Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the Field Office Technical Guide for your State.

Indiana NRCS FOTG – October 2016
Extend the front axles of tractors to match the rear tires to reduce traffic lanes.

All traffic (high and low load) that crosses the field should use the designated traffic pattern. This includes custom applicators, pickup trucks, etc.

Consider no-till or direct-seed planting systems to further reduce compaction. Any tillage operation destroys soil structure, increases compaction, reduces infiltration, and oxidizes soil organic matter. No-tillage can also significantly reduce energy consumption and fuel costs.

Use a diverse crop rotation that consists of a warm season grass (such as corn, sorghum), warm season broadleaf (soybeans), and cool season grass (such as wheat, barley, cereal rye, or perennial forage mix) and a cool season broadleaf.

A diverse cover crop mix can also supplement the missing components of the crop rotation and prevent erosion, especially on sloping ground. Also consider using cover crops known to help reduce compaction, such as cereal rye, oil seed radish, or annual ryegrass. Establish/inter-seed a cover crop, with fibrous roots, before or immediately after the first harvest of the first year of controlled traffic. See Indiana (IN) Field Office Technical Guide (FOTG) Standard (340) Cover Crops for more information.

Consolidated tramlines have lower rolling resistance and wheel slip than cultivated soil.

The compacted traffic lanes/tramlines are able to support higher axle loads, so tramlines also allow machinery access in higher soil moisture conditions. Monitor soil moisture. Compaction is greatly influenced by soil texture and soil moisture. A trip across the field in a tractor on a coarse textured soil under dry conditions would cause little compaction; whereas the same tractor operating on a heavy moist soil can cause a great deal of compaction.

Consolidated wheel tracks increase traction and reduce cultivation draft in the uncompact soil.

Consider subsoiling prior to establishing the controlled traffic lanes.

Repair all ruts prior to establishing the system.

All equipment should cover the same working width or multiples of that width. Adjust the traffic pattern of each piece of equipment to minimize the number of lanes or tramlines across the field.

As older equipment is replaced, consider the working width of the equipment and how it fits into the controlled traffic farming system. The goal of controlled traffic farming is to limit the wheel/track traffic to as low a percent of the field as possible. This can be improved by having all equipment with the same working width or multiples of that width.

Utilize hitch offsets in no-till systems to avoid salt buildup and/or pH imbalances where fertilizer is banded in the same zone year after year. Hitch offsets can also help with positioning row placement in relation to previous crop rows and residues without altering wheel track lanes.

Extend tractor tires or tracks to the width of the combine and grain cart to reduce traffic lanes. Be sure to check equipment warranty when extending axle widths.

Use a Real-Time Kinematic (RTK) Global Positioning System to guide your fertilizer, herbicide, and planting equipment. RTK systems are accurate within an inch and can be used to automatically steer the equipment down the tramlines. With this kind of accuracy fertilizer can be banded and the crop accurately planted relative to the banded fertilizer.

Herbicides can also be applied very accurately, eliminating the need for overlapping. Skips or missed areas are also greatly reduced or eliminated using RTK auto steering.

RTK systems allow for Precision Nutrient Management. Fields can be subdivided into management zones which have similar characteristics such as soils, yield data and soil nutrient levels. Lime and fertilizer can
then be applied using Variable Rate Technology (VRT) which adjusts the rate of application based on the needs of each management zone.

With a RTK system, operations such as spraying (where applicable) or planting can be done at night making more efficient use of time, weather, and soil conditions.

Avoid deep tillage less than 12 months prior to establishing controlled traffic lanes. Repair all ruts and ephemeral gullies prior to establishing the system.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared for each field site where the Controlled Traffic Farming system will be installed. Record practice specifications on the Use the Ohio Controlled Traffic Farming Design Tool (or similar tool) to plan the traffic pattern. Plans and specifications will include:

- Crops to be grown
- Row widths of all crops
- Width and spacing of tires/tracks of all equipment
- Percent of the field that receives controlled traffic

OPERATION AND MAINTENANCE

As older equipment is replaced, purchase equipment that will enhance the CTF system, reducing the number of tramlines in the system.

If ruts develop, use tillage or other specialized equipment to remove ruts and reestablish controlled traffic lanes.

REFERENCES

