

Info: Ronny Rosion
T1234
Fields 1, 2, 3

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Prepared by: Kim Conservationist

Practice(s)	Purpose(s)
328	Provide feed for domestic livestock
345	Reduce sheet, rill and wind erosion

Location: USA\South Dakota\Minnehaha County

Soil: Minnehaha County, South Dakota\CrD Crofton-Nora complex, 9 to 15 percent slopes\Crofton Silt loam 45%

T value: 5.0 t/ac/yr

Slope length (horiz): 90 ft Avg. slope steepness: 10 %

Contouring: a. rows up-and-down hill Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

RUSLE2 Results: The following estimate of average annual rainfall-induced soil loss is based on some factors that are beyond cooperater control, such as climate and soil type, as well as those factors that are within cooperators control, such as the Crop Rotation and Residue Management decisions documented below.

Soil loss for cons. plan	Detachment on slope	Soil loss erod. portion	Sediment delivery, t/ac/yr
3.5	3.5	3.5	3.5

Conservation Crop Rotation (328) The crops, their planned yields, and the sequence they will be grown in is:

Vegetation	Yield units	# yield units	Planting op.
vegetations\Corn, grain	bushels	130.00	1
vegetations\Soybean, mw 7in rows	bu	35.000	2

Duration: 2 yr

Residue and Tillage Management (Select 1)

No-till (329) Reduced Till (345)

The following schedule of tillage, planting, and harvest operations is designed to result in the listed percentages of the soil surface being covered with residues from the previous crops on the listed dates. The presence of the residues in at least the listed amounts on the listed dates will be evidence of implementation of the planned practice.

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Fert applic. surface broadcast		76
4/20/1	Fert. applic. anhyd knife 30 in		66
5/10/1	Sprayer, pre-emergence		57
5/10/1	Planter, double disk opnr w/fluted coulter	Corn, grain	57
6/7/1	Sprayer, post emergence		52
10/20/1	Harvest, killing crop 50pct standing stubble		78
11/1/1	Chisel, st. pt.		52
5/10/2	Cultivator, field 6-12 in sweeps		58
5/10/2	Sprayer, pre-emergence		58
5/10/2	Drill or air seeder single disk openers 7-10 in spac.	Soybean, mw 7in rows	58
6/7/2	Sprayer, post emergence		60
8/1/2	Sprayer, insecticide post emergence		45
10/10/2	Harvest, killing crop 20pct standing stubble		79

Soil Conditioning index (SCI):

The above **Conservation Crop Rotation**, and its associated **Tillage and Residue Management** are designed to maintain and improve the quality and health of the planned soils. The best measure of soil quality and health in South Dakota is the amount of soil organic matter (SOM) or soil carbon (C) they possess. The SCI is an index score (no units) designed solely for comparing the relative impact of different management alternatives on long-term soil quality trends.. If SCI is negative (less than zero), SOM and soil C (soil quality) are predicted to decline over time on the modeled slope under the modeled management system. If SCI is positive (greater than zero), SOM and soil C and soil quality are predicted to stay the same or to increase over time. SCI scores usually range from -1 to +1 in typical SD situations, although more extreme values are possible. When calculating SCI, RUSLE2 considers three key factors: (1) amount and type of surface and subsurface biomass returned to the soil; (2) tillage-induced oxidation of soil carbon; and (3) predicted sheet & rill erosion. Climate and soil type inputs are also considered due to the influence of these factors on soil C oxidation trends.

<i>Soil conditioning index (SCI)</i>	<i>Wind & irrigation-induced erosion for SCI, t/ac/yr</i>
0.208	0

Soil Tillage Intensity Rating (STIR):

STIR measures the intensity of tillage or soil disturbance. STIR is an index (no units) designed solely for comparing the relative impact of different management alternatives on soil disturbance. STIR increases with increasing tillage and can range from 0 to 200+. Average annual STIR values reflect the total amount of soil disturbance that occurs during the overall rotation, averaged across the number of years in the rotation. STIR values can also be calculated for individual crops. The STIR for an individual crop represents the sum of all soil disturbance associated with establishing and harvesting that crop. Both types of STIR values are shown below. STIR values in the 5 to 20 range are typical of no-till crops and/or continuous no-till or low soil disturbance cropping systems. This cropping system is designed to result the following STIR values.

Avg. annual slope STIR: 40.1 (averaged across all years in the rotation)

Crop Interval Stir Values

<i>Veg.</i>	<i>STIR value</i>	<i>Start date</i>	<i>End date, m/d/y</i>
vegetations\Corn, grain	5.64	10/11/1	10/20/2
vegetations\Soybean, mw 7in rows	74.5	10/21/2	10/10/3

Fuel Use Evaluation:

<i>Fuel type for entire run</i>	<i>Equiv. diesel use for entire simulation</i>	<i>Energy use for entire simulation</i>	<i>Fuel cost for entire simulation, US\$/ac</i>
(none)	7.3	1000000	0

Operation and Maintenance Summary: Evaluate/measure the crop residues cover and orientation after each crop to ensure the planned amounts and orientation are being achieved. Adjust management as needed to either plan a new residue amount and orientation or adjust the planting and/or harvesting equipment.

NRCS Planning and Application Certification:

I certify the conservation practice planning and design in this specification meet the selected purposes, associated practice standard criteria and client objectives. I have the required Job Approval Authority or TSP certification required for planning and design for this conservation practice standard.

Conservationist signature: _____ Date: _____

I certify the conservation practice has been installed according to practice standard criteria and specification requirements. The operation and maintenance requirements for the practice have been reviewed with the client. I have the required Job Approval Authority or TSP Certification for this conservation practice installation

Conservationist signature: _____ Date: _____