United States Department of Agriculture
Natural Resources Conservation Service

Soil Quality Enhancement Activity – SQL01 – Controlled Traffic System

Controlled Traffic System
Controlled traffic confines heavy traffic from tractor drive wheels/tracks, combine wheels, fertilizer or manure spreaders and grain carts to specific lanes in crop fields year after year.

Land Use Applicability
This enhancement is applicable on cropland.

Benefits
Controlled traffic systems will reduce soil compaction, increase infiltration and improve crop yields. Additional benefits include reductions in erosion, runoff and sedimentation as well as energy savings as the need for sub-soiling decreases and firm traffic tracks form for better traction.

Criteria for *Use Controlled Traffic System*
Implementation of this enhancement **requires** the use of *controlled traffic system* on annual cropland that includes the following:

- Limit wheel/track traffic to no more 50 percent of the rows or a maximum of 50 percent of the trafficked area of the field
- Wheel/track traffic is the same for all passes, all equipment and years
- No track row that is greater than 20 inches wide.

The minimum components required to maintain the controlled traffic system enhancement activity are:

- All equipment must cover the same width or multiples of that width (See Figures 1 & 2)
- Number of traffic lanes are minimized (Table 1)
- For full width tillage Geographic Positioning System (GPS) is required to maintain the designated traffic lanes
- For narrow width or drilled crops, a skip row system or GPS is required
- Do not deep till (> 4 inches) the controlled traffic paths.

Documentation Requirements for *Use Controlled Traffic Systems*
A description of the controlled traffic system that includes:
- List of fields with controlled traffic system

- Crops rotation for the fields
- Equipment used
- Row spacing and number of planter units
- Planting width for drills
- Wheel/track spacing and operational width for tractors, combines, grain carts, harvesters, manure spreaders, etc.
- Sketch of the traffic paths and wheel/track spacing.

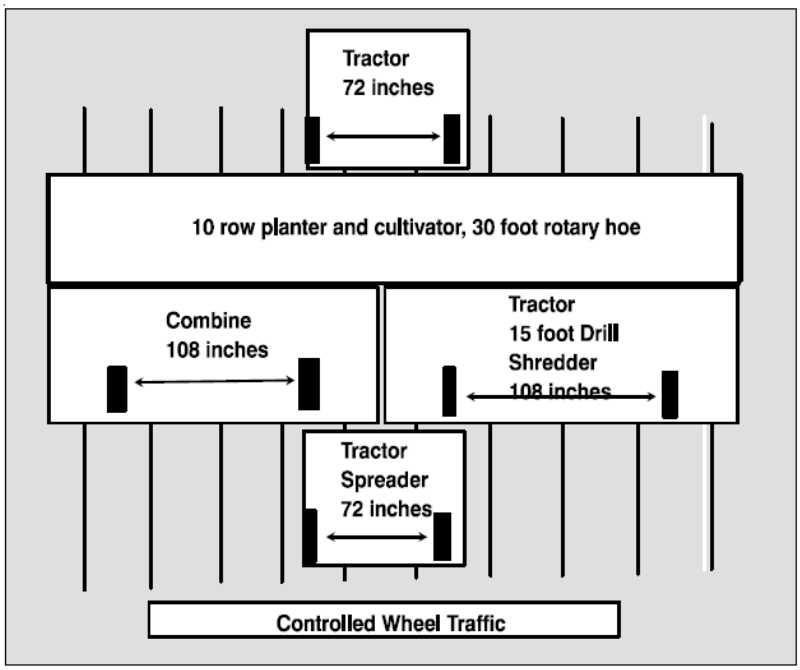

Figure 1. This is an example of a 10 row – 36 inch row planter and equipment that are multiples of the basic width. The combine, drill, and shredder are multiples of the 30 foot planter. All measurements are center of tire to center of tire.

Source:www.pfi.iastate.edu/ofr/Thompson_OFR/Chapter_6_Water_Quality.pdf

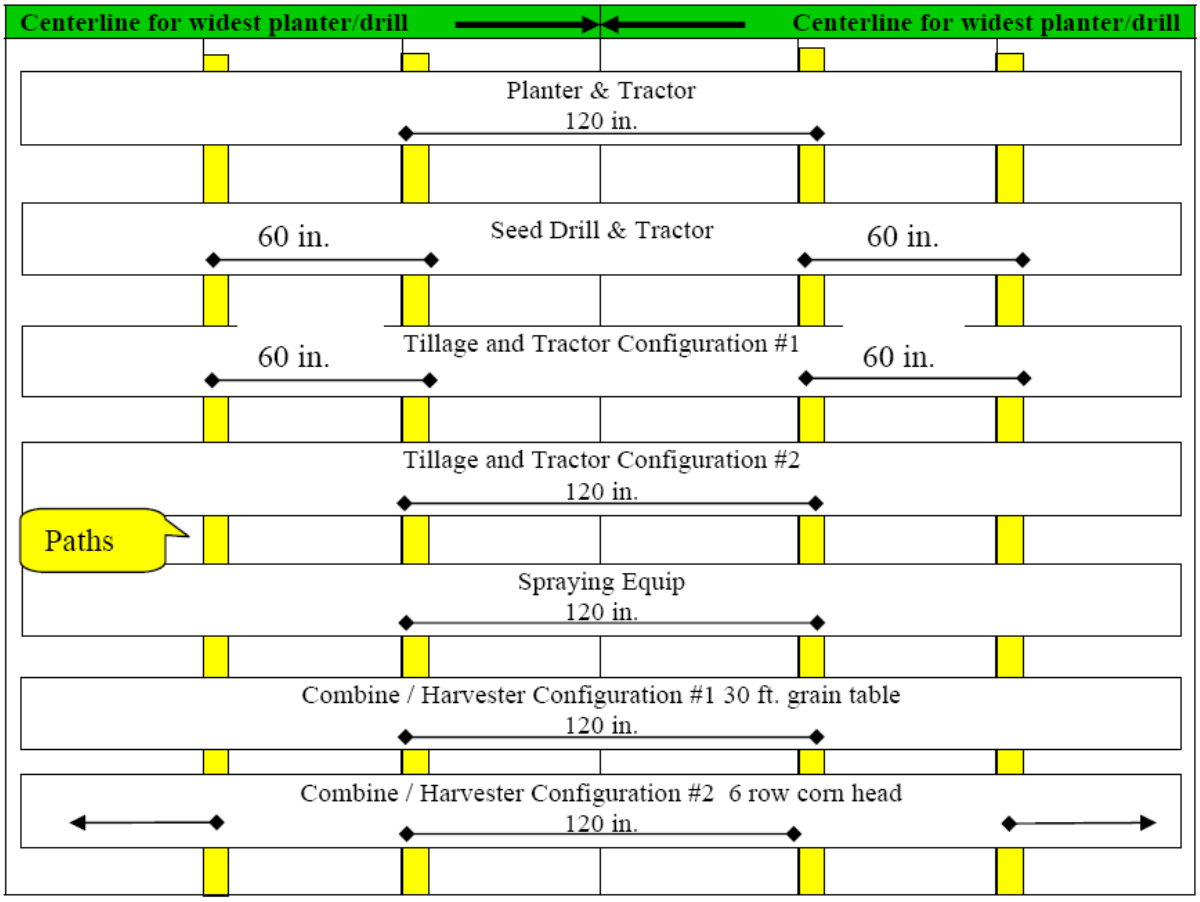

Figure 2. Example of Wheel/Track Spacing and Paths Using Multiples of the Basic Width (units are in inches or number of rows**):**

Situation: 12 row planters with 30 inch rows for corn, 15 foot grain drill, and 6 row corn head on combine, 30 foot grain table on combine, 15 foot tillage tools.

1. If 2 or more tillage operations have the same width and tractor tire configuration the operations are only entered once.

2. If 2 or more combine/harvesting operations have the same width and tire configuration the operation is only entered once.

Note: The 6 row corn head begins by taking the center 6 rows of the 12 row configuration, then harvesting the three outside rows along with 3 outside rows from the adjacent planter pass. This reduces the number of rows receiving wheel traffic. This system results in 33% of the rows receiving wheel or track traffic.

Table 1. Examples of traffic patterns for controlled traffic systems.

Number of rows	Tractor (in)	Combine (in)	Number of paths	% Trafficked Assumes 20" tires
----------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 & 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

Note: All tires are assumed to be 20 inches wide. In the first scenario, the tractor tire spacing is 60 inches and the combine tire spacing are 120 inches. Each set of six rows will have four tire paths and 44 percent of the rows will be trafficked. By increasing the tractor tire spacing to match the combine tire spacing, the number of paths and area trafficked are cut in half.

TENNESSEE SUPPLEMENTAL INFORMATION FOR THIS ENHANCEMENT

SQL01 - Controlled Traffic System

Documentation Form

Producer Name:				**Date:**
Tract Number(s):			**County:**	
Field Number(s):				
Crop Rotation:				
Equipment Used:				
Row Spacing:				
Number of Planter Units:				
Planting Width for Drills:				
Wheel/Track Spacing and Operational Width For:				
Tractors	**Combines**	**Grain Carts**	**Harvesters**	**Manure Spreaders**
Other Equipment:				