Finding the Middle of the Road on Sustainability

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THE ISSUE of the sustainability of agriculture has been current for well over a century. The German chemist Justus von Liebig set the stage for the controversy in 1840 when his monograph set out the chemical basis for plant nutrition. In that work, von Liebig demolished the theory that humus was the primary nutrient for plants.

Although von Liebig was right in that part of his work, he claimed falsely that humus was not relevant to the well-being of the soil. His entire emphasis was on minerals and nitrogen, and the artificial fertilizer industry was established quickly to capitalize on his chemical theory.

Here in the U.S., a controversy arose quickly around the ideas of von Liebig. In 1842, Samuel L. Dana challenged Liebig’s narrow emphasis on chemicals in his book “The Muck Farmer’s Manual,” which quickly became a best seller. It may even be possible that Dana’s popular work set back the chemicalization of agriculture in this country by several decades. But even if true, it was, unfortunately, not long enough to allow the microbiological insights of Pasteur to assume equal stature with von Liebig’s work, and therefore, to provide a noncontroversial basis for a more balanced approach to soil improvement and to agriculture itself.

But more than just the care of the soil is involved in the issue of sustainability. There are also important questions of farm structure, and the particular effects of farm mechanization, erosion, weed control, and the whole farm environment.

The opening shot of that part of the sustainability argument was fired by none other than Abraham Lincoln, even before he signed the Morrill act establishing the Land Grant college system.

“I have never known a mammoth farm to sustain itself,” Lincoln said in 1859 at an agricultural exposition in Milwaukee. The occasion was a demonstration of one of the first practical uses of a steam tractor in farm operation. Lincoln was invited to see that event, and, in effect, to help chart the future of agriculture. His Milwaukee speech is worth reading even today by anyone interested in predicting agriculture’s future. It is full of wisdom about the difficulty of making sure that advancing technology meets the needs of the people who run agriculture, and who benefit from its products.

The mammoth farms that Lincoln referred to were mechanized. They were attempts to harness the technology and skills of the farmers of that time, he said.

Other phases of the sustainability argument were taken up by Franklin H. King in his book “Farmers of Forty Centuries,” and later by Sir Albert Howard in his “Agricultural Testament.” Howard is generally credited with being the father of the worldwide organic farming movement, which is today a thriving and dynamic part of the trend toward sustainability.

That quick summary brings us to the present day—and to this particular symposium. The challenge facing us now is not to bring the argument over sustainability in agriculture to an end. They may never be over. The challenge is to find the middle of the road between the unproductive and shallow part of the argument, and to find a basis for a much more constructive way to use differences of opinion to weld a stronger, more effective structure of agricultural science and practice.

I must admit that at first I saw little or no merit in trying to find the middle of the road on sustainability. I conveyed that thought to our chair, Edward C.A. Runge, who invited me to give this talk.

“There is no middle of the road on sustainability,” I said to him. “A farm is either sustainable or it’s not. Simply by definition, you cannot create a system that is half sustainable.”

My request for a new title was turned down, which is perhaps good, for it forced me to think more deeply. As a result, I divided the concept of sustainability into two sections, both of which I think are quite valid.

The first is the abstract concept of sustainability. In that sense, there truly is no compromise. A farm will either last for a very long period, or it won’t.

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