

## TN-NRCS FACT SHEET

### Guidance for Using a Roller/Crimper

February 2017

Cover crops are significantly important in keeping no-till systems healthy. In any system, cover crops provide valuable benefits to the soil, such as reducing erosion, soil compaction, nitrate leaching, and weed pressure. Cover crops also increase the amount of organic matter, keep the soil cooler, and provide a source of nitrogen (legumes) while improving soil fertility, water infiltration, and water storage capacity.

One important component of cover crop management is choosing how to kill the cover crop before the cash crop is planted. This fact sheet provides guidance on utilizing a roller/crimper, which is one of the methods available to kill the cover crop. Roller technology is used with the taller grass cover crops (cereals) and with the shorter cover crops that have flowered.

The benefits of the mulch created by using a rolled and crimped are:

- (1) Better weed control, especially early in season;
- (2) Cooler soil and improved moisture retention in mid-summer;
- (3) Maximum soil protection from raindrop impact and erosion;
- (4) Improved digestion or decomposition of cover by soil life resulting in improved nutrient cycling;
- (5) Better environment for some beneficial insects and soil organisms, such as earthworms;
- (6) Reduces environment for voles; and,
- (7) No bare soil for cleaner picking and products (e.g., pumpkins).



Individuals considering a roller/crimper need to consider certain factors. When rolling a cover crop without herbicides, the cover crop needs to have flowered or reached reproductive stage. If the goal is to kill the crop without herbicides (organically), then fewer species should be in the mix to have them mature or reach flowering approximately at the same time. The method of crimping involves rolling down a cover crop that both flattens the cover crop and repeatedly crushes (does not cut) the stems.

There are commercial rollers/crimpers available in Tennessee. This fact sheet does not address designs of the crimper/roller. For questions on sources of rollers/crimpers, contact your local USDA-NRCS or Soil Conservation District office.

The following information will assist farmers using either a commercial roller/crimper or a more basic device to flatten covers.

1. Methods other than commercial roller/crimpers are available to simply lay the cover down flat. These methods include culti-packers, flat drums, logs, and poles.  
NOTE: All of these methods will require herbicides to terminate cover crop.
2. If using herbicides, decide either to plant green or to plant fourteen days or more after terminating the cover based on the type of herbicide used and the cash crop being planted.
3. Since many rollers will be rented, planters will not match rollers' width. Plant as parallel to flatten cover as possible. Planting at an angle has had successes. Planting perpendicular is not recommended unless coulters are excellent in cutting through heavy residue.
4. If planting green before rolling, the rolling direction is not as important.
5. If planting corn, rollers will normally not be beneficial in killing cover due to the cover crop being too early in vegetative growth stage. In this case, the roller is used only to manage the cover laying down to improve function. Leave cover as long as possible to maximize height and biomass, and plant green when rolled and treat with herbicides later that day or up to three days to prevent killing the germinating corn crop. If one is willing to wait on cover crop to reach bloom stage or early reproductive stage, the roller/crimper will be able to kill the cover crop.
6. Later planted crops, such as cotton, soybeans and vegetables, can benefit from a roller to desiccate the majority of the cover crop if grown to flowering. Keep in mind, carbon to nitrogen ratios increase as maturity of covers increase. Plan to apply starter nitrogen and phosphorus. Watch the cash crop early for nitrogen needs.
7. Do not use the roller for low growing cover crops and early termination. Doing so would be a waste of time and money.
8. If farming organic, use a single or less number of species to mature at a similar time for a more complete termination.
9. Use roller/crimper to cover the soil and to utilize the allelopathic properties of cereal rye and black oats. Covers that are not laid down on the ground can leave the soil bare. Bare soil does not function as well as covered soil. Rollers are excellent for this objective.
10. Use a more primitive roller (log or pole) if the goal is only to lay the cover crop down. A roller/crimper will do the same and also assist in crushing stem.
11. The goal is to roll/crimp not to bush hog or chop. Keep cover intact attached to soil so the offsite movement or movement to the lower areas of the field is prevented.
12. If the goal is to terminate cover crops using a roller either without herbicides or reduced herbicides, the cover crop must be in bloom to early head stage. Cash crops will be planted later using this method. Mature cover crops can reduce the amount of moisture in soil. Termination needs to be based on amount of soil moisture.
13. If cover crops are allowed to mature past bloom for non-grasses and early head stage for grass, nutrients will be tied up in seed and cycled later in season.
14. Roller technology can be used at any scale. Small rollers are excellent for gardens.

