

## Preserving topsoil, the organic way

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Avoiding soil erosion is essential to maintain crop productivity, protect waterways and avoid or slow desertification. In the U.S. and around the world [government-sponsored programs](#) have made great progress in mitigating topsoil loss: U.S. soil conservation practices reduced topsoil loss from 3.1 billion tons to 1.9 billion tons between 1982 and 1997, for instance. But the majority of this mitigation has come at a cost. To avoid soil disturbance and the erosion that goes with it, conventional U.S. farmers have relied on herbicide-intensive [no-till](#), polluting waterways and destroying soil microbial life in the process.

There is another way, and it turns out to be more climate-friendly to boot.

Using a combination of best management practices such as cover cropping, composting, conservation tillage, and organic fertilization farmers can reduce erosion, increase the amount of soil organic matter, conserve water, [enhance fertility, and reduce incidence of disease](#). This, in turn, helps increase crop productivity and resistance to pests and drought—an increasingly important phenomenon in the face of climate change. Furthermore, these practices can actually help mitigate climate change. A 2009 [University of California study](#) concluded that these practices, when combined, will generate much greater greenhouse gas reductions than conservation tillage alone. The [Environmental Working Group's analysis](#) of the UC study provides explicit recommendations for how the state should promote these practices in its implementation of the State's landmark climate change policy. [Another California study](#) estimates that implementing these practices in production agriculture can achieve a reduction of 17 million metric tons of carbon (in CO<sub>2</sub> equivalents) per year or about 10 percent of California's goal.

[The Rodale Institute](#) illustrates how organic no-till works. The innovative farmers they highlight plant cover crops then crush them with a rolling device so that the living-mulch mat acts as a barrier against weeds, conserves moisture, protects the soil, and—in the case of leguminous cover crops such as hairy vetch—also provides a source of nitrogen to the cash crop. Yields are good and the fields require far fewer operations—saving time and energy. And some folks at [U.S. land-grant institutions agree](#), “from an organic matter and soil structure perspective, there is plenty of evidence that organic farming systems typically perform as well or better than conventional, herbicide-intensive systems with less soil disturbance.”

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