

## Second Thoughts About Organic Agriculture

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“There is more common ground to begin with in this matter than is generally realized...there is common ground as to the great importance of humus in the soil. There is common ground that, whether you have artificials or not, you must have an adequate supply of organic fertilizers.”

Lord Hankey, speech in England’s House of Lords, c. 1940

My introduction to farming came through organic agriculture. Devouring the works of Eliot Coleman and Wendell Berry and gaining practical experience through a series of apprenticeships on organic vegetable farms, I found an understanding of farming which immediately resonated with me. The central tenet of organic agriculture – feed the soil and let the soil feed the plant – struck me as common sense, and not having grown up on a farm, I was quite ignorant of “conventional” agriculture and had a vague sense of scorn for synthetic fertilizers and other agricultural chemicals.

Still, in the past few years I’ve come to have second thoughts about organic agriculture. It’s not that I think organic agriculture is wrong so much as that it is only *half right*. In short, while it is clearer to me than ever that humus is the heart of any sustainable farm and that its importance cannot be emphasized too much, I now question whether an emphasis on humus must necessarily go hand in hand with a rejection of agricultural chemicals, particular synthetic fertilizers. In this article, I’d like to examine this question, beginning with a historical debate that took place at the very beginning of the modern organic farming movement and then examining the relevance of this debate to sustainable agriculture today.

The modern organic agriculture movement essentially began with the writings of Sir Albert Howard (1873 – 1947), whose 1940 work *An Agricultural Testament* laid the theoretical and practical foundation for a philosophy of farming which would soon be christened “organic”. Although he had many predecessors, Howard became the key figure in the 30’s and 40’s, influencing leaders such as Lady Eve Balfour and J.I. Rodale, both of whom went on to found major organic institutions in England and the United States respectively. Howard himself was an agricultural scientist for the British government who spent the bulk of his professional life conducting research and operating farms in India, though he spent the last fifteen years of his life in England, passionately disseminating his agricultural ideas through books, articles, and lectures.

It was the thesis of Howard’s work that humus is the life-blood of agriculture, and he dedicated significant time and energy to the development of a method for producing high quality compost to be used as a humus-enriching soil amendment. His books argue that a soil well-supplied with humus provides all the fertility needed by crops and that the need for synthetic chemicals of any kind – insecticides, herbicides, or fertilizers – is an indication that there is a deficiency in the farming system. Howard

was convinced that a whole host of agricultural problems – erosion, lower nutritional content of crops, increased susceptibility to pests and disease – were the result of the abandonment of the traditional farming practices of cover cropping, crop rotation, and manuring in favor of the adoption of “artificial” fertilizers and other agricultural chemicals. His use of the word “artificial” was no accident, for it was with Nature as the ultimate standard that Howard came to judge agricultural practice. He looked especially to the deciduous forest as a model of sustainability and stability. His aim was to farm as Nature does, and he saw his emphasis on humus to be a direct modeling of Nature’s own operation.

One of the most thoughtful critics of Howard and the budding organic movement was Donald Hopkins, whose 1945 book *Chemicals, Humus, and the Soil* takes on Howard’s ideas point by point and raises serious questions about many of them. Hopkins was a chemist employed by a fertilizer manufacturer in England, and his book is concerned with correcting what he saw as flaws in both the theoretical and practical foundations of organic agriculture. Hopkins fully agreed with Howard’s central argument – that humus is essential to agriculture – but Hopkins maintained that “artificial” or synthetic fertilizers could be used within a sustainable farming system, granted that humus was also emphasized. Hopkins argued that humus was essential but that the amount that many farmers could accumulate in their soils was often inadequate for crop needs, concluding that humus and artificial fertilizers sometimes need to be used in a complementary way. When he considered the idea of converting all of British agriculture to organic methods, he found that the amount of land and labor required would be so significant that only a conclusive indictment of synthetic fertilizers could possibly justify their abandonment. Hopkins pointed out that organic farmers often import significant portions of their fertility from other farms (manure, blood and bone meal, etc.), and he questioned whether such a practice was sustainable on a large scale. Hopkins rejected Howard’s critique of fertilizers, pointing out that Howard only compared systems which relied solely on humus with those which paid little regard to humus. That is, what Howard saw as the vices of using fertilizers, Hopkins saw as the vices of *misusing* fertilizers, and he maintained that it is unfair to confuse the two. After all, he argued, the need for commercial fertilizers came about in the first place only because farmers were generally not able to fully satisfy crop needs using only “natural” sources.

Indeed, Hopkins criticized Howard severely for the extent to which he relied on Nature as standard. Consider the following: “We must not forget that the human species is only a minor item on the agenda of Nature, if indeed Nature has any agenda at all. We are far too conceited....Nature has created deserts in many parts of the world and it is a self-interested view for us to think of Nature only in terms of lush green growth or majestic forests...Nature is as often our enemy as she is our friend...The extent to which our agricultural actions are wholly artificial is seldom admitted.” Although Hopkins admitted that we could learn a great deal from the natural world and that we ignore it at our peril, he also argued that we must be very careful when we appeal to a standard as slippery as “what is natural”. Why, for example, would the

unnaturalness of tillage and tractors be “acceptable” while the unnaturalness of treating rock phosphate with acid to make it more available to plants (superphosphate) be unacceptable? Isn’t “natural farming” a contradiction in terms?

It is interesting that this sixty year old dispute about the adequacy of humus has been all but obscured today. Contemporary debates about organic agriculture are discussed from a very different perspective. At least in the larger culture, organic agriculture is not seen as farming which emphasizes humus but as farming which excludes synthetic chemicals. That is, organic farming is legally defined by *what is does not do*, instead of what it does or should do. It has shifted its emphasis from being for humus to being against chemicals. Today, a farm can be certified organic if it refrains from chemical usage even if its humus and mineral content are low and its compost system is slipshod. In this way, modern organic farming has de-emphasized the stronger element of Howard’s position and emphasized the weaker.

Of course, the wisest organic proponents know this and have repeatedly attempted to re-orient farmers and the public to the original pro-humus outlook of organic farming. It is for this reason that the Howard/Hopkins debate is so timely today. Although much has certainly changed, the fundamental conflict described above is as relevant as it has ever been. Clearly, any farmer with an eye toward sustainability must admit that humus is essential to agriculture. But whether this recognition needs to go hand in hand with a rejection of synthetic fertilizers is a separate and essential question. Like Howard, many modern proponents set up a false dichotomy: either adopt a “biological” outlook which emphasizes humus and soil microbial life, eschewing all synthetic fertilizers, or adopt a “chemical” outlook which ignores the biological life of the soil and simply focuses on plants’ chemical needs.

I contend that there is a third way. Instead of advocating “biological” or “chemical” farming, I would simply advocate *good and thoughtful farming* which puts a premium on producing the highest quality produce while ensuring that one’s farm and the natural environment are improved rather than degraded. In order to farm as well as we can, we need to be both biologists and chemists. We need to know as much about the one as the other, and as much about both as possible. Farmers who are hostile to organic agriculture tend to know too little about the biology of the soil while those who are hostile to conventional agriculture tend to know too little about the chemistry of the soil and fertilizers. As is so often the case, dispute arises from ignorance on both sides and an unwillingness to consider another’s point of view.

Conventional farmers need to learn that humus is the life-blood of agriculture. Green manures, cover crops, rotations, composts, and thoughtful tillage all need to once again be standard practices of agriculture. Any chemical which harms the healthy functioning of the soil ecosystem needs to be restricted or eliminated, and those who use chemicals must become responsible for thoroughly understanding their effect in the soil. More attention needs to be paid to how the natural world tends to lack certain problems like erosion, soil depletion, and insect damage so that we can imitate these methods in ways that make sense. Finally, the goal of every sustainable farm must be

to build soil to the point where it needs few or no inputs from any outside source (organic or otherwise).

On the other hand, organic farmers need to learn that *all farming is unnatural* and that not all fertilizers are harmful to soil microbial life<sup>1</sup>. More attention must be paid to the specific needs of crops instead of just “feeding the soil” in a vague and inexact way. Most importantly, organic growers need to understand that their tools are not inherently benign and are capable of causing as much damage as those they criticize: Humus destruction and erosion from tillage, excess nutrient build-up from compost and manure, and nitrate pollution from legume cover crops are among the problems that *all* farmers must take seriously.

It is necessary to mention here that I clearly do not have all the answers about agriculture. The previous two paragraphs might sound arrogant or condescending, but my views are simply the result of hard-won experience. Especially the organic views which I criticize have been views I myself have held, so my criticisms are self-criticisms to a large extent. My farming experience comes from several internships and a brief, failed venture of my own. I certainly have a significant amount to learn. I do, however, know what I don't know and, thus, what I should know and need to know. And even though I would never argue that a university education is necessary to farm well, I do believe that serious and sustained study in some form is necessary.

I hope this article has generated some thought about these important matters. I also hope that it has generated interest in the founding fathers of organic agriculture and especially their great critic, Donald Hopkins. It is Hopkins's book which has done the most to rouse me from my dogmatic acceptance of organic agriculture and has challenged me to develop a deeper and sounder agricultural worldview. The whole period of the founding of organic agriculture makes fascinating reading, and I would encourage anyone with an interest to delve into this important history. Most of the relevant titles are available for free on-line through [www.soilandhealth.org](http://www.soilandhealth.org), a website lovingly dedicated to the preservation of out of print classics of sustainable agriculture.

In closing, I'd like to emphasize that the whole “organic” debate unfolded in England with WWII as a very tangible back-drop. That Howard, Hopkins, and many others wrote passionately about agriculture even as the future of their own country seemed very much in jeopardy testifies to their belief in the central importance of agriculture and also to the depth of their characters. They knew that agriculture was the heart of civilization, and we as a culture would do well to learn from their wisdom.

Anyone wishing to discuss this piece may contact me by e-mail:  
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<sup>1</sup> For a defense of this statement, see *Hands-On Agronomy* by Neal Kinsey and *Eco-Farm* by Charles Walters and C.J. Fenzau. As they see it, urea, ammonium sulfate, superphosphate, potassium chloride, potassium sulfate, and Sul-Po-Mag all might be considered within a sustainable system.