

On-Farm Natural and Production Resources

Assessment & Management & Valuation



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A Rapid Whole Farm Resource Assessment for
Integrating Production and Environmental Goals
on Working Lands



My Background

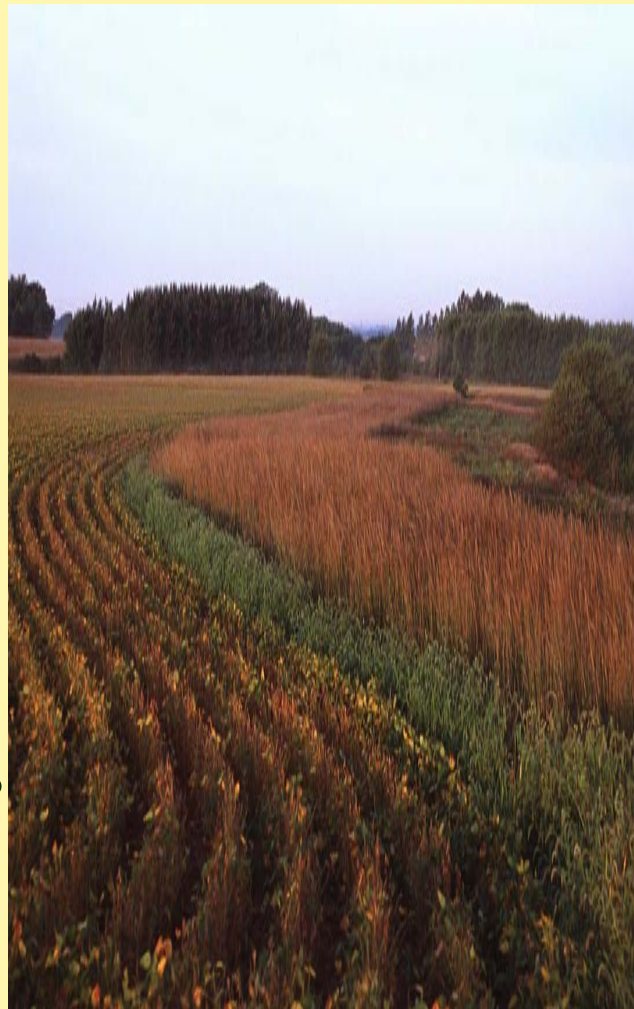
- Raised on SC Mn dairy farm – 1970s
- Business and Management – 1980s
- BS & MS MSU – Mankato Env. Sciences – 1994
- SWCD Management – 1995 -2004
- Farming – 1996 to present
- Minnesota Project - Federal Farm Policy – 2004 to present
- Ag Resource Strategies, LLC – 2007 to present





Farmers simultaneously manage both
Production Resources and Natural Resources

- Soil
- Water
- Nutrients
- Genetics
- Chemicals
- Air
- Fuels/Energy
- Farmers
- Ag Professionals



- Soil
- Water
- Nutrients
- Animals
- Plants
- Air
- Habitat
- Biofuels



Managing Production and Natural Resources





Presentation Overview

- Evolution of the Conservation Delivery System
- State of our Conservation Delivery System
- Scaling up and Expanding the Conservation Delivery System
- Conservation Intelligence
- Strategy to adopt components and processes





Evolution of the Conservation Delivery System

- 1933 – Soil Erosion Service [Assess/Plan]
- 1940-60s – Conservation Agronomy Plans
- 1960-80s – Divergence of Goals
- 1980-90s – Set aside vs. Production
- 1990-00s – Re-convergence of Production and Natural Resource Management
- 2004 – CSP Rules/Working Lands/Indices
- -----
- 2006 – CCA Conservation Plan Course
- 2007 – CSP EZ Form
- 2008 – Rapid Whole Farm Resource Assessment Process
- 2010 – Conservation Commerce prototype





Conservation Delivery System

- USDA Natural Resources Conservation Service ~ 13,000 employees
- Conservation Districts ~ 3000
- Others such as State Governments Dept., NGO, LGU attached
- Program-based [Congress]
- Practice-based [NRCS FOTG]
- Farmer is the Conservation Customer





Role of farmer as the Conservation Customer

- Apply for cost-share
- Receives Technical Assistance
- Purchases Contractor or Consultant Services
- Receives Conservation Product or Service
- Business transaction completed with contract obligations



All photos courtesy of the Natural Resources Conservation Service



Today's Ag Resource Management Climate

Agriculture's resource management needs have transcended the financial, technical, human and logistical capacity of the traditional conservation delivery system





Emerging Constraints on the CDS

- **Human Resources**
 - ‘Tsunami’ of NRCS retirement eligibility – 80% by 2010
 - No agricultural experience – 70%
 - Relatively few governmental staff vs. farms [MN 80k – ~800] [2M in US]
- **Financial Resources**
 - State and Federal Budgets
 - Employee support costs [travel, health, housing]
 - Construction costs increasing
 - Commodity price trends
- **Technical Resources**
 - Minimal capacity to conduct Resource Assessments
 - Very low % of farms with active or functioning Conservation Plans
- **Policy or Logistical Resources**
 - Lacks an outcome assurance process [starting and ending point]
 - Limited coordination with emerging Resource Management goals [c, wq, etc]
 - Promotes program-driven process, not resource-driven process
 - Accountability of progress at farm, watershed, basin, national scale
 - Resource Management data can not be readily scaled up



Scaling Up the Process

- It is as if in the last decade we went from addressing the erosion problem in the 'back 40'
- to addressing the gulf and bay hypoxia issues in the 'lower 48.'





Resource Management System

- The existing Conservation Delivery System can not be *the* Resource Management System if we scale up the process.
- To scale up and address resource concerns, we need:
 - A regular, on-the-ground presence
 - Knowledge of agriculture systems
 - Working relationship with farmers
 - Practical Resource Assessment
 - Conservation Intelligence
 - Outcome Valuation System





Conservation Intelligence*

- The most basic up-to-date information about how agricultural operations and landscapes are being managed.
- ‘to direct policy and programs’
- [to direct farmers and advisors]
- *Craig Cox Midwest VP EWG, [Making USDA Programs Work](#)





Gathering Intelligence

- Digital Overlays
- Site specific
- Seasonally, Monthly, Weekly
- Management activities
- Actual field investigations
- Ag professionals and the “home inspectors” analogy





Index-based Conservation Intelligence

- Management is described numerically
- Specific to management unit [field, farm] and can be scaled up
- SWAPA & E
- To direct farmers, agriculture and conservation professionals

EZ Resource Assessment [®] Form - 2008								
Whole Farm Resource Assessment								
On-Farm EZ Assessment								
Farm or Tract# and/or Field#	Farm ID	Field #	Field #	Field #	Field #	Field #	Assessment Summary	
	5205	1001	1002	1003	1004	1005		
Acres		80	55	65	35	15	250	Total Acres
Cropping System*		C/C/A3	C/S	W/S/C	Pasture	Pasture		
Index or Score Method **							Ave.	Index
Productivity Index		92	95	78	66	72	80.6	Prod Index
BTU Eq Multiple		7.75	8.23	7.12	6.45	6.85	7.3	BTU eq
Soil Conditioning Index/Soil Quality Index		0.3	-0.1	0.1	0.8	0.8	0.4	SCI/SQI
Soil Tillage Intensity Rating		45	72	45	12	12	37.2	STIR
Water Quality Score		66	52	60	85	85	69.6	WQ
Phosphorus Index		0.2	0.5	0.3	0.1	0.1	0.2	P Index
Pasture Scoring					35	38	36.5	Pasture
Habitat Suitability Index***		68	58	72	82	75	71.0	HSI



Why use Indices?

- “Measure” the immeasurable
 - Flexible
 - Adjustable
 - Incremental
 - Numerical
 - Scaleable
 - Definable
 - Outcomes
 - Valuation
- Heat Index
 - Temperature
 - Humidity
 - Consumer Price Index
 - Multiple variables
 - Sub-indices
 - Assumptions

The basic result of an index is a relative numerical value to describe a trend, a comparison, or movement in how a situation is being effected.



A picture is worth a thousand words –
a resource management matrix is worth.....



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What could it be worth and to whom?

- **Conservation District** – identifying potential resource problems
- **NRCS EQIP** – identifying potential resource problems
- **NRCS CSP** – identifying potential resource benefits
- **USDA** – an updated conservation compliance method
- **EPA TMDL Plans** – method to describe needed outcomes
- **Farmers** – TMDL Regulatory Assurance, etc
- **PF/DU** – identify resource issues and benefits
- **Resource Trading** – a stackable system of benefits
- **Biomass Purchaser** – a method to set production standards
- **Watershed District** – a management reward system
- **County** – a land stewardship tax incentive
- **State** – prioritizing conservation cost-share dollars, [Livestock grant]
- **Nation** – a foundation for Ecological Indices



Role of farmer as the Conservation Supplier

- Assesses state of farm conservation
- Develops Resource Management Plan
- Markets Environmental outcomes to governmental, industry, people and private entities





Optimal Use

- For farmers to be able to use an
- ***Index-Based Resource Process*** as a
- ***Single Methodology*** that can
- describe **Resource Concerns and Benefits**
- and can be applied toward **Farmer, Industry, NGOs & GOs**
- ***Assessment, Assurance and Valuation Standards***



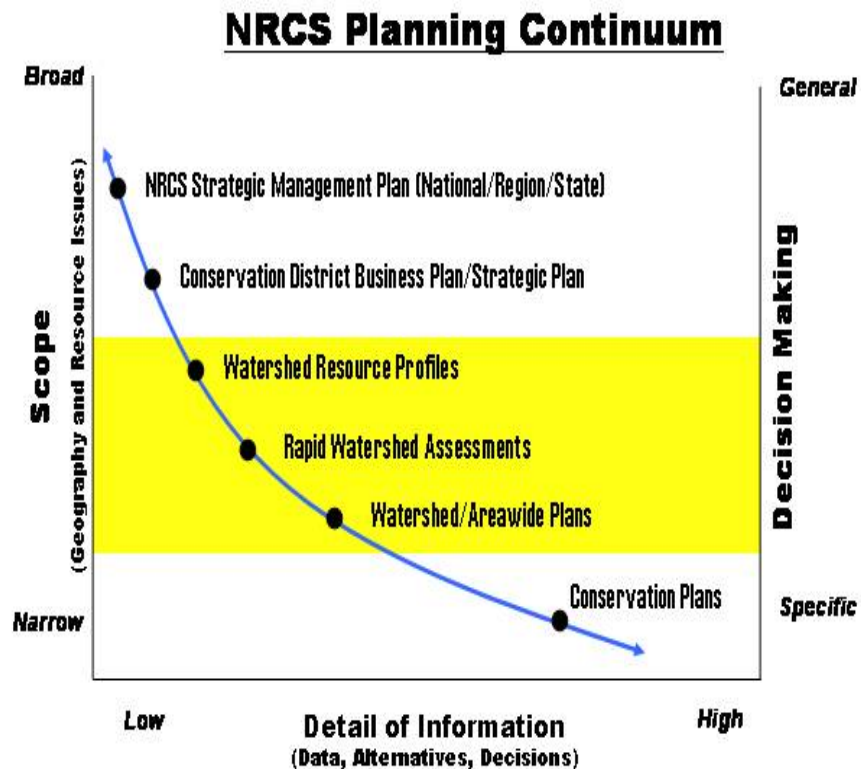


Potential uses for an Index-based resource assessment

- ***As an industry-based assessment and assurance process***
[Minnesota Livestock EQA]
- *As a template for Resource Trading*
[water quality, carbon]
- *As a stand-alone NRCS Resource Assessment Process for Conservation Planning*
[Technical Service Provider]
- ***A Decoupled On-Farm Assessment process***
[NRCS Rapid Watershed Assessment companion]
- *As a precursor to Farm Bill Conservation Title eligibility*
[EQIP, CSP, WRP, etc.]
- *As a precursor to Farm Bill Commodity Title eligibility*
[1985 Swampbuster, HEL]
- *As a precursor to Farm Bill Energy Title eligibility*
[Biomass processor]
- *As a foundation template and process for Conservation Commerce*



Incorporating a Rapid Whole Farm Resource Assessment into the NRCS Planning Continuum



Watershed Resource Profiles, Rapid Watershed Assessments, and Watershed/Areawide Plans are based on activities that gather resource data, analyze resource conditions, recommend alternatives and evaluate their effects on a watershed or areawide basis.

- Rapid Resource Assessment compliments the Rapid Watershed Assessment
- A precursor to the Farm-level conservation plan
- Human resource can be obtained from agricultural professionals



Rapid Watershed Assessment vs. River Basin and PL-566 [Rapid Whole Farm Assessment vs. Conservation Plan Assessment]

- Rapid Watershed Assessment
- [Rapid Whole Farm Assessment]
 - Rapid
 - Flexible
 - Provides a platform for delivery of Farm Bill programs
 - Planning intensity based on resource need
 - Follows routine Environmental Evaluation procedures, provides a platform for Environmental Assessment
- River Basin/PL-566 Planning
- [Conservation Plan Assessment]
 - Longer time to completion
 - Bureaucratic
 - Must conform to Principles and Guidelines for Federal funding
 - Pre-determined level of planning intensity
 - Requires Environmental Impact Statement



- **Watershed Approach and Rapid Watershed Assessment**

- Provides transparency to our cooperators
- Increases partner participation in planning
- Facilitates assessments of workload and costs
- Provides a setting and context for adaptive management and monitoring
- Provides useful information for all aspects of planning

- **On-Farm Approach and Rapid Farm Resource Assessment**

- Provides transparency to our cooperators
- Increases farmer participation in planning
- Facilitates assessments of workload and costs
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- Provides useful information for all aspects of planning



Resource-Driven Logic

- Agriculture needs to be resource-driven
- A stand-alone Resource Assessment process is developed & accepted [Modified Phase I CP]
- Index-based Resource Assessment is conducted by Ag Professionals*
- Assessment is given to Producers
- Producer uses Resource Assessment to locate technical and financial assistance
- Ag Professionals* conduct Assurance and determines outcomes.

* Home Inspector analogy



Without a Resource Assessment/Assurance method there is not an efficient process to:

- Identify Needs
- Target Assistance
- Account for progress
- Communicate to public
- Justify to legislators
- Re-evaluate programs
- Value outcomes
- Provide Feedback to Farmers





Conservation Commerce:

- A marketplace process to assess, value and assure management of agricultural production and natural resources;
- a process to establish a market value for and compensate producers for expected outcomes of resource management.





What would define Success?

- Index-based Resource Assessment accepted by industry and government
- Index-based Resource Assessment used by government for policies, incentives and regulatory assurance
- Private Lands Production and Natural Resource Assessment and Management as a valued occupation
- Farm & Ranch Resource Management Plan is platform for one-stop 'conservation shopping' for any entity
- Agriculture ultimately becomes the guiding force and leader of Conservation Commerce