

The Concentrated Animal Feeding Controversy A Question of Sound Science¹

John Ikerd²

Concentrated animal feeding operations are controversial. This is one thing on which the proponents and opponents of CAFOs agree. The proponents blame the controversy on their opponents, labeling them as uniformed and irrational. They demand that “sound science” be used as the basis for all public decisions regarding regulation of CAFOs, not opinions and emotions. They point to the support of CAFOs by the USDA, state departments of agriculture, and agricultural universities as clear and compelling evidence that science has validated their legitimacy. Proponents dismiss persistent opposition of people in virtually every community where CAFOs are already commonplace, or want to locate, as the irrational fears of people who have been misinformed by environmental extremists.

CAFO opponents counter with studies from prestigious academic institutions and reports commissioned by various government agencies documenting serious health and environmental risks associated with CAFOs. They accuse agricultural scientists of being biased in favor of corporate agribusiness, as being more concerned about the industry of agriculture than the well-being of rural people. They claim their concerns, in fact, are based on sound science.

Obviously, scientists do not agree on the CAFO issue. So, whose science is “sound science?” To resolve the question, we need to start by understanding there isn't a single sound approach to doing scientific research or interpreting the significance of research results. The appropriate research methods and the interpretations depend on the question addressed. In fact, there is sound science on both sides of the CAFO controversy. The controversy arises from differences of opinion regarding the question to be answered and thus the appropriate research methods and interpretations.

CAFO proponents want to restrict the question to asking whether CAFOs can be designed, constructed, and operated in ways that will not threaten the health and well-being of rural people. They want to restrict the interpretation of significance to studies that produce statistically valid conclusions regarding identifiable causes of specific environment and human health effects. CAFO opponents want to expand the question to include whether CAFOs are actually 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 scientific observations of the human health and environmental consequences of living next door to, downwind or downstream from, or in the same community with CAFOs.

¹ Prepared for presentation at the *Annual Assembly of the Missouri Catholic Conference*, Jefferson City, MO September 29, 2007.

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/>.

The proponents' question of whether “socially responsible” CAFOs are technically feasible requires an engineering approach to science. A waste management system is designed, a prototype is built and tested under various *simulated* real-world conditions, and if the system seems to work, it is recommended for general use by CAFO operators. The simulations or test trials must be carried out under highly controlled conditions in order to evaluate the effectiveness of alternative components or aspects of the system. This approach is similar to the development of a new drug, where the drug is formulated, tested on animals, tested on humans, and if the drug is found to be safe and effective, it is approved for general use. The drug tests are carried out under highly controlled conditions in an attempt to isolate the specific effects and side effects of the drug.

CAFO opponents', on the other hand, question whether CAFOs are *actually operated* in a “socially responsible” manner, which requires a very different research approach. To answer this question, the natural environment – air, water, soil – potentially impacted by CAFOs must be tested to detect the presence and determine the concentration of various biological and chemical substances that represent risks to human health. Assessments of the health of people working in CAFOs and living in impacted areas provide scientific evidence as to whether actual illness or diseases have resulted from the health risks.

This latter approach is common to public health research and 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 approved for general use but later had to be pulled from the market. The basic argument in support of public health research is that we shouldn't have to wait for people to die before we admit a mistake was made in approving a produce for general use.

Most opponents don't argue that it is impossible to design, construct, and operate a “socially responsible” CAFO; they argue that a large and growing body of scientific evidence shows that CAFOs in general have not operated in a “socially responsible” manner. They argue that sound science confirms that CAFOs represent a significant risk to public health and the environment, and thus, should be carefully regulated to minimize, if not eliminate, those risks. So the controversy boils down to conflicts over the validity and interpretation of public health research.

Those who deny the existence of sound science indicating significant human health risks are either completely misinformed or have a concept of science that is simply too narrow to address the *actual* health risks of CAFOs. The science of statistically verifiable causes and effects has its place, but it is fundamentally incapable of addressing the complex real-world questions of environmental health. For example, the health risks associated with tobacco smoking were not proven in the laboratory, they were determined by assessing the health of thousands 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 the linking between tobacco smoking and health. 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 contradictory results.”¹ They made no

mention of a large and growing body of scientific evidence linking CAFOs to antibiotic resistance. It is not sound science to deny the existence of scientific evidence.

Some CAFO proponents admit the legitimacy of public health research but argue that the scientific evidence linking CAFOs to health risks is “not conclusive.” They admit that various scientific studies have found compelling evidence of health risks but point to other studies that have found no significant evidence linking CAFOs to specific health risks. 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.”² 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. So whose science is sound science? Is it logical and reasonable to require CAFOs to comply with health ordinances in the absence of a scientific consensus? It is if the same principle is applied to CAFO health issues as is typically applied in making other public health decisions, which is known as the *precautionary principle*. “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.”³

There are reams of scientific research reports documenting the linkages between CAFOs and various public health risks. The American Public Health Association has called for a nationwide moratorium on CAFOs, citing more than 40 scientific reports indicating health concerns related to CAFOs.⁴ The citations include research from such prestigious institutions as the University of North Carolina Medical School, the University of Iowa Medical School, and the Johns Hopkins School of Public Health. The Director of the Johns Hopkins School of Public Health, testifying before a U.S. congressional committee, documented the environmental and health risks associated with CAFOs as including contamination of air, water, soil, and foods with toxic chemicals, infectious diseases, antibiotic resistant bacteria, and E. Coli 0157.⁵ The question is not whether scientific evidence of health risks exists; the question is who bears the burden of proof, those who create the risks or those whom the risks are imposed upon?

The precautionary principle clearly imposed the burden of proof upon those who create the risk. And the precautionary principle is “sound science.” It is applied more widely in Europe, but it is also applied in the United States in 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 drugs are approved for sale. Obviously, this is not a foolproof approach, 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 proposed drugs are unsafe in order to prevent the drug manufacturer from selling them.

Under current circumstances, the responsibility for protection of the public health from the risks associated with CAFOs has fallen upon rural communities. The political and economic power of the CAFO advocates – including agribusiness corporations, commodity associations, and the Farm Bureau Federation – is very similar to that of the power of the tobacco companies and tobacco-state lobbyist during the earlier tobacco-health controversy. The CAFO advocates know they have the power to prevent effective health and environmental regulations from being imposed at the federal and state level, but they don't have the power to control every local community that feels threatened by CAFOs. So CAFO advocates argue that the current evidence against CAFOs is inconclusive, while they seek to pass legislation that would prohibit local communities from imposing local health ordinances.

Under the precautionary principle, residents of rural communities have every right to impose regulations to protect the public health from the risks represented by CAFOs. They need not *prove*, or even provide conclusive evidence, that CAFOs are detrimental to public health; they need only provide *significant 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*. 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 automobiles that can be built and driven safely still pose significant risks to public safety. CAFOs pose significant risks to public health. We need local health ordinances.

In summary, a large and growing body of scientific evidence already exists confirming the public health risks associated with CAFOs, not only its existence but also the potential for severe and irreversible health and environmental effects. People can choose not to smoke but they can't choose not to live with CAFOs on the farm next to them, or upwind or upstream from them, unless they leave their homes. Local ordinances to protect the public from the health risks of CAFOs are justified. Communities can and should provide evidence that their ordinances are logical and reasonable responses to the health risks identified by scientific evidence, but they need not *prove* that adverse health effects will result from CAFOs in their communities. Local health ordinances are justified by “sound science.”

End Notes

¹ CAFOs and Public Health:

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

² 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>

³ Wikipedia, the free encyclopedia, “precautionary principle, http://en.wikipedia.org/wiki/Precautionary_principle.

⁴ American Public Health Association, *Association News*, 2003 Policy Statements, <http://www.apha.org/legislative>.

⁵ Robert Lawrence, MD, Johns Hopkins Bloomberg School of Public Health, “Superfund Laws and Animal Agriculture,” Subcommittee on Environment and Hazardous Materials, November 16, 2005.

<http://energycommerce.house.gov/reparchives/108/Hearings/11162005hearing1714/Lawrence.pdf>