

## **FOOD WITHOUT OIL**

By Steve Heckerth and David Grau

How can we apply the ingenuity to our food production system that designers are applying to buildings and cars? Better insulation, more efficient lighting and less toxic materials have made buildings that are healthier and consume much less energy. Auto manufactures are finally starting to make cars that are not totally dependent on oil for fuel. Right now, if you are planting a large garden or a field of grain, you will find yourself tethered to a fossil fuel machine to prepare the soil for planting. Small family gardens can be worked by hand. Like the homesteading ideas you find in Mother Earth News, there are methods for substantially reducing fossil fuel inputs in agriculture. For most of human history, we produced food without oil. Going back to horses and mules is great for a few farmers with lots of pasture, but that's not going to solve the petroleum addiction either. There are too many of us on the planet and not enough land to feed all those horses and mules. But we can go forward, and create a food production and distribution network based on a blend of traditional farming and gardening practices combined with advanced renewable energy innovations.

Conventional agriculture uses huge quantities of natural gas to make nitrogen fertilizers, and petroleum to make pesticides that we don't want on our food anyway. Then there is the fossil fuel used to rototill or plow the ground then plant and harvest the crops. If you set up a biodiesel or ethanol powered tractor, that is a step in the right direction, but the energy costs of producing these fuels and the quantities available make them not viable options for reducing energy consumption. With industrial agricultural methods, between fuels used and petrochemical-based inputs, it takes 10 units of fossil energy to produce 1 unit of food energy. Clearly this is not sustainable, even if it wasn't harming the environment. So what is a gardener or farmer to do?

First, let's get visionary and practical at the same time. How about a target of a 90% reduction in fossil fuel use? Gas and diesel are awfully handy, and some plastic machinery parts sure do a good job. But if we are going to recover from drastic climate change and leave a habitable planet for the grandchildren of the grandchildren now running around underfoot, we need to reorganize agriculture from the ground up. The government will eventually catch on, and we do need their help, but we can't afford to wait for bureaucrats to lead us. They follow better than they lead.

Food without oil happens now in some backyard gardens. You can dig a garden with a shovel, or a spading fork, or better yet a broadfork. Instead of chemical fertilizer, you can use compost made from kitchen scraps, garden waste, leaves, and animal manure. Green manure crops fit nicely into crop rotations as well. Instead of using plastic mulch, you can use a mulch of straw or leaves. Hoeing or easier by far wheel hoeing can keep the weeds at bay. Instead of transporting your dinner 1500 miles by truck, you can wheelbarrow it from the garden to the kitchen. A backyard garden, and indeed a front yard vegetable patch can provide a significant portion of your family's food. So, half the solution is to expand home gardening from the hobby of a few enthusiasts to the norm for the culture.

Although any novice can plant an organic garden, an expert can produce much more bounty with much less effort. We need to become a nation of expert gardeners and farmers. And we are moving in that direction. The sale of seeds and supplies to home gardeners is climbing each year despite the economic depression. So if you know how to garden, teach your friends and neighbors. If you are a beginner, take a class or find an organic gardening mentor. A tomato grown is a tomato earned.

If ever there was a false stereotype, it is of the small farmer as an ignorant hayseed who needs to be "educated" by a land grant college. At this time, we need to discover the expert gardeners and farmers in our midst and learn from them. Successful farmers are keen observers of nature's cycles and patterns. And most of the older ones would love to pass along their accumulated wisdom to their friends and neighbors.

Passive solar farm buildings, photovoltaic roofs, and super-insulated cold storage can all reduce fossil fuel usage. These improvements also protect farmers from the shortages and escalating prices that are likely as peak oil and global politics influence energy prices. A tractor allows a gardener to become a farmer producing food for many families not just his own. We will continue to need to use machine energy for food production and with electric machinery many tasks using fossil fuels could be accomplished with solar or wind produced electricity. A few innovators are converting tractors to electric power, and in tandem with photovoltaics this can make farm production of food without oil possible.

It is great to see that the auto industry is finally starting to make cars that do not depend on finite toxic resources for fuel but you might be surprised to know that our food system is even more dependent on fossil fuel than our transportation system.

As it turns out we have legs and we would benefit from using them a little more. Although it goes against every thing we've learned on TV, cars are not really a necessity but food is. Renewably charged electric tractors will be what powers agriculture when the oil runs low. Why wait for a crisis to start reducing oil dependence and climate change. Check out [www.renewables.com](http://www.renewables.com) to see that what is possible right now.