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Sustainable Agriculture: If It's So Great, Why Isn't Everybody Doing It?

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Sustainable Agriculture: If It's So Great, Why Isn't Everybody Doing It?*

Steven J. Taff**

Numerous studies have shown that some non-traditional (or low-input, or alternative, or sustainable--I use the terms interchangeably here) agricultural systems exhibit unit production costs that are reasonably close to or even lower than those of more conventional systems. In addition, the non-conventional systems are reputed to generate fewer off-farm externalities and to provide a better quality of life for participating producers. Yet few producers have switched to such seemingly attractive systems. Why?

Most new technologies are characterized by initially slow adoption rates because of friction in information exchange, individual inertia, and other factors. A great many economic factors play a role. For example, a critical mass of participants might be needed for an efficient marketing network to develop. Or the new technology may require a large investment in physical or in human capital, an investment that may take time to accumulate. Is that what's going on with

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*Remarks delivered at First Annual Symposium on Ecology and Agriculture, University of Minnesota, April 30, 1988. Issued as a staff paper for convenience in distribution. The points made herein are in no way original. My intent was to alert an audience trained principally in the biological or physical sciences to the importance of policy considerations in farm-level decision making.

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sustainable agriculture? Should its adherents simply be more patient?

In this case, patience may not be enough. The principal cause of the observed reluctance of farmers to adopt sustainable techniques, even techniques that have been demonstrated to be cost competitive on a per planted acre basis, is the set of institutions (or policies or laws or property rules) that have grown up around conventional systems. These institutions so structure long term costs and incomes that it is simply not in the typical farmer's interests to shift techniques--as long as those institutions remain in force.

Institutions affect economic decisions by structuring relative prices. Only as institutions adjust to reflect changes in relative prices afforded by new technologies ("induced institutional innovations" in Ruttan's terminology), will a new pattern of relative prices force a change in a farmer's decision calculus.

This is not a new argument: institutions have long been recognized as influencing the pace of technology adoption. Indeed, some argue that this is one of the important benefits of institutions or property rules; they prevent too-rapid a shift in associated rights and obligations, thereby maintaining a modicum of social stability. But few institutions are immutable. Most eventually adjust to new social and technological environments.

If sustainable agriculture is to significantly alter the way Americans grow food, its advocates must address three major institutions that delay wide-scale adoption of these techniques:

(1) The fact that the government insures crop risk but not income risk.

(2) The fact that U.S. law affords farmers the right to pollute.

(3) The fact that the government subsidizes crop production and not farming per se.

I take each up singly, although their roots are intertwined.

My use of the term "sustainable agriculture" is intended to subsume both those systems that focus upon crop selection and diversification and those that focus upon techniques that attempt to minimize particular factor inputs or undesired externalities from production. The latter systems are often described as "low input," although they are more precisely labeled "low chemical" or "low pollution" systems.

1. Risk exposure

Because the United States does not guarantee a minimum income, farmers, like everyone else, face the chance of going broke if they make the wrong decisions. Simply put, fear of going broke makes farmers less willing to gamble. And adoption of a new technique like sustainable agriculture is clearly a gamble--especially since a fully functioning rotation may take five years or more to establish. The numerous incentives for

American managers to give short shift to the long-run view is well documented. These are amplified by the possibility of greatly reduced income during the transition period to a fully sustainable system.

What the government does subsidize is protection against individual crop risk. The existence of federal crop insurance provides an additional incentive for farmers to specialize in that relative handful of crops for which insurance is available. (About twenty crops are covered in Minnesota.) There is also less reason for farmers to diversify their crop systems--either through rotations or through diverse plantings--in order to guard against the risk of individual crop failure. Diversification is also less necessary to the extent that forward contracting, hedging, and other private institutional devices help manage price risk.

2. Right to pollute

Farmers, more than most businesses in American society, are largely immune from pollution-control regulations. Particularly in matters of soil erosion, it has been the long-accepted presumption that farmers have the right to pollute adjacent waterways and that the cost of any erosion-control measures on the farm should be borne at last in part by the public. Even those measures are largely voluntary on the part of the farmer. This right to pollute has been only sporadically challenged. If, however, society were to change the rules to force farmers to

internalize the costs of surface and groundwater pollution, then farmers might be more disposed to favor agronomic practices that result in less pollution.

3. Price supports

American farmers face a two-price system in wheat and feed grains. If you participate in government programs, you get a high price. If you don't, you get a low price.

Government price supports provide enormous incentives to produce a handful of crops at output levels exceeding what they would be without this form of government intervention in output markets. This program works against a wide-scale adoption of sustainable agriculture techniques to the extent that new systems would require a change in crop selection or crop rotation. Target prices for supported crops are so high that it is considered to be economic suicide for a farmer not to produce as much of a supported crop as possible. If a sustainable system requires a shift in cropping patterns, the farmer will end up growing less of the lucrative program crops. In addition, the current rules governing the price support program work against many rotation techniques by assigning acreage bases calibrated to average plantings of the program crop over a period of years.

So the institution of crop price supports distort relative output prices in the same way that crop insurance and pollution rights distort relative factor input prices.

Summary

Institutions and policies are not immutable. As they change, so do the relative factor and output prices faced by the farmer. If insurance costs rise, for example, the farmer may optimize by buying less insurance and more of some factor--which might be crop diversification--to achieve the desired level of risk reduction. Similarly, if soil erosion costs are internalized, the private costs of certain practices and associated inputs rise. The farmer then looks to different, cheaper practices. This is the sense in which institutions structure relative cost and income streams. New institutions create (or are induced by) new income flows.

The three institutions discussed here are not the only ones that hinder wide-scale adoption of sustainable agriculture--state and federal tax law provisions could easily be added to the list. Nor are institutions the only barriers. Personal attitudes, individual farm physical or financial characteristics, and lack of clear cost advantages in some instances also work against adoption. Simply demonstrating that an acre of corn can be more profitably grown under a sustainable system is an insufficient demonstration of that system's financial advantages. Crop budgets are inadequate indicators of financial feasibility.

This argues for detailed long-term whole farm studies, looking at the entire financial operation. Some of these studies have been attempted, but few are conclusive, and even these were either largely done outside the U.S., where different

institutions and, hence, different relative prices prevail, or they were done within the existing U.S. institutional framework. What is missing is an analysis of relative profits under different institutional as well as different agronomic systems.

In closing, if sustainable agriculture is to be adopted widely, its proponents must demonstrate its superiority on a whole-farm financial basis under the current institutional regime or else identify greater profit opportunities under different regimes. Three major institutional innovations are required if sustainable agriculture is to compete on a level field:

- Take or buy the farmer's right to pollute.
- Take or buy the farmer's right to commodity-specific government subsidies.
- Change government risk management schemes from those that buffer prices to those that buffer income.