United States Department of Agriculture
Natural Resources Conservation Service

Energy Enhancement Activity –*ENR01- Fuel Use Reduction for Field Operations*

Enhancement Description
This enhancement is for fuel savings of 20% or greater achieved by a reduction in field operations.

Land Use Applicability
Cropland

Benefits
In addition to saving money the advantages of fossil fuel conservation include reducing air pollutants such as greenhouse gas emissions, and decreasing our reliance on foreign oil.

Criteria for Fuel Use Reduction for Field Operations

- Implementation of this enhancement requires that the participant reduce their field operations to achieve fuel savings of 20% or greater over their present baseline use.
- Reduced trips across the field, and reduced tillage intensity are documented by using RUSLE2 to compare the planned tillage operations with present baseline tillage operations.

Documentation Requirements for Fuel Use Reduction for Field Operations

- The present baseline fuel consumption for all field operations is calculated using RUSLE2 at the time of sign-up. This baseline is compared with fuel consumption for the planned reduced field operations, also calculated with RUSLE2. The estimated reduction in fuel use between the present and the planned must be greater than or equal to 20%.
- Documentation of the fields where field operations have changed.

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NE-ENR01

Energy Enhancement Activity – ENR01 – Fuel Use Reduction for Field Operations

Additional Criteria for Nebraska

Implementation of this enhancement **requires** the use of RUSLE2 to compare the planned tillage operations with present baseline tillage operations. For each rotation do the following:

1. Complete a "Tillage Inventory Worksheet" documenting all tillage operations used in the production of each crop from harvest of the previous crop to harvest of the current crop. This will establish the baseline fuel use for that rotation.
2. Complete a second "Tillage Inventory Worksheet" documenting the planned tillage operations for each crop in the rotation.

TABLE OF PLANNED AND APPLIED ACTIVITY – ENR01

1	2	3	4	5	6
Tract	Field(s)	Acres	Present Baseline Fuel Consumption calculated using RUSLE2 at the time of sign-up	Planned Fuel Consumption calculated using RUSLE2	Calculated Fuel Savings Percent (%)
Ex. T100	**2b**	**7.3**	**21 gal**	**8 gal**	**63%**

Ex. = example. NRCS completes column 1, 2 & 3 (Tract, Field and Acres Planned). NRCS completes remaining columns following the producer returning "Tillage Inventory Sheet for Existing System" and "Tillage Inventory Sheet for Planned System" .to the NRCS Field Office.

I certify that the following information meets specifications and has been provided to NRCS:

1. The Present Baseline and Planned Fuel Consumption based on output from RUSLE2 (Complete the attached "Tillage Inventory Sheet for Existing System" and "Tillage Inventory Sheet for Planned System") (NRCS will complete the above table.).
2. A map with delineation of the fields where the enhancement was applied.
3. Copies of NE-CPA-30: RUSLE2 Profile Erosion Calculation Record for the existing system and the planned system.
4. The requirements for this enhancement activity including the Additional Criteria for Nebraska as described above have been met.

I understand that it is my responsibility to obtain all necessary permits and to comply with all laws, regulations and ordinances pertaining to the application of these activities.

Certified by: _____ **Date:**_____

Conservation Stewardship Program (CSP) – 2009
Tillage Inventory Worksheet for Existing System

For each crop in the rotation show the crop being grown, the previous crop, and the number of passes for each operation normally used from harvest of the previous crop through harvest of the crop being grown (annual harvesting operations are assumed for crops other than alfalfa). For alfalfa use one column to show the operations for seeding alfalfa, one column to show the number of years alfalfa is grown and the number of harvest operations, and one column to show the operations used to break out the alfalfa and plant an annual crop. Use additional sheets if needed.

Crop being grown (list actual crop rotation):						
Previous crop (residue type):						
Field Operation	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**
Bale crop or crop residue						
Graze stubble or residue						
Shredder, flail or rotary						
Rolling Stalk Chopper						
Rolling Stalk Chopper on ridges						
Stalk slicer						
Plow, moldboard						
Subsoiler						
Sweep plow 20-40 inches wide						
Sweep plow >40 inches wide w/ mulch treader						
Chisel, straight point or twisted shovel						
Chisel, low crown sweep, 3 to 4 inches deep						
Disk, primary operation (1st pass only)						
Disk, secondary operation						
Field Cultivator						
Rotary Harrow (Seedbed Conditioner)						
Seedbed finisher (disk, field cultivator, coil tine harrow)						
Fertilizer application – Anhydrous, 12 inch spacing						
Fertilizer application – Anhydrous, 30 inch spacing						
Fertilizer application, strip till						
Manure injector, 30 inch spacing						
Drill or airseeder, single disk openers						
Drill or airseeder, double disk openers						
Drill or airseeder, double disk openers w/ coulters						
Drill or air seeder, hoe/chisel openers						
Planter, double disk openers						
Planter, ridge till, strip till, or double disk openers with residue managers						
Row Cultivation						
Row Cultivation, ridging, ditching, or hilling						
Other operation – please specify						
Other operation – please specify						

Complete two sheets for each crop rotation, one showing current tillage operations and one showing the planned tillage operations. Information will be used to calculate fuel savings for ENR01 Fuel Use Reduction.

Conservation Stewardship Program (CSP) – 2009
Tillage Inventory Worksheet for Planned System

For each crop in the rotation show the crop being grown, the previous crop, and the number of passes for each operation normally used from harvest of the previous crop through harvest of the crop being grown (annual harvesting operations are assumed for crops other than alfalfa). For alfalfa use one column to show the operations for seeding alfalfa, one column to show the number of years alfalfa is grown and the number of harvest operations, and one column to show the operations used to break out the alfalfa and plant an annual crop. Use additional sheets if needed.

Crop being grown (list actual crop rotation):						
Previous crop (residue type):						
Field Operation	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**	**Number of Passes**
Bale crop or crop residue						
Graze stubble or residue						
Shredder, flail or rotary						
Rolling Stalk Chopper						
Rolling Stalk Chopper on ridges						
Stalk slicer						
Plow, moldboard						
Subsoiler						
Sweep plow 20-40 inches wide						
Sweep plow >40 inches wide w/ mulch treader						
Chisel, straight point or twisted shovel						
Chisel, low crown sweep, 3 to 4 inches deep						
Disk, primary operation (1st pass only)						
Disk, secondary operation						
Field Cultivator						
Rotary Harrow (Seedbed Conditioner)						
Seedbed finisher (disk, field cultivator, coil tine harrow)						
Fertilizer application – Anhydrous, 12 inch spacing						
Fertilizer application – Anhydrous, 30 inch spacing						
Fertilizer application, strip till						
Manure injector, 30 inch spacing						
Drill or airseeder, single disk openers						
Drill or airseeder, double disk openers						
Drill or airseeder, double disk openers w/ coulters						
Drill or air seeder, hoe/chisel openers						
Planter, double disk openers						
Planter, ridge till, strip till, or double disk openers with residue managers						
Row Cultivation						
Row Cultivation, ridging, ditching, or hilling						
Other operation – please specify						
Other operation – please specify						

Complete two sheets for each crop rotation, one showing current tillage operations and one showing the planned tillage operations. Information will be used to calculate fuel savings for ENR01 Fuel Use Reduction.