

# Sustaining The Land Ethic In Agriculture Education

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American farmers are wasting the land upon which the nation's strength depends at an appalling rate. Between 4 and 6 billion tons of topsoil are moved each year by various forms of soil erosion. Not all that soil leaves the farm, of course, but probably about half does, and much of the rest is sorted into coarser, less fertile components which then bury better topsoils elsewhere.

Whenever topsoil is moved by wind or water erosion, there is a separating process that works much like a grain separator. The materials likely to be carried the farthest, and end up in a water body or on a mountain somewhere, are the clays and organic fractions that carry the greatest fertility and that are the most important to soil productivity. Thus any soil affected by erosion, whether topsoil is moved or sediment deposited, is likely to be degraded in the process.

How serious are the current rates of soil erosion? That is a hard question to answer with any certainty, but the indications are that on 12 percent of the current croplands and 17 percent of the range lands, soil losses are so severe that those lands will be unproductive within a few short decades. Add to that the lesser damages taking place on soils that are being eroded at lower rates, plus the damage to lands being buried under sands or sediments, and we have some general idea of the rate and extent of the damage.

Although these trends do not lend themselves to any certain predictions, they suggest that the equivalent of between 25 and 62 million acres could be lost in the next 50 years. In the past decade, an additional 10-20 million acres of land with excellent physical characteristics for growing crops were converted to urban, industrial, and other non-agricultural uses. Asked why these damage levels and losses were occurring, many farmers say that the financial crunch and technological treadmill they find themselves in today gives them no other choice.

In the rarified atmosphere of Washington, D.C., where I do most of my work, it is too seldom recognized that public laws, regulations, or programs don't save soil or manage water. Farmers do. They manage those resources as part of the day-to-day work of their private business. In soil conservation, as in crop, livestock, or family financial management, they do what they have the knowledge and skill to do, the finances and equipment to carry out, and what seems, in their own private calculation of costs and benefits, to be the "right" thing.

Sampson is Executive Vice President, National Association of Conservation Districts, and made this presentation at the Annual Conference of the National Association of Colleges and Teachers of Agriculture, Doylestown, PA, June 14, 1982.



of dairy products. Right now, with the value of the dollar going up, we are really at an unfair competitive disadvantage because the Common Market countries are selling at lower prices than we are.

I was on a trade mission to Japan about a year ago and it really disturbed me that we are opening our markets to their cars and virtually everything else without any duty whatsoever; and yet, if we want to export cheese or meats to them, we face many import regulations. Their farmers have a lot of political clout. Just a few weeks ago we had a meeting in Japan to discuss opening their market to our ag products. Their farmers picketed the government and were successful in limiting any benefits that were derived in the negotiations on our part.

I wouldn't be surprised if you see me and about 100 other farmers start picketing the Toyota dealers. One thing the Japanese understand is hard trading. There has been some discussion about doing that. The United Auto Workers would be delighted to join in with farmers creating a farm coalition working against that kind of import. Unfortunately, that is not really what we want to achieve. We don't want to stop Toyota from coming in, but we do want the Japanese to open their markets to our products. Their consumers are paying 15 to 20 dollars a pound for beef, and 10 dollars for a cantaloupe. I think if we work hard we can get into that market.

I really think that farmers need to understand the export business better. Even though they are not involved in it, they have to appreciate the importance of it. If we are going to straighten out our dairy industry (which is producing ten percent more milk than we can consume) we have got to find something else to do with those acres and those bushels of grain.

In closing, you have a tremendous challenge, and you have a tremendous effect on our future. I think that the future of agriculture is great. If I were a younger man I would start in it again, and I have a couple of grandsons who I hope will be getting into it. I believe that because of what you will do to make agriculture better we will have the opportunity to grow better not only in Pennsylvania but across the country.

## The Crux of the Matter

This brings us to the crux of the matter. Who is instilling the value system that separates "right" from "wrong" in the minds of America's farmers. If that value system is one of simple profit; if the only measure of good and bad is short-term cash flow, we can prepare a requiem for both American agriculture and, with it, American society.

If the land and water resources that sustain life are seen only as mechanical inputs into the production function; if they are thought to be interchangeable with money, labor, and machinery, as some economic frameworks would have us believe; we have no ethical basis upon which to base agricultural management decisions.

If soil is just a mechanical support for our crop plants; if agricultural science is simply a study of how to manipulate, dominate, and exploit that soil; if there is no sense of value in working *with* the forces of land and nature rather than trying to conquer them, then there can be no land ethic worthy of the name.

We have been guilty, in American agriculture, of confusing dollars with wealth; power with strength; production with productivity.

We have thought that because we could replace the inherent productivity in a lost ton of topsoil with a few additional units of nitrogen fertilizer, there was no need to mourn the loss of the topsoil. That reminds me of saying that, since hubcaps are readily available and reasonably cheap, you really haven't lost anything when someone steals yours.

We have looked at the tremendous quantities of product that could be extracted from the land by using massive quantities of fossil fuels and doing serious damage to the soil, and congratulated ourselves on the **productivity** of our methods. If your dictionary, like mine, defines productivity as the amount you get out for each unit you put in, such self-congratulations are misguided. We produce great quantities, but only at great costs, when all the accounts are considered.

Our current methods are destroying the inherent productivity in the topsoil. Replacing that productivity with purchased inputs is becoming more and more expensive every day. Losses that could be fairly easily replaced less than a decade ago hurt more today, and will hurt even more in the future. We need a new basis for thinking about that situation, and that must start with a basis in values and ethics that gives us a framework for separating right from wrong.

Protecting farmland often involves additional costs to the farmer. He must pay to make investments in soil productivity, construct conservation practices, or forego income when cash crops are replaced by soil-building crops. But these investments seldom, if ever, result in immediate cash returns. The profits from protecting farmland accrue slowly, largely to future generations.

So what will lead the farmer to make such expenditures? The market will not recognize or reward him. A bushel of corn produced under careful soil stewardship brings no better price than a bushel produced on land being allowed to wash or blow away. The fact that the conservation farmer had a higher cost of producing his corn is of no consequence to the buyer. So today's farmers, caught in a vicious cost-price squeeze, are forced into deficit financing, and this deficit financing is biological as well as financial. Both our farmers and the farms they manage are going bankrupt.

But are we teaching students of agriculture the nature of the forces that are driving farmers into this predicament? Are we telling them that last year American farmers went into debt another \$20 billion, until they now owe a total of some \$200 billion? With 1982 net income predicted in the \$13-18 billion range, this is not a situation that is going to turn around soon or easily. But it must turn, and soon, for it clearly cannot continue in this vein much longer.

We can readily see that part of this problem is tied to the general recession facing the entire world, but what about the factors that are peculiar to American agriculture?

Are today's students investigating the implications of a national farm economy based on foreign trade, and subject to all the instability inherent in that situation? Are we simply teaching them the standard chamber of commerce pitch about trade being good, and more trade being better, or are we helping them understand the full range of risks and costs involved in a farm economy based on a thin, unstable market?

Do our agricultural students today recognize that most of the nations that import farm products produce by far the bulk of what they consume? Do they understand that when a nation produces 95% of its needs and imports 5%, a modest fluctuation in annual production due to weather can quickly wipe out that country's need to import anything that year — or it could, just as easily, double their needs?

Obviously, if we understand that, we can recognize why small, and common, fluctuations in weather conditions tend to become major events that throw the American farmer's market completely out of balance. The huge supply of farm products we produce today cannot be turned on and off as quickly as the jet stream can shift, or as foreign governments can make or change purchasing decisions, so it is up to American farmers, or the national government, to find some way to absorb these shocks. Our current policy is to let the farmers themselves do all the absorbing, and the stress in our farm economy today is the result.

It is doubtful, in my opinion, that we can let this situation go on much longer. I don't know what the replacement system will look like, but I hope that the people being educated by Colleges of Agriculture today will understand the system's inner workings well

enough to make or influence informed judgments as future farm policies are designed.

Let's look at some similar issues that are closer to the land. We have seen decades of reductionist science, and know what it has done to narrow and sharpen the focus of inquiry into scientific topics. But how do we help students understand how whole systems work, and how many different scientific disciplines must be integrated before one can really understand what is happening in a field, or on a farm?

Perhaps the most rapidly expanding soil management practice today is conservation tillage. At its most extreme variation, no-till, this system presents significant challenges as well as benefits. For this is not a new way of planting a crop — it is an entirely new crop management system.

But where is the farmer to find the help he needs to apply the system to his particular soil, crop, machinery, and management situation? He can learn about the soil-saving virtues from a Soil Conservation Service technician, who may also be well-versed in the machinery needed to plant the crop. But the SCS man may not know the intricacies of insect or weed control methods that are critical to success.

The salesman for the local co-op or chemical company may be an expert on applying the chemicals needed for pest control, but he may be so intent on selling chemicals that he can't give the farmer a full insight into management options that would reduce chemical dependency, if integrated properly into the system.

The extension agent may be able to help, or he may not. If he is trained in animal science, for example, or if his interests lie elsewhere, or if he is too overloaded with 4-H work to be able to get out on the farmer's land, he may not be able to do much more than guide the farmer to the latest general brochure on the topic, or refer him to the specialist at the state university for answers to a specific problem.

Now, I don't use these examples to criticize the abilities of SCS technicians, product salesmen, or extension agents. I am simply trying to point out the limits most of us face when we are forced to think in terms of total systems instead of specific scientific disciplines.

But working with systems is the key if you are to be a successful farmer, and I would suggest that we have a real challenge as we try to educate both future farmers, as well as future teachers of agriculture and agricultural technicians, that the key to success is not how you can reduce the soil-water-plant-animal ecosystem that we call agriculture into minutia by dissection, but how you can build on a solid base of general, cultural, scientific, and ethical understandings so that you can understand the system whole and work with it in harmony rather than as an adversary.

I believe, as I look at American agriculture today, that virtually every trend that has marked the industry for the past few decades must somehow be reversed,

and in the fairly near future. The current rates of land waste are intolerable, in any medium to long-run sense.

Farmers can't just keep going deeper and deeper in debt. Bankruptcies can't continue to rise over the next two years the way they have skyrocketed over the past two. The structure of agriculture cannot continue to shift indefinitely toward fewer and larger farms. Where does that stop, and what kind of agriculture will we have at that point? One huge farm per county? A new class of peasant farmers, farming land owned by corporations, banks, or investment funds? Where will we aim our educational efforts then?

No, we need to do things differently. We need to build topsoil, not waste it. We need crop varieties and management methods that help soils regenerate themselves; that speed up soil-forming factors while stemming those forces that tear down and deplete the topsoil.

We need to develop good cropland, not bury what we have under asphalt and concrete.

And we need to improve the structure of agriculture by finding ways for family farmers to stay in business and stay profitable. That means we must protect and stabilize the market and financial situation facing farmers, because without farmers, farmland doesn't grow crops and both soil conservation and farmland protection are futile efforts.

Those things won't happen by some nostalgic return to some kind of mythical "good old days." The only people I know who romanticize those "good old days" are the ones who didn't have to live and work on farms then. No, what we need is an aggressive, innovative search for agricultural technologies, along with farmland protection techniques, that allow farmers to grow the production this nation needs while maintaining or actually building on the productivity in the land.

That search must begin with a whole new look at what agriculture is all about, and how it relates to the resource base that supports it. We must re-assess the essential nature of farming. We must re-instill a sense of value that does not cast aside all of the culture and ethics learned by 10,000 years of human history, attempting to replace all that with a short-term economic profit motive or a version of "gee-whiz" science based on unsustainable attempts to control nature by burning up the stored energy of millenia in an eyeblink of historical time.

That search must be led by farmers, scientists, and agricultural policy thinkers who have been educated not just in terms of dollars and sense, or chemical formulae, but also in a sense of what is right and wrong; what is good, and what is bad. True education is not a simple transfer of facts, it is also, and more importantly, the transmission of values.

The people you educate today will be important players in the agriculture of tomorrow. I can only hope that they are learning a set of ethical values adequate to meet that test.