



**THE ECONOMIC PAMPHLETEER**  
**JOHN IKERD**

**Public policy for agricultural technology**

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In my previous column on technology, I reasoned that “good technologies” (1) should not force people to adopt them but be matters of choice, (2) should reduce the drudgery of work but not the thinking, and (3) should not separate thinking from working (Ikerd, 2022). I concluded that industrial agricultural technologies violate all of these criteria because they are designed to maximize productivity and economic efficiency rather than economic sustainability. I concluded: “The technological challenges of the future will be to develop new mechanical, biological, and digital

technologies that empower, rather than oppress, the people who choose to use them” (Ikerd, 2022, p. 7).

Regardless of the criteria, many technologies of the future will be developed by private-sector corporations and thus will be designed to maximize economic efficiency and productivity. As a result, governments must accept the responsibilities for preventing, restricting, or mitigating the impacts of technologies that threaten the well-being of society over the long run.

The *precautionary principle* “establishes that it is

*John Ikerd is professor emeritus of agricultural economics, University of Missouri, Columbia. He was raised on a small farm and received his B.S., M.S., and Ph.D. degrees from the University of Missouri. He worked in the private industry prior to his 30-year academic career at North Carolina State University, Oklahoma State University, the University of Georgia, and the University of Missouri. Since retiring in 2000, he spends most of his time writing and speaking on issues of sustainability. Ikerd is author of six books and numerous professional papers, which are available at <http://johnikerd.com> and <https://faculty.missouri.edu/ikerdj/>*

*Why an **Economic Pamphleteer**? In his historic pamphlet Common Sense, written in 1775–1776, Thomas Paine wrote of the necessity of people to form governments to moderate their individual self-interest. In our government today, the pursuit of economic self-interest reigns supreme. Rural America has been recolonized, economically, by corporate industrial agriculture. I hope my “pamphlets” will help awaken Americans to a new revolution—to create a sustainable agri-food economy, revitalize rural communities, and reclaim our democracy. The collected Economic Pamphleteer columns (2010–2017) are at <https://bit.ly/ikerd-collection>*

better to avoid or mitigate an action or policy that has the plausible potential, based on scientific analysis, to result in major or irreversible negative consequences to the environment or public even if the consequences of that activity are not conclusively known, with the burden of proof that it is not harmful falling on those proposing the action” (New World Encyclopedia, n.d., para. 1). The precautionary principle is widely used by governments internationally, particularly in addressing environmental and public health risks. For example, “Article 174 (2) of the European Community Treaty provides that all Community policy on the environment shall be based on the precautionary principle” (Ecologic Institute, n.d., para. 2). The concept has faced strong opposition from industry. Its use in the U.S. is largely limited to governmental approval of new pharmaceuticals and medical procedures rather than technologies that threaten the environment or public health. Even in these cases, the government generally relies on those seeking approval to provide evidence of the safety and effectiveness of their drug or procedure.

Advocates of agricultural sustainability have long argued that the precautionary principle should be applied to agricultural technologies. However, the burden of proof that a new agricultural technology has been or will be harmful has fallen on those who are defending the interests of society rather than those who stand to benefit economically. For example, the pesticide industry is required only to provide evidence that a new pesticide “will not generally cause unreasonable adverse effects on the environment,” which includes “(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits ... or (2) a human dietary risk from residues ... inconsistent with the standard under ... the Federal Food, Drug, and Cosmetic Act” (U.S. Environmental Protection Agency, n.d., para. 1–2).

If the economic benefits are deemed to outweigh the social and environmental costs, new technologies are generally approved. The only

exception is for residues in food products that fail to meet FFDCA standards. Since the social and environmental costs of a technology are difficult to quantify and typically accrue over extended periods of time, the immediate promise of corporate profits generally prevails over the long-run interests of society. Pesticides, for example, have commonly been significantly restricted or prohibited only after extended use has proven, beyond a reasonable doubt, that they pose unacceptable threats to the environment or public health. The negative impacts of new technologies on society, particularly on farmers and others in rural communities, are routinely ignored or accepted as the unavoidable costs of economic progress.

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With a barrage of increasingly sophisticated chemical, biological, and digital technologies on the horizon due to an emphasis on the “sustainable intensification” of agricultural production, the sustainability of human life on earth may

depend on public policies based on the precautionary principle rather than an economic cost-benefit analysis. Eventually, environmental and public health regulations for industrial agriculture must be at least as restrictive as for other industries that pose similar risks to society. Even if effective regulations are imposed on industrial agriculture, society must be prepared to make significant investments in repairing the ecological and social damage caused by past technological mistakes.

Regenerative farming is a currently popular alternative to industrial agriculture that focuses on restoring and regenerating the productivity of resources that have been damaged or depleted by industrial agriculture. Terra Genesis International defines regenerative agriculture as “a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. . . . Regenerative Agriculture aims to reverse global climate change. At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming communities” (n.d., p. 2). Numerous proposals have been developed to turn

the basic principles of regenerative farming into workable, effective farm and food policies. Among these is *Regenerative Farming and the Green New Deal* (Feldman et al., 2020). There is no lack of policy proposals to restore the damage done by industrial agriculture—only a lack of political will.

Among the most important public policy challenges related to technology will be redirecting publicly funded research and education. The USDA and the land-grant university system, in particular, are widely recognized for their contributions to the development and transfer of agricultural technologies. The basic problem is that their research and extension programs have been dominated by the development and dissemination of *industrial* agricultural technologies. Token research and education programs supporting organic and sustainable agriculture have been little more than a means of assuaging growing public concerns about industrial agriculture. Their priorities have been based on the ill-fated assumption that increasing the productivity and economic efficiency of agriculture would serve the greater good of society. The negative environmental,


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societal, and public health consequences of industrial agriculture, which are now undeniable, were unknown, underappreciated, or ignored.

The corporate agribusiness sector will continue developing technologies designed to maximize agricultural productivity under the guise of addressing climate change and other environmental issues while continuing to maximize its profits. These technologies will continue to damage and deplete the resources necessary to sustain agricultural productivity, unless they are effectively vetted, restrained, and mitigated by government regulations. Public funds for research and education should not continue to be

used to develop and promote technologies that have negative environmental and social consequences. The USDA and land-grant universities must shoulder much of the responsibility for developing “new mechanical, biological, and digital technologies that empower, rather than oppress, the people who choose to use them” (Ikerd, 2022, p. 7). The future of food and farming depends on public policies that distinguish between good and bad technologies. 

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