



United States Department of Agriculture
Natural Resources Conservation Service

CSP Job Sheet S-2

SOIL MANAGEMENT ENHANCEMENT

February 2006

NEBRASKA

Name: _____

Reducing soil compaction by controlling areas of traffic

Payment = \$0.50 / Acre /Year for STIR between 31 and 60 plus documented traffic control; \$1.00 / Acre / Year for STIR between 16 and 30 plus documented traffic control; \$2.00 / Acre / Year for STIR of less than 15 plus documented traffic control. This payment would apply to all acres within the field(s) where the STIR value has been achieved and proper traffic control methods have been completed.

Required Elements:

- Controlled wheel traffic system that limits wheel tracks to the same rows, if drilled crops are grown, a skip row is required.
- A controlled traffic system must also limit field access lanes (grain hauling etc.) from cropping zones within a field.
- Payments are based on the Soil Tillage Intensity Rating (STIR) as follows:
 - STIR between 31 and 60 plus documented traffic control;
 - STIR between 16 and 30 plus documented traffic control;
 - STIR of less than 15 plus documented traffic control.

Compaction is caused primarily by wheel traffic, but it also can be caused by animal traffic or natural processes. Soil is especially susceptible to compaction when it is at field capacity or wetter, has a low content of organic matter, or has poor aggregate stability. Saturated soils lack adequate strength to resist the deformation caused by traffic. Moldboard plowing and excessive tillage break down soil aggregates. After the aggregates are broken down and the soil surface is bare, the soil is more likely compacted by the excessive vehicle passes common in conventional tillage systems.

A controlled traffic system separates traffic zones from cropping zones within a field. Yields normally improve when traffic is restricted to controlled zones between the rows because the soil directly beneath the rows can retain a loosened structure. A controlled traffic system works well with row crops. If drilled crops are grown, a skip row is required.

One component of controlled traffic systems is ensuring that all equipment covers the same width or multiples of the same width. A second component is minimizing the number of traffic lanes. Table 1 provides examples of traffic patterns. In the first scenario in table 2, the tractor tire spacing is 60" and the combine tire spacing is 120". Thus, each set of six rows will have four tire paths and 44 percent of the ground will be trafficked. By increasing the tractor tire spacing to match the combine tire spacing (as in the second row of the table), the number of paths and area trafficked are cut in half. Permanent high-residue cropping systems, otherwise known as conservation tillage systems, generally work well with controlled traffic systems because previous crop rows are not tilled and thus traffic rows remain visible. Controlled traffic can be an integral part of ridge-till systems and no-till systems with permanent beds.

(OVER)

Table 1 Examples of traffic patterns for controlled traffic areas

Number of Rows	Tractor (in)	Combine (in)	Number of Paths	% Trafficked
30" row spacing				
6	60	120	4	44
6	120	120	2	22
8	120	120	2	17
8	60&120	120 & 180	6	50
12	60 & 120	120(6-row)	4	22
16	60 7 120	120 & 180 (8-row)	8	33
24	60 & 120	120 & 180 (12 row)	12	33
36" row spacing				
6	72	144	4	37
8	72	144	4	28
12	72	144	4	18

Documentation Required:

Attach map and list each tract and field that is applicable; plus a description of the equipment wheel width, implement width, crops grown, and row crop spacing that address the traffic control requirements as noted above. Also specify which field(s) the traffic control methods have been applied, and complete Crop Rotation and Tillage Inventory Worksheets from the Nebraska Conservation Security Program (CSP) – 2006 CSP Worksheet 3A (Non-irrigated Fields) and/or CSP Worksheet 3B (Irrigated Fields) for the entire crop rotation for each field.

Tract No.(s)	Field No.(s)	Acres in the field

Certification:

I certify that I have implemented the controlled areas of traffic crop management practices required to decrease the soil compaction.

Name: _____ Date: _____