



Soil Solarization



OBJECTIVE	CATEGORY	DIFFICULTY	TIME
Eradicate weeds by heating soil to force weed seed germination and plant die off.	Farming and Soil Health	Easy	1 hr. 15 min

SOLARIZATION	
WHY?	Herbicides and tilling are not the most efficient or environmentally conscious ways of weed control. Additionally, it takes time to wait for weeds to appear and a lot of work to weed by hand. By solarizing the soil we force weed seeds to sprout and then die before desired crops are planted in the spring. Also, the heat and darkness starves plant pathogens (harmful pests, bacteria, fungi, etc), it supports natural composting processes, and it encourages beneficial soil microbes to digest old organic material from the past season.

MATERIAL LIST	TOOLS & EQUIPMENT
Black silage tarp for solarizing one row 20' l x 30"	Hoes, bow and leaf rakes, shovels
Water source	Bag and/or bin for weeds and leaves
Compost (optional)	Cutting tools: shears, pruners, loppers
	Gloves and aprons
	Weights (e.g. stones, bricks, wood) for keeping tarp in place

ACTIVITY
<ol style="list-style-type: none"> 1. Begin this process at least 2 weeks before you plan on planting. Leave tarp for about 6 weeks if tarping during cooler months. 2. Cut down any protruding plant stems and stalks - <i>if you want to save any plants in the bed, remove and transplant them.</i> <ol style="list-style-type: none"> a. Rake bed and remove leaves and dead plant materials. <ol style="list-style-type: none"> i. Discard weeds that are noxious. ii. Compost leaves and plants that you do not want in the area . 3. Shape and sculpt the bed to your desired width, height, and spacing between other beds or garden boundaries. 4. Water the bed generously. 5. (Optional) add compost. 6. Lay down tarp with the black side facing up, cut to size of row if necessary. Ensure that the row is completely covered on all sides, weigh down tarp on all 4 sides of the tarped row/bed with sufficient stones or other heavy objects. <ol style="list-style-type: none"> a. Take extra care to ensure that no air or wind can get under the tarp at any point. 7. Clean up and put away tools. 8. Let the tarp sit for a minimum of 2 weeks (if tarping during hot summer months) and remove on the day of planting. See FAQ below for more info on timing. 9. Fold and store the tarp in a dark place until next season to avoid degradation from sun/UV exposure.

FREQUENTLY ASKED QUESTIONS	ANSWERS
What if I just put the tarp on the bed without removing existing weeds or shaping the bed?	Some of the more tender weeds may die but there's a good chance some weeds may be woodier or have large roots with stored food for them to survive on. You may also accidentally tear the tarp on rocks or stems that you haven't removed. Also, if you pull up the weeds afterwards, you may unearth dormant weed seeds that otherwise would not have sprouted.
During the treatment can I move the tarp or sow seeds?	Absolutely! If it's early in the season and still cool outside you can sow seeds that need a few weeks to germinate such as snapdragons, carrots and in late-spring peppers. Some plants actually only sprout in darkness and can tolerate heat so a quick solarization treatment of one week may be useful if you sow under the tarp watermelon, nigella and phacelia flowers.
Can I leave the tarp on for less time?	Yes, you can remove the tarp earlier, however it is the heat trap effect that is essential for making the weed seeds sprout. The necessary length of time for tarping corresponds inversely to the season and time of year. The colder it is, the longer the tarp should stay on. The hotter it is, the less time the tarp needs to stay. You should tarp for a minimum of 2 weeks during the summer or up to 6 weeks during the cooler months.
Can I rework the bed after solarization?	Even after solarization, the less the bed is stirred up the better, as there will always be some intact weed seeds, though they may be deep and otherwise not a problem unless moved/unearthed. In the tropics it isn't uncommon for the tarp to be left on permanently and holes cut only for crops.
Alternatives to using black silage tarp?	We use a particular tarp designed for this purpose, however it is still perfectly acceptable to use simple store-bought black tarp or even transparent tarp.
Why is this called sanitization? Am I killing the soil organisms that keep my soil healthy?	Yes but don't worry! More life under the soil can often mean more weeds that the microbes live on so by killing the weeds they will have less food for only a brief time and the crops you plant later can even serve as better food to sustain them for the future. Microbes can be quite tough! You are killing off the plant pathogens that otherwise would later harm your plants.
Will I kill perennial plants or seeds that I want to keep?	Yes, most plants and seeds will die so you want to harvest or transplant all plants you want to keep before placing a tarp on the row.