Pilot Program Update

Providing Recognition and Support to Farmers Who Strive for Environmental Excellence

Program Overview

- Goal of VESP is to **accelerate water-quality improvements** through additional voluntary implementation efforts, and **provide recognition to farmers who strive for environmental excellence.**
- **Baseline Requirements:** Must be actively farming and meet existing environmental regulations
- **Assessment:** Nutrient management, sediment and erosion control, soil health, air quality, carbon sequestration, and pasture health
- **Conservation Planning:** For farms that need to improve management, conservation planning services are available through existing NRCS and partner programs
- **Incentives:** Focuses on recognition based incentives, potential to expand into financial incentives
- **Certification:** 3rd party verification, 5 year certification period (voluntary program)

Partners

Agency of Agriculture, Food and Markets (VAAFM)
USDA Natural Resources Conservation Service (NRCS)
Vermont Association of Conservation Districts (VACD)
Vermont Department of Environmental Conservation (DEC)
University of Vermont Cooperative Extension (UVM)

Background

- Began development after 2013 Vermont Ag Working Group
- Funding for program development originally came from NRCS VT CIG grant for the development of a “Certainty” Program
- Series of stakeholder meetings informed what farmer’s wanted most:
    - Science-backed social recognition
    - Eligibility even if nothing is wrong with their farm

VESP Process

Application

- VAAFM reviews applications – check that farm meets requirements

Gather Information

- Conducted by contracted conservation planners (VACD)
- Meet with farmer to gather necessary info (e.g. LTP, NMP, Grazing Plan)
- Walk fields to check for resource concerns (e.g. gullies, buffers, habitat)
- Take soil samples

RSET Analysis

- Planners enter management info and field observations into RSET – run evaluation for each field
- Compare benchmark evaluation (current management) to stewardship thresholds for each resource concern
- Develop conservation plan (planned management) with conservation practices that meet thresholds

Certification

- Must meet threshold requirements on at least 90% of land base and have conservation plan in place to meet requirements on remaining land base
- Farm receives VESP sign; certification valid for 5 years
- Follow-up monitoring will occur to ensure continued compliance with VESP standards

Assessment: Soil Health Tests

Cornell Soil Health Tests

- Comprehensive soil health tests
- Measure multiple indicators of physical, chemical and biological health

Rating	Soil Functioning
80-100	Optimal
60-80	Excellent
40-60	Suboptimal
20-40	Low-Level
0-20	Constraint

- Identify soil processes that are not functioning properly (constraint)
- Soil constraints must be addressed in conservation plan for VESP certification

Comprehensive Assessment of Soil Health

From the Cornell Soil Health Laboratory, Department of Soil and Crop Sciences, School of Integrative Plant Science, Cornell University, Ithaca, NY 14853. http://soilhealth.cals.cornell.edu

Measured Soil Textural Class: **silt loam**

Sand: **39%** - Silt: **52%** - Clay: **7%**

Group	Indicator	Value	Rating	Constraints
physical	Available Water Capacity	**0.26**	**93**	
physical	Surface Hardness	**336**	**2**	Rooting, Water Transmission
physical	Subsurface Hardness	**295**	**51**	
physical	Aggregate Stability	**44.9**	**78**	
biological	Organic Matter	**4.4**	**93**	
biological	ACE Soil Protein Index	**7.5**	**62**	
biological	Soil Respiration	**0.5**	**35**	
biological	Active Carbon	**500**	**50**	
chemical	Soil pH	**6.8**	**100**	
chemical	Extractable Phosphorus	**13.9**	**100**	
chemical	Extractable Potassium	**69.0**	**94**	
chemical	Minor Elements Mg: 87.6 / Fe: 1.1 / Mn: 6.7 / Zn: 0.6		**100**	

Overall Quality Score: **72** / Excellent

Assessment: Soil Health Tests

Cornell Soil Health Tests

- Comprehensive soil health tests
- Measure multiple indicators of physical, chemical and biological health

Rating	Soil Functioning
80-100	Optimal
60-80	Excellent
40-60	Suboptimal
20-40	Low-Level
0-20	Constraint

- Identify soil processes that are not functioning properly (constraint)
- Soil constraints must be addressed in conservation plan for VESP certification
- Provide management suggestions for constraints >>

Comprehensive Assessment of Soil Health

From the Cornell Soil Health Laboratory, Department of Soil and Crop Sciences, School of Integrative Plant Science, Cornell University, Ithaca, NY 14853. http://soilhealth.cals.cornell.edu

Measured Soil Textural Class: **silt loam**

Sand: **39%** - Silt: **52%** - Clay: **7%**

Group	Indicator	Value	Rating	Constraints
physical	Available Water Capacity	**0.26**	**93**	
physical	Surface Hardness	**336**	**2**	Rooting, Water Transmission
physical	Subsurface Hardness	**295**	**51**	

Management Suggestions for Physical and Biological Constraints

Constraint	Short Term Management Suggestions	Long Term Management Suggestions
Available Water Capacity Low	• Add stable organic materials, mulch • Add compost or biochar • Incorporate high biomass cover crop	• Reduce tillage • Rotate with sod crops • Incorporate high biomass cover crop
Surface Hardness High	• Perform some mechanical soil loosening (strip till, aerators, broadfork, spader) • Use shallow-rooted cover crops • Use a living mulch or interseed cover crop	• Shallow-rooted cover/rotation crops • Avoid traffic on wet soils, monitor • Avoid excessive traffic/tillage/loads • Use controlled traffic patterns/lanes
Subsurface Hardness High	• Use targeted deep tillage (subsoiler, yeomans plow, chisel plow, spader.) • Plant deep rooted cover crops/radish	• Avoid plows/disks that create pans • Avoid heavy loads • Reduce traffic when subsoil is wet
Aggregate Stability Low	• Incorporate fresh organic materials • Use shallow-rooted cover/rotation crops • Add manure, green manure, mulch	• Reduce tillage • Use a surface mulch • Rotate with sod crops and mycorrhizal hosts
Organic Matter Low	• Add stable organic materials, mulch	• Reduce tillage/mechanical cultivation

Resource Stewardship Evaluation Tool (RSET)

- Web-based evaluation tool developed by USDA-NRCS
- **Integrates** multiple NRCS planning tools into one package (e.g. RUSLE2, COMET, ...)
- Provides **holistic** assessment of agricultural operation's current management and conservation activities
- **Evaluates** an operation's current management across five overarching **natural resource concerns**
- Compares evaluations to science-based **thresholds** set by NRCS at levels that maintain the right balance between productive agriculture and healthy natural resources
- Evaluation is a verifiable way to show the benefits of existing and planned conservation activities:
  - Better understand how farm is operating as a whole
  - See value of current conservation efforts and determine areas for improvements
  - Plan conservation practices to meet resource stewardship thresholds
- Opportunity for landowners to quantify and verify their conservation achievements and communicate those achievements to business partners, government agencies, organizations and/or the public

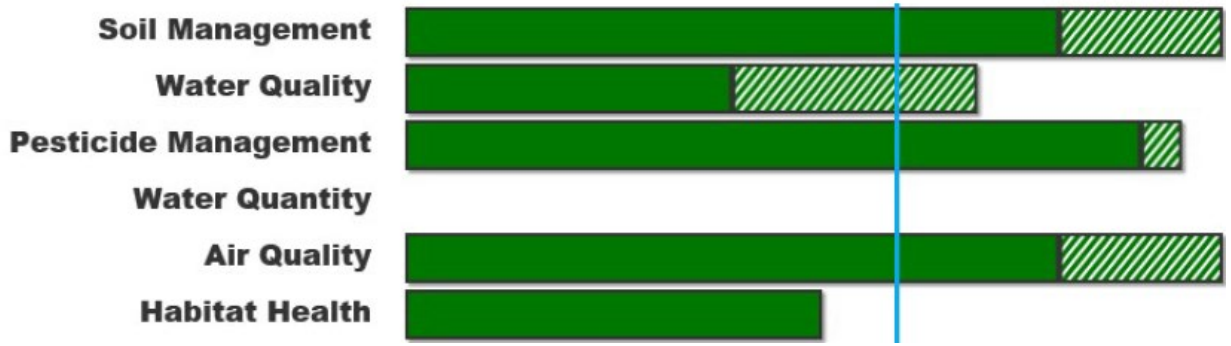
Natural Resource Concerns Evaluated

- **Soil Management** – health of cropland soil and grazing land resources, including reducing erosion, increasing soil organic matter, and improving plant health
- **Water Quality** – decreasing nutrient and sediment runoff, and reducing pesticide migration
- **Water Quantity** – irrigation and improving water management (often not applicable in VT)
- **Air Quality** – reducing on-farm greenhouse gas emissions
- **Wildlife Habitat** – improving both land and aquatic habitats for wildlife

USDA

Resource Stewardship Evaluation

Cropland Stewardship Objectives



Benchmark Assessment (current management practices)

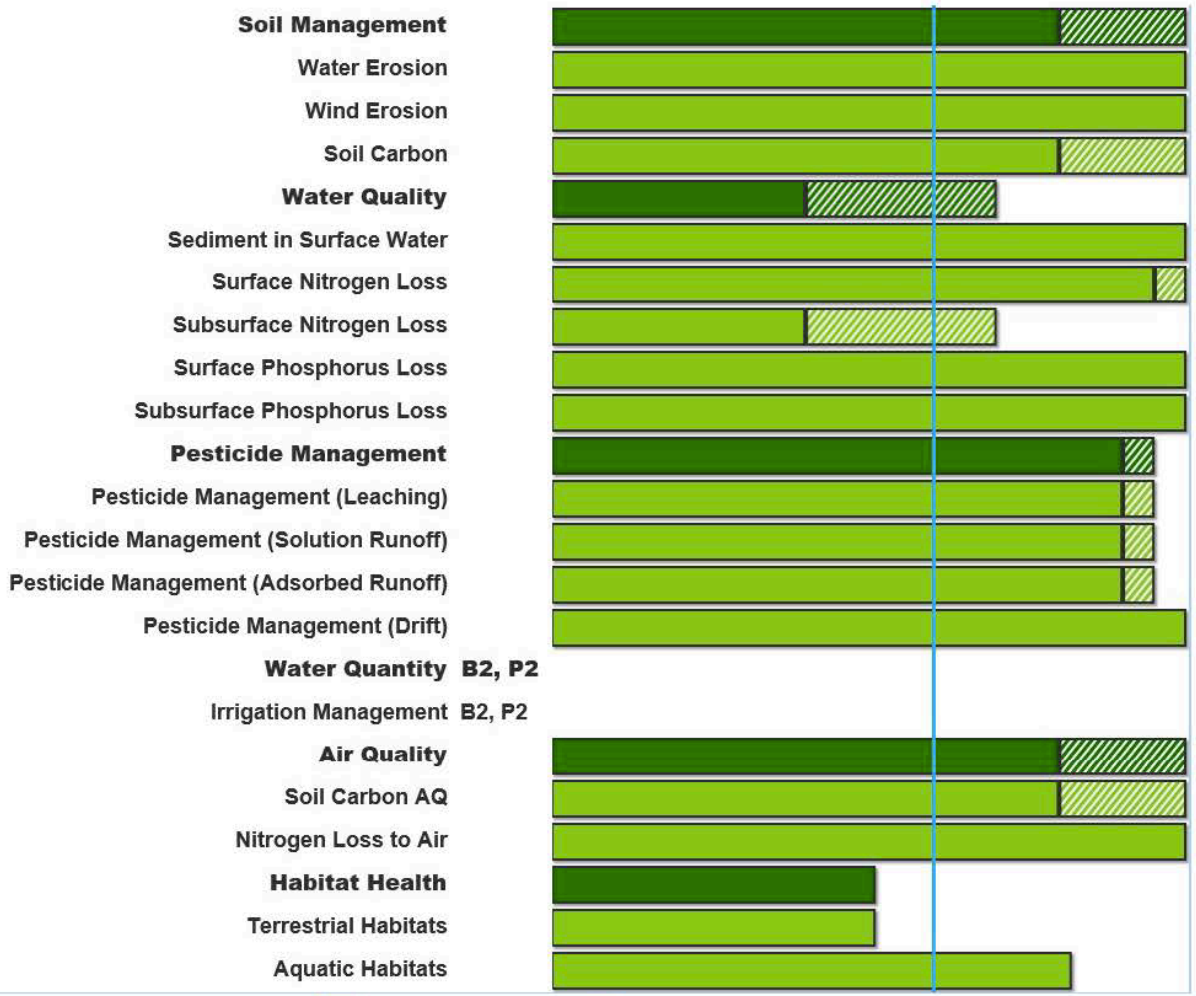
Alternative Assessment (planned conservation practices)

Threshold (60)

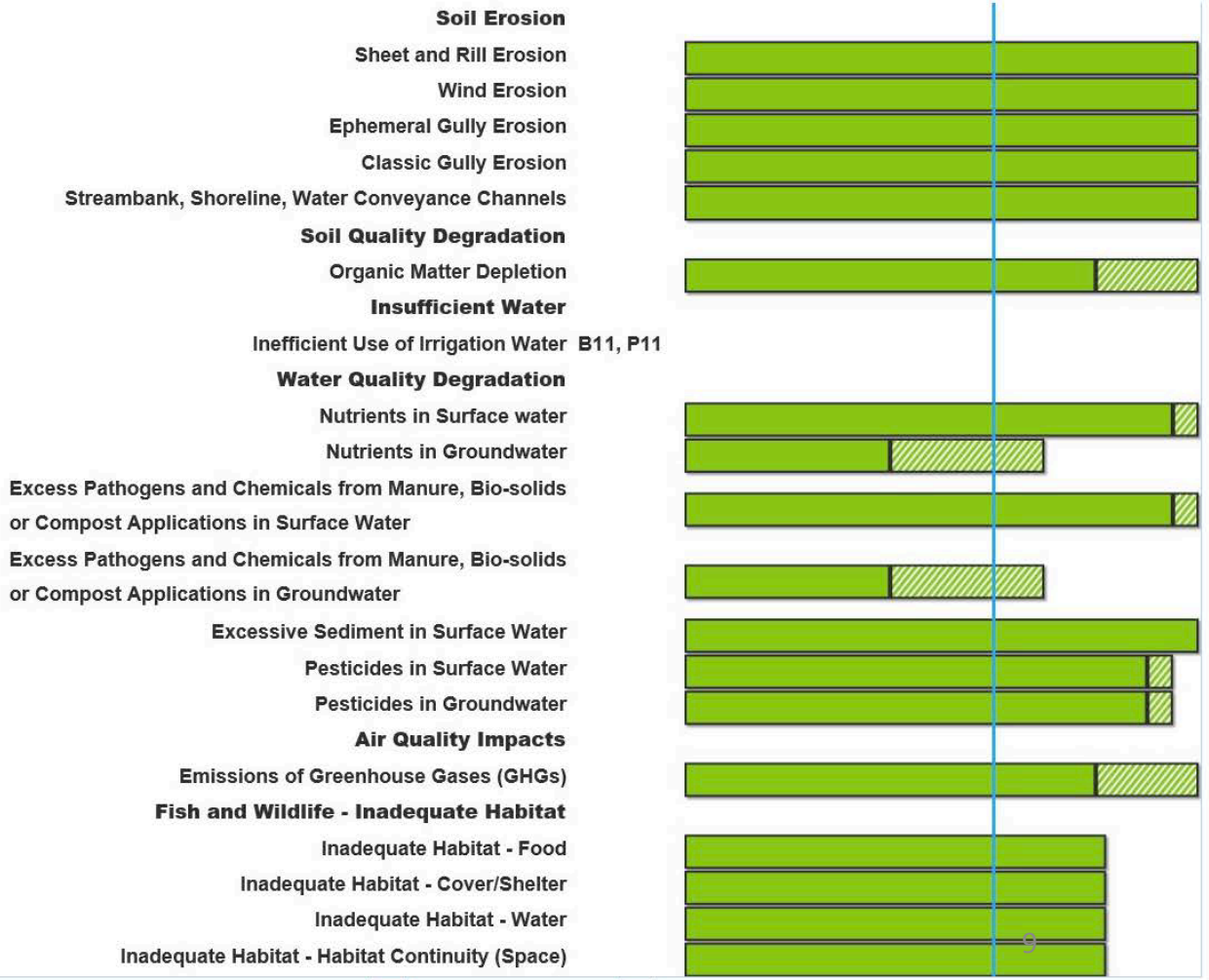
*Evaluation provides indexed score ranging from 0-100

Natural Resource Concerns Evaluated (continued)

Cropland Stewardship Achievement



Cropland Resource Concern Achievement



Thresholds

"level of loss associated with good management"

Planning Threshold

- Points (60)
- Site-specific – varies based on soils and climate
- Higher risk fields require more points to meet higher threshold
- Higher score – higher level of stewardship

Contaminant Threshold

- Units (3 lbs/ac P)
- Not site-specific – set nationally based on CEAP
  - CEAP – Conservation Effects Assessment Project
  - National effort to quantify the environmental effects of conservation practices; based on sampling and modeling results
- Remain constant across all fields

*All fields have the **same** *contaminant* threshold
e.g. Total P loss less than or equal to 3 lbs./acre

Achieving a stewardship **planning threshold** means that the conservation management system is **adequate to address site-specific risks** for a given natural resource concern

RSET Tools and Thresholds

vermont environmental stewardship PROGRAM

	Key Indicator	Threshold
Soil Management	Erosion Management (Water)	Tolerable Soil Loss (T)
	Erosion Management (Wind)	Tolerable Soil Loss (T)
	Soil Organic Matter Management	Maintaining or improving soil organic matter
Water Quality	Nutrient Management (Total Phosphorous)	P loss less than or equal to 3 lbs./acre
	Nutrient Management (Soluble Phosphorous)	P loss less than or equal to 1 lbs./acre
	Nutrient Management (Nitrogen to Surface Water)	N loss less than or equal to 15 lbs./acre
	Nutrient Management (Nitrogen to Ground Water)	N loss less than or equal to 25 lbs./acre
	Sediment Management	Sediment loss less than or equal to 2 tons/acre
	Pesticide Management	Low Risk
Water Quantity	Irrigation Management	Irrigation system score of 60 or greater
Air Quality	Carbon Sequestration	Maintaining or increasing soil carbon
	Nitrogen Loss to Air	N loss to air minimized
Habitat Health	Terrestrial Habitat	50% of habitat potential achieved
	Aquatic Habitat	50% of habitat potential achieved

Pilot Program Overview

Goals

- 10-12 farms to participate from 2017-2019
- Diversity of farm types, sizes, and geographic locations
- Vet new assessment tool – RSET
- Vet new data collection methods – Drones and LiDAR
- Workload assessment
- Need environmental baseline of various agricultural management types
- Result in recommendations for a full program structure

Pilot Farms

Farm Size	County	Animal Type	Crop Type
LFO	Washington	Dairy	Annual
MFO	Chittenden	Dairy	Annual
CSFO	Addison	Dairy	Perennial
CSFO	Orange	Dairy	Annual
CSFO	Orange	Dairy	Perennial
CSFO	Orange	Beef	Perennial
SFO	Franklin	Dairy	Perennial
SFO	Washington	Diversified	Vege/Perennial

*3 additional farms dropped from the pilot program (declined, non-responsive, out of business)

4 Planners assessed **8 Farms** across **5 Counties** totaling **84 Fields** over **1,046 Acres**

vermont environmental stewardship PROGRAM

RSET Assessment Results – Overview (benchmark/current practices) **Preliminary Results**

Crop Type	Fields	Acres	Number of Fields that Pass*	Pass Rate	Average RSET Score
Crop	10	201	0	0%	54
Hay	48	563	41	85%	85
Pasture	26	282	2	8%	67
Total	**84**	**1,046**	**43**	**51%**	**76**

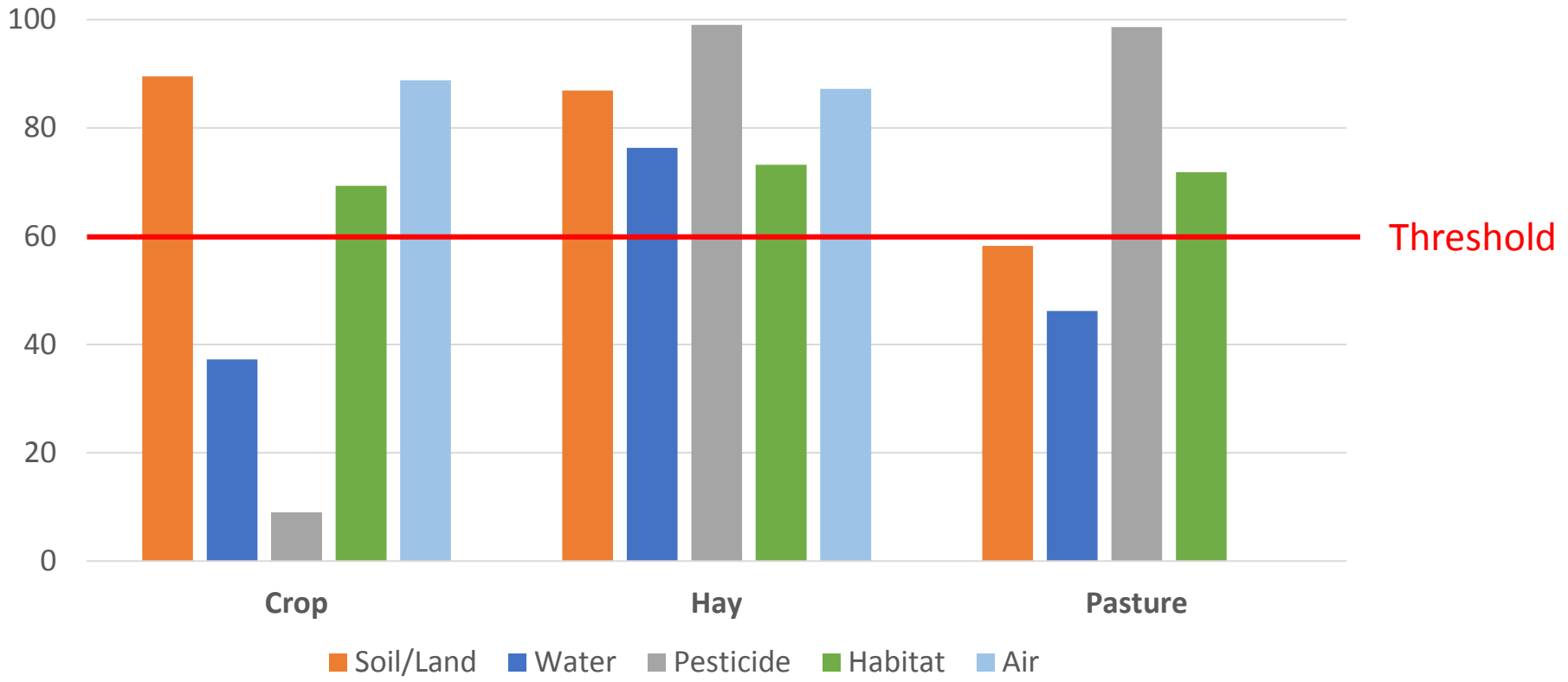
*All categories must meet thresholds

(Threshold = 60)

4 Planners assessed **8 Farms** across **5 Counties** totaling **84 Fields** over **1,046 Acres**

RSET Assessment Results – Details

Average RSET Score for Each Category by Crop



Benchmark Results

VESP Certification requires thresholds for all categories to be met (on 90% of land base).

Alternatives need to be planned...

*Only includes scores for Water Quantity (irrigation) and Habitat Health if evaluated (not applicable or optional).

**Air Quality is not a category assessed for Pasture.

Pasture Trends

(26 Fields)	Land Health	Water Quality	Pesticide Mgt.	Habitat Health	Average
Pass Count	9	16	26	15	**19**
Pass Rate	35%	62%	100%	58%	**73%**
Average Score	58	46	99	72	**67**

Land Health

- Linked to **Prescribed Grazing (PG)**
  - Manage livestock movements based on rate of plant growth and available forage
  - Includes Resource and Forage Inventories, **Grazing Plan**, Contingency and Monitoring Plans
- All fields (9) with PG pass Land Health (avg. score 75)
- All fields (17) without PG do not pass Land Health (avg. score 50)

Water Quality

- Most fields (16) meet threshold
- Low scoring fields due to **high nutrients, leaching & runoff potential**
- Lowest scoring water quality category **Subsurface P Loss** (20)
- 3 fields with errors (bank stability, gully)

- Average VT **Pasture Condition Score** 24/40 "Good" (17 evaluations)
- Average **Soil Health Score** 76/100 "Excellent" (6 evaluations)

Criteria
Gully erosion
Desirable species
Invasive species
Forage inventory
Stocking rate
Animal distribution
Manure application
Bank condition
Phosphorous soil test
Phosphorous application
Nitrogen application
Pasture Condition Score

Case Study – Pasture

USDA

Resource Stewardship Evaluation

Pastureland Stewardship Objectives

Group	Indicator	Value	Rating	Constraints
physical	Surface Hardness	143	59	
physical	Subsurface Hardness	206	80	
physical	Aggregate Stability	81.9	99	
biological	Organic Matter	4.2	90	
biological	Soil Respiration	0.4	22	
chemical	Soil pH	5.8	51	
chemical	Extractable Phosphorus	3.2	91	
chemical	Extractable Potassium	79.5	100	
chemical	Minor Elements Mg: 93.8 / Fe: 10.1 / Mn: 2.1 / Zn: 0.5		100	

Overall Quality Score: **77** / Excellent

Benchmark Assessment – Continuously Grazed (no practices)

Alternative Assessment – Prescribed Grazing >>

Threshold

Manage livestock movements based on rate of plant growth, available forage, and identified objectives such as utilization, plant height or standing biomass, residual dry matter, and/or animal performance.

Hay Trends

Perennial Grass-Legume Mix
Red Clover
Alfalfa

(48 Fields)	Soil Mgt.	Water Quality	Pesticide Mgt.	Habitat Health	Air Quality	Average
Pass Count	46	43	48	10	48	**46**
Pass Rate	96%	90%	100%	77%	100%	**96%**
Average Score	87	76	99	73	87	**85**

Soil Management

- Scores high

Water Quality

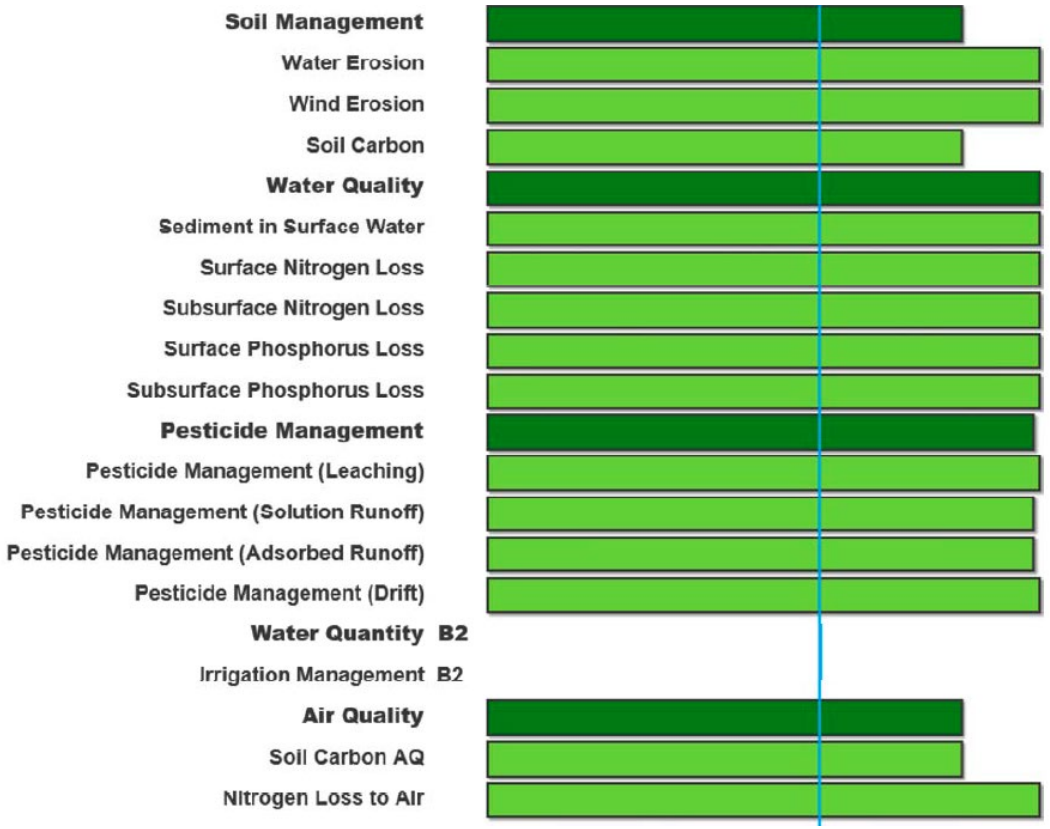
- Majority of fields meet threshold (43)
- Low scoring fields due to
  - **High or very high Soil P Test**
  - **Higher nutrient applications**
- Lowest scoring water quality category **Surface P Loss** (21)
- 2 fields with errors (grazing unrestricted)

- Average **Soil Health Score** 70/100 “Excellent” (6 evaluations)

Criteria
Tile Drainage
Gully erosion
Bank condition
Crop type, yield
Crop rotation
Tillage
P & N applications
P Soil Test
Conservation practices
Livestock access
Pest management
Irrigation
Habitat

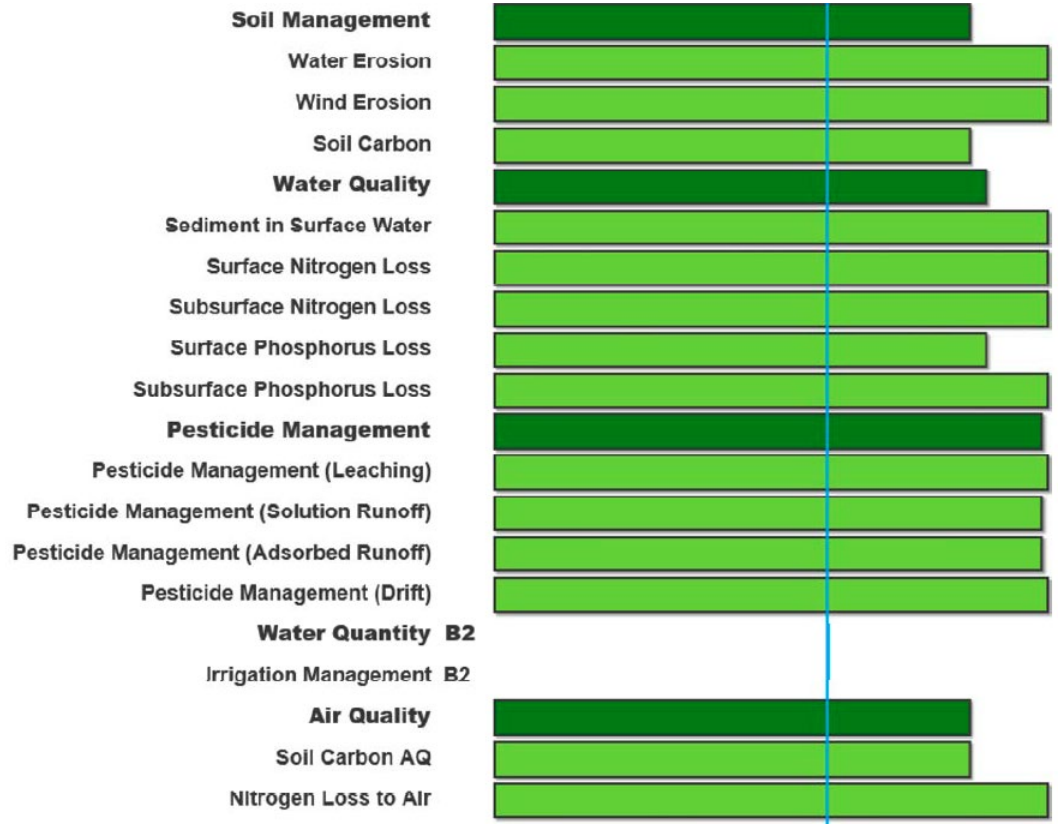
Case Study – Permanent Hay

Perennial Grass-Legume Mix



Soil Health Score	62
Dominant Soil Type	Agawam
Soil Leaching Potential	Moderate
Soil Runoff Potential	Moderately High
Soil Phosphorous Test	Low

Alfalfa



Soil Health Score	None
Dominant Soil Type	Dutchess stony loam
Soil Leaching Potential	Moderate
Soil Runoff Potential	Moderately High
Soil Phosphorous Test	Medium

Case Study – Permanent Hay

Perennial Grass-Legume Mix

NRCS Resource Stewardship Evaluation

Soil Leaching Potential — Moderate
Soil Runoff Potential — Moderately High

Cornell Soil Health Test

Measured Soil Textural Class: **sandy loam**

Sand: **72%** - Silt: **24%** - Clay: **2%**

Group	Indicator	Value	Rating	Constraints
physical	Available Water Capacity	**0.17**	**71**	
physical	Surface Hardness	**227**	**22**	
physical	Subsurface Hardness	**282**	**56**	
physical	Aggregate Stability	**83.9**	**97**	
biological	Organic Matter	**4.9**	**99**	
biological	ACE Soil Protein Index	**8.3**	**60**	
biological	Soil Respiration	**0.4**	**23**	
biological	Active Carbon	**393**	**38**	
chemical	Soil pH	**5.9**	**59**	
chemical	Extractable Phosphorus	**3.0**	**86**	
chemical	Extractable Potassium	**25.1**	**30**	
chemical	Minor Elements Mg: 41.4 / Fe: 2.4 / Mn: 6.9 / Zn: 0.7		**100**	

Overall Quality Score: **62** / Excellent

Dominant Soil Type — Agawam
Soil Phosphorous Test — Low

Crop Trends

Soil Management & Air Quality

- High scores
- All **rotated** (10)
- Majority **no-till, cover crop** (9)

(10 Fields)	Soil Mgt.	Water Quality	Pesticide Mgt.	Habitat Health	Air Quality	Average
Pass Count	8	0	1	6	10	**5**
Pass Rate	80%	0%	10%	60%	100%	**50%**
Average Score	90	37	9	69	89	**54**

Water Quality

Corn Silage & Alfalfa-Timothy Hay (4-4)

Sandy or silt loams

- Low scores – inconclusive
- Lowest scoring water quality category **Subsurface N Loss** (7)
- 2 fields with errors (gully)

Pesticide Management

- Requires **Integrated Pesticide Management Plan** (none have) – not apply routinely without monitoring pest pressure
- A site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies.
- The IPM Plan should be less than 3 years old and include monitoring plans and pest suppression decision criteria for all expected pests including weeds, insects and diseases.

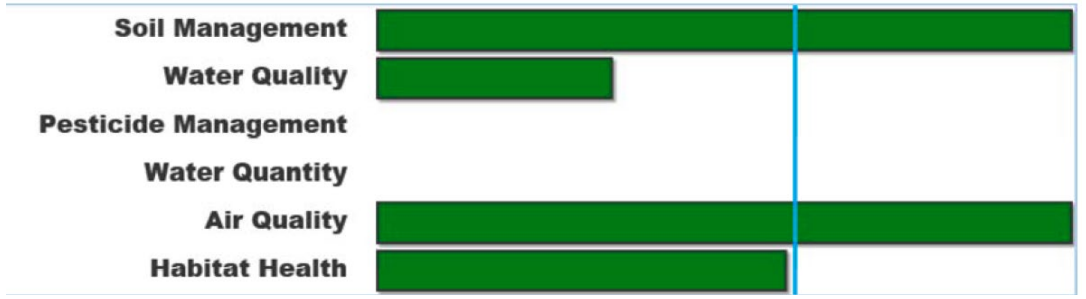
- Average **Soil Health Score** 68/100 “Excellent” (7 evaluations)

Case Study – Annual Crops

USDA

Resource Stewardship Evaluation

Cropland Stewardship Objectives



Corn silage & alfalfa-timothy hay (4-4)

Crop Rotation, No-Till, Cover Crop

Soil = Weider very fine sandy loam

Soil Leaching Potential	Moderate
Soil Runoff Potential	Low
Soil P Test	Medium

Group	Indicator	Value	Rating	Constraints
physical	Surface Hardness	127	66	
physical	Subsurface Hardness	187	84	
physical	Aggregate Stability	25.4	30	
biological	Organic Matter	2.8	9	Nutrient and Energy Storage, Ion Exchange, C Sequestration, Water Retention
biological	Soil Respiration	0.4	25	
chemical	Soil pH	6.3	98	
chemical	Extractable Phosphorus	5.3	100	
chemical	Extractable Potassium	56.8	81	
chemical	Minor Elements Mg: 74.7 / Fe: 3.4 / Mn: 4.8 / Zn: 2.3		100	

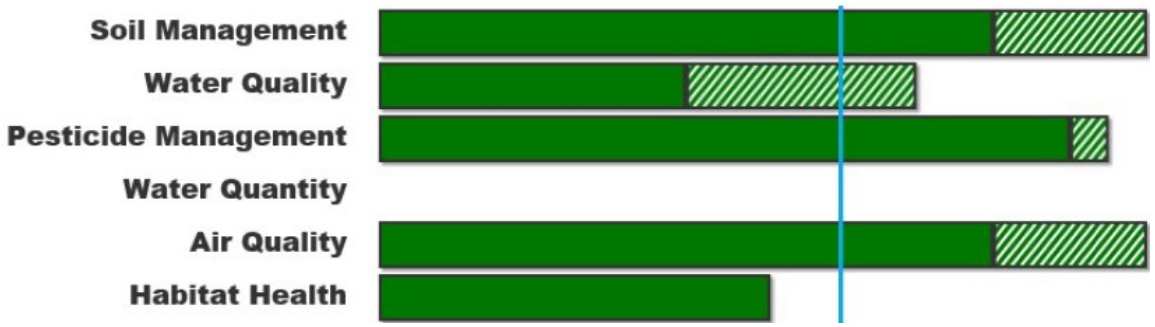
Overall Quality Score: **66** / Excellent

Case Study – Annual Crops

USDA

Resource Stewardship Evaluation

Cropland Stewardship Objectives



Benchmark Assessment – Crop Rotation 3-3 (corn silage & perennial grass-legume mix)

Alternative Assessment – Crop Rotation, **Cover Crop**

Threshold

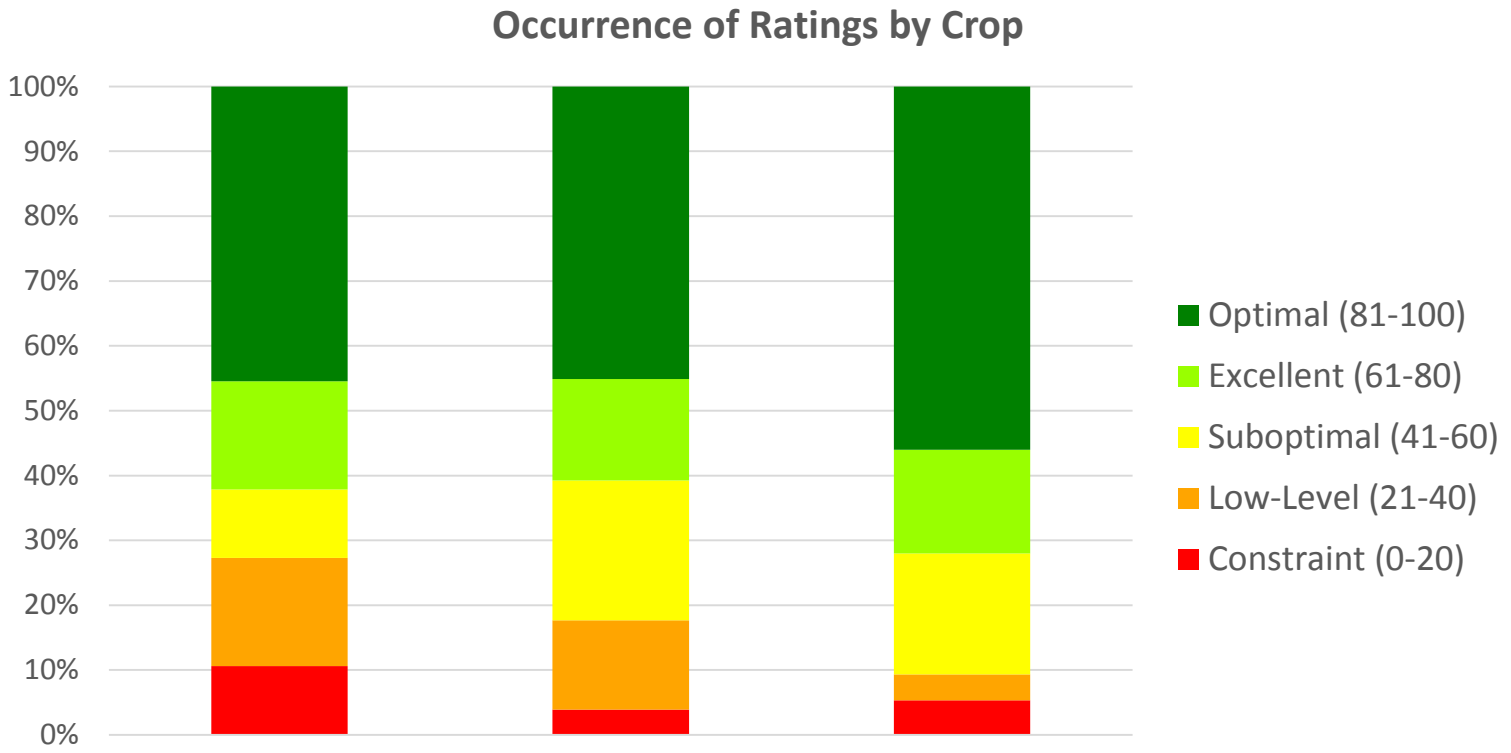
Soil = Hadley very fine sandy loam

Soil Leaching Potential	Moderate
Soil Runoff Potential	Low

Soil Health Results

Cornell Soil Health Tests

- Average scores **'Excellent'**
- **Constraints** in soil functions (10/19 fields)
- Organic Matter, Surface Hardness



Soil Functioning	Crop	Hay	Pasture	Total
Average Score	**67**	**71**	**76**	**71**
Number of Fields	7	5	7	19
Number of Constraints	7	2	4	13
Top Constraints	Organic Matter Soil Respiration Surface Hardness	Organic Matter Surface Hardness	Surface Hardness Minor Elements	

vermont environmental stewardship PROGRAM

Percent of Fields that Meet Threshold for Each Category

Crop Type	Soil/Land Health	Water Quality	Pesticide Mgt	Air Quality	Habitat Health	Fields
Crop	80%	0%	10%	100%	60%	10
Hay	96%	90%	100%	100%	21%	48
Pasture	35%	62%	100%	NA	58%	26
Total	**75%**	**70%**	**89%**	**69%**	**37%**	**84**

Average Score for Each Category (Threshold = 60)

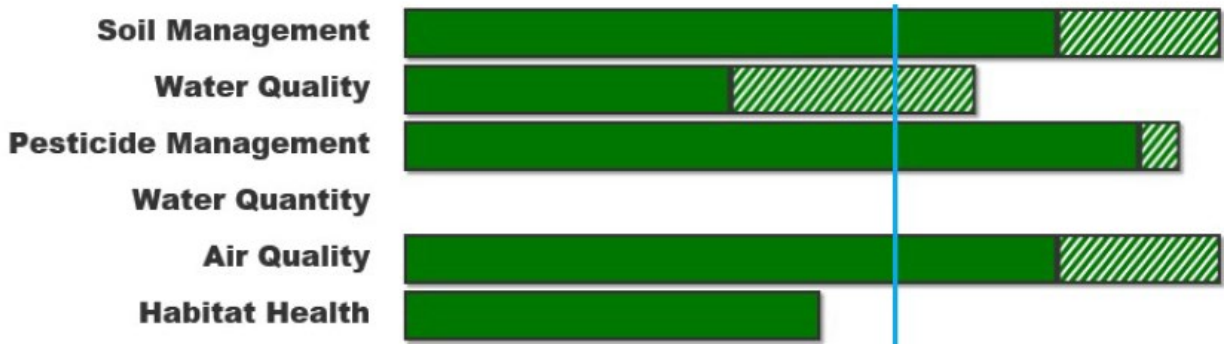
Crop Type	Soil/Land Health	Water Quality	Pesticide Mgt	Air Quality	Habitat Health	All Categories
Crop	90	37	9	89	69	54
Hay	87	76	99	87	73	85
Pasture	58	46	99	NA	72	67
Total	**78**	**63**	**88**	**87**	**72**	**76**
Fields*	80	77	84	58	44	84

*Fields Evaluated may be less than total (84) due to errors in results, not evaluated (Habitat Health), or not applicable (Air Quality, Water Quantity).

Resource Stewardship Evaluation Tool

Resource Stewardship Evaluation

Cropland Stewardship Objectives



Pastureland Stewardship Objectives

Benchmark Assessment (current practices)

Alternative Assessment (planned conservation practices)

Threshold

Score range = 0-100; Threshold = 60

*Water Quantity = irrigation (often not applicable)

Cornell Soil Health Tests

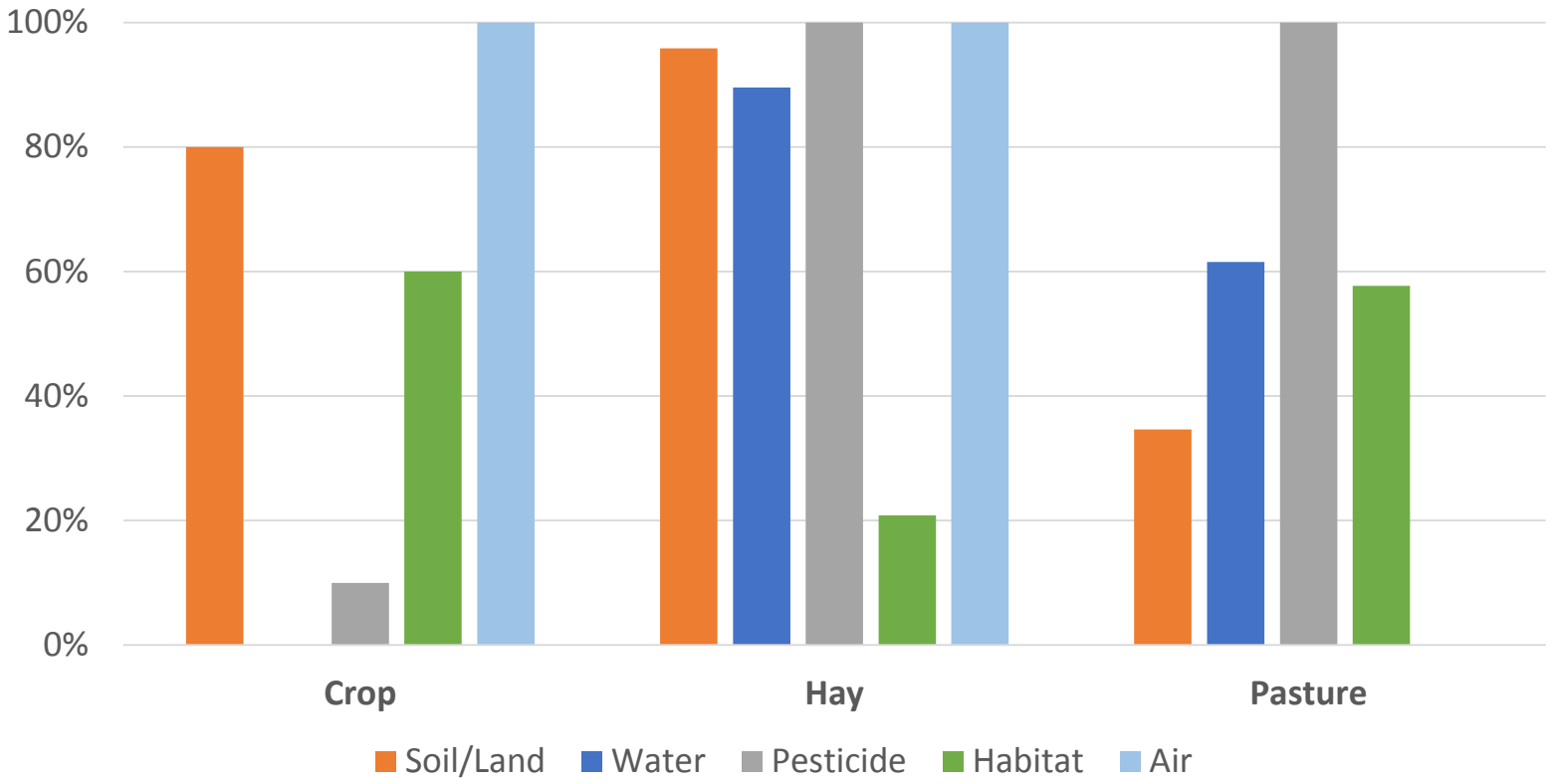
Indicator	Measures	Unit	Significance
Available Water Capacity	Porosity of the soil	g/g	• Amount of plant-available water soil can store • Important for water retention – reduces risk of drought stress
Surface Hardness	Compaction (0-6 inches)	PSI	• Restricts root growth • Runoff, erosion, slow infiltration
Subsurface Hardness	Compaction (6-18 inches)	PSI	• Prevents deep rooting (water/nutrient uptake) • Poor water drainage and storage • Ponding, poor aeration, infiltration; runoff, erosion
Aggregate Stability	Soil aggregate stability	%	• Prevents crusting, runoff, erosion • Facilitates aeration, infiltration, water storage • Improves seed germination, root and microbial health
Organic Matter	Carbonaceous material (biomass)	%	• Improves soil aggregate stabilization, water retention, nutrient cycling, and ion exchange capacity • Long-term slow-release pool for nutrients • Resilience to drought and extreme rainfall
Soil Proteins	Organic matter that is proteins		• Protein content indicator of biological and chemical soil health • Influences ability of soil to make nitrogen available to plants
Soil Respiration	Metabolic activity (CO_2) of the soil microbial community	mg	• Soil biology cycles nutrients, converts nitrogen, decomposes residue
Active Carbon	Organic matter that is food for soil microbes	ppm	• Indicator of biological soil health • Microbes essential for disease resistance, nutrient cycling, aggregation
Soil pH	Soil acidity	pH	• Controls nutrient availability to crops; optimum pH 6.2-6.8
Extractable Phosphorus	Phosphorous (P) availability	ppm	• Essential plant nutrient • Excess can cause environmental impacts to surface water
Extractable Potassium	Potassium (K) availability	ppm	• Increases plant tolerance of frost and cold – season extension
Minor Elements	Availability of Magnesium (Mg), Iron (Fe), Manganese (Mn), Zinc (Zn)	ppm	• Essential plant nutrients (smaller quantities than N, P, K) • Important for crop yield and quality • Excess amounts can cause toxicities

RSET Tools and Thresholds

Stewardship Objectives	Key Indicators	Resource Concerns		Thresholds
Soil Management	Water Erosion	**Soil Erosion**	Sheet and Rill Erosion	Tolerable Soil Loss (T)
	Wind Erosion		Wind Erosion	
	Soil Carbon	**Soil Quality Degradation**	Organic Matter Depletion	Maintaining or improving soil organic matter
Water Quality	Sediment in Surface Water	**Water Quality Degradation**	Excessive Sediment in Surface Water	Sediment loss less than or equal to 2 tons/acre
	Surface Nitrogen Loss		Nutrients in Surface Water / Excess Pathogens & Chemicals... in SW	N loss less than or equal to 15 lbs./acre
	Surface Phosphorous Loss			**P loss less than or equal to 3 lbs./acre (Total P)**
	Subsurface Nitrogen Loss		Nutrients in Groundwater / Excess Pathogens & Chemicals... in GW	N loss less than or equal to 25 lbs./acre
	Subsurface Phosphorous Loss			**P loss less than or equal to 1 lbs./acre (Soluble P)**
Pescticide Management	Pesticide Management - Leaching		Pesticides in Groundwater	Low Risk
	Pesticide Management - Solution Runoff		Pesticides in Surface Water	
	Pesticide Management - Adsorbed Runoff			
	Pesticide Management - Drift		?	
Air Quality	Soil Carbon AQ	**Air Quality Impacts**	Emissions of GHGs	Maintaining or increasing soil carbon
	Nitrogen Loss to Air		?	N loss to air minimized
Habitat Health	Terrestrial Habitat	**Fish & Wildlife - Inadequate Habitat**	Inadequate Habitat - Food	50% of habitat potential achieved
			Inadequate Habitat - Cover/Shelter	
			Inadequate Habitat - Water	
			Inadequate Habitat - Habitat Continuity (Space)	
	Aquatic Habitat		Inadequate Habitat - Food	50% of habitat potential achieved
			Inadequate Habitat - Cover/Shelter	
			Inadequate Habitat - Water	
			Inadequate Habitat - Habitat Continuity (Space)	

RSET Assessment Results – Details

Percent of Fields that Meet Threshold for Each Resource Concern



Benchmark Results

VESP Certification requires thresholds for all categories to be met (on 90% of land base).

Alternatives need to be planned...

*Only includes scores for Water Quantity (irrigation) and Habitat Health if evaluated (not applicable or optional).

**Air Quality is not a category assessed for Pasture.

Case Study – Pasture

Group	Indicator	Value	Rating	Constraints
physical	Available Water Capacity	0.25	90	
physical	Surface Hardness	272	10	Rooting, Water Transmission
physical	Subsurface Hardness	317	43	
physical	Aggregate Stability	89.6	99	
biological	Organic Matter	6.8	99	
biological	ACE Soil Protein Index	12.0	95	
biological	Soil Respiration	0.6	48	
biological	Active Carbon	491	48	
chemical	Soil pH	5.9	64	
chemical	Extractable Phosphorus	6.6	100	
chemical	Extractable Potassium	61.4	86	
chemical	Minor Elements Mg: 64.9 / Fe: 3.3 / Mn: 6.2 / Zn: 1.4		100	

Overall Quality Score: **74** / Excellent

Alternative – Prescribed Grazing

Next Steps

- Continue to evaluate RSET assessments
- Adjust national thresholds to Vermont landscape/managements (?)
- Compare RSET with other assessment tools
- Certify pilot farms
- Evaluate program

vermont environmental stewardship PROGRAM

Working Lands for a Better Vermont

Contact

Judson Peck
VESP Project Coordinator
(802)-522-7041
agr.vesp@vermont.gov

www.agriculture.vermont.gov/vesp