



SOUTHERN PIEDMONT

**CLIMATE-SMART
PROJECT**led by: **RODALE
INSTITUTE**

What is a Roller Crimper?

This essential piece of agricultural equipment is predominantly used in conservation agriculture and regenerative organic farming as an eco-friendly solution to effectively terminate cover crops and prevent weed emergence without the use of herbicides, deep tillage, or plastic mulch. Learn more about the operations, uses, functions and advantages of roller crimper use in the information below.



How Does It Work?

The roller crimper is a steel cylinder (that can be filled with water to increase its weight) with chevron-patterned blades that attaches to either the front or rear of a tractor. As the farmer drives over the cover crop, the roller crimper crushes the stems of the cover crop, approximately every seven inches. The cover crop, now terminated in place, remains on the surface of the soil where it forms a thick mulch that suppresses weed emergence. A no-till transplanter or planter on the rear of the tractor then parts the cover crop mat and inserts plugs—tomatoes, for example or seeds into the soil. It happens in a single pass, saving vital time and energy for farmers. The cash crop then grows straight up through the cover crop mulch.

Key Components

- **Roller/Crimpers:** Roller Crimpers usually consist of a cylindrical roller connected to a frame. Roller/Crimpers may vary in diameter, width, and crimper design.
- **Frame:** The frame supports the roller and provides stability during operation. It can be adjusted to control the height and pressure exerted by the rollers on the cover crop.
- **Mounting Mechanism:** Roller crimpers can be mounted on various types of agricultural equipment, including existing tractor hitches, frontend loaders, and customized implements.

Roller Crimper Usage

- **Preparation:** The cylinder can be filled with water before use to change the weight. Ensure the field is clear of large debris, obstacles and reasonably flat when the cover crop is initially seeded to make sure the long roller crimper makes full contact throughout the entire field. Bumps or rocks will lift up the roller crimper just enough to let the cover crop survive. Divots or low spots will be missed entirely by the roller crimper resulting in the cover crop surviving. Use the correct roller crimper size and weight for your tractor.
- **Timing:** Use when cover crops are in the flowering stage but before seeds form.
- **Technique:** Drive the roller crimper over the cover crops in a straight line, applying even pressure. Be sure to lay the cover in the same direction in which you plant on planting if more than one pass is planned.
- **Adjustment:** Experiment with height and pressure settings for optimal crimping.
- **Follow-up:** Monitor for regrowth and consider a second pass if necessary. Empty the water from the drum.

carolina farm
stewardship associationCLEMSON
UNIVERSITYEMORY
UNIVERSITYGEORGIA
ORGANICSNC STATE
UNIVERSITYNORTH CAROLINA
AGRICULTURAL AND TECHNICAL
STATE UNIVERSITY

poket

RODALE
INSTITUTESOIL HEALTH
INSTITUTETHE CONNECT GROUP LLC.
Professional Consultation Since 2013THE UNIVERSITY OF
TENNESSEE
SYSTEMUNIVERSITY OF
GEORGIAVABF
Virginia Association for Biological FarmingTHE UNIVERSITY OF
WISCONSIN
MADISON



SOUTHERN PIEDMONT

**CLIMATE-SMART
PROJECT**

led by: **RODALE
INSTITUTE.**

What is a Roller Crimper?

Safety Tips

1. Familiarize yourself with the Southern Piedmont Climate-Smart Project Roller Crimper SOP. Pay special attention to recommended maintenance procedures and safety precautions.
2. Wear appropriate personal protective equipment (PPE), including gloves, safety goggles, sturdy footwear, and clothing that covers your arms and legs to protect against debris and moving parts.
3. Ensure the tractor used for the field operation is sized appropriately and in good working condition.
4. Follow proper hitching procedures and verify that the tractor's brakes, lights, and other safety features are functioning correctly.
5. Before crimping, survey the area for any obstacles, such as rocks, stumps, or uneven terrain, that could pose a hazard. Clear the workspace of debris to prevent damage to the roller crimper or injury to personnel.
6. Keep bystanders and animals at a safe distance from the roller crimper during operation. Warn others in the vicinity of the potential hazards associated with moving machinery.
7. Do not exceed the recommended capacity or load limits specified by the manufacturer for the roller crimper. Overloading can lead to equipment failure or loss of control.
8. Exercise caution when operating the roller crimper on slopes or uneven terrain. Avoid steep inclines and be prepared to adjust your speed and direction to maintain control.
9. When finished crimping, turn off the tractor engine and allow the roller crimper to come to a complete stop before dismounting or performing any maintenance tasks.

Functionality

- Termination of Cover Crops: Mechanically crushes and crimps cover crop stems, preventing regrowth without herbicides or tillage.
- Weed Suppression: Creates a dense, mulch-like layer on the soil surface, inhibiting weed seed germination and reducing competition.
- Improvement of Soil Health: Residue acts as organic matter, contributing to soil fertility, moisture retention, and erosion control.



Application

- Cover Crop Management: Widely used in conservation agriculture and organic farming.
- No-Till Farming: Preserves soil structure and minimizes erosion.
- Crop Rotation: Prepares fields for planting cash crops in subsequent seasons.

Dig Deeper

**Learn more about
Roller Crimper usage
and see one in action:**



**Download blueprints
to build your own
roller crimper:**



**More training
resources from the
Southern Piedmont
Climate-Smart Project**



This material is based upon work supported by the U.S. Department of Agriculture, under agreement number NR233A750004G019. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture. In addition, any reference to specific brands or types of products or services does not constitute or imply an endorsement by the U.S. Department of Agriculture for those products or services.

