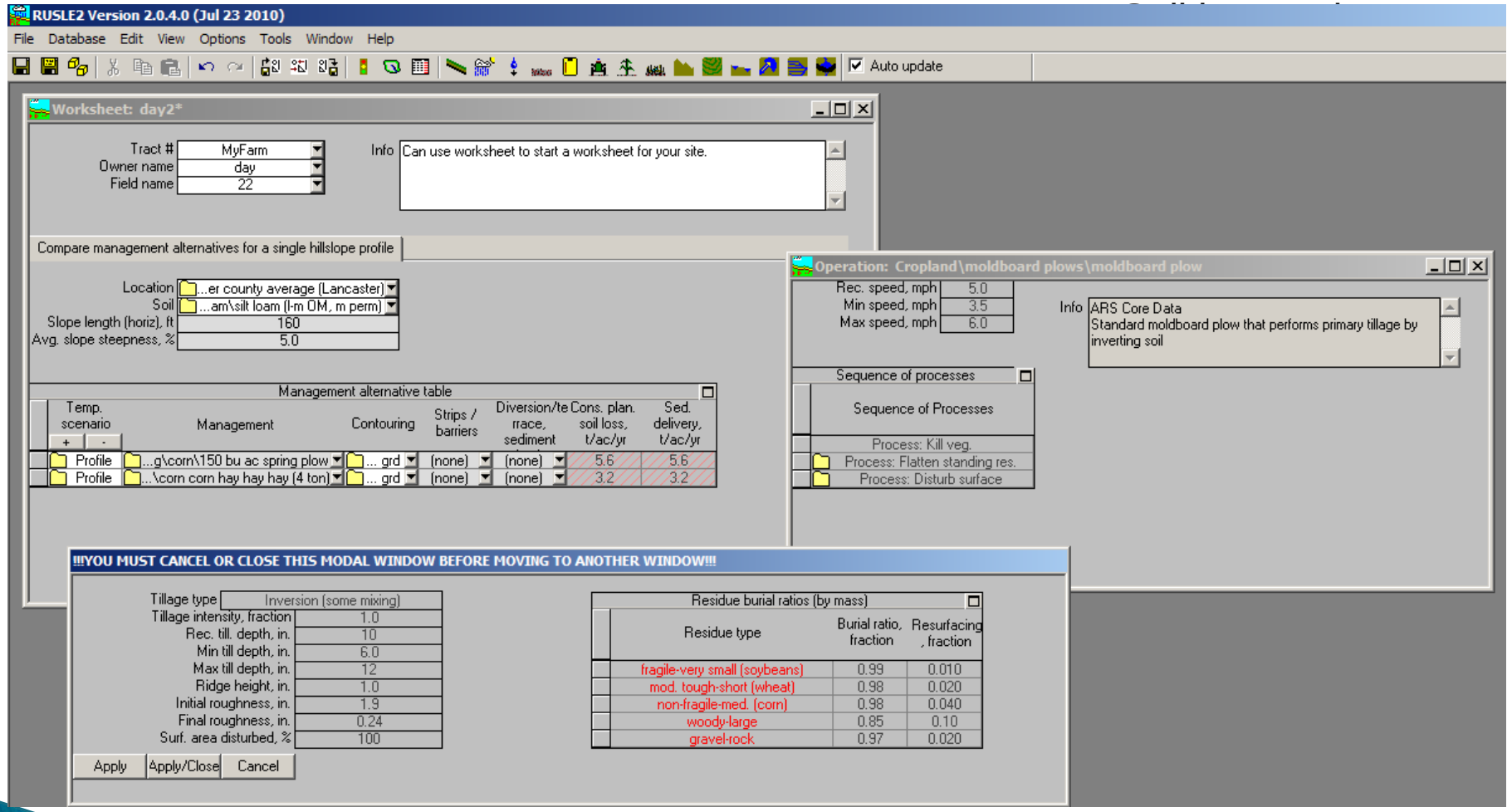
RUSLE2



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Benefits

- Actively engage farmers in conservation planning
- Efficient production of Conservation Plans
- Meet Chapter 102 / WIP compliance standards
- Simplify plan updates
- Evaluate various management scenarios
- Reduce soil loss
- Improve water quality
- Provide valuable database of agricultural management and conservation practices statewide

Outreach

- Penn State Cooperative Extension Nutrient Balance Sheet Training Session – March 19, 2010, Lancaster, PA.
- Penn State Cooperative Extension Nutrient Balance Sheet Training Session – March 30, 2010, Middletown, PA.
- Penn State Manure duJour Webinar – April 21, 2010
- Manure Expo – July 15, Rock Springs, PA – 3 hands-on training sessions
- Ag Progress Days Exhibit – August 15-18, Rock Springs, PA
- Keystone Farm Show – York
- PACD Bay Conference – Jan 5, Lewisburg
- Rob Meinhem – Act 49 training – 8 sessions (Jan/Feb 2011)
- Kristen Saacke-Blunk – newsletter, Conewago sessions (Spr 11)
- Penn State CMET – newsletters, trainings
- NACD Webinar – June 3

Thank You

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