FY2008 EQIP EXAMPLE

COMPLETED
CROPPING SYSTEM SPEC SHEETS
and
EQIP 328/329/595 WORKSHEETS

DAIRY SCENARIO
SHENANDOAH COUNTY

Before: 1 year rotation, corn silage NT/rye silage CT grown continuously for at least the past 5 years.

After: Producer agrees to establish vigorous stand of well-managed alfalfa hay and maintain it for at least three summers before eventually rotating back to corn or another annual crop.

On 9% C Slope Frederick silt loam.

EQIP PAYMENT RATES:

Crop Rotation (328) = $100/ac/yr

40 acre commitment = $12,000 over 3 years

EQIP DOCUMENTATION FOR THIS SCENARIO

1. Calculation of soil loss and Soil Conditioning Index for "before" and "after" situations is encouraged (see attached examples), but is ***not*** required for FY08 EQIP eligibility or EQIP case file.

2. Compeletion of Cropping System Spec Sheets for "before" and "after" situations is encouraged (see attached examples), but is ***not*** required for FY08 EQIP eligibility or EQIP case file.

3. The FY08 EQIP 328/329/595 Annual Cropping Systems Worksheet and Payment Calculator should ***not*** be completed.

4. In Toolkit and Protracts, select Practice 328, Narrative E040 (see next page).

EXHIBIT 4: EQIP-SPECIFIC TOOLKIT NARRATIVES & PROTRACTS COST LIST COMPONENT CODES FOR USE WITH ALL FY08 328, 329 & 595 CROP DIVERSITY PAYMENTS

SELECT ONLY ONE NARRATIVE PER PRACTICE CODE!

Practice Code	Narrative Code	Narrative Text	Payment Rate ($/ac/yr)
328	E001	Adopt a new cropping system that eliminates all fallow periods and qualifies as **CONTINUOUS NO-FALLOW**. New system must also qualify as Soil Organic Matter (SOM) Building (soil loss to T and SCI +0.25 or greater).	$25
	E010	Adopt a new cropping system that (1) qualifies as Soil Organic Matter (SOM) Building (T and SCI +0.25 or greater); and (2) results in a **ONE-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition.	$15
	E011	Adopt a new cropping system that (1) eliminates all fallow periods and qualifies as **CONTINUOUS NO-FALLOW**; and (2) results in a **ONE-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition.	$40
	E020	Adopt a new cropping system that (1) qualifies as Soil Organic Matter (SOM) Building (T and SCI +0.25 or greater); and (2) results in a **TWO-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition. The new system SOM performance level may be Intermediate (+0.50 or more) or Optimum (+0.75 or more).	$30
	E021	Adopt a new cropping system that (1) eliminates all fallow periods and qualifies as **CONTINUOUS NO-FALLOW**; and (2) results in a **TWO-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition. The new system SOM performance level may be Intermediate (+0.50 or more) or Optimum (+0.75 or more).	$55
	E030	Adopt a new cropping system that (1) qualifies as Soil Organic Matter (SOM) Building (T and SCI +0.25 or greater); and (2) results in a **THREE-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition. The new system SOM performance level must be Optimum (+0.75 or more).	$45
	E031	Adopt a new cropping system that (1) eliminates all fallow periods and qualifies as **CONTINUOUS NO-FALLOW**; and (2) results in a **THREE-LEVEL** improvement in SCI-based SOM performance level compared to the "before" condition. The new system SOM performance level must be Optimum (+0.75 or more).	$70
	E040	Adopt a new crop rotation by establishing a **PERENNIAL** crop in a field that has been in annual crops for five years or more. Perennial must be maintained for at least three summers and must achieve 90% cover within one year after establishment. Not intended for permanent cropland conversion.	$100
329	E001	Adopt a new cropping system that eliminates all full-width tillage and qualifies as **CONTINUOUS NO-TILL**. New system must also qualify as Soil Organic Matter (SOM) Building (soil loss to T and SCI +0.25 or greater).	$25
595	E001	Adopt a cropping system with increased crop diversity. The change must result in a **ONE-LEVEL** improvement in diversity performance level compared to the "before" condition, with levels defined as: Minimum (at least 3 species, at least 1 legume); Intermediate (at least 5 species, at least 2 legumes); Optimum (at least 7 species, at least 3 legumes). Practice must complement a cropping system that qualifies as Soil Organic Matter (SOM) Building (soil loss to T and SCI +0.25 or greater).	$15
	E002	Adopt a cropping system with increased crop diversity. The change must result in a **TWO-LEVEL** improvement in crop diversity performance level compared to the "before" condition, with levels defined as: Minimum (at least 3 species, at least 1 legume); Intermediate (at least 5 species, at least 2 legumes); Optimum (at least 7 species, at least 3 legumes). The new system diversity level may be Intermediate or Optimum. Practice must complement a cropping system that qualifies as Soil Organic Matter (SOM) Building (soil loss to T and SCI +0.25 or greater).	$30
	E003	Adopt a cropping system with increased crop diversity to assist in controlling weeds, soil-borne pathogens, and other pests. The change must result in a **THREE-LEVEL** improvement in crop diversity performance level compared to the "before" condition, with levels defined as: Minimum (at least 3 species, at least 1 legume); Intermediate (at least 5 species, at least 2 legumes); Optimum (at least 7 species, at least 3 legumes). The new system diversity level must be Optimum. Practice must complement a cropping system that qualifies as Soil Organic Matter Building (soil loss to T and SCI +0.25 or greater).	$45

2006 CSP Soil Conditioning Index Examples, North Fork of Shenandoah

Prepared 12/08/05 by Chris Lawrence, NRCS Agronomist

A. CONTINUOUS CORN SILAGE – RYE SILAGE ROTATIONS

	Description of Rotation	*STIR*	Frederick silt loam					
			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss	*SCI*	*Soil Loss*	*SCI*	*Soil Loss*	*SCI*
1	Corn silage CT, Rye silage CT (chisel & disk for both crops)	85	11	-0.88	17	-1.4	35	-2.8
2	Corn silage CT, Rye silage CT (rip & disk for both crops)	57	10	-0.73	17	-1.2	33	-2.5
3	Corn silage CT, Rye silage CT (chisel & disk)	90	5	-0.31	8	-0.53	15	-1.1
4	Corn silage NT, Rye silage CT (rip & disk)	62	4	-0.16	7	-0.36	14	-0.93
5	Corn silage NT, Rye silage CT (bcast seed & light disk)	23	4	0.04	6	-0.13	12	-0.62
6	Corn silage NT, Rye silage NT (drill w fluted coulters)	11	3	0.18	4	0.06	9	-0.29
7	Corn silage NT, Rye silage NT (single disk drill w no coulters)	6	2	0.30	2	0.22	5	0.03

B. CORN SILAGE – RYE SILAGE – ALFALFA
All tillage in these rotations is heavy chisel & disk!

	Description of Rotation	*STIR*	Frederick silt loam					
			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss	*SCI*	*Soil Loss*	*SCI*	*Soil Loss*	*SCI*
1	4 years Corn silage CT, Rye silage CT + 4 years Alfalfa Hay CT (fall seed w tillage)	87	3	-0.02	6	-0.18	11	-0.63
2	4 years Corn silage NT, Rye silage CT + 4 years Alfalfa Hay CT (fall seed w tillage)	48	3	0.22	4	0.10	8	-0.23
3	4 years Corn silage NT, Rye silage NT + 4 years Alfalfa Hay NT (drill w fluted coulters)	6	1	0.49	2	0.42	4	0.26
4	2 years Corn silage CT, Rye silage CT + 4 years Alfalfa Hay CT (fall seed w tillage)	60	2	0.23	4	0.11	8	-0.20
5	2 years Corn silage NT, Rye silage CT + 4 years Alfalfa Hay CT (fall seed w tillage)	33	2	0.39	3	0.31	6	0.08
6	2 years Corn silage NT, Rye silage NT + 4 years Alfalfa Hay NT (drill w fluted coulters)	4	1	0.58	1	0.54	3	0.42

C. CONTINUOUS CORN AND SOYBEAN GRAIN ROTATIONS

	Description of Rotation	*STIR*	Frederick silt loam					
			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss, t/ac/yr	*SCI*	*Soil Loss, t/ac/yr*	*SCI*	*Soil Loss, t/ac/yr*	*SCI*
1	Corn grain CT (spring chisel & cultipack), Soybean grain CT (fall chisel & spring disk & cultipack)	72	4	-0.02	6	-0.18	12	-0.64
2	Corn grain NT, Soybean grain CT (fall chisel & spring disk & cultipack)	48	3	0.15	4	0.02	9	-0.33
3	Corn grain CT (fall chisel & spring disk & cultipack)	89	3	0.18	5	0.04	9	-0.32
4	Corn grain NT, Soybean grain NT (drill w fluted coulters)	5	1	0.44	2	0.37	5	0.19
5	Corn grain NT	3	0	0.81	0	0.80	1	0.77

D. CORN GRAIN – SOYBEANS – GRASS HAY
All tillage in these rotations is heavy chisel & disk!
All grass in these rotations is spring seeded with heavy chisel & disk tillage!

	Description of Rotation	*STIR*	Frederick silt loam					
			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss, t/ac/yr	*SCI*	*Soil Loss, t/ac/yr*	*SCI*	*Soil Loss, t/ac/yr*	*SCI*
1	Corn grain CT, Soybeans CT + 4 years grass hay CT	48	1	0.66	2	0.60	13	0.47
2	Corn grain CT, Corn grain CT + 4 years grass hay CT	48	1	0.74	2	0.69	11	0.56
3	Corn grain NT, Corn grain CT + 4 years grass hay CT	33	1	0.83	1	0.77	10	0.69
4	Corn grain CT + 4 years grass hay CT	40	1	0.81	1	0.80	5	0.71

E. PERMANENT PERENNIAL FORAGE ROTATIONS

	Description of Rotation	*STIR*	Frederick silt loam

			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss	*SCI*	*Soil Loss*	*SCI*	*Soil Loss*	*SCI*
1	**Continuous Grass Hay, Established**	**0**	**0**	**1.2**	**0**	**1.2**	**0**	**1.2**

F. CONTINUOUS CORN SILAGE – SMALL GRAIN COVER CROP (KILLED) ROTATIONS

	Description of Rotation	*STIR*	Frederick silt loam					
			B slope (5%)		C slope (9%)		D slope (16%)	
			Soil Loss, t/ac/yr	*SCI*	*Soil Loss, t/ac/yr*	*SCI*	*Soil Loss, t/ac/yr*	*SCI*
1	**Corn silage NT, Rye cover CT (rip & disk)**	**62**	**2**	**0.15**	**3**	**0.05**	**7**	**-0.21**
2	**Corn silage NT, Rye cover CT (bcast seed & light disk)**	**23**	**2**	**0.33**	**3**	**0.25**	**6**	**0.02**
3	**Corn silage NT, Rye cover NT (drill w fluted coulters)**	**10**	**1**	**0.43**	**2**	**0.37**	**4**	**0.22**
4	**Corn silage NT, Rye cover CT (bcast seed & light disk) w/ INTENSIVE / HIGH YIELD COVER CROP MGMT**	**23**	**1**	**0.55**	**2**	**0.50**	**3**	**0.38**
5	**Corn silage NT, Rye cover NT (drill w fluted coulters) w/ INTENSIVE / HIGH YIELD COVER CROP MGMT**	**10**	**1**	**0.64**	**1**	**0.61**	**2**	**0.53**

SCI values calculated by RUSLE2 are influenced by all factors that influence soil loss, soil disturbance, and residue levels, including topography, tillage, residue removal, yield, contouring and other support practices, etc. The following assumptions were made:

- **Location for climate:** Shenandoah County
- **Slope length:** 150 for B slope, 100 feet for C slope, 80 feet for D slope
- **Row grade** = 50% of slope grade
- **Manure application assumptions:**
    - Ahead of both corn and rye silage: 6500 gal/ac dairy slurry
    - No other manure applied
- **Long-term average yields:**
    - Corn: Silage 21 tons/ac; Grain 140 bu/ac; Rye silage: 10 tons/ac;
    - Alfalfa Hay: 6 tons/ac; Grass Hay: 4 tons/ac; Soybeans: 40 bu/ac
    - Rye cover crop: timely seeded at full rate, killed 3 weeks before seeding corn
    - Rye cover crop w intensive mgmt: seeded, fertilized, and managed in manner similar to crop produced for yield, killed less than 1 week before seeding corn to maximize biomass accumulation.

THESE CALCULATIONS ASSUME A HIGH LEVEL OF MANAGEMENT AND YIELD!!!!
LOWER MANAGEMENT AND YIELD WILL REDUCE SCI OUTCOMES!!!!

Tillage System Abbreviations and Explanations

- CT = conventional or clean till (high intensity full width tillage)
- NT = no tillage other than that associated with planter/drill
- Chisel = twisted shovel

Soil Loss, t/ac/yr = Soil loss for conservation planning in tons/acre/year.
Estimate of average soil loss over the length of the modeled slope. Key estimate of degradation of upslope areas by erosion. This is the number to use for conservation planning and to compare with "T" soil loss. Little credit is given for deposition that occurs towards the bottom of the slope (for example, due to a filter strip at bottom of slope), because upslope areas are still being degraded.

SCI = Soil conditioning index.
Soil organic matter trend score. Takes into account amount of biomass returned to the soil, tillage intensity, and predicted erosion over the rotation. If SCI is negative (less than zero), soil organic matter levels and overall soil quality are predicted to decline over time on this field under this management system. If SCI is positive, soil organic matter levels and overall soil quality are predicted to increase over time. SCI scores usually range from -1 to +1.

STIR = Soil Tillage Intensity Rating.
Score reflecting average annual intensity of tillage operations over the entire rotation. Typical values range from 0 to 200+.

Cropping System Description & Evaluation (D&E) Spec Sheet

A. General Info

Cropping system / rotation name or ID: **BEFORE: CORN SILAGE NT/RYE SILAGE CT**

Client: **Hurtin Dairyman** *Conservation Planner & contact info:* **I.B. Crazy, Woodstock** *Date:* **10/27/06**

B. Field / CMU Description

Tract(s) / field(s) / acres: **Typical C slope CMU – See Implementation Schedule!**

RUSLE2 Inputs: *County:* **Shenandoah** *Soil type:* **Frederick silt loam** *Slope %:* **9%** *Slope length (ft):* **100 ft**

C. Management Description

Erosion control support practices (contouring, etc.): **Row grade 4.5%**

Duration of planned rotation(years): **1**

Year	*Season*	*Planting date*	*Crop*	*Tillage*	*Minimum % cover after planting*	*Manure or applied residue*	*Notes*	*# of fallow periods >60 days*	*new species count*	
									all	*leg*
1	**summer**		**Corn silage**	**NT**	**30%**	**Dairy slurry**			**1**	
1	**winter**		**Rye silage**	**CT (rip & disk)**	**0%**	**Dairy slurry**			**1**	

Key: NT = No-till; ST = Strip-till; MT = Mulch-till; CT = Clean-till

D. Cropping System Evaluation

The levels of conservation performance described below will be achieved if the planned crop rotation and other management practices described in Section C are applied on the fields described in Section B. It may be possible to achieve the same level of conservation performance with a different combination of management practices.

Part 1: Evaluation Based on Soil Erosion & Soil Quality Factors

Factor	***Data***				***Interpretation***
Soil erosion (sheet & rill)	*Predicted soil loss (t/ac/yr):*	**7**	*T value (t/ac/yr):*	**4**	**SOIL LOSS ABOVE T – NOT SUSTAINABLE**
Soil organic matter (SOM) trend	*Soil loss to T?*	**No**	*SCI Score:*	**-0.36**	**SOM DEPLETING – SEVERE**
Crop continuity	*Rotation duration (yrs):*	**1**	*# of fallow periods >60 days:*	**0**	**CONTINUOUS NO-FALLOW – OPTIMUM**
Crop diversity	*# total species:*	**2**	*# legume species:*	**0**	**NOT HIGH DIVERSITY**
Soil disturbance	*Tillage system:*	**Rotational Till (NT & CT)**	*Overall average annual STIR:*	**62**	**TILLAGE: NOT OPTIMUM; STIR: NOT OPTIMUM**

Source of RUSLE2 Data: 2006 CSP SCI Matrix, see attached

Part 2: Evaluation Based on Other Factors

E. Additional Comments & Recommendations

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Cropping System Description & Evaluation (D&E) Spec Sheet

A. General Info

Cropping system / rotation name or ID: **AFTER: 2+4 ROTATION, ALL NT**

Client: **Hurtin Dairyman** *Conservation Planner & contact info:* **I.B. Crazy, Woodstock** *Date:* **10/27/06**

B. Field / CMU Description

Tract(s) / field(s) / acres: **Typical C slope CMU – See Implementation Schedule!**

RUSLE2 Inputs: *County:* **Shenandoah** *Soil type:* **Frederick silt loam** *Slope %:* **9%** *Slope length (ft):* **100 ft**

C. Management Description

Erosion control support practices (contouring, etc.): **Row grade 4.5%**

Duration of planned rotation(years): **6**

Year	*Season*	*Planting date*	*Crop*	*Tillage*	*Minimum % cover after planting*	*Manure or applied residue*	*Notes*	*# of fallow periods >60 days*	*new species count*	
									all	*leg*
1	**summer**		**Corn silage**	**NT**	**30%**	**Dairy slurry**			**1**	
1	**winter**		**Rye silage**	**NT**	**30%**	**Dairy slurry**			**1**	
2	**summer**		**Corn silage**	**NT**	**30%**	**Dairy slurry**				
2	**winter**		**Rye silage**	**NT**	**30%**	**Dairy slurry**				
3	**summer**		**Corn silage**	**NT**	**30%**	**Dairy slurry**				
3	**winter**		**Alfalfa hay**	**NT**	**30%**				**1**	**1**
4	**summer**		**Alfalfa hay**							
4	**winter**		**Alfalfa hay**							
5	**summer**		**Alfalfa hay**							
5	**winter**		**Alfalfa hay**							
6	**summer**		**Alfalfa hay**							
6	**winter**		**Alfalfa hay**							

Key: NT = No-till; ST = Strip-till; MT = Mulch-till; CT = Clean-till

D. Cropping System Evaluation

The levels of conservation performance described below will be achieved if the planned crop rotation and other management practices described in Section C are applied on the fields described in Section B. It may be possible to achieve the same level of conservation performance with a different combination of management practices.

Part 1: Evaluation Based on Soil Erosion & Soil Quality Factors

Factor	***Data***				***Interpretation***
Soil erosion (sheet & rill)	*Predicted soil loss (t/ac/yr):*	**1**	*T value (t/ac/yr):*	**4**	**SOIL LOSS TO T: SUSTAINABLE**
Soil organic matter (SOM) trend	*Soil loss to T?*	**Yes**	*SCI Score:*	**+0.54**	**SOM BUILDING – INTERMEDIATE**
Crop continuity	*Rotation duration (yrs):*	**1**	*# of fallow periods >60 days:*	**0**	**CONTINUOUS NO-FALLOW – OPTIMUM**
Crop diversity	*# total species:*	**3**	*# legume species:*	**1**	**HIGH DIVERSITY – MINIMUM**
Soil disturbance	*Tillage system:*	**Continuous No-till**	*Overall average annual STIR:*	**4**	**TILLAGE SYSTEM: OPTIMUM; STIR VALUE: OPTIMUM**

Source of RUSLE2 Data: 2006 CSP SCI Matrix, see attached

Part 2: Evaluation Based on Other Factors

Rotation should reduce need for rootworm insecticides and N fertilizer, especially on first-year corn behind alfalfa.

E. Additional Comments & Recommendations

Cropping System Implementation Schedule Spec Sheet

Conservation Planner & contact

Client: **Hurtin Dairyman** *info:* **I.B. Crazy, Woodstock** *Date:* **10/01/06**

Tract(s)	*Field(s) & acres*	*Cropping System / Rotation ID (see D&E Sheets)*	*Planned Rotations, Tillage, and Implementation Dates*															
			2008		*2009*		*2010*		*2011*		*2012*		*2013*		*2014*		*2015*	
			Summer	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*	*Summer*	*Winter*
1	**2 (10 ac.)**	**2+4, All NT**	**Corn NT**	**Alf NT**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**CS NT**	**Rye NT**	**CS NT**	**Alf NT**	**Alf**	**Alf**
1	**3 (10 ac.)**	**2+4, All NT**	**Corn NT**	**Alf NT**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**CS NT**	**Rye NT**	**CS NT**	**Alf NT**	**Alf**	**Alf**
2	**5 (20 ac.)**	**2+4, All NT**	**Corn NT**	**Rye CT**	**Corn NT**	**Alf NT**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**Alf**	**CS NT**	**Rye NT**	**CS NT**	**Alf NT**

Key: NT = No-till; CT = Clean-till; Corn = corn silage; Rye = rye silage (or cover), Alf = Alfalfa hay

Comments & Recommendations:

Gray boxes represent FY08 EQIP contract obligations

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