

HOW TO SUCCESSFULLY ROLLER

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HOW TO SUCCESSFULLY ROLLER CRIMP

“Rolling” is a means of mechanically terminating cover crops by crushing and/or snapping the stems using heavy drums or rollers. Roller-crimping can help reduce and sometimes eliminate the need for herbicides. The crimped cover crop also creates a mat, on the soil surface, that keeps soils cooler and moister during the growing season. However, roller crimping required specialized and often expensive equipment; in addition, roller crimping will only be successful on cover crop that are flowering (anthesis), necessitating a later planting date.

There are two types of roller crimpers:

HITCH MOUNTED ROLLER CRIMPER

Most roller crimpers are water-filled drums mounted with chevron-patterned blades pushed in front of or pulled behind the tractor.

PLANTING AFTER CRIMPING

Crops usually need to be planted in the same direction of travel as the crimper traveled. Although planters should usually plant in the same direction that crops were rolled, there is one exception; Yetter shark tooth coulters work very well planting in the opposite direction as the cover crop was rolled. Do NOT try to plant crosswise over rolled cover crop.

CRIMPING AFTER PLANTING

Farmers can also consider planting their cash crop into a green living cover crop (planting green) and then roller-crimping the cover crop after planting the cash crop. Soybeans can withstand being roller-crimped after emergence. Corn fields should be rolled-down before the corn emerges.

FRONT OR BACK MOUNTED

When pulling a rear 3-point hitch mounted roller crimper, the tractor tires push cover crops down prior to contact with the blades, resulting in uneven crimping in the wheel tracks. Front mounting the crimper eliminates this problem; farmers can crimp and plant in a single pass. While front mounting is recommended, a Laforge Systems front 3-point hitch may cost more than a roller crimper.

Some farmers have been successful pulling the crimper behind their planter. However, most of the tine rollers (hitch-mounted) do not match up to planters. Be aware, farmers may need to be creative in order to attach a roller to a planter.

MOUNTING ON PLANTERS

Dawn Equipment and Yetter manufacture a planter mounted cover crop roller crimper, which allows farmers to easily crimp tall cover crops and plant in a single pass. As of 2020, they are not compatible with all planters; they are not compatible with any split planter.

PROS: Mounting rollers on planters enables operators to terminate cover crop and plant in a single pass.

CONS: Cover crops can only be crimped during planting; in certain years it may advantageous to terminate cover crops 1-2 weeks before planting to avoid cover crops growing out of control. Also cover crop termination may be uneven behind the wheel tracks. Farmers who plant soybeans, in narrow row spacing using a drill or split planter can not use planter mounted roller crimpers.

1

FIELD /CROP SELECTION

START WITH SOYBEANS: Start out with a small field slated for soybeans. Research has shown that soybeans are more adaptable to this practice; soybeans tolerate being shaded and by starting with a legume crop minimizes potential challenges with nitrogen tie-up by mature cover crops.

HEAVY WET SOILS: The practice is best suited to high-clay soils that are slow to dry. Actively growing cover crops will lap up rainfall, drying wet soils faster and enabling farmers to plant earlier.

SOILS WITH A LONGER HISTORY OF NO-TILL AND COVER CROP. Soils should be accustomed to no-till with a healthy population of soil microorganisms that will aid in the breakdown of cover crop residues and the release of nutrients.

2

COVER CROPS

PLANT EARLY FLOWERING GRAINS:

Not all cover crop species are suited to termination using a roller crimper. In order to obtain adequate kill with a roller only use “winter annual cover crops” such as winter grains, hairy vetch, crimson clover and winter peas. All of these can be killed by rolling after flowering or early pod formation. For organic production don’t use perennial clovers like medium red clover or white clover or biennial clover like sweet clover. These will not kill by mechanical rolling alone. Annual ryegrass although an annual is not a good candidate for mechanical kill in organic systems. Elbon rye is the earliest flowering commercial rye cultivar. Triticale may also be used however, it won’t reach maturity until five to seven days later than Elbon rye.

NOTES ON HAIRY VETCH: Adding hairy vetch to the seed mixes slated for roller crimping can be problematic. Hairy vetch has a large proportion of hard seed which can remain viable in the soil for years to come. Waiting until full bloom when using a roller crimper to control hairy vetch is critical; they practice limits seed production, and minimize volunteer problems. However, cereal rye will mature earlier than hairy vetch making optimum rolling timing more complicated for mixtures containing both species. If you do plan to try hairy vetch, Triticale can be a better companion crop because it matures at the same time as hairy vetch.

3 OUTFIT PLANTERS

When possible, use a planter, rather than a drill, for establishing soybeans. Planters are better suited to planting through thick residues.

- **ROW CLEANERS:** Row cleaner will wrap with residues. Strongly consider either installing a floating row cleaner with swept back to shark-toothed tines or remove the row cleaners all together.
- **OPENING DISKS:** It is crucial that opening disks be sharp with a well defined bevel! Replace opening disks at least every 50 acres (per row unit) to make sure they are sharp enough to cut green residues.
- **CLOSING WHEELS:** Use short spiked closing wheels. These are less prone to wrapping but should also be able to adequately close the trench. Smooth iron wheels are also effective on loamy and sandy soils.
- **FERTILIZATION SYSTEMS:** When roller crimping, it is especially important to apply nitrogen near the seed. A thick heavy cover crop can tie up soil nitrogen, early in the growing system. Outfit planter to be able to either band fertilizer beside the seed to apply pop-up or starter in the seed trench.
- **GPS SYSTEM:** When roller crimping it can be nearly impossible to see row markers. Consider using a GPS system to keep track of where you have planted.

4 PLANTING CASH CROPS

When starting out with planting green, aim to plant cash crops when cover crops are between 5” and 10” tall.

- **PLANT DEEP:** Consider planting a little deeper to cleanly cut the cover crop residue and avoid “hair-pinning” when planting corn.
- **STARTER FERTILIZER:** As cover crop matures, it contains less nitrogen per unit of carbon. As a result, mature cover crop decomposes slower and ties up soil nitrogen. To compensate, be sure to add extra starter N if planting corn or other non-leguminous crops. Anticipate being able to cut back on side-dress N application later in the season.

5 TERMINATING COVER CROP

TIMING IS CRITICAL! The ideal time to roller crimp any cover crop is during flowering. At this stage crimping consistently kills the cover crop before viable seed are produced. For farmers in this area, this will typically be late-May through early-June, depending on when the cover crop was planted.

HERBICIDE: For reliable weed suppression, roller-crimpers can be used in combination with herbicides. Burn-down herbicide at rolling suppresses perennials, germinated annuals, and terminates cover crops more uniformly and efficiently.

ORGANIC TERMINATION: To improve the control of the cover crop in organic systems, consider rolling cereal rye twice -- once approximately one week before planting and again on the day of planting.