Using Tarps for Weed Control

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Weed management is one of the central challenges many organic and small-scale vegetable growers face. Practical and effective weed control options that minimize soil disturbance while keeping weeds at bay would be beneficial in many specialty crop systems. A recent article from Washington State University Extension, "Review of tarping and a case study on small-scale organic farms" (Kubalek et al. 2022), describes how tarping can be a useful strategy to include in weed management programs. The use of tarps for weed control is a common practice among small-scale growers in the United States.

What is tarping?

Tarping is the practice of covering the soil surface with opaque plastic sheets to block light and kill vegetation. Most growers apply tarps for around 3 weeks to kill 95-100% of weeds at the soil surface. Small scale and organic growers often use this practice to control weeds before planting crops. Tarping is often used to make false/stale seed bed in tilled systems but can also help control established weeds or cover crops in reduced- and no-till systems. After removing tarps, additional weed control practices will be needed throughout the season, such as selective cultivation, mowing, solarization, or cover cropping.

Types of Tarps

Silage tarps are the most common type of tarp used to control weeds. They are black on one side and white on the other, often 5 to 6 mils thick. Typically, silage tarps are 10-50 ft wide and sold in 50 ft long increments. Be sure to consider the weight of the tarp to ensure you have the appropriate equipment and labor to apply it. For instance, a 5,000 square ft tarp roll weighs around 120 lbs, while 1,500-2,000 square ft of tarp weighs around 36-48 lb. Tarps can be bought new or used online or at local dairy and feed stores. Examples of sources include: GrowOrganic (Grass Valley, CA), Johnny's Selected Seeds, Farmers Friend, and Farm Plastic Supply*. They usually cost around $0.08 per square foot, often with bulk discounts. Some growers report silage tarps can last up to six or more seasons. Growers who only need small tarps could cut open large grain sacks made of the same material.

Silage tarps. Organic residues on the soil surface after tarping (left) can be raked away for a clean bed (right).

Tarping Process

In raised bed systems, start by preparing the planting area with tillage, amendments, and/or bed shaping. In no-till systems with vegetation, mow or roll vegetation flat so the tarp will be close to the soil surface. It is important to apply the tarp to moist soil with the black side facing up so that it absorbs heat, warms the soil, and encourages weed germination. Place weights such as sandbags on edges and center of tarp to secure. Using staples is not advisable

since they create holes and can cause rips. A three-week period with high soil temperature and moisture can kill most weeds in the top inch of soil. More time might be needed in areas with cooler climates, or less time in warmer climates. Direct tarp contact with the soil helps raise soil temperature, so organic residues might need to be moved aside if temperatures stay low. When weed seedling have been killed, remove the tarp, and immediately plant to establish crops during this weed-free window. Remove tarps on a dry day without wind and fold them in reverse order of application. You can store dry tarps free of debris out of the sun. Be sure to minimize soil disturbance after removing tarps to help reduce germination of remaining weed seeds. You can also use tarping for three weeks to terminate cover crops without heavy equipment. Cover crop residues on the soil surface can be left in place as a mulch or raked to the side.

The degree of weed control tarping can provide depends on weed species, season, environmental conditions, and tarp duration. Winter tarping can help control winter annual weeds for several weeks after tarp removal, especially if soil disturbance is minimal. Extending tarp application time to several months during critical weed growth phases or a full year can help break the vegetative life cycle of perennial and biannual weeds with extensive root storage and persistent shoot regrowth, such as field bindweed and Canada thistle. Tarping for several months will likely benefit soil structure and increase soil aeration. Higher temperatures, moisture, and aeration can help promote soil microbial activity.

Things to Consider When Using Tarps for Weed Control

Benefits	Limitations
• Weed control without herbicides or tillage • Kills most emergent weeds in top inch of soil • Gives crops a head start in a weed-free bed • Readily available, cost effective, reusable • Requires little training or special tools • Can be used to terminate cover crops • Can provide a degree of predictability • Easily included in weed management program	• Does not reduce weed seed bank • Does not provide season-long weed control • Can be logistically challenging to handle • Large operations likely need mechanization to apply & remove tarps • Old plastic tarp material likely goes to landfill • Not a silver bullet: need to integrate complementary weed management strategies

Overall, tarping can help reduce weed pressure in small-scale and organic systems as one strategy in an integrated weed management plan. It is important to use other methods to address more persistent perennial weeds and weeds that emerge later in growing season. Bearing this background information in mind, tarps for weed control can be used in a way that is tailored to your own unique context, crop system, and sustainability goals.

Additional Resources

UCCE What is Integrated Pest Management?
UCCE Weed Identification Photo Guide
UCCE Sonoma County Specialty Crops Related Resources
University of Maine Cooperative Extension Tarping in the Northeast: A Guide for Small Farms
Cornell Small Farms Program Tarping Guide, Articles, News, & Webinars

Pictures are from Kubalek et al. (2022) Review of tarping and a case study on small-scale organic farms, HortTechnology, 32(2), 119-128.

*Mention of any company is merely an example and does not constitute an endorsement.