United States Department of Agriculture
Natural Resources Conservation Service

NTT
A Water Quality Trading Tool

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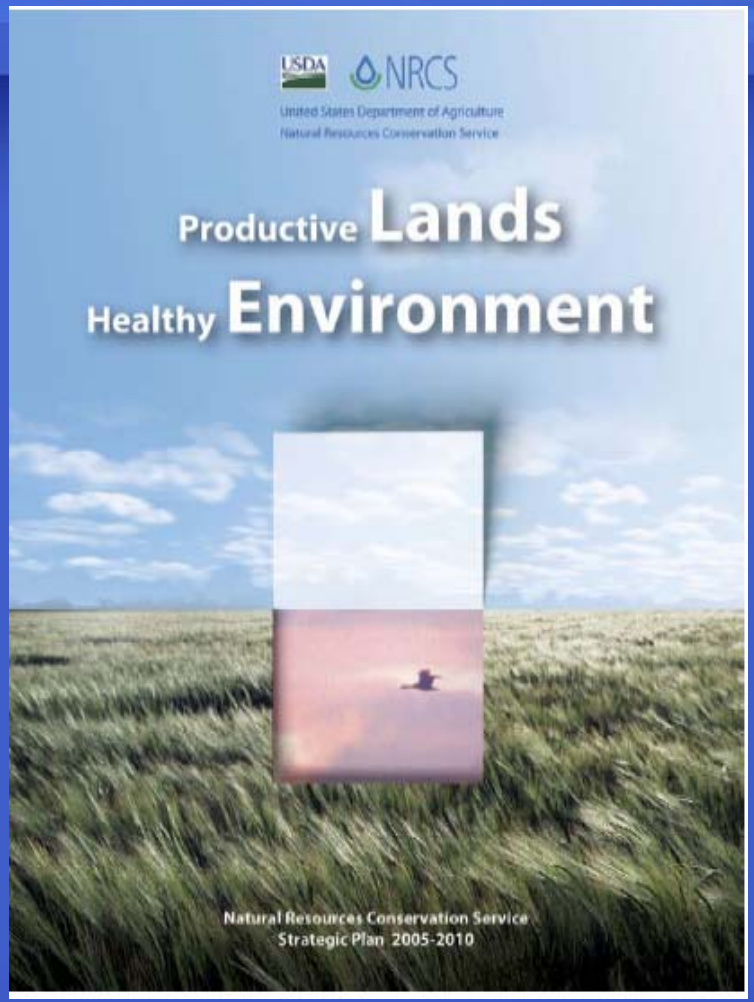
Highlights

- Market-based Approach
- NTT Requirements/Design
- NTT Demo
- Q/A



Strategies

- Cooperative Conservation
- Watershed Approach
- Market-based Approach

Market-based Approach

Definition

One entity buying WQ credits from another to meet NPDES permit requirement (Cap and Trade) and to improve overall water quality of the basin

Benefit

Facilitates and encourages private sector to invest in conservation on private lands.

Market-based Approach

Why it works?

Difference in cost and effectiveness of conservation practices in controlling pollutants due to site specific characteristics

Nutrient Reduction Costs
(Chesapeake Bay)

BMP / Control Practice	Phosphorus ($/lb)	Nitrogen ($/lb)
Municipal waste treatment	$4.78-$105.67	$5.73-$10.78
Conservation tillage	$7.39	$1.59
Agricultural Grass Buffer	$20.69	$1.03
Animal waste management / runoff control	$30.55	$3.93

EPA, 2007

Market-Based Approach

- Promotes collaborative interaction among point and non-point sources
- Rewards farmers for implementing conservation practices
- Encourages farmers in maintaining the conservation practices
- Creates a win-win situation for all parties involved

Nutrient Credit Trading

- What it is?
  - A process of one entity buying credits from another entity directly or indirectly for controlling pollution to meet regulatory requirements and improving overall water quality within a watershed
- How it works?
  - One-on-One
  - Through Aggregator, Broker or Exchange

Nutrient Credit Trading

- Types of Trades
  - Point source to point source
  - Non-point to point source
- Key Players?
  - Buyers (generally sewage treatment plants)
  - Sellers (farmers, ranchers, sewage treatment plants)
  - Brokers, Regulators, Aggregators

What is being Traded?

Water Quality

- **Nitrogen**
- **Phosphorus**
- **Temperature**

Air Quality

- **CO_2**
- **Methane**
- **Nitrous Oxide**

Biodiversity

- **Mitigation Banking**
- **Conservation Banking**

Nutrient Credit Trading

Why Non-point Sources?

- Control pollutant at its source
- Multiplicity (control multiple nutrients)
- Promotes ecosystem approach
- Added benefits
  - Wildlife habitat
  - Micro-climate

Buy One and Get Many Free

Nutrient Credit Trading

Non-Point Source Control Practices

- Field Level Management
  - Cropping System
  - Fertilizer Management
  - Irrigation Management
  - Tillage Management
- Farm Level Structural Activities
  (Buffers, Grass Waterways, etc)

Nutrient Credit Trading

What is needed?

- Trading Rules and Regulations
- Monitoring and Verifications
- Outreach and Education
- Tools and Techniques

Tools and Techniques

Nitrogen Trading Tool

A user friendly tool for estimating nitrogen loss reduction (saving) under different combinations of field / farm level management practices

Nutrient Credit Trading

A Collaborative Efforts

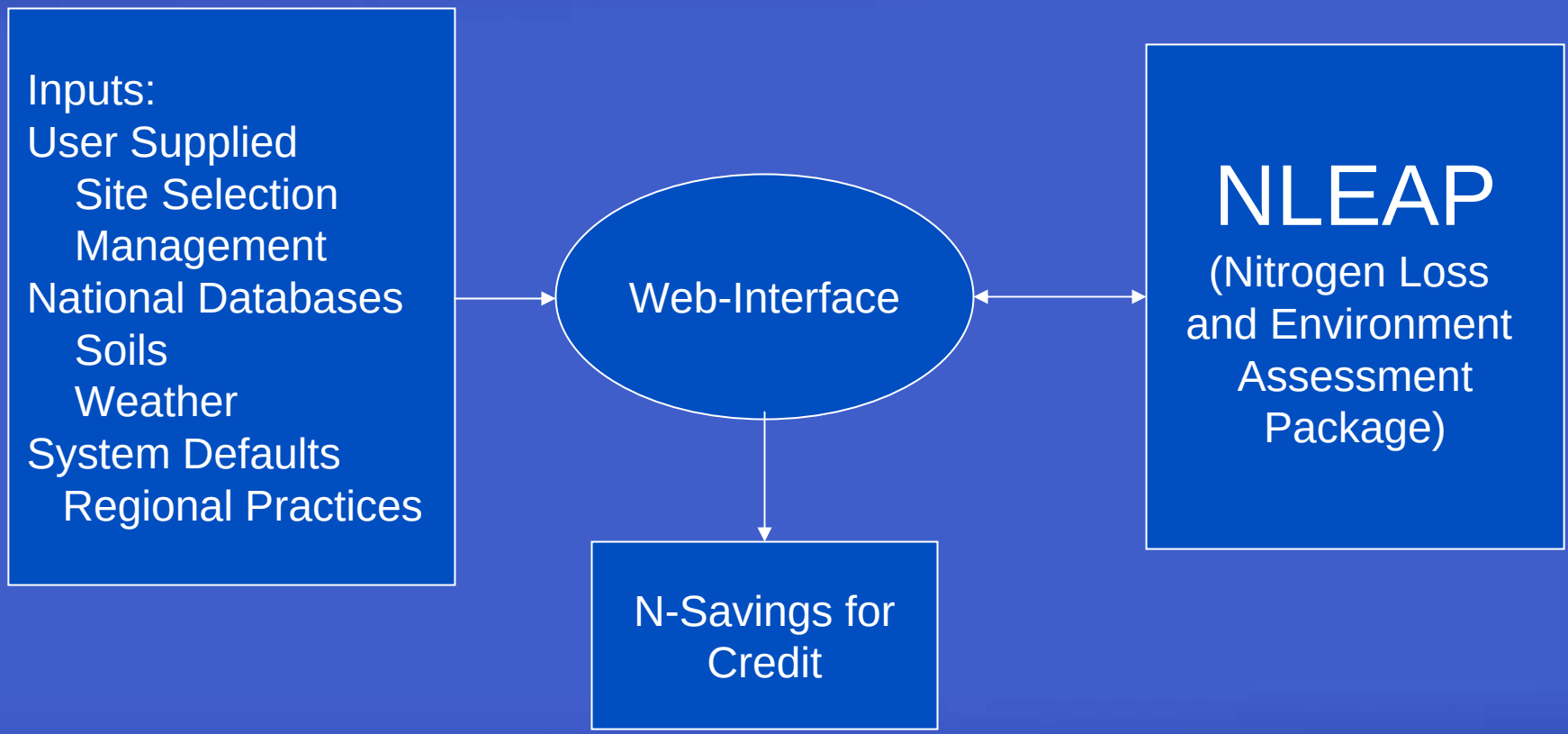
- Developed in collaboration with EPA, ARS and others
- Prototype focuses on limited geographical area (Chesapeake Bay)
  - Virginia
  - Ohio
  - Colorado

Nitrogen Trading Tool

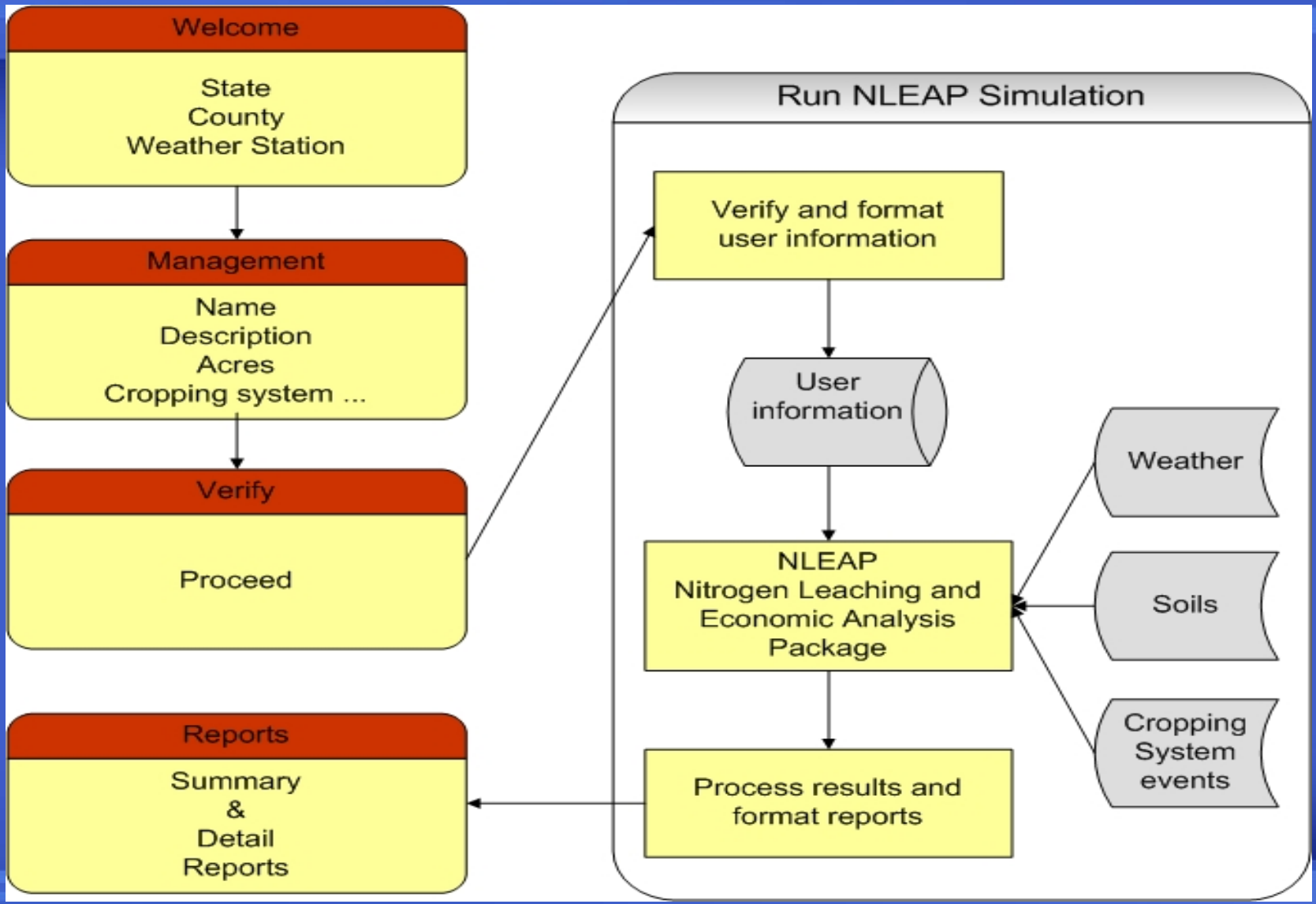
Characteristics:

- Web-based and easy to use
- Uses NLEAP – a tested N-management model
- Fast, precise on-the-fly simulations
- Site-specific weather and soil Info
- Historical actual weather data
- Report on different N-components (N-Leached, N-Volatilized, N-Runoff, N-Sediment)

Nitrogen Trading Tool



Nitrogen Trading Tool

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Welcome
The Nitrogen Trading Tool calculates the total nitrogen (N) loss reduction savings based on agricultural management practices. Agricultural producers and land managers can enter a baseline and alternative management practice, and produce a report showing the (N) loss reduction difference between the baseline and alternative practice.
Click here to read more about the Nitrogen Trading Tool.
Select your State, County, and Weather Station below, and click NEXT to continue.
Enter your Location information.
State* : Colorado
County* : Conejos
Weather Station* : Manassa
[NEXT]
The Nitrogen Trading Tool was designed and developed by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) and the United States Department of Agriculture Agriculture Research Service (ARS).
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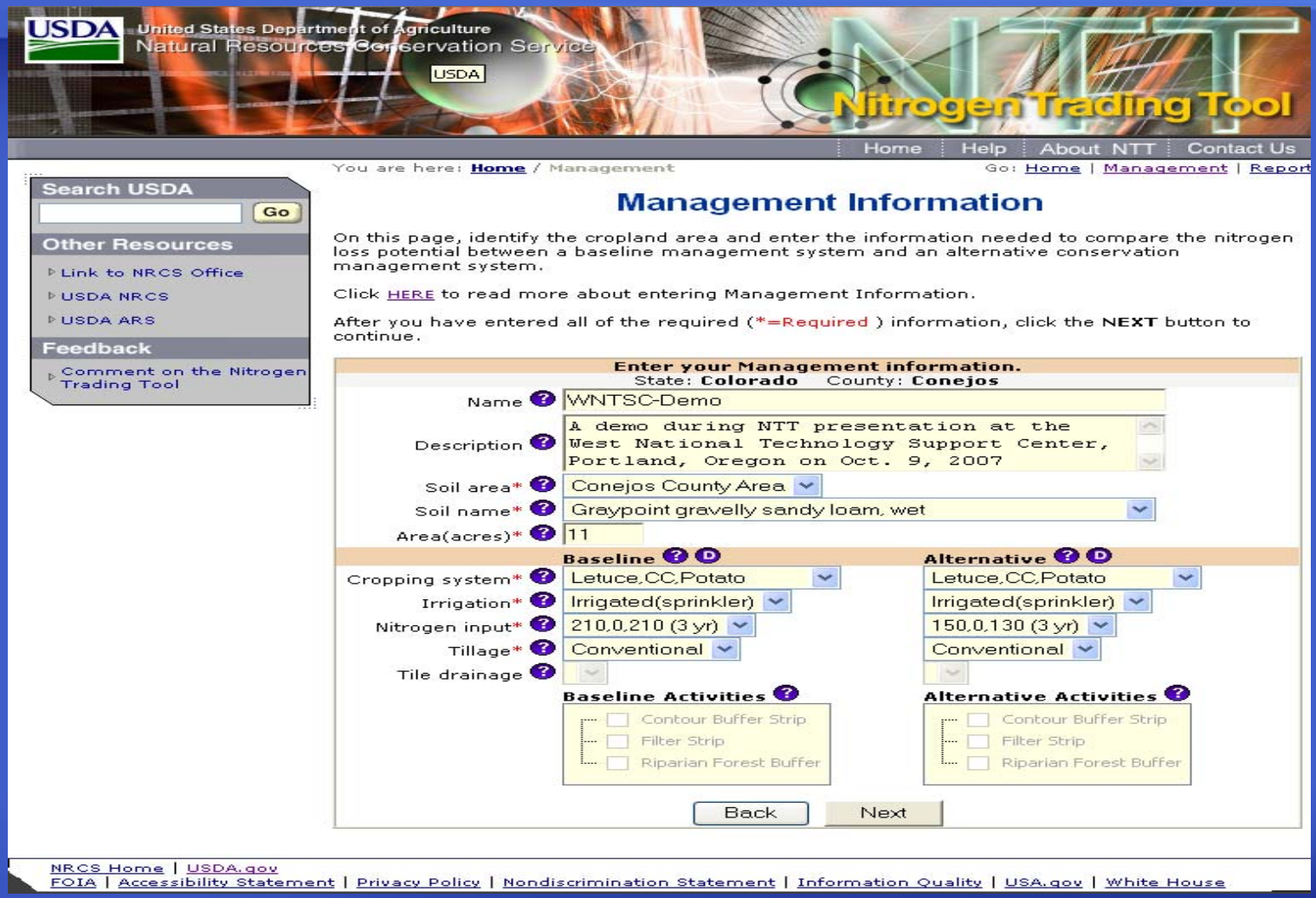
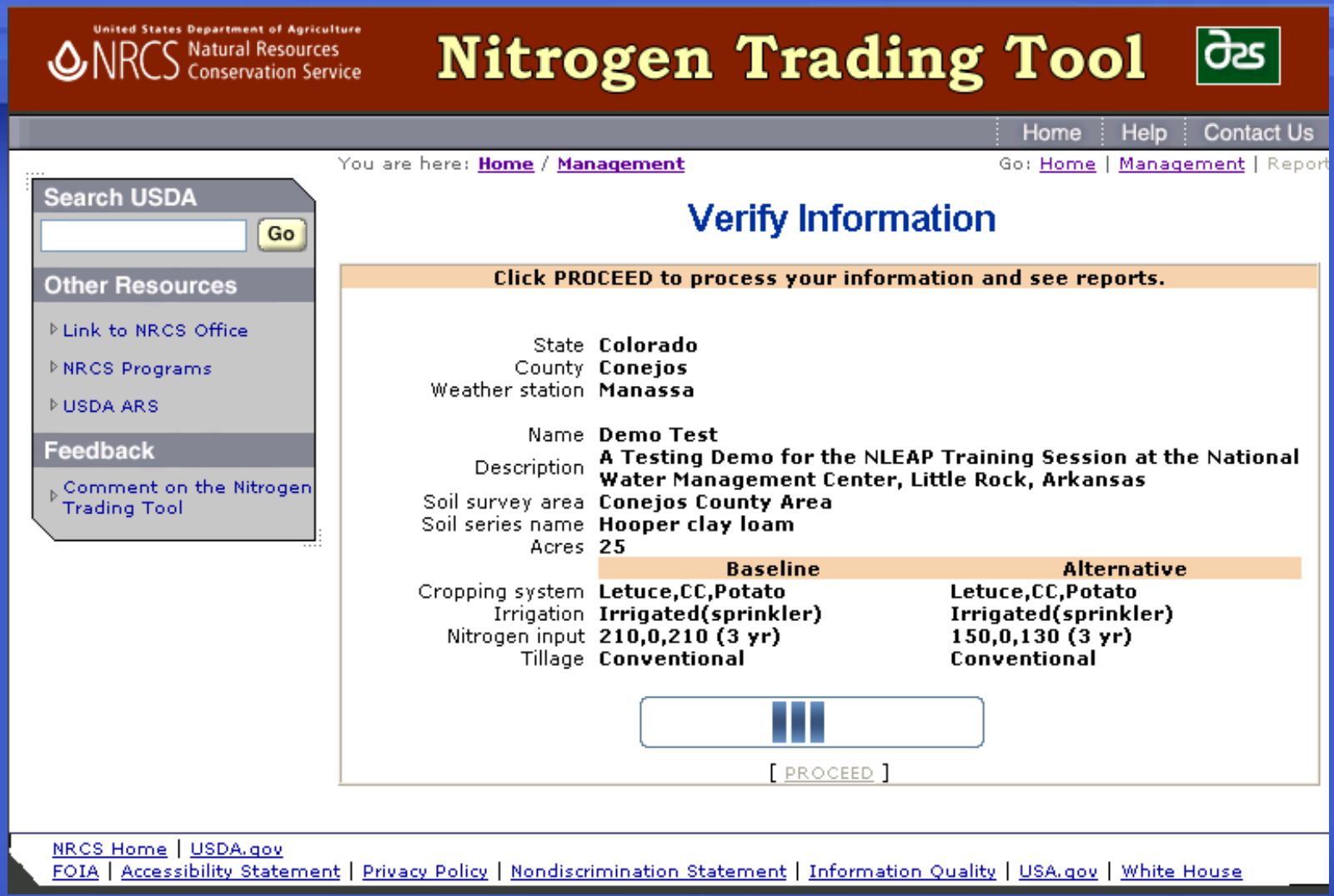
NTT (Nitrogen Trading Tool)

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State Colorado
County Conejos
Weather station Manassa
Name Demo Test
Description A Testing Demo for the NLEAP Training Session at the National Water Management Center, Little Rock, Arkansas
Soil survey area Conejos County Area
Soil series name Hooper clay loam
Acres 25
Baseline
Alternative
Cropping system Letuce,CC,Potato Letuce,CC,Potato
Irrigation Irrigated(sprinkler) Irrigated(sprinkler)
Nitrogen input 210,0,210 (3 yr) 150,0,130 (3 yr)
Tillage Conventional Conventional
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- Link to NRCS Office
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Feedback

- Comment on the Nitrogen Trading Tool

Summary Report

[Download PDF | see Detail Report]

Total (N) Loss Reduction Savings: 965 lbs N/yr

Results:	Baseline	Alternative	Difference	Acres	(lbs N/yr) Change
	83.6	45.0	38.6	25	965.0

Name: Demo Test

Description: A Testing Demo for the NLEAP Training Session at the National Water Management Center, Little Rock, Arkansas

Management Information

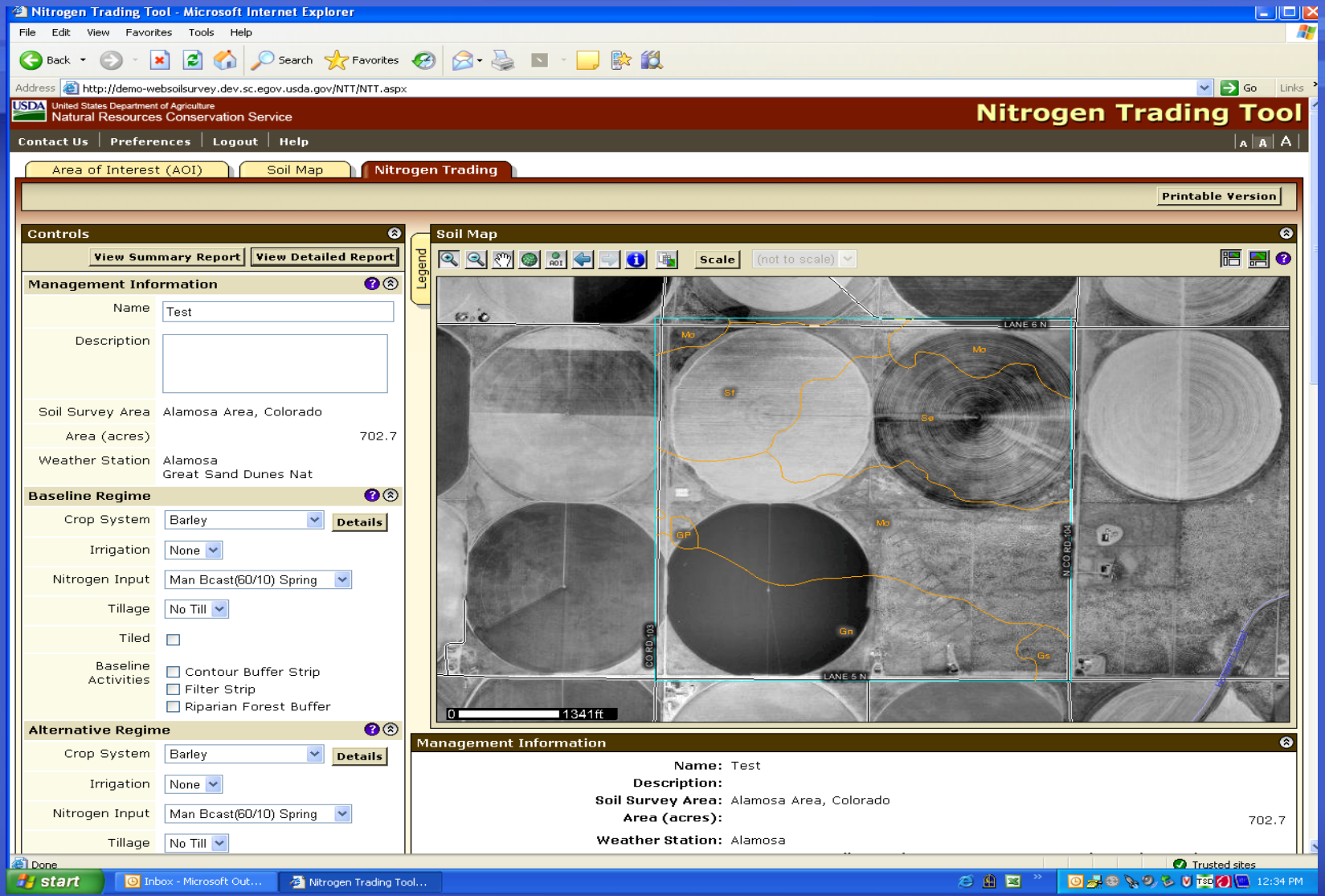
	Baseline	Alternative
Crop system:	Letuce,CC,Potato	Letuce,CC,Potato
Irrigation:	Irrigated(sprinkler)	Irrigated(sprinkler)
Nitrogen input:	210,0,210 (3 yr)	150,0,130 (3 yr)
Tillage:	Conventional	Conventional

Location and Additional Site Information

State:	Colorado
County:	Conejos
Weather station:	Manassa
Soil survey area:	Conejos County Area
Soil series name:	Hooper clay loam

Note: If the difference between the Baseline and Alternative is negative, the Total (N) Loss Reduction Savings will be zero.

NTT-WSS (NTT Interfaced with Web Soil Survey)



Extending NTT Capabilities

- Thermal Trading Tool
  (Oregon State University)
- Phosphorus, Sediment and Yield
  (Tarleton State University)
- GHG Credits from Anaerobic Bio-Digesters

…Rainwater harvesting…

Our Motto

To be innovative in solving water problems

?

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