



## Time to Till? Maybe Not!

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The author's rototiller ready for work, but only if it is needed (photo by M. Lisy).

Each year we go out and have to get the garden ready for planting. To many people, this means getting out the tiller and turning over the soil. We definitely are creatures of habit, but repeated tilling may actually be doing more harm than good. It is important to remember that a tiller is a tool that has a specific purpose, but should only be used when needed.

Soil erosion is one of the biggest threats to farmland worldwide. Although our smaller scale gardens are less susceptible to this, it is something that should be of concern. If you till and then we receive heavy rain, it could wash away some of the nutrient rich top soil that took years to build. Excessively dry soil may end up blowing away in the wind. When the soil is too wet, tilling can create hardpan below the tilled layer. This layer of compacted soil limits water infiltration, nutrient availability, beneficial organism movement, and plant root growth.

I do not want to give the impression that tilling is inherently bad. As stated before, it is a useful technique in certain situations. If your soil test results indicate the need to lime, then tilling is the best way to incorporate it into the soil. Simply applying lime on the surface and waiting for

nature to work it into the soil is futile. Likewise, if your soil is deficient in key nutrients, you may need to incorporate some fertilizers.

There are other situations where tilling is beneficial. The first is if you have an excessive amount of weeds that cannot reasonably be removed by hand, left over crop residue from the previous growing season, cover crops from the previous winter, or simply want to convert an area of lawn into garden. Tilling is the quickest and easiest way to do this. Compost or other organic matter may be incorporated into the soil by tilling too. Tilling may also hasten soil warming in the spring in addition to allowing greater air infiltration. The result will be beautiful, uniform soil that is easy to plant. The other benefit to tilling is that it can break up pest life cycles. Many pests will over winter in the soil, and larvae may be safely lurking underground until you till. So, given all this information, it begs the question, “Why would we not want to till?” That answer is a bit complicated! There are natural soil assemblages of beneficial insects, bacteria, and fungi. There is also an abiotic (not living) soil structure that works best. In soil that is left intact, water is transported through more efficiently, worms aerate it, and the activities of other beneficial organisms actually can produce nutrients our plants use. These organisms work hand-in-hand with our organic fertilizers, producing a synergistic effect (greater than each one alone). In order to preserve this natural state, keep adding mulch, or better yet compost, throughout the year so weeds don’t stand much of a chance. If some weeds do pop up, don’t let them get a foot hold. Pulling them when young is a lot easier than waiting until they have deep roots. Alternatively, use a hoe to easily disrupt their growth when newly sprouted. Whatever you do, do not let weeds go to seed!

There are alternatives to tilling if you are starting a new garden bed. You could lay black plastic down. This will heat up the ground underneath, killing any vegetation and weed seeds. It does harm beneficial organisms as well, but these should quickly recolonize from adjacent areas. You could leave it in place and plant right through the plastic. There are also special fabrics that block light but allow air and water to pass through that work fairly well too. Another option is lasagna gardening. This uses cardboard or newspaper placed directly on the vegetation. On top of that you put a thick layer of mulch. The vegetation is denied light and it dies. When it is time for a new year’s crop, simply move the mulch aside and poke a hole right through the cardboard. The cardboard eventually breaks down over time, and the thick mulch bed continues to block weeds. Simple hoe work can keep it weed free. You continue to layer mulch as needed. Hopefully this information will help you decide when and when not to till!



Freshly tilled soil that had lime and compost incorporated into it (photo by M. Lisy).

For your gardening questions, feel free to contact us, toll-free, at the UConn Home & Garden Education Center at (877) 486-6271, visit our website at [www.ladybug.uconn.edu](http://www.ladybug.uconn.edu) or contact your local Cooperative Extension center.