

BED PREP ON A NO-TILL FARM

SMALL SCALE



WHERE TO BEGIN?



While you might have heard of the virtues of a no-till garden and may be interested in transitioning towards one, probably the greatest challenge we face as no-till farmers is managing weeds. After all, the act of tilling destroys many of the weeds (albeit temporary) that may have colonized the surface of your growing area.

This guide will help you establish your beds with the aim of minimizing the

management of the weed seed bank present in all gardens. Another issue no-till farmers struggle with particularly in the beginning years of garden establishment is soil aeration and soil compaction, both issues also temporarily solved by rototilling. Here too, we will offer some strategies so that you can manage your garden beds free from the need to till every spring. If you would like to learn more of the pros and cons of a no-till system, please consult our guide: "Why No Till."

GARDEN ESTABLISHMENT: TO TILL OR NOT?



If you are establishing a vegetable garden from scratch, one single initial tilling event of the area in which you plan to plant may actually be helpful. You may find that your grow area may be excessively compacted and/or overrun by weeds. Tilling provides a chance to disrupt the root structure of unwanted/invasive plant species which can be essential in the beginning stages of trying to eliminate weeds from your growing area. Tilling may also be useful when shaping and lengthening the beds you will be planting in by breaking up compacted soil.

If you decide that your future garden area does not need an initial till, a good strategy is that of laying cardboard and hay on top of the soil for a couple weeks before you plan to plant. Some use wood chips or dry leaves in this step. This will smother weeds and slowly decompose leaving you with a softer soil to work with when establishing your grow area.

NO-TILL BED PREP STEPS



1. Solarization

- a.** Solarization is the process of laying a plastic tarp, landscaping fabric or plastic mulch over your growing area. The purpose of solarization is to force weed seeds to germinate and then perish due to the high temps occurring under the tarp. Also, the high temps kill any living plants under the tarp.
- b.** To solarize lay a tarp anywhere you wish to kill what's on the ground whether it be grass or weeds or anything you don't want there. Solarizing is very effective at preparing an area that hasn't yet been used or hasn't been used in some time or an area with a lot of weeds.
- c.** It is best to solarize for a minimum of a few weeks or over winter. The warmer the weather the quicker solarizing can happen.



2. Controlled Burn

- a.** Burning with a weed burner is useful to eliminate and keep down weeds or to help kill any persistent cover crop. This step can be used multiple times throughout the season.
- b.** The higher temps induced by solarization might also force weed seeds in your soil to germinate. Once germinated, weeds are easier to dispose of by burning them.



3. Broad Fork

- a.** A broad fork is best used before planting and provides necessary air to enter the growing area.
- b.** Because we are not tilling our garden, we still need to find a low-impact way to introduce oxygen into the lower levels of the soil. Broadforks are excellent tools to help loosen compacted soil.



4. Fertilization

- a.** Apply compost and/or organic fertilizer. A soil test at the beginning of the season will help you understand which specific fertilizers your soil might need.



5. Determine Row Cover or Mulching

- a.** The main purpose of applying a mulch layer or row cover is to prevent weeds from colonizing bare soil around your crops. The choice of your mulch or row cover will be determined by how big your garden is and how much labor can be used.
- b.** Row covering (also called landscaping fabric) is a plastic fabric used to keep weeds out of the grow area. Some are permeable and allow rain water and moisture through. Others are made out of harder plastic and an irrigation drip line will be necessary under it.
- c.** Other types of mulch may consist of wood chips, leaves, straw and green manure. Each type of mulch comes with its own pros and cons but all are meant to aid in the suppression of weeds and provide extra nutrients to your garden through the gradual breakdown of each. Mulching is a constant effort that will need to be maintained throughout the year.
 - i.** Wood chips are very effective at smothering weeds. However, they may acidify your growing area thereby hampering plant growth. We have had good success in using them in our walkways placed right on top of cardboard or fabric. Using partially composted or older wood chips is generally better for your soils.
 - ii.** Leaves are best used dry and chopped up to then lay on your grow area. Leaves are great for providing extra nutrients as they break down. Partially decomposed or composted dry leaves work even better as they release nutrients into the soil more readily.
 - iii.** Straw tends to be an all around favorite mulch. It is excellent at keeping moisture in the grow area. But it can also be a hindrance if the source of straw isn't good and comes with the seed heads. Finding a good source of organic straw is crucial.
 - iv.** Green manure is using a cover crop that has been mowed down and dried and then placed on the growing area. It is also great at providing extra nutrients to the grow area especially nitrogen. One potential issue is introducing unwanted seeds into your grow area.



6. Sow/Transplant

- a.** If direct sowing or broadcast seeding, gently remove your mulch to expose bare soil and then proceed to seed.
- b.** If transplanting, you may plant directly into most organic mulches, or cut a hole in your landscape fabric.



7. Nutrient Application

- a.** After your plants have had time to settle or grow some plants like to have an additional dressing of nutrients
 - i.** This can be an application of compost tea or extra nitrogen. This is determined by the look and growth habit of your plants.



8. Weed if Needed

- a.** The only mulch that guarantees virtually no weeds is landscaping fabric. When using any other of the above mentioned mulches some weeding is always necessary. Reapplication of your mulch may also be necessary as natural breakdown and wind may expose bare soil.



9. Cut Down

- a.** At the end of the season when your vegetables are finished producing it is best to cut down your plants from the base. By doing this you keep the root structure of the plant intact which helps with the soil structure of the bed. On a no-till farm disturbing your beds the least helps strengthen the soil aiding in a better grow area.



10. Cover crop

- a.** Cover cropping is an excellent end of season strategy. It provides nutrients and if successful can become an excellent mulch for the next season.
- b.** It is important to time cover cropping effectively because the more time the cover crop has to grow the more effective it is at fixing nutrients and becoming a mulch.
- c.** We like to use a mixture of radishes, peas, oats, mustard and alfalfa.

DEALING WITH WALKWAYS:



We have found that walkways are a great gateway for weed introduction. On our farm, our walkways are about two feet wide, and we have found that using a tough landscaping fabric works the best. It allows us to get close enough to the edge of the bed to limit extra weed growth without interfering in the grow area. We have also used wood chips and cardboard to some success. The issue with using organic mulch is needing to reapply it consistently every season multiple times. Also, the breakdown of organic mulch can provide a pathway and nutrients for weeds to grow.

ADDITIONAL SOURCES:



- **No-Till Intensive Vegetable Culture.** By Bryan O'Hara. Chelsea Green Publishing, 2020
- **The Market Gardener: A Successful Grower's Handbook for Small-Scale Organic Farming.** By Jean-Martin Fortier. New Society Publishers. 2014

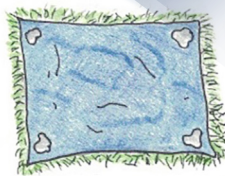


1

Mowing, clear any brush in your grow area.

Till (only if needed) your grow area to help dislodge stubborn weeds and grass.

2



3

Tarp your grow area for a useful solarization.

Once you've tarped leave on for at least two weeks to properly kill any seeds or tough weeds left in the ground.

4



5

After solarizing remove tarp and flame weed as needed.



Broadfork your grow area to allow for extra aeration in the bed.

6



7

Apply compost to your grow area and any additional nutrients needed.



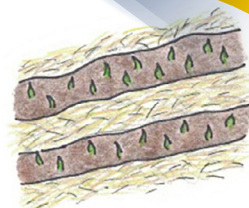
Cover or mulch your grow area to help avoid weeds from entering your newly prepped beds.

8



9

Transplant into your beds or direct seed.





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