

CAFO, Science, and Grassroots Democracy¹

John Ikerd²

Concentrated animal feeding operations are controversial. This is perhaps the only thing on which the proponents and opponents of CAFOs agree. For decades, CAFO proponents have demand that any regulation of CAFOs be based on “sound science,” while labeling CAFO opponents emotional and uninformed. They have pointed to the support of the USDA, state departments of agriculture, and the agricultural universities as clear and compelling evidence that science had validated the legitimacy of CAFOs. They dismissed the persistent opposition of people as the irrational fears of people who have been misinformed by environmental extremists, even though opposition emerges in virtually every community where CAFOs attempt to locate.

To the contrary, the legitimacy of public concerns about CAFOs is instead confirmed by the predominance of scientific evidence. As public concerns about CAFOs have persisted, scientists outside of the “agricultural establishment” have become interested in the issue. Scientists in several of the major medical schools have been studying the public health impacts of CAFOs. Sociologists and anthropologists have been studying the economic and social impacts on CAFOs on rural communities. The emerging scientific consensus of public health research is that CAFOs represent a significant risk to the environment and public health. The predominant scientific opinion of social science research is that negative social impacts of CAFOs more than offset any potential economic benefits.

The “agricultural establishment”³ has responded with “public information” campaigns and has commissioned “scientific studies” designed to rebut, or at least blunt, the impacts of the mounting scientific evidence against CAFOs. For example, a recent Purdue University “fact sheet” addressing the risks of antibiotic resistance linked to CAFOs concluded, “many researchers have developed risk assessment models to address the problem but with

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² John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA; author of, *Sustainable Capitalism*, <http://www.kpbooks.com> , and *A Return to Common Sense*, <http://www.rtedwards.com/books/171/> , Email: JEIkerd@centurytel.net ; website: <http://faculty.missouri.edu/ikerdj/>.

³ The “agriculture establishment” refers to agribusiness corporations, commodity associations, the Farm Bureau Federation, USDA, most agricultural colleges, and most state departments of agriculture.

contradictory results.”⁴ They made no mention of a large and growing body of scientific evidence linking CAFOs to antibiotic resistance.

The “establishment's” public information programs typically do not go so far as to deny the possibility of risks associated with CAFOs, but then claim there is no credible scientific evidence linking CAFOs *directly* to *specific* environmental or public health risks. They typically claim that any health or environmental risks associated with CAFOs are the result of violations of good management practices or existing environmental regulations. Thus, the risks are not linked directly to CAFOs but instead to the acts of a few irresponsible operators, which they claim are few. The economic impact studies commissioned by the “agricultural establishment” typically evaluate only increases in *gross* economic activity rather than *net* economic and social impacts on overall community well-being. Some in the agricultural establishment go so far as to label any science that questions the legitimacy of CAFOs as “junk science.”

Obviously, scientists do not agree on the CAFO issue. So, whose science is “sound” and whose science is “junk?” To resolve this question, we need to start with an understanding that there isn't a single approach to conducting sound scientific research or interpreting the significance of research results. The appropriate research methods and the interpretations depend on the questions being addressed.

CAFO proponents want to restrict environmental and public health questions to asking whether CAFOs *can be* designed, constructed, and operated in ways that will not threaten the natural environment or the health of rural people. They want to restrict the interpretation of significance to only those studies that produce quantitative conclusions regarding identifiable causes of specific environment and human health risks.

The question of whether “socially responsible” CAFOs are *technically feasible* requires an *engineering* or *experimental* approach to science. For example, a waste management system is designed and a prototype is built and tested under various *simulated* real-world conditions. The simulation tests or experiments must be carried out under highly controlled conditions in order to evaluate the effectiveness of alternative components or aspects of the system. If the system seems to work, it is recommended for general use by CAFO operators.

This approach is similar to the development of a new drug, where the drug is formulated, tested on animals, and then tested on humans. The clinical trials are carried out under highly controlled conditions in an attempt to isolate the specific effects and side effects of the drug. If the drug is found safe and effective in human tests, it is approved for general use in public health.

CAFO opponents want to expand the environmental and public health questions to include whether CAFOs *actually are* designed, constructed, or operated in ways that pose significant risks to public health and the natural environment. They want to expand the interpretation of significance to include systematic observations of actual human health and environmental

⁴ CAFOs and Public Health:

The Issue of Antibiotic Resistance <http://www.ces.purdue.edu/extmedia/ID/cafo/ID-349%20HTML/ID-349.html>

consequences of CAFOs for the people living next door, downwind, downstream, or in the same community.

The question in this case is whether CAFOs are *actually operated* in a “socially responsible” manner. This requires a very different approach to research. The actual impacts of CAFOs on air, water, soil must be measured by determining the concentration of various biological and chemical substances that might represent risks to human health. Assessments of the health of people working in CAFOs and living in impacted areas provide scientific evidence regarding whether actual illness or diseases have resulted from such environmental risks.

This latter approach is common to public health research. Quite logically, most of this type of research related to CAFOs has been carried out by medical schools and other public health organizations. It is similar to the follow-up research that is now strongly recommended for all drugs with known potential side effects. Even though a drug has been approved for general use, its use can have dangerous and even fatal consequences for a significant segment of the general population. For example, the painkiller Vioxx was initially approved for general use, but later had to be pulled from the market. Without follow-up research, a number of people typically have to die before anyone is willing to admit a mistake was made in allowing the drug on the market.

With respect to CAFOs, the engineering or experimental approach to science indicates that it is technically possible to design, construct, and operate a “socially responsible” CAFO. However, epidemiological and sociological approaches to science indicate that under real-world conditions CAFOs are generally not operated in a “socially responsible” manner.

Engineering research was relevant before we had sufficient real-world experience to assess the risks and benefits associated with CAFOs. Today, we have decades of real world experiences to use in assessing potential risks and benefits. The public health research now confirms that CAFOs, in actual operation, represent a significant risk to public health and the environment, and thus, should be carefully regulated to minimize, if not eliminate, those risks. The social and anthropological research now confirms that CAFOs consistently fail to provide the economic and social benefits promised by proponents.

The engineering, technical, or clinical approach to science is a useful screening device, but it is fundamentally incapable of addressing complex real-world questions such as public health or economic and social well-being. For example, the health risks associated with tobacco smoking were not proven by clinical trial in laboratories; they were determined by assessing the health of thousands, if not millions, of tobacco smokers. It took more than twenty years of public health research to overcome the political propaganda of the tobacco companies who denied any scientific proof of linking the specific elements in tobacco smoke and with specific human diseases or illnesses.

Like the tobacco companies of the 1970s and 1980s, the “agricultural establishment” of today argues that the scientific evidence linking specific aspects of CAFOs to specific health risks is “not conclusive.” For example, a 2004 Government Accounting office (GAO) report concluded, “Antibiotic-resistant bacteria have been transferred from animals to humans, and many of the studies we reviewed found that this transference poses significant risks for human

health.”⁵ The USDA responded to the draft report by suggesting that the conclusions of existing research on the issue was not conclusive, and suggested that the GAO include more studies that questioned the significance of the linkage of antibiotic resistance to CAFOs. The GAO responded, “We found that only a few studies have concluded that the risk is minimal, while many studies have concluded that there is a significant human health risk from the transference.” This exchange is typical of conflicting opinions between technical research scientists and public health scientists.

The “agricultural establishment” argues that it is illogical and unreasonable to prohibit or even regulate CAFOs in the absence of a complete scientific *consensus*. However, it neither illogical nor unreasonable if the same principle of precaution is applied to CAFO as is typically applied in making other environmental and public health decisions. “The *precautionary principle* is a moral and political principle which states that if an action or policy might cause severe or irreversible harm to the public, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action. The precautionary principle is most often applied in the context of the impact of human actions on the environment and human health; as both involve complex systems where the consequences of actions may be unpredictable.”⁶

The precautionary principle clearly imposes the burden of proof upon those who create the risk. And the precautionary principle itself is “sound science.” It is applied more widely in Europe, but it is also applied in the United States in most situations involving human health. For example, the drug manufacturers bear the legal responsibility for providing conclusive evidence, if not proof, that their proposed new drugs are safe and effective before they are approved for sale. Obviously, this approach is not foolproof, as some harmful drugs reach the market. But the burden of proof of product safety is clearly on the drug manufacturer. The public is not responsible for proving that drugs are unsafe in order to keep them off the market.

Under the precautionary principle, residents of rural communities have every right to regulate and even prohibit CAFOs, if necessary to protect public health from the environmental risks posed by CAFOs. They need not *prove*, or even provide *conclusive* evidence, that CAFOs are detrimental to the environment or public health; they need only provide *compelling evidence* that public health risks exist. The burden of proof is upon those who advocate CAFOs, not upon the residents of rural communities. The proponents must *prove* that CAFOs are safe, which they clearly cannot prove while claiming that current evidence is *inconclusive*.

Perhaps CAFOs could be designed, built, and operated in a “socially responsible” manner but CAFOs still pose significant risks to the public. The fact that automobiles can be designed, manufactured, and driven in ways that do not threaten public safety does not prove that automobiles present no significant public safety risks. We have vehicle inspection, speed limits, traffic regulations, and highway patrol officers because but automobiles have been shown to pose

⁵ U.S. Government Accounting Office Report 04-490, April 2004 Antibiotic Resistance; Federal Agencies Need to Better Focus Efforts to Address Risk to Humans from Antibiotic Use in Animals, <http://www.gao.gov/new.items/d04490.pdf>

⁶ Wikipedia, the free encyclopedia, “precautionary principle, http://en.wikipedia.org/wiki/Precautionary_principle.

significant risks to public safety. Specific types of automobiles that pose persistent safety risks are taken off the market. If CAFO regulations prove to be ineffective or unenforceable, then CAFOs should be “taken off the market” – they should be prohibited.

The burden of proof regarding any economic benefits likewise falls upon the proponents of CAFOs, since the harm to the public is potentially severe and irreversible. While the proponents may point to a few specific studies indicating potential economic benefits, the results are far from *conclusive* or even compelling. In fact, there is not a single community in the U.S. in which CAFOs represent a significant aspect of the local economy that is looked to as a model for rural economic development. Neither is there any evidence that introducing CAFOs into a local economy actually lower tax rates for existing residents or improves the quality of local public services. Any evidence of the economic benefits of CAFOs is *inconclusive*, at best.

Unfortunately, the responsibility for protection of the environment and public health from the risks associated with CAFOs has fallen upon the people rural communities. Obviously, existing environmental and health regulations are not adequate to protect the people of rural areas, as verified by the widespread and persistent health and environmental problems associated with CAFOs. The political and economic power of the “agricultural establishment” is very similar to that of the power of the tobacco companies and tobacco-state lobbyists during the earlier tobacco-health controversy. Most politicians are simply unwilling to defy the economic and political power of corporate agriculture. The public agencies and research institutions have likewise become little more than suppliers of propaganda and cheerleaders for agribusiness. So, rural people have been left with no alternative other than to stand up for themselves and proclaim their basic democratic rights of self-defense and self-determination.

More and more rural people are responding to the challenge. The local opponents of CAFOs are not winning all of their battles, but they are slowly winning the war. While there have been some legal victories in zoning regulations and nuisance suits, the Achilles heel of CAFOs is public health risks. Thus far, the courts have upheld the rights of local communities to regulate CAFOs more stringently than do federal and state laws, when such regulations are clearly justified for the protection of public health. The scientific evidence linking CAFOs to public health risks is compelling, if not conclusive. Local people must claim their rights of citizenship, develop compelling cases, and demand appropriate actions from local public officials. They must remind local authorities that they have no greater responsibility than protecting public health.

In fact, a resurgence of community activism may well turn out to be the most important impact of CAFOs on rural communities. The future leadership of rural America is emerging among today's opponents of CAFOs. They are learning to organize, inform themselves, gain the attention of local authorities, and then work together to make a difference in the future of their communities. They are learning to use “sound science” to their advantage in the battle for the hearts and minds of local people. They are also learning to deal with frustrations and survive the inevitable setbacks, and little by little, they are winning the CAFO war. Most important, they are learning how to change local, state, and national government – to make government serve the interests of people.

Another distinct advantage for opponents of CAFOs is the host of new opportunities emerging today in response to environmental and social concerns associated with industrial foods and farming methods epitomized by CAFOs. This allows opponents of CAFOs to stress the fact that they are not opposed to “agriculture” but rather to a particular “kind of agriculture:” CAFOs. The new markets for natural, organic, local, and sustainably produced foods are not just small market niches, as the critics claim. These markets are small today only because they are the early stages in the emergence of new, post-industrial systems of farming and food production.

Markets for organic foods have been the fastest growing segment of the American food system for the past 20 years, doubling every four to five years. Organic consumers are not only concerned about pesticides and fertilizers but also hormones and antibiotics, e-coli, salmonella, obesity, diabetes, and a wide range of social and ethical issues associated with today's industrial food system. Recent surveys indicate that around three-fourths of American consumers have a strong preference for foods grown locally on small family farms. They want to know where their food comes from, how it is produced, and who produced it. The future of American agriculture belongs to those who produce food with ecological and social integrity, not CAFOs.

There are plenty of logical alternatives to CAFOs. Among the most promising of the new agricultural alternatives are grass-based, free-range, and pastured livestock and poultry. Grass-based livestock production reduces fossil energy use and greenhouse gas emission, cuts investment and production costs, reduces use of pesticides, fertilizer, and antibiotics, eliminates growth hormones, reduces soil erosion, facilitates manure management, and conforms easily to humane standards of animal husbandry. This is the future of animal agriculture – not CAFOs.

People in rural America today are confronted with choices that will shape the future of rural America, for either better or worse. Many rural places still have clean air, clean water, open spaces, scenic landscapes, and opportunities for a life of peace, quiet, and privacy. The people in many rural communities still have a sense of belonging; the people know and care about each other. Crime rates are low and a sense of safety and security is the norm. These attributes are becoming increasingly scarce in America, and thus are becoming increasingly valuable. Many people are able to work from anywhere in these days of high speed travel, the internet, and cell phones. Many are choosing to work in places that are good to live – increasingly in rural areas. The future of rural communities is not only in sustaining the productivity of the land but also in sustaining the imagination, creativity, ethics, and honesty of the people of rural communities.

Now is the time for rural people to rise up and reclaim their right to protect their health and the natural environment from industrial agriculture. Now is the time for rural communities to demand fundamental changes in the way they are treated by their local, state, and national governments. Now is the time for rural people to create good places to live, where their children and children's children will choose to live and flourish. Those who have been opposing CAFOs now have “sound science” on their side, and they should use it; but first they must proclaim their basic human rights of self-defense and self-determination. They must reclaim their democracy.

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