

## **Overview - Using tarping in cover crop and conservation tillage systems**

- Tarping is the practice of applying tarps to the soil surface and removing them prior to planting to manage or terminate weeds, crops, and cover crops, aiding the transition between cash crops with minimal to no soil disturbance. The use of tarps to terminate cover crops in no-till and reduced tillage systems allows farms to achieve the benefits of integrating these practices without specialized equipment or the application of herbicides.
- Given the logistical challenges of moving, securing, and storing the tarps, they are typically used on small farm operations of less than 5 acres.
- This practice offers numerous climate change adaptation benefits. Tarping can help facilitate no-till, reduced tillage, and cover cropping, all of which build soil health and improve water holding capacity. Tarping can also facilitate the use of cover crop residue as a mulch for cash crops which helps to conserve moisture, increase water infiltration, prevent surface runoff, and protect soil from erosion.
- Tarping may also reduce the need to use farm equipment which can be helpful in periods of rainy and wet periods when the soil is too wet to work. The potential to eliminate use of machinery to terminate cover crops or incorporate biomass may also be beneficial in a more variable climate as it allows farmers greater flexibility in the timing of cover crop termination.

### **General logistics of using tarping in cover crop and conservation tillage systems:**

A variety of tarps of varying thickness, material, durability and size can be used for this practice, including landscaping fabric, billboard and silage tarps, with a lifespan ranging from 1-8 years. Sandbags and cinder blocks are often used to secure tarps and prevent the tarp from blowing loose and becoming a hazard to equipment, animals and people. At least two people are generally needed to apply, remove, and store tarps, though this may vary depending on tarp and field size as well as weather conditions.

The use of tarping in cover crop and conservation tillage systems is a flexible multi-step process. One example of this is shown below.

*(This example is from our team meeting on this practice)*

Late August/Early September: plant perennial rye cover crop

June: Roll down rye using either a lawn roller or a tractor driven roller crimper

June: Place tarps, secure with sand bags

June: Remove tarps after two weeks. Plant cash crop of brassica starts

August/September: Harvest crops, plant cover crop

### **Costs and Benefits of using tarping in cover crop and conservation tillage systems:**

Potential Benefits	Potential Costs
<p>Eliminates the need for herbicides and/or specialized equipment like a roller-crimper</p> <p>Provides flexibility in the timing of cover crop termination</p> <p>Augments the weed suppression provided by cover crop residue</p> <p>May support long-term soil health goals, like protecting soil organic matter and building soil structure. Supporting soil health can also improve water holding capacity.</p> <p>Eliminates the need for field passes (especially beneficial when soils are too wet to operate equipment)</p> <p>Reduces soil erosion</p> <p>Supports use of cover crops, some of which may add valuable nitrogen and reduce future need for fertilizer</p>	<p>Logistical challenges associated with handling tarps, including moving, securing, and storing tarps</p> <p>Scale-limited due to above challenges</p> <p>Ecological footprint of tarp material manufacturing</p> <p>Concerns associated with the disposal of plastic once it is no longer fit for use</p> <p>Concerns regarding release of microplastics into soil as tarps wear over time</p> <p>Loose tarps can become a hazard to farm equipment, animals, and people</p> <p>Pooling of water on and around edges of tarp</p> <p>May create habitat for rodents, increasing this pest population and predators such as snakes</p> <p>Reusing tarps may introduce soil-borne diseases into uninfected fields if moving from an infected field</p>

## Additional Resources

Interested in using tarping in cover crop and conservation tillage systems? Check out our economic tool to determine the potential costs and revenue here. See what this practice looks like here.

### Guides, Factsheets, Other:

- Working Title: Tarping in the Northeast: a guide for small farms
- [Cover Cropping on Vegetable Farms in Northern New England](#), UVM Extension
- [Manage Weeds With Tarping](#), Reduced Tillage in Vegetables Project, Small Farms Program, Cornell College of Agriculture and Life Sciences, July 15, 2019, Ryan Maher
- [Reusable Black Tarps Suppress Weeds and Make Organic Reduced Tillage More Viable](#), Reduced Tillage in Vegetables Project, Small Farms Program, Cornell College of Agriculture and Life Sciences, January 14, 2019, Haley Rylander

- [Small Scale No-Till Vegetables at Seeds of Solidarity Farm](#), Reduced Tillage in Vegetables Project, Small Farms Program, Cornell College of Agriculture and Life Sciences, October 3, 2016, Claire Cekander
- [Take Me Out to a Tarped Field](#), Reduced Tillage in Vegetables Project, Small Farms Program, Cornell College of Agriculture and Life Sciences, April 6, 2018, Ryan Maher

#### Videos:

- [No-till and Cover Crops in Vegetable Systems with Natalie Lounsbury](#), Recorded Webinar, April 6, 2020
- [Reduced Tillage on Permanent Beds](#), Webinar in “Reduced Tillage Webinar Series” hosted by Cornell RT, Michigan State University, and the University of Maine. Ryan Maher and Brian Caldwell, Cornell University, Mark Hutton, University of Maine, Thursday, March 9, 2017.
- [Silage Tarps to Reduce Tillage on Small Farms: Farmer Experiences](#), Reduced Tillage in Vegetables Project, Small Farms Program, Cornell College of Agriculture and Life Sciences, Dec 20, 2018

#### Research:

- Lounsbury NP, Warren ND, Wolfe SD, Smith RG (2018). Investigating tarps to facilitate organic no-till cabbage production with high-residue cover crops. Renewable Agriculture and Food Systems1–7. <https://doi.org/10.1017/S1742170518000509>  
<https://drive.google.com/file/d/1QBRs64azOPJ8QousMgVRGOSnN5YWIDr1/view?usp=sharing>

#### Books:

- Mays, Daniel. The No-Till Organic Vegetable Farm: How to Start and Run a Profitable Market Garden That Builds Health in Soil, Crops, and Communities. Storey Publishing, LLC. November 10, 2020. ISBN-10: 1635861896.