Soil Comes Full Circle

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Soil is the place where plants grow and therefore where our food grows. Sometimes we forget that food comes from land, especially if we aren't closely connected with soil and farming or growing food.

In fact, even farmers sometimes lose sight of fact that they are actually growing food that people will eat and that they are stewards of this precious resource. Sometimes farmers just go about their everyday business of plowing and putting seed in the ground, spraying down the weeds, and harvesting all from an enclosed tractor with computer guided GPS points to tell them where to add a little more fertilizer or to record the harvest as it flows in off the acreage.

Farmers have been asked to produce food – and a lot of it. Quantity, feed the world, bushels per acre. Farmers in America's Midwest today are great at growing corn and soybeans. But both of these are really ***ingredients*** and not in themselves food we can eat. Most farmers would starve if they lived off the crops of their land. In fact, the state of Iowa is a net importer of food. Think about it, they export mountains of corn, soy, pork and beef, but they must import the actual food on the grocery store shelves. Some of the most fertile farmland on the planet, and it's not feeding its own people.

Society has asked farmers to produce lots of "food", but it's really commodities and not food production. A commodity describes mass produced items that are identical, indistinguishable, undifferentiated from each other. Yellow dent #2 corn from one farm is exactly like that from the farm down the road. That's OK, we do need to "feed the world" since we sit on top of a breadbasket. But we are following a sadly well-worn path other civilizations have trod as they feed the population today but loose the capacity to feed the people of tomorrow because the soil itself becomes a commodity and is lost from the land.

The very definition of sustainability is "*the ability to meet the needs of the current generation without compromising the needs of future generations*". We are not doing that since we are losing topsoil that grows our food at rates faster than it can form. Also, we are growing commodities that have much lower nutritional values that foods grown on richly mineralized soils from half a century ago. It's like we are trying to sustain ourselves on very flavorful (artificial flavor – think Doritos) cardboard. This results in people who eat and eat and eat empty calories but who are never filled. There is something almost biblical in that. It's almost like a curse when a society is not thankful for food, wastes much of it, and looks away as soil washes down the Mississippi and wetlands and wildlife habitat is destroyed all in the name of economic growth. Are the results of empty food and mistreatment of the land - obesity, diabetes, cancer, high blood pressure, drought, flood – modern day plagues?

Here are a couple of quotes from Wisconsin's leader in modern conservation, Professor Aldo Leopold:

"*There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace.*"

"*We abuse land because we see it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.*"

Change is afoot, however, as people reconnect the dots between their health, the food they eat, and the environment in which we all live. The sustainable, local, organic (SLO) food movement is gaining steam as evidenced by the sustained double digit yearly increases in sales of organic foods as well as the growth of farmers markets and farm-to-school movements. The next big change is that hospitals are getting involved and purchasing fresh vegetables from local farmers as a method of treating illness. (*Let thy food be thy medicine.*) Also, more people, including many of you who are reading this essay, are trying to get back on the land and help make a change for the better in food and farming. Good farmers, as land stewards, are being treated with respect and paid justly for good food.

Soil is a limited natural resource. Unlimited growth in the economy is not truly possible because of the physical and biological limits of soil. Oh, we can add synthetic fertilizers and optimize its application with computer aids. We can

genetically engineer plants to behave in very unnatural (but fragile) ways. We can concentrate cows with a thousand per acre, store their poop in a pit and pump it into the land twice a year. But if we do not keep soil on the land, in a well-aggregated, physically sound form, then nature will catch up with us and make us pay.

When we cleared the virgin forests in the 1870s and plowed with horse-drawn implements in the early 1900's we changed the landscape almost irrevocably. We paused when the dust bowl days blew in the 1930's and when World Wars diverted steel and engines to other use. But now, after just 75 years of fossil fuel powered plowing and cultivation, we have degraded the soils of the American Midwest and washed them into the Lakes and Bays of middle America resulting in sedimentation of wetlands and hypoxia in productive fisheries. We have an "acceptable" erosion rate of 5 tons of soil per acre per year. We drive truly monstrous tractors to pull gigantic implements on consolidated fields from which fence lines have been cleared and sub-soil water has been drained away, and liquid manure has been knifed in to grow annual crops year after year ….but this is not sustainable.

The soil literally cannot hold up under the increasingly heavy load of bigger and bigger machinery. The fragile nature of soil aggregation is squashed. This is especially true as farmers try desperately to spread costs over more and more acres; so the farmer starts too soon in the spring and ends too late in the fall and drives too often on cold, soggy soil. The good biology and microscopic life in the soil needed to glue and form aggregates is blasted by a holocaust of salt-based fertilizers and liquid manures and loss of pore space in which plants grow and thrive. Soil collapses. It literally puddles up and dies. But that's OK, we can always add more synthetics, and genetic band-aides or power bigger tractors to fix it, right? Our society that is losing the nutritional value of its food while at the same time losing its soil resources and future productivity? Well, the same thing that's been going on for 7,000 years.

"*Ethical behavior is doing the right thing when no one else is watching- even when doing the wrong thing is legal.*" – Aldo Leopold

The ethical thing to do is to care for the land and the soil. To care for it as if your children's children are the ones who will farm it after you are gone. It's ethical to bank wealth in the soil adding stable, organic nutrients and organic matter through green manures and cover crops. It's ethical to include hay in between annual crop rotation to build soil. It's ethical to graze cattle carefully so that their feet touch the earth and the sun is on their backs. It's ethical to treat people right by growing nutrient dense food. It's ethical to leave a corner of the farm as a wetland for frogs and migrating waterfowl. It's ethical to enjoy the sunset and see the fruits of your labor in the earth… to revel in the richness of the land around you and for once, not wonder what it's worth.

This product was developed by the Sustainable Agriculture Research and Education (SARE) program with funding from the National Institute of Food and Agriculture, U.S. Department of Agriculture (NIFA-USDA). Any opinions, findings, conclusions or recommendations expressed within do not necessarily reflect the view of the U.S. Department of Agriculture. U.S. Department of Agriculture is an equal opportunity provider and employer.

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