



An Evaluation and Conservation Planning Framework September 30, 2015

Driving Forces

Demand on food and fiber – and natural resources – is increasing.



By 2050, the world will have to feed **2 billion more people**, a total population of 9 billion.



Extreme weather events, like the California drought and Hurricane Sandy are expected to become commonplace.

Agribusiness Requirements



Marketplace Drivers

The European Union and other countries, as well as corporations such as Wal-Mart, are addressing these issues by:

- ✓ Requiring sustainability goals
- ✓ Conducting lifecycle analyses
- ✓ Building a reliable supply chain
- ✓ Requiring Transparent Metrics

NRCS Objectives

- To **better align and use our technical tools** to enhance our conservation planning capabilities
- To **utilize transparent and uniform stewardship metrics** for farmers and ranchers
- To **better estimate and communicate the benefits of conservation** stewardship
- **Framework to provide recognition and benefits** both internal to USDA and external for good stewardship.

Resource Stewardship Framework

- Includes a **Resource Stewardship Evaluation (RSE)** and the development of **Conservation Plan** which meets or exceeds the Resource Thresholds. The Framework assists producers in achieving a stewardship level of conservation and better communicate the stewardship benefits of conservation.
- Leads to a Precision Conservation Plan with a quantitative Quality Level and Conservation Effects

Resource Stewardship Framework

The **Resource Stewardship Evaluation (RSE)** is a process where we use our best analytical tools to measure four categories of resource concerns on a farm or ranch against stewardship threshold levels.

- Soil and resource health
- Water quality and quantity
- Air quality
- Habitat health

Key Concepts

- Stewardship not sustainability
- Science-based evaluation
- Resource management systems (RMS)
- Management on the land
- Planning thresholds



What's Excluded

Not traditional NRCS Resource Concerns

- Animal welfare
- Genetically modified organisms (GMOs)
- Labor, worker safety and protection
- Food safety

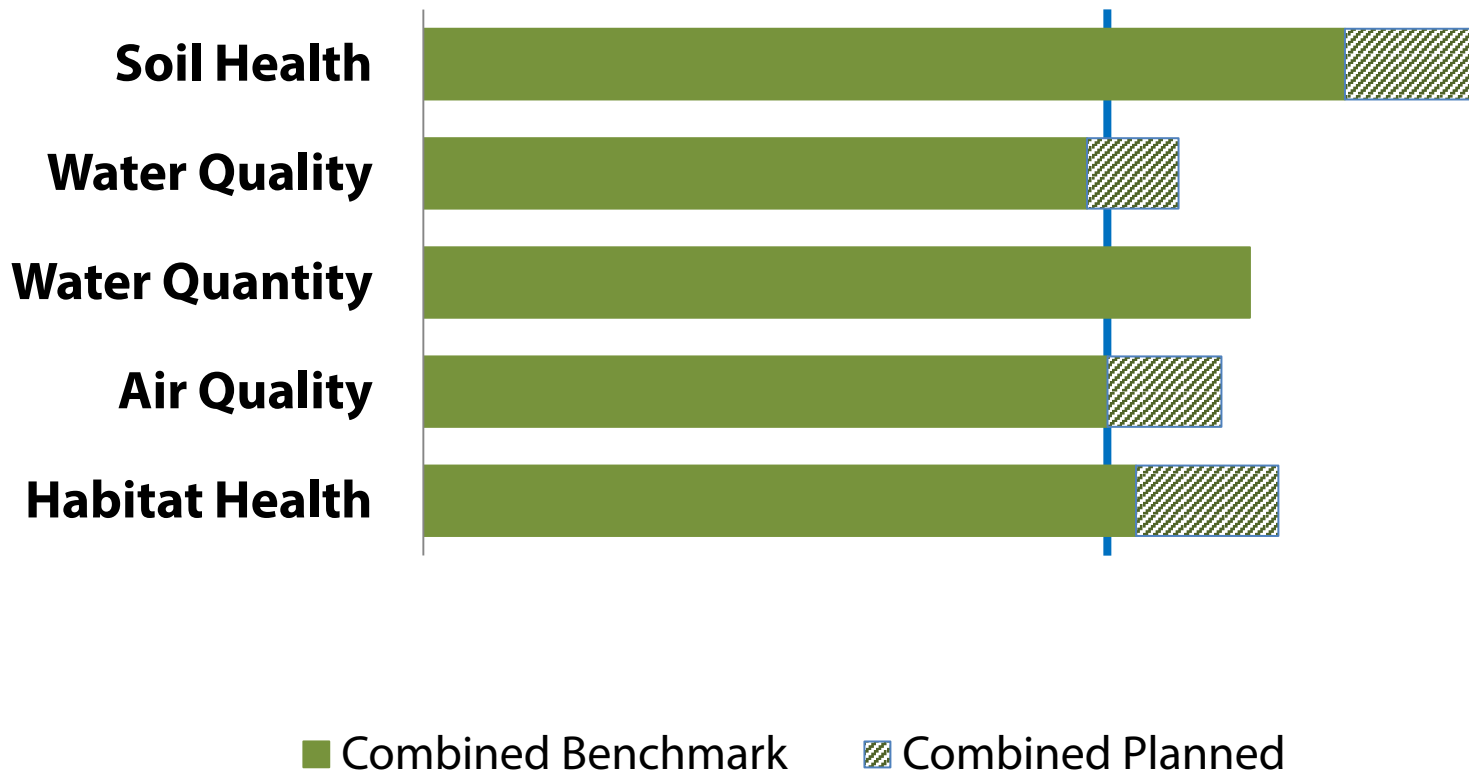
NRCS Resource Concerns

- Energy (Threshold not ready)

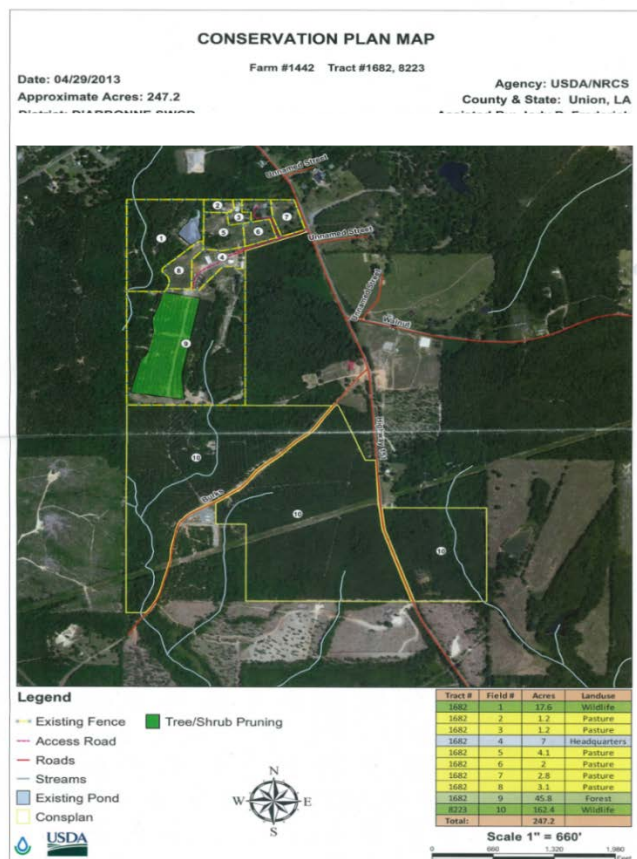
Evaluation Tools

Tool	Notes
RUSLE2	Revised Universal Soil Loss Equation
WEPS	Wind Erosion Prediction System
STEP	Stewardship Tool for Environmental Performance
WINPST	Windows Pesticide Screening Tool
FIRI	Farm Irrigation Rating Index
COMET	Whole Farm and Ranch Carbon and Greenhouse Gas Accounting System
WHEG	Wildlife Habitat Evaluation Guides for Wildlife and Stream Evaluation
RHA	Rangeland Health Assessment
PCS	Pasture Condition Score

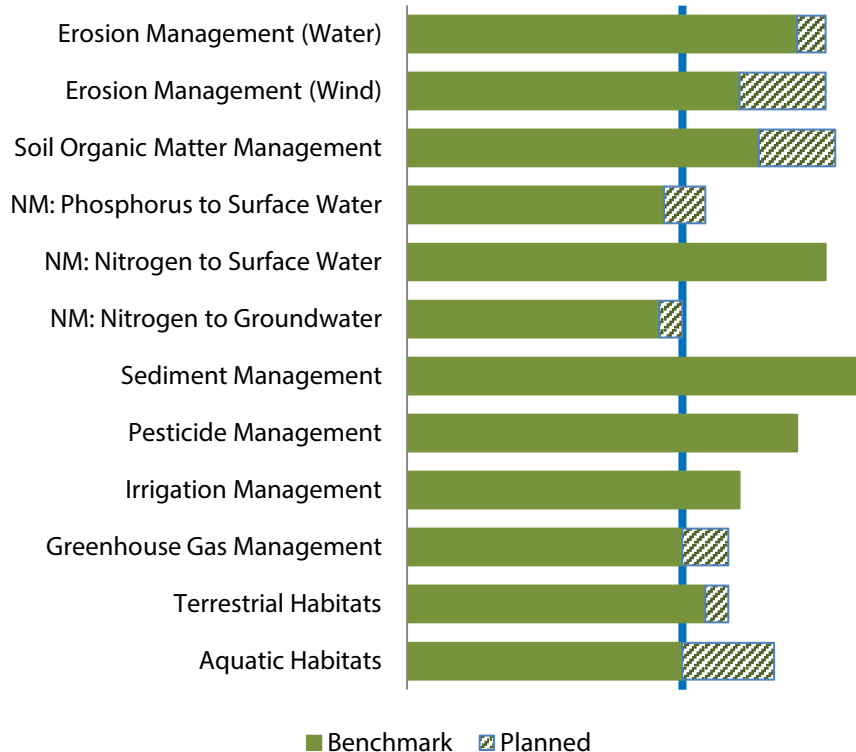
Stewardship Objectives



Key Indicators



Cropland Stewardship Key Indicators



Communicating with Clients

Operation:
Operator:
Site ID: **Field 2**

State: **Iowa**
County: **Marion**
Contact:

Farm #
Tract #

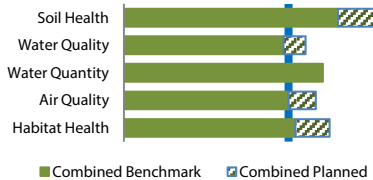
Land Use: **Cropland**
Assessor: **Nathan Rahe**
Date: **4/30/2015**

Contact:

Assessments Completed

RUSLE2	Yes
WEPS	Yes
STEP	Yes
COMET	Yes
Wildlife (Cropland)	Yes
Stream Evaluation	Yes
Prescribed Grazing PI	N/A

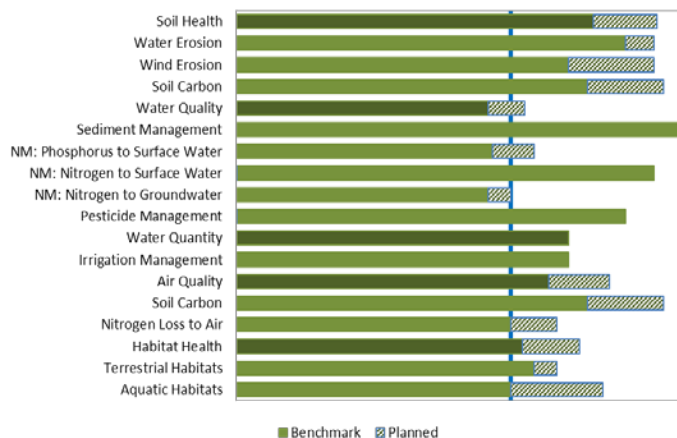
Cropland Stewardship Objectives



Resource Stewardship Evaluation Cropland Results

1/0/1900
Field 2
4/30/2015

Cropland Stewardship Achievement



Conservation Practices and Mitigation Techniques

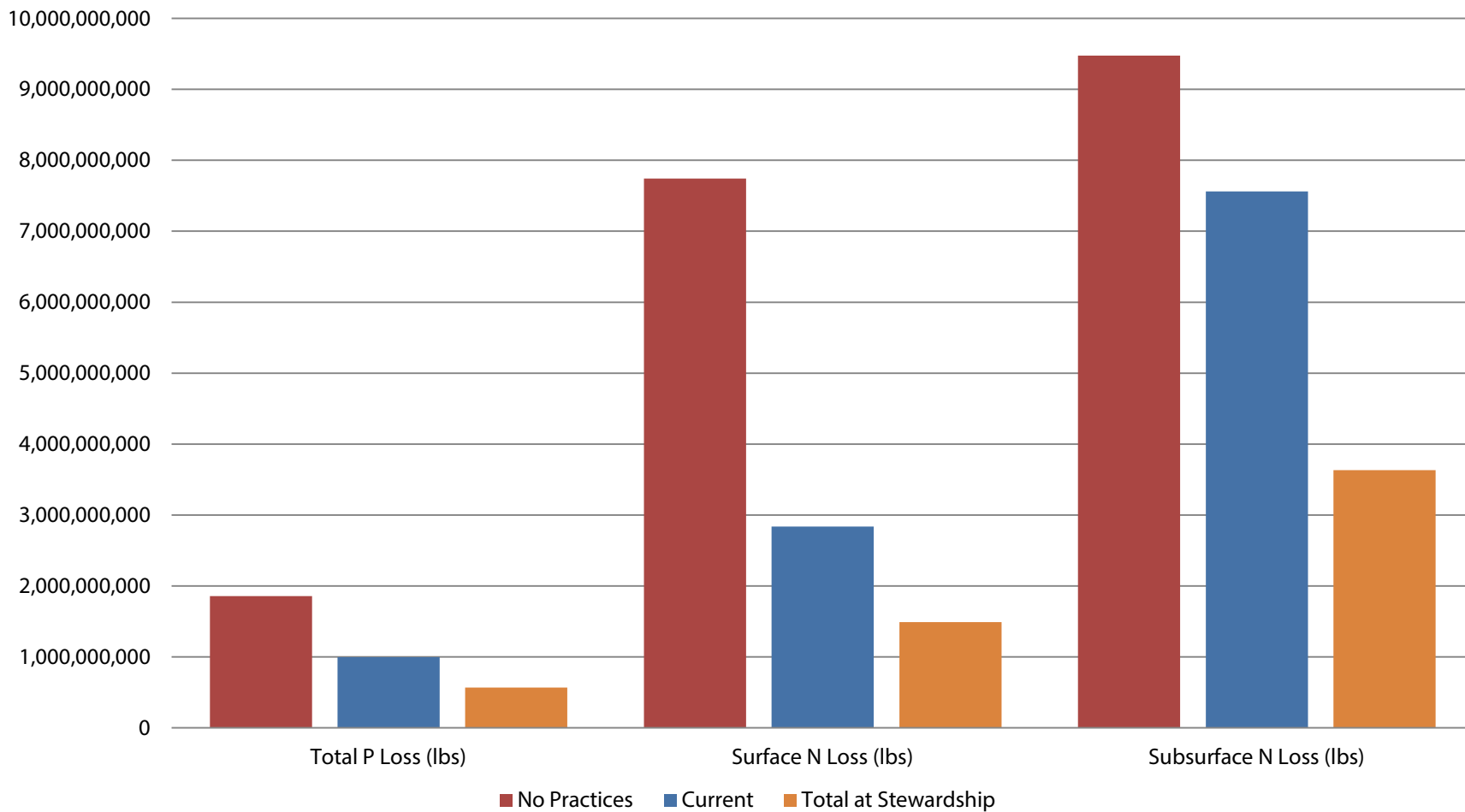
- | Benchmark | Planned |
|--|---|
| • Residue and Tillage Management, No-Till (32) | • Residue and Tillage Management, No-Till (329) |
| • Conservation Crop Rotation (328) | • Conservation Crop Rotation (328) |
| • Filter Strip (393) | • Filter Strip (393) |
| • Irrigation Water Management (449) | • Irrigation Water Management (449) |
| | • Cover Crop (340) |
| | • Riparian Forest Buffer (391) |

Resource Stewardship provides Value Added Conservation Planning

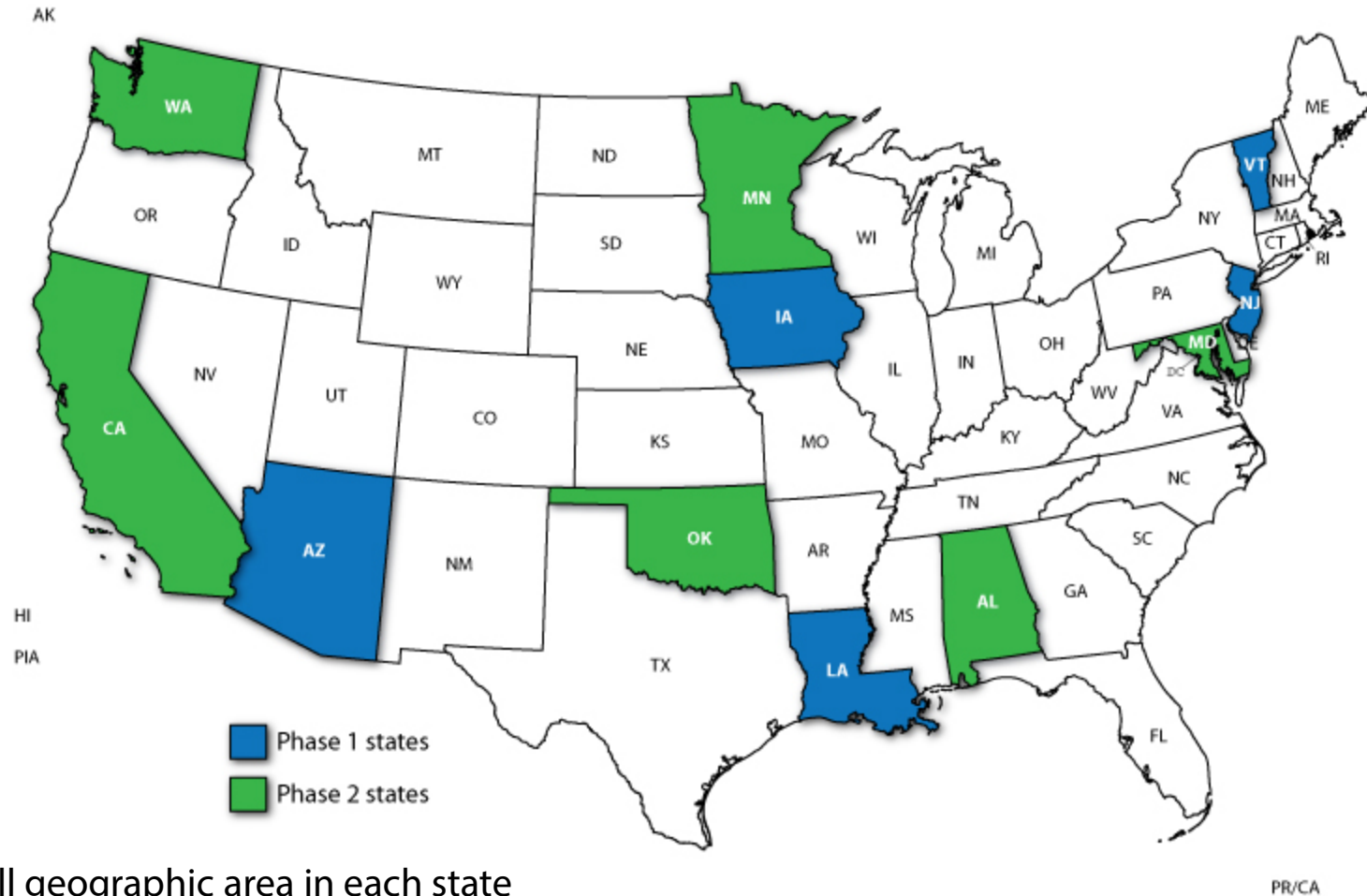
- All activity occurs within the Conservation Planning Process
- Built on Conservation Planning Resource Concerns, Planning Criteria, and Assessment Tools and Methods
- Encourages more Holistic Planning

**Leads to a Conservation Plan with discernable
Quality Level and Conservation Effects**

Water Quality Effects of Resource Stewardship



2015 Pilot States



Results

- Over 100 diverse tracts evaluated thus far
- Significantly improving conservation – precision conservation
- Major improvements foreseeable in water quality, especially related to nutrient leaching – some farmers made immediate changes to meet threshold level
- Increased leverage through immediate access to EQIP to achieve stewardship level
- Currently preparing report



Maryland Pilot

Resource
Stewardship
Evaluation

United States Department of Agriculture
Natural Resources Conservation Service

Operation: Happy Farms

Operator: Jane Doe

Site ID: Field 1

Land Use: Cropland - Irrigated

Assessor: Aaron Lauster

Date: 5/28/2014

Assessments Completed

RUSLE2	Yes
WEPS	Yes
STEP	Yes
COMET	Yes
Wildlife (Cropland)	Yes
Stream Evaluation	Yes
Irrigation Assessment	Yes

State: Maryland

County: Queen Anne

Contact: 202/867-5309

Contact: 202/260-9230

Farm #

Tract #

Resource Stewardship Evaluation

Resource Health	
Water Quality and Quantity	
Air Quality	
Habitat Health	

Resource Stewardship Evaluation

Cropland Results

Happy Farms

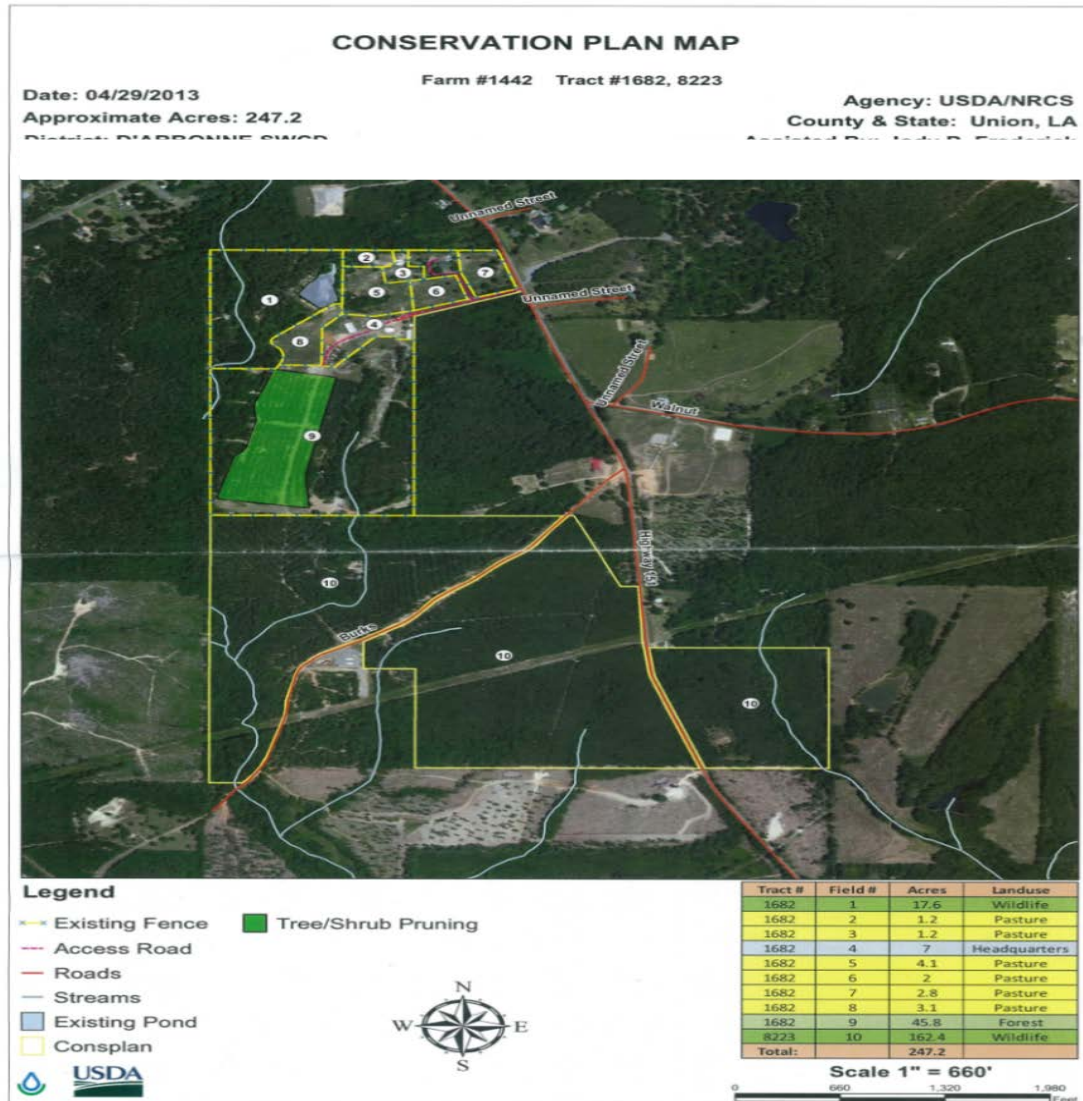
Field 1

5/28/2014

Key Indicator

Indicator	Assessment Method	Result	Threshold	Notes
RESOURCE HEALTH				
Sheet and Rill Erosion	RUSLE2	0.6	5	
Wind Erosion	WEPS	2.1	5	
Gully Erosion	Gully Erosion	Pass	Pass	
Soil Organic Matter	RUSLE2 (SCI)	0.5	0	
WATER QUALITY AND QUANTITY				
Offsite Sediment	STEP Sediment	51	10	
Nitrogen Run-off	STEP Nitrogen Run-off	62	30	
Nitrogen Leaching	STEP Nitrogen Leaching	58	60	
Phosphorus Loss	STEP Phosphorus	46	30	
Pesticide Mitigation	STEP Pesticide	75	40	
Water Management	FIRI	75	60	
AIR QUALITY				
Green House Gases	COMET	-0.11	0.00	
HABITAT HEALTH				
Terrestrial Habitat	National Wildlife Guide	0.50	0.50	
Stream Health	National Stream Guide	0.75	0.50	

Louisiana Pilot



Feedback

“This helps farmers to see long term goals instead of short term production and where the strengths and weakness of their farm are. This will help them to conserve their farm for future generations.” - Jack Bensink, Bensink Farms Ltd.

I have used the STEP-Nutrients to show incorporating cover crops into a current system brings Water Quality Issues from not meeting the threshold to meeting the threshold. – District Conservationist, Iowa

One producer who showed some resource concerns that need to be addressed said “I am going to definitely go back to no-till on those steep hillsides and take the wear and tear on my bean planter.” - District Conservationist, Iowa

This tool has the potential to help us rank applications so we are funding where we can achieve the greatest benefit in improvements from the existing system. - District Conservationist, Iowa

Delaware Farm



Delaware Farm



Delaware Farm

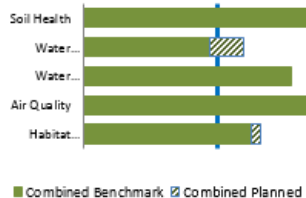


Delaware Farm

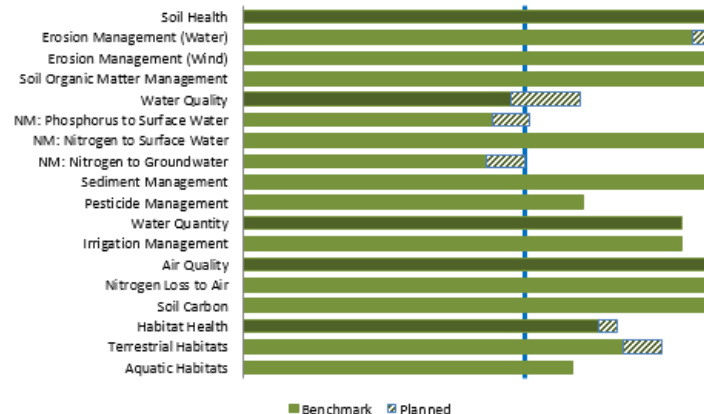
Operation: State: Delaware Date: 9/11/2015
Operator: County: Kent County Site ID: Field 3
Assessor: Lauster Land Use: Cropland Farm #
Tract #



Cropland Stewardship Objectives



Cropland Stewardship Achievement



Conservation Practices and Management Techniques

Benchmark

Residue and Tillage Management, No-Till
Crop residue (328) >=1 and < 2 Crop Residue
Nutrient Application Rate - Adjust based on
Pre-sidedress Nitrogen Test (PSNT) or Late
Spring Soil Nitrate Test
Nutrient Application Rate - Adjust based on

Planned

Residue and Tillage Management, No-Till
Crop residue (328) >=1 and < 2 Crop Residue
Nutrient Application Rate - Adjust based on
Pre-sidedress Nitrogen Test (PSNT) or Late
Spring Soil Nitrate Test
Nutrient Application Rate - Adjust based on
Cover Crop - Mid Season Establishment

Expanded Scope for FY 2016

- Coordinate with the National Water Quality Initiative (NWQI) to promote utilization of the RSE for conservation planning and communicating benefits of Resource Stewardship
- Continue existing State Pilots
- Support new State/Partner RS Pilots and Projects
- Harmonizing metrics with partners

Ideas? Comments? Questions?

