

Scientific Agriculture vs. a Load of Manure

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If there is one bit of nostalgia that is widely shared by anti-modernists and many in the mainstream as well, it is the belief that our diets are bad and getting worse. What's more, our global fast food chains are purportedly corrupting the diets of other peoples. One way to have a best-selling book with minimum effort and thought is to come up with new "evidence" or examples of how horrible modern nutrition is. Everything from the Paleolithic diet to the dissection of our fast food nation has captured the imagination of the reading public and passed into the realm of conventional wisdom.

According to the "organic" enthusiasts, conventionally grown food is lacking the basic nutrients that it once possessed, so that even if we followed the recommended diet of the moment, we would still be grossly deficient in nutrients unless our food was organic. Those who have unsuccessfully tried every argument possible to indict the Green Revolution finally weigh in with the argument that "two billion people now have diets less diverse than thirty years ago. The Green Revolution stripped out the micro nutrients and encouraged monocropping" (Wrong 1999).

The fervent belief that "organically" grown food crops have greater nutritional value has a long and tortured history, part of the vitalist rejection of modern science since Lavoisier, Wohler and Liebig. Prior to Wohler and Liebig, it was thought that it was not possible to synthesize an organic compound and that minerals could not be used to provide nutrients to plants. When both of these claims were falsified by Wohler and Liebig, a new belief arose that plants fertilized with minerals lacked some "vital" quality. It was an easy claim to make, since it was beyond verification or falsification.

When urea was synthesized in 1908 and produced as commercial fertilizer in 1913, the believers could not deny its efficacy for plant growth. Critics like Rudolf Steiner argued that synthetic fertilizer was "dead" and produced plants lacking a "vital" property. Though vitalism is not always explicit in contemporary arguments for organic produce, there is a belief that somehow manure imparts mysterious nutrients to the plant, making its food product more nutritious. What the believers do not realize is that plants do not have digestive systems and therefore cannot use manure. Manure has to be broken down in the soil as cations and anions, so the chemical compounds taken in by the plant from the manure are no different than those taken in from synthetic fertilizer. In modern agronomy, soil scientists can identify nutrient deficiencies of various kinds in the soil and respond with trace elements that can be added into synthetic fertilizer or applied separately. The nutrient content in manure, by contrast, is largely unknown and has a large variance. Further, nutrient loss can occur in manure, particularly the loss of nitrogen, when manure is composted to kill dangerous microorganisms. If there is a difference between organic and conventional produce on these grounds, the organic would not be superior, though the truth is there is no good evidence either way.

Thomas R. DeGregori is a professor of economics at the University of Houston and the author of the recent book

The Environment, Our Natural Resources, and Modern Technology (*Iowa State Press: A Blackwell Publishing Company*) and a forthcoming book, *Origins of the Organic Agriculture Debate* (*Iowa State Press: A Blackwell Publishing Company*), both of which formed the basis of much of the material in this paper.

References

Wrong, Michela. 2000c. Divided Over a Diet for the Poor, *Financial Times*, London, 8 September.

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