Resource Stewardship Evaluation
Resource Stewardship Evaluation (RSE)

• A service provided to producers.
• Supports and enhances the conservation planning process.
RSE Supports Conservation Planning
Steps 1-6 and 9

1) Identify Problems and Opportunities
2) Determine Objectives
3) Inventory Resources
4) Analyze Resource Data
5) Formulate Alternatives
6) Evaluate Alternatives
7) Make Decisions
8) Implement the Plan
9) Evaluate the Plan
Identifying Opportunities and Determining Objectives

- Planning
- Land Unit
- Soils
- Climate

Sets Thresholds
Cropland Inventory
Analyze Resource Data and Alternatives

Cropland Stewardship Achievement

- Erosion Management (Water)
- Erosion Management (Wind)
- Soil Organic Matter Management
- NM: Phosphorus to Surface Water
- NM: Nitrogen to Surface Water
- NM: Nitrogen to Groundwater
- Sediment Management
- Pesticide Management
- Irrigation Management
- Greenhouse Gas Management
- Terrestrial Habitats
- Aquatic Habitats

Benchmark
Planned
RSE Benefits

• Improving Communication
• Recognizing Stewardship
• Empowering Producers
• Maximizing Conservation Investments
• Encouraging Conservation Improvements
• Encouraging comprehensive planning
Improving Communication

Cropland Stewardship Achievement

Conservation Practices and Management Techniques

Natural Resources Conservation Service
“If you’re going to be in farming today, you’re going to have to pay attention to detail. And I believe NRCS and soil conservation can really help, I really do.” – Maryland farmer
“Using planning knowledge and the RS tool NRCS staff helped the producer evaluate alternative options that would meet the landowners DRCC easement restrictions but still allow agricultural production. Plan achieved the soil erosion, water quality, and habitat improvements the DRCC wanted while allowing the farmer to keep land vital to his business in production.” – District Conservationist
Maximize Conservation Investments

Implementing cover crop, nutrient management and integrated pest management provides significant conservation benefits

“I have used the RSE to show incorporating cover crops into a current system brings Water Quality Issues from not meeting the threshold to meeting the threshold.” – District Conservationist
Encourage Conservation Improvements

“Iowa Farm
corn, soybeans

High level nitrogen and erosion management but was applying phosphorus as twice the plant uptake level in the fall. Reducing this rate achieved all thresholds

“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
Evaluations are completed using the Resource Stewardship Evaluation Tool (RSET)

What is RSET?
RSET, What is it?

RSET…

• Is a web-based tool.
• Pulls information from the conservation planning database on the client and land unit.
• Inventories basic resource information.
• Provides an evaluation based on that information and site characteristics
What is the Evaluation based on?

The RSE looks at the site vulnerabilities and management for 5 primary objectives

- Soil Health
- Water Quality
- Water Quantity
- Air Quality
- Habitat Health
Key Indicators and Resource Concerns

• Within each of the primary objectives, the RSE looks at key indicators. These key indicators relate to a subset of the Resource Concerns used in the conservation planning process.

• Key indicators were also chosen to provide Nationally relevant stewardship metrics.
Where do the Thresholds come from?

- For each key indicator, a Stewardship threshold has been established based on conservation planning criteria.
- Threshold levels will account for site-based resource limitations and sensitivities; they will vary based on local site conditions.
## Crop Key Indicators & Threshold

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>Threshold</th>
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<tbody>
<tr>
<td><strong>Soil Health</strong></td>
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<tr>
<td>Erosion Management (Water)</td>
<td>Tolerable Soil Loss (T)</td>
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<tr>
<td>Erosion Management (Wind)</td>
<td>Tolerable Soil Loss (T)</td>
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<tr>
<td>Soil Organic Matter Management</td>
<td>Maintaining or Improving Soil Organic Matter</td>
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<tr>
<td><strong>Water Quality</strong></td>
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<tr>
<td>Nutrient Management (Phosphorus)</td>
<td>P loss less than or equal to 4 lbs./acre</td>
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<tr>
<td>Nutrient Management (Nitrogen to Surface Water)</td>
<td>N loss less than or equal to 15 lbs./acre</td>
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<tr>
<td>Nutrient Management (Nitrogen to Ground Water)</td>
<td>N loss less than or equal to 25 lbs./acre</td>
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<tr>
<td>Sediment Management</td>
<td>Sediment loss Less than or equal to 2 tons/acre</td>
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<td>Pesticide Management</td>
<td>Low Risk</td>
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<tr>
<td><strong>Water Quantity</strong></td>
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<tr>
<td>Irrigation Management</td>
<td>Efficiency Irrigation System</td>
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<tr>
<td><strong>Air Quality</strong></td>
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<tr>
<td>Carbon Sequestration</td>
<td>Maintaining or Increasing soil carbon</td>
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<tr>
<td>Nitrogen Loss to Air</td>
<td>N loss to air minimized</td>
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<tr>
<td><strong>Habitat Health</strong></td>
<td></td>
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<tr>
<td>Terrestrial Habitat</td>
<td>50% of habitat potential achieved</td>
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<tr>
<td>Aquatic Habitat</td>
<td>50% of habitat potential achieved</td>
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</table>
• The RSE Tool (RSET) evaluates the site vulnerability and management to make a conservative determination on if the threshold is achieved or exceeded.

• If the threshold is not achieved, or a more refined result is need for practice implementation, then the full assessment tool may be utilized and will replace the RSET result.
Finding the Sweet Spot

Site Characterization

Assessment, Design, and Practice Implementation Tools

Planning and Evaluation Tools

Screening Questions

RS Guiding Principle
Everything should be made as simple as possible, but not simpler.
- Albert Einstein
RSET, How does it work?

- Sets Thresholds
- Builds Cropping System
- Inventory Management and Practices
- Analyze Data
- Report Results
Setting Thresholds

- Planned Land Unit
- Soils
- Climate
- Basic PLU Info

= Number of management points to conservatively achieve the RS thresholds
Build Cropping System

Crop Rotation Details

Crop Details

There are 305 too few days defined in the Crop Details.
Inventory Management and Practices
Analysis

• Soil Health, Water Quality, and Air Quality will be evaluated by the Stewardship Tool for Environmental Performance (STEP) process.
• Water Quantity will be evaluated using Farm Irrigation Rating Index (FIRI)
• Habitat Health will be evaluated using nationalized Wildlife Habitat Evaluation Guides
• Results may be enhanced with alternative tool results
Stewardship Tool for Environmental Performance (STEP)

• Sets Thresholds Points
• Sums Cropping System, Management, and Conservation Practice Points to compare to threshold
• Points and Thresholds correlated primarily on APEX and CEAP comparative system analysis.

Future: Refine system interactions as research and technology support
Assessment Tools to refine results

- RUSLE2
- WEPS
- IET
- COMET-farm
- WINPST
- State WHEGs
Coming to RSET

• Grazing evaluation for Range and Pasture
• Forestry evaluation
• Farm Rollup Tools
• Watershed Rollup Results
• Improved Integration with Programs
• Additional Key Indicators, such as Energy
• Client-controlled data mobility
Questions?

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