

## An Economic Perspective of Sustainable Agriculture: Past, Present, and Future<sup>1</sup>

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I believe we are in the midst of revolutionary change in agriculture. In my opinion, the transformation will be at least as important as when tractors replaced horses in the early 1900s and perhaps as important as the beginning of independently owned and operated family farms. By the turn of a new century people my age may have only dim childhood memories of the so-called modern farming and food systems of today. Most important, I believe that farms and food system of the future will be not only different but fundamentally better than those of today.

I am led to these conclusions from my perspective as an agricultural economist, but specifically, as an economist who for the past 25-plus years has studied, worked, observed, and written on issues related to agricultural sustainability. My perspective on these issues are quite different from those of a lot of my fellow economists and agriculturalists. We humans tend to find only what we are willing to look for and tend not to change our minds unless something compels us to look for something different. So, I need to make clear up-front, my perspective on the past, present, and future of sustainable agriculture reflects not only what I have found but also of what I have been willing to look for.

I often refer to my perspectives as “my truth.” Each of us has a bit different perspective from which we view or experience reality, and thus we each have “different truths.” So, if your truth is different from mine, that's okay with me - that's to be expected. As long as we both are searching for truth, rather than hiding from it, we can gain a better understanding of the truth by sharing our unique perspectives. I speak my truth with conviction because I know *why* I believe *what* I believe. All I ask is that you know why you believe what you believe, and in my opinion, you need a better reason than simply accepting the truth of some so-called expert. What matters is not so much who is right or who is wrong; both of our *perspective* of truth may be right. What matters is which perspectives can best guide us toward a desirable quality of life and give us hope for an even better future.

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To understand “my truth,” you need to know at least a bit about “my story.” I was born and raised on a small dairy farm in southwest Missouri. My younger brother is still on that farm; he milked cows until he turned 65, made a good living, raised a family, and had a good life on that farm; and the farm is still small. After high school, I went away to college at the University of Missouri. There were five of us kids and our family farm could only support one family. I took a few years off after completing my BS degree during which I fulfilled my military obligation and worked 3-years with Wilson & Co., the fourth largest meat packer in the country at the time.

After I returned to graduate school and completed my MS and my PhD degrees, I held positions at four different state universities over a span of 30 years - North Carolina State University, Oklahoma State University, University of Georgia, and the University of Missouri. During the first half of my academic career, I was a very traditional agricultural economist. I taught and did research, but I always spent most of my time traveling the country roads and working with farmers and people in rural communities as an extension livestock marketing specialist. I was a true believer in the proposition farming had to become a business rather than a way of life. I told family farmers if they expected to survive economically they had to separate personal family business from the farm business and manage for the economic bottom-line. I said they needed to either “get big,” to become more economically efficient, or get out of farming. I was teaching what I had been taught.

During a time I still refer to as the farm financial crisis of the 1980s, I was forced to rethink the economics I had been taught and what I had been teaching farmers. I had worked long and hard to get my education, because I wanted to be able to help people like my brother and my parents find better ways of farming that would sustain a more desirable quality of farm life. I wanted to take the drudgery out of farming and make farming more profitable. However, during the 1980s, many of the people I had been trying to help were under financial stress, some losing their farms, others losing their lives - through no fault of their own. For those farmers, we had replaced physical drudgery with financial misery.

Many farmers had followed the advice of us so-called experts, and had expanded the size of their farming operations during the 1970s - a time of prosperity in farming brought on by booming export markets. They had specialized, mechanized, and had gotten big rather than get out, and they had borrowed heavily at record high interest rates to do so. They had been assured by the experts that American farmers were going to feed the world, and with a growing global economy, export markets would grow indefinitely. Instead, the U.S. economic recession of the 1980s triggered a global recession, export markets collapsed, farmers were caught with large debts they couldn't repay. Farm bankruptcies and foreclosures were regular fare on network TV news shows, and news of another farmer committing suicide was not uncommon.

I was head of the Extension Agricultural Economics Department at the University of Georgia at the time. Our department had the responsibility of helping these struggling farm families find some way to survive financially, perhaps save their marriage, or at least talk them out of committing suicide. It was during these intense, often emotional discussions with farm families in trouble that I began to realize that we so-called agricultural experts had been a major source of their problem rather than a solution. The farmers we had labeled as good businessmen, “meaning good financial managers,” were failing. Those who had ignored our advice were not

necessarily flourishing, but they had learned how to survive the hard times so they could thrive when times were good. Those who still saw farming as a way of life were at least a bit more sustainable.

I couldn't continue to teach something I no longer believed. I had gotten an education so I could help farm families find a better life on the farm, not drive them off their farms. I would have to remove my "economic blinders" and open my mind to the possibility of "new truths," if I was to find a solution to my personal and professional dilemma. When I looked in new places for different answers, I found it was not just the farm families who were suffering during those times but also others who lived in rural farming communities. It takes farm families, not just farm production, to support rural farming communities. It takes people to shop on Main Street - buy cars, clothes, and haircuts - not just buy farming supplies. It takes people to keep local schools open, attend local churches, to keep local health care, to serve on voluntary fire departments, and provide vision and leadership. Farming communities were dying because farm families were being forced from the farms in the endless quest for ever greater economic efficiency.

When I opened my mind, I began to understand that crisis is an inevitable consequence of the economic approach to agriculture that I had been promoting, which I now call industrial agriculture. Contrary to popular belief, industrialization is not defined by the shift from an agrarian to an urban manufacturing economy. Urbanization is but a consequence of industrialization. The basic strategies of industrialization are specialization, standardization, and consolidation of control. Specialized functions are standardized so various tasks can be routinized and mechanized - as on factory assembly lines. This simplifies management and allows control to be consolidated into larger organizations to achieve the economic efficiencies of large-scale production.

Industrialization was first employed in manufacturing. People left rural areas for assembly-line jobs in factories - beginning the rural urban migration. Farms were then specialized and mechanized to "free farmers from the drudgery of farming" so they could work in the factories the cities. Routinization and mechanization of farming led to consolidation of small diversified family farms into larger specialized farming operations to achieve "economies of scale." Admittedly, industrialization had resulted in economic benefits, at least initially, but it has had unanticipated environmental and social consequences. However, in agriculture, the benefits have been fewer and the costs have been greater, because a farm is a biological, living ecosystem that just doesn't fit the mechanistic model of industrialization.

Increased production and falling prices periodically forced farmers who didn't want to be "freed from farming" off their farms. Some farms had to fail so that other farms could get bigger. Many rural communities were destined to fail because they were created for and supported by farm families, not industrial agribusinesses. The primary economic advantage of industrialization comes from the ability of industrial operations to produce more output with fewer, less-skilled workers and managers. This meant fewer opportunities for farm families and diminished economic and social viability for rural communities. The negative rural economic and social consequences of industrial agriculture were inevitable.

It was only after I had opened my eyes to the negative economic and social impacts that I began to see the negative ecological consequences. I began to understand that pollution of the air and water with agricultural chemicals is an inherent outcome of specialized, monocrop, large-scale, industrial farming. The pollution of air and water with biological wastes from concentrated animal feeding operations or CAFOs is inevitable whenever animals are produced in “factory farms.” I could see that the chemical and mechanical technologies developed during World War II had led to a dramatic surge in agricultural industrialization. Factories that had produced tanks started turning out affordable tractors. Munitions plants were converted into nitrogen fertilizer plants, and chemical warfare technologies were adapted to produce agricultural pesticides.

Industrial agriculture is a “war against nature” and nature is fighting back against farmers. During the late 1950s and early 1960s farms became larger and the number of surviving farmers became smaller. By 1970, farm numbers in the US had dropped by more than one-half from their peak in the 1930s. The global economic recession of the 1980s caused roughly one-fourth of the remaining farms to go out of business. Since then, in addition to farms becoming fewer and larger, farming operations increasingly have come under the control of large, agribusiness corporations - mostly through comprehensive contractual arrangements. Farmers have become paid mercenaries in a continuing corporate war on nature allowing corporations to “call the shots” with corporate investors reaping the profits.

The negative consequences of industrial agriculture has been confirmed by reams of scientific research over the past 50 years - it's not just “my truth.” For example, an extensive 2 1/2-year study of industrial farm animal production was commissioned by the Pew Charitable Trust, a highly-reputable, non-partisan organization. Their 2008 report concluded: “*The current industrial farm animal production (IFAP) system often poses unacceptable risks to public health, the environment and the welfare of the animals themselves.*”<sup>i</sup> The prestigious commissioner, including a former U.S. Secretary of Agriculture, stated: “*the negative effects of the IFAP system are too great and the scientific evidence is too strong to ignore. Significant changes must be implemented and must start now.*” Five years later, an assessment of the industry's response to the Pew Report by the Johns Hopkins Bloomberg School of Public Health indicated that few if any positive changes had been made.<sup>ii</sup> Meanwhile the scientific evidence supporting the initial indictment of CAFOs has continued to grow.

A special section of the Pew study related to social and economic impacts of industrial agriculture concluded: “Economically speaking, studies over the past 50 years demonstrate that the encroachments of industrialized agriculture operations upon rural communities result in lower relative incomes for certain segments of the community and greater income inequality and poverty, a less active Main Street, decreased retail trade, and fewer stores in the community.”<sup>iii</sup> A 2006 study commissioned by the State of North Dakota Attorney General's Office reviewed 56 socioeconomic studies documenting the economic impacts of industrial agriculture in general on rural communities. The studies consistently “found detrimental effects of industrialized farming on many indicators of community quality of life, particularly those involving the social fabric of communities.”<sup>iv</sup>

These and other indictments of the industrial food system are made clear and compelling in best-selling books, such as *Fast Food Nation*<sup>v</sup> and *Omnivore's Dilemma*,<sup>vi</sup> *The End of Food*,<sup>vii</sup> and *America's Food*<sup>viii</sup> all of which are supported by references to hundreds of scientific studies. Video documentaries such as *Future of Food*,<sup>ix</sup> *Broken Limbs*,<sup>x</sup> *Food Inc.*<sup>xi</sup> and *Fresh; The Movie*<sup>xii</sup> provided gripping images of the negative ecological and social impacts of an industrial food system on nature, society, and on the future of humanity. The critics consistently tell the same story of a food system that is lacking in ecological, social, and economic integrity.

The sustainable food movement emerged in response to these growing public concerns about the consequences of agricultural industrialization. Fortunately for me, sustainable agriculture became a public issue in the late 1980s, at about the same time as my awakening to the inherent consequences of industrial agriculture. I had decided by then that I needed to change my professional career path. The big agricultural colleges were then, and are still not, willing to look beyond specialization, standardization, and consolidation as keys to success in farming. They just keep looking for more powerful technologies to wage the futile war against nature. I was a department head at the time, but I was never going to become an extension director or a dean by criticizing industrial agriculture. A new program in USDA, eventually named Low Input, Sustainable Agriculture, or LISA, provided me with an opportunity to return to the University of Missouri in late 1989 and eventually to a position of state and national leadership in sustainable agriculture research and education.

The USDA LISA program was made politically possible by a merging of public concerns. Organic farming advocates, who had long called for USDA research and education for organic farmers, and advocates for rural communities, who had suffered from the farm financial crisis, were joined by traditional family farmers who were simply trying to survive the economic crisis of the 1980s. Organic farming was considered too politically controversial at that time to be included in the name of a new USDA program. So, they settled on “low input” to satisfy farmers concerned about costs of fertilizers and pesticides, and “sustainable,” which few people understood at the time other than organic farmers and rural activists. Regardless, the name LISA was so roundly ridiculed by industrial agriculture that the program eventually was renamed the Sustainable Agriculture Research and Education program, SARE. In spite of continued political opposition the SARE program has persisted and grown since the early 1990s.

Ironically, the sustainable food movement today is most often associated with organic foods and farming, even though the movement is far broader than “certified” organics. Sustainable approaches to farming include names such as biodynamic, holistic, bio-intensive, biological, ecological, nature farming, and permaculture. Agricultural sustainability is perhaps most accurately defined as the ability to meet the basic food needs of all in the present without diminishing opportunities for those of the future to meet their needs as well. The new sustainable farmers and their customers share a common commitment to creating a new ecologically sound, socially just, and economically viable food system - a fundamentally better food system for the future. They are rethinking and remaking the future of food and farming.

“Organic farming” probably is the term most often identified with the sustainable agriculture movement because the growth in sales of organic foods is most visible and measurable symbol of its progress. The modern organic food movement actually began in the U.S. in the 1960s, but organics didn't gain widespread support until the sustainable agriculture movement emerged in the 1980s. Organic food sales in the U.S. then grew rapidly during the 1990s and early 2000s, averaging 20%-plus per year and doubling every three to four years. With the economic recession of 2008, growth rates declined and stabilized at around 10% per year, reaching \$36 billion in sales in 2014. Organic sales still account for only about 5% of total food sales in the U.S., but organic fruits and vegetables and organic dairy products now claim 12% and 11% of their respective markets.<sup>xiii</sup>

As organic production increased, national organic standards were implemented, which allowed larger farms to move more organic foods into mainstream food markets. Many organic consumers then began looking to farmers in their own communities to ensure the ecological and social integrity. This spawned the local food movement, which began with roadside stands, farmers markets, and CSAs. Industry estimates indicate that local food sales in America have nearly doubled in recent years, jumping from \$5 billion in 2008 to \$11.7 billion in 2014.<sup>xiv</sup> The growing popularity of local foods is most visible in the growing numbers of farmers markets and Community Supported Agriculture organizations or CSAs. USDA statistics indicate that farmers markets in the U.S. increased from 1,755 to 8,144 between 1994 and 2013, more than four-fold in less than 20 years.<sup>xv</sup> Estimates by the *Local Harvest*<sup>xvi</sup> organization indicate there were 2,700 CSAs in the U.S. in 2009, compared with less than 100 in 1990.<sup>xvii</sup> I think the importance of farmers markets and CSAs as pioneers of the local food movement are underestimated and their numbers will continue to grow.

As we look to the future of sustainable agriculture, however, I think the basic outline or vision for a new sustainable food system can be seen most clearly in the growing number of local foods networks, food hubs, or collaboratives, such as *Grown Locally*,<sup>xviii</sup> *Idaho's Bounty*,<sup>xix</sup> *Viroqua Food Coop*,<sup>xx</sup> *Good Natured Family Farms*<sup>xxi</sup>, and *the Oklahoma Food Cooperative*<sup>xxii</sup> -- all of which I know personally. The *National Good Food Network* lists more than 300 multi-farm “food hubs,” although I have no personal knowledge of many of them and cannot personally vouch for their integrity.<sup>xxiii</sup> By cooperating in local food networks, farmers offer a wide variety of local products with purchase and delivery options ranging from CSA shares to on-line orders of individual items.<sup>xxiv</sup> This makes local foods more accessible and more affordable to more people, even if not as cheap as industrial foods. The current food networks range in scope from local to state or regional in size and from a dozen or so to hundreds of farmer & consumer members. In essence, I believe the sustainable regional, national, and global food systems of the future will be made up of networks of sustainable small community-based food systems - in both rural and urban areas.

Various natural food retailing surveys have shown that approximately one-third of American consumers today are looking for alternatives to industrial foods, specifically foods that have ecological, social, and economic integrity, and their numbers are growing. I occasionally am asked if I actually believe that a new community-based a sustainable food system could actually replace our current corporately-controlled industrial food system - rather than always be seen as niche markets. My answer has consistently been, yes. I am convinced such a change it is

possible, although I am not so naive or idealistic as to think that the transformation will be quick or easy. I have developed a series of blog pieces for my website, <http://johnikerd.com/blog>, that provide one scenario of how such a transition might come about and what farming and food production might look like 25 years from now - in the year 2040.

Why do I believe such a transformational change is possible? First, I am an old man and I have lived through the transition from the local, community-based food system of my youth to the industrial-global food system of today. The major part of that transition occurred within a span of about 50-60 years during the latter 1900s. I believe, sustainable systems of farming and food production today are further advanced than the industrial systems of farming and food production were during the early 1950s, when I was in grade school in rural Missouri. Farming and food production will continue to change; it always has and always will.

Second, it is now clearly evident, for all who care to see and understand, that the industrial systems of farming and food production have failed. They aren't working now and are not going to work in the future. They have failed in their most fundamental purpose, which is to provide domestic food security. Food security is defined as everyone having access to enough wholesome food to support healthy active lifestyles. I supported agricultural industrialization because I believed it would provide food security. It failed, we have more people in the U.S. classified as "food insecure" that we have back in the 1960s. More than 20% of American children live in food-insecure homes.<sup>xxv</sup> And, many who can afford enough food are getting sick from the only food they feel they can afford. Obesity, diabetes, hypertension, heart disease, and diet-related cancer are epidemic in low-income, minority communities.

Thankfully, there is a public awakening that something is fundamentally wrong with the American food system and that more of the same is no longer a viable option. It is getting increasingly difficult politically to support USDA programs that promote industrial agriculture. With changes in farm policies that reduce and eventually remove subsidies of industrial farming practices, sustainable farming would become more profitable, and the movement could grow rapidly - even without government subsidies. The only remaining question for many taxpayers is: "Change to what?" The answer is sustainable agriculture.

Third, new scale-appropriate mechanical and electronic technologies offer new possibilities for making enough safe and wholesome foods affordable and accessible to everyone - without degrading nature or society in ways that diminish opportunities for the future. The basic concepts embodied in microcomputers, including laptops, tablets, and smart phones, are equally applicable to small-scale equipment for growing, tilling, harvesting, and processing agricultural products. All that is needed is the vision to see the potential and the incentive to create what is needed.

Portable electric fencing has revolutionized the possibilities for sustainable small-scale humane, grass-based, and free-range livestock and poultry production. Walk-behind and small pull-behind tilling and harvesting equipment is reducing the drudgery, as well as costs, for small-scale organic, local, and direct marketers of produce and field crops. The markets for such technologies are growing and are approaching the point where "customized mass-production" -

meaning efficient manufacturing at less-than-industrial scale - will be economically attractive for more inventors and small-scale manufacturers.

Perhaps most important, the new digital technologies make it possible to develop and sustain meaningful, “personal” connections among farmers and others who share a common commitment to good, wholesome, delicious and nutritious, sustainably-produced foods. Obviously, digital communications also facilitates personal isolation; but email, texting, and tweeting, for example, can also help keep close friends in even closer personal contact. Digital technologies are being used to create and sustain local, community-based food networks that give sustainable farmers access to far more local customers than they can stay connected with through farmers markets or CSAs. Equally important, these digital-based local food networks can help potential food customers find and stay in contact with the full range of like-minded farmers who are willing and able to provide local customers with sustainably produced foods.

Fourth, the business of retailing - including food retailing - is changing both fundamentally and rapidly. The value of Amazon stock recently surpassed the stock value of Walmart. This makes Amazon the world's largest retailer, in terms of market value, although Walmart is still far larger in total retail sales. Virtually every major retailer, including food retailers, is scrambling to develop web-based markets with home delivery - following the lead of Amazon.com.

I can foresee a time in the future when every community has its own local food system, connecting local farmers with local customers through regular personally-connected transactions facilitated by a local digital food network. Face-to-face contacts - at farmers markets, on-farm sales, regular farm visits, or local food festivals - would still be needed to punctuate the less personal means of connecting in order to maintain relationships of trust and integrity. Each local network would be shepherded or cared for by one or more local facilitators. Facilitators would maintain web-based food hubs where farmers let their customers know what they have available for delivery, day-by-day, and customers let their farmers know what they need, day-by-day.

Perhaps most important, I believe each local community-based food network would make regular home deliveries. Products ordered through Amazon.com show up on your doorstep. I believe local foods would show up on your doorstep, or perhaps in a well-insulated box with a food drop-chute for your local “food carrier.” This service could start using existing services such as Fed-Ex or UPS, but quality local service may require community-based delivery services.

The objective of these new community-based food systems would not be “self-sufficiency,” but instead local assurance of quality, integrity, and sustainability, including a commitment to community “food security.” Personal relationships of trust among community network facilitators would ensure that foods that could not be produced locally were made available from farmers in other local food networks that share the same common values and commitments to quality, integrity, and sustainability. In essence, national and global food networks would be sustained through shared social and ethical values and a common commitment to sustainability.

This brings me to my final reason for hope for a new sustainable future for farming and food production. I believe that people are awakening to the need for the kinds of personal relationships and moral commitments that are essential to make sustainable, community-based food networks a reality. There is a growing realization that the pursuit of material economic self-interest has not brought Americans greater satisfaction or happiness.

Americans are finally opening their minds, like I did, and rediscovering that we are not only material beings but also social and moral beings. We need personal, social relationships for reasons that have nothing to do with any economic value we may receive in return. We need a sense of purpose and meaning in life, a sense of what we are doing is significant, that it is right and good. The rejection of industrial systems of farming and food production, and the creation of a new future of food, is not just about a better way to fuel the human body, it is about feeding the human soul and spirit. In this kind of spiritual awakening, there is always hope.

End Notes:

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- <sup>i</sup> Pew Commission on Industrial Farm Animal Production: “Putting Meat on The Table: Industrial Farm Animal Production in America,” 2008, [http://www.pewtrusts.org/news\\_room\\_detail.aspx?id=38438](http://www.pewtrusts.org/news_room_detail.aspx?id=38438) , full report, <http://www.ncifap.org/>
- <sup>ii</sup> Johns Hopkins Center for a Livable Future, “Industrial Food Production in America; Examining the impacts of the Pew Commissions primary recommendations.” [http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/\\_pdf/research/clf\\_reports/CLF-PEW-for%20Web.pdf](http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/CLF-PEW-for%20Web.pdf).
- <sup>iii</sup> Pew Commission Report on Industrial Animal Agriculture, “Impact of Industrial Farm Animal Production on Rural Communities,” 2008?, [http://www.ncifap.org/\\_images/212-8\\_pcifap\\_ruralcom\\_finaltc.pdf](http://www.ncifap.org/_images/212-8_pcifap_ruralcom_finaltc.pdf) .
- <sup>iv</sup> Curtis Stofferahn, “Industrialized Farming and Its Relationship to Community Well-Being: an Update of the 2000 Report by Linda Labao,” special report prepared for the North Dakota, Office of Attorney General, <http://www.und.edu/org/ndrural/Lobao%20&%20Stofferahn.pdf> .
- <sup>v</sup> Eric Schlosser, *Fast Food Nation: The Dark Side of the All-American Meal* (Boston & New York: Houghton Mifflin Co., 2001).
- <sup>vi</sup> Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: The Penguin Press, 2006).
- <sup>vii</sup> Paul Roberts, *The End of Food* (Boston & New York: Houghton Mifflin Co, 2008).
- <sup>viii</sup> Harvey Blatt, *America's Food: What You Don't Know About What You Eat* (Boston: The MIT Press, 2008).
- <sup>ix</sup> *The Future of Food*, <http://www.thefutureoffood.com/>.
- <sup>x</sup> *Broken Limbs*, <http://www.brokenlimbs.org/endorsements.html> .
- <sup>xi</sup> *Food Inc.*, <http://www.foodincmovie.com/> .
- <sup>xii</sup> *Fresh; the Movie*, <http://www.freshthemovie.com/> .
- <sup>xiii</sup> Jeff Gelski U.S. organic food sales rise 11% in 2014, Food Business News, 4/15/2015, [http://www.foodbusinessnews.net/articles/news\\_home/Consumer\\_Trends/2015/04/US\\_organic\\_food\\_sales\\_rise\\_11.aspx?ID=%7B0C1920D3-1822-4467-9FF0-F1EE00E53F54%7D&ccck=1](http://www.foodbusinessnews.net/articles/news_home/Consumer_Trends/2015/04/US_organic_food_sales_rise_11.aspx?ID=%7B0C1920D3-1822-4467-9FF0-F1EE00E53F54%7D&ccck=1)

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<sup>xiv</sup> Tom Vilsack, USDA Blog; “Tapping into the potential for economic potential for local foods through local foods and local places,” July 1, 2015. <http://blogs.usda.gov/2015/07/01/tapping-into-the-economic-potential-of-local-food-through-local-foods-local-places/#sthash.ZBUCi7BE.dpuf>

<sup>xv</sup> USDA Agricultural Marketing Service, “Farmers Markets and Local Food Marketing,” <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateS&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth> .

<sup>xvi</sup> Local Harvest, <http://www.localharvest.org/>

<sup>xvii</sup> Debra Tropp, “Current USDA Research on Local Foods,” USDA, Agricultural Marketing Service, May, 2009, <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5077145> .

<sup>xviii</sup> Visit the *Grown Locally* website at <http://www.grownlocally.com> .

<sup>xix</sup> Visit the *Idaho's Bounty* website at <http://www.idahosbounty.org/> .

<sup>xx</sup> Visit Viroqua Food Coop website at <http://viroquafood.coop/> .

<sup>xxi</sup> Visit Good Natured Family Farms website at <http://www.goodnaturedfamilyfarms.com/>

<sup>xxii</sup> Visit the *Oklahoma Food Cooperative* website at <http://www.oklahomafood.coop/> , list of other cooperatives: <http://www.oklahomafood.coop/Display.aspx?cn=otherstates> .

<sup>xxiii</sup> National Good Food Network, “US Food Hubs, Full List,” <http://www.ngfn.org/resources/food-hubs> .

<sup>xxiv</sup> Micaela Fischer, Michael Hamm, Rich Pirog, John Fisk, Jeff Farbman, and Stacia Kiraly, “Findings of the 2013 National Food Hub Survey,” Michigan State University and Winrock Center at Winrock International, September 2013. <http://kresge.org/sites/default/files/2013-national-food-hub-survey.pdf> .

<sup>xxv</sup> USDA, “Household Food Security in the U.S.,” ERS, Economic Research Report No 125, Sept. 2011. <http://www.ers.usda.gov/Publications/ERR125/ERR125.pdf> .