

## **Multifunctionality and Sustainability: A New Future for Small-Scale Farms <sup>1</sup>**

John Ikerd<sup>2</sup>

I am honored by the opportunity to present this seminar on the future of small-scale farming as part of the *COHD Seminar Series: Critical Issues in Agrarian and Development Studies*. First, I must admit I am not a scholar of Chinese agriculture, and thus I cannot speak as an authority regarding the future of agriculture in China. I can speak with some authority on issues related to agricultural sustainability and small-scale farming.

I grew up on a farm, and I have spent entire professional career working with farmers and people in farming communities. I spent the first half of my 30-year academic career as an advocate of what I now call “industrial agriculture” which inevitably leads to large farms. I eventually was forced to conclude that industrial agriculture and its tendency toward large farms is not sustainable. Over the past 25 years, I have focused my research and educational activities on issues of sustainability with an emphasis on economics and agriculture. I guess one might conclude that I have some level of expertise in both sustainable and unsustainable agriculture. My work on sustainable agriculture has caused me to be an advocate of small-scale farms.

I have many years of personal and professional experience related to “small-scale” farming. The farm I grew up on was a small dairy farm in the state of Missouri, in the central region of the United States. I milked cows “by hand” for many years before we were able to buy a “milking machine.” My brother made a good living on that small farm and has had a good quality of life there. The farm is still small by U.S. standards but probably would not be considered a “small-scale” farm in China. However, from what I have been able to learn, small farms in all areas of the world share many of their most important characteristics in common.

For example, Professor Ye Jingzhong, in his report to the Food and Agricultural Organization of the United Nations (FAO-UN) entitled, *Concepts and realities of family farming in Asia and the Pacific*,<sup>1</sup> provided a set of descriptors of small-scale family farms. They are motivated by livelihood and satisfaction; they are family centered, labor intensive, diversified and pluralistic; they are autonomous and deliberate, locally oriented, supportive of food sovereignty, and are environmental and culturally friendly. These same words could as easily be

---

<sup>1</sup> Prepared for presentation at *COHD Seminar Series: Critical Issues in Agrarian and Development Studies*, China Agricultural University, Beijing, China, May 7, 2015.

<sup>2</sup> John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA; Author of, *Sustainable Capitalism-a Matter of Common Sense*, *Essentials of Economic Sustainability*, *A Return to Common Sense*, *Small Farms are Real Farms*, *Crisis and Opportunity-Sustainability in American Agriculture*, and *A Revolution of the Middle-the Pursuit of Happiness*, all books available on **Amazon.com**: [Books](#) and [Kindle E-books](#).

Email: [JEIkerd@gmail.com](mailto:JEIkerd@gmail.com); Website: <http://faculty.missouri.edu/ikerdj/> or <http://www.johnikerd.com> .

used to describe the small family farms of the United States and probably small farms anywhere in the world. That being said, my observations and conclusions regarding small-scale farms obviously are limited by my unique personal and professional experiences in the United States.

I have addressed issues related to small farms on many occasions over the several past years, including in my FAO-UN report, *Family Farms on North America*.<sup>ii</sup> I have also written a book about small-scale farms called *Small Farms Are Real Farms*.<sup>iii</sup> I have concentrated much of my work in sustainable agriculture on small-scale farming because I believe “small farms” will be absolutely essential for agricultural sustainability. Only small farms have the essential characteristics of the farms that sustained societies over many centuries in the past. These sustainable small farms were eventually replaced with the large, so-called modern farms of today. However, today's large industrial farms are not sustainable and thus eventually must be replaced with sustainable farms. The industrial era of agriculture eventually will be seen as a short-lived aberration in the history of farming.

I believe farms of the future will be far smaller than the farms that dominate global agricultural production today. Many people in the organic and sustainable agriculture movements claim sustainability is not a matter of size; that any size farm can be managed either sustainably or unsustainably. I agree that many small farms today are not managed sustainably. However, I believe small farms can be managed in ways that “meet the needs of all in the present without diminishing opportunities for those of the future” and thus can be managed sustainably. I also believe that in order for today's large industrial farms to be managed sustainably they would have to be divided into much smaller farms.

First, let me define what I mean by a *small-scale* farm. A small farm in the U.S. might be considered a large farm in China, and a large European farm might be a small Australian farm. Even in the U.S., a *small* beef cattle ranch requires far more acres than a *large* poultry operation, and a *large* vegetable farm needs fewer acres than a *small* wheat farm. The United States Department of Agriculture considers any farm with less than \$250,000 in annual sales to be a small farm. Others define small farms as those with less than \$50,000 a year in sales. So, farms considered small in the U.S. may seem very large to small, *subsistence* farmers in other countries. However, very few farmers in the U.S. are subsistence farmers; the vast majority are “market-dependent” farmers. Farm families in the U.S. must earn money to buy virtually everything they eat as well as everything else required for their basic needs. It takes a larger farm to support a family in a “market-dependent” society such as the United States.

More important, I think the answer to the question of whether a farm is large or small exists mainly in the mind of the farmer, rather than in the actual size of the farm. A farmer who thinks he or she needs more land or more capital to be successful is thinking like a large farmer, no matter how small his or her farm may be. A farmer who can find ways to make a better living on less land with less capital is thinking like a small farmer, no matter how large his or her farm. So, with respect to agricultural sustainability, the way farmers think about farming and manage their farms is far more important than the size of their farms. That said, I believe there is some absolute size beyond which any farm in any area of the world simply becomes too large to be managed sustainably – although the critical size obviously will be different for different types of farms in different countries.

In the past, farmers in many areas of the world were able to sustain their farms over many centuries. Franklin H. King of the U.S. wrote in his classic book *Farmers of Forty Centuries*,<sup>iv</sup> about the “permanent” or organic farms of China, Japan, and Korea. Sir Albert Howard of the Great Britain wrote his book, *An Agricultural Testament*,<sup>v</sup> about the “permanent agriculture” that characterized the traditional farms of China and India. Such farmers historically held positions of high esteem in the U.S. as well as much of the rest of the world. Thomas Jefferson, the third president of the U.S., believed strongly that the small “yeoman farmer” best exemplified the kind of “independence and virtue” that should be respected and supported by governments. Adam Smith, an icon of capitalism and the author of the classic book, *The Wealth of Nations*, observed that farmers ranked among the highest social classes in China and India and suggested it would be the same everywhere if the “corporate spirit” did not prevent it. Smith's reference to China was to the philosophy of Confucius which ranked farmers second only to academics or scholars in social standing. Farms provided the economic and social foundation for past societies, and farmers were valorized as the caretakers of farms and thus the caretakers of the earth, of economies, and societies.

The historic roles of farms and farmers are reflected in words that have been used to define them. The English word *farmer* has origins in Middle English, *fermer*, *fermour* (“steward,”), Old French *fermier* (“husbandman”), and Medieval Latin *firarius* (“one who rents land”).<sup>vi</sup> The English word *farm* comes from Middle English word, *ferme*, *farme* (“rent, revenue, produce, stewardship, meal, feast”), Old English *feorm*, *fearm*, *farm* (“food, supplies, provisions, stores, feast, entertainment, haven”), Proto-Germanic *fermō* (“means of living, subsistence”), and Proto-Indo-European *perk* (“life, strength, force”). The word *farm* is related also to Old English words such as *feormian* (“to provision, sustain”), and *feorh* (“life, spirit”), and Icelandic word *fför* (“life, vitality, vigour, animation”).<sup>vii</sup> It's notable that the words *farm* and *farming* have always had multiple meanings.

The various root meanings of *farmer* and *farm* suggest that economics and business have always been an important aspect of farming. Root words such as “rent, revenue, subsistence, and means of living” suggest farming has always been a means for farmers to make a living or earn money. Farming has also always been about producing food for others in their communities and societies. Root words such as “provision, food supplies, and purveyor” suggest that farming has always been seen as part of the larger food economy.

However, farming has always been more than an economic enterprise. Root words such as “spirit, entertainment, feast, and haven” suggest that farms also provide sustenance for the non-economic needs of farmers and others – in addition to providing physical sustenance. Equally important, the root words for *farm* and *farming* strongly suggest an ethical or moral commitment to the long-term well-being of the land, communities, societies, and humanity. Root words such as “stewardship, strength, firm, solid, security, and sustain” reflect a historical commitment of farmers to a *permanent* agriculture – an agriculture capable of ensuring the *sustainability* of societies and the future of humanity.

All of these root words for *farm* and *farmers* tend to be positive or beneficial, confirming the positions of high esteem of farms and farmers in past societies. Although, economics has always

been an important aspect of farming, those people involved primarily in economics and business have never been awarded positions of high esteem in past societies. In fact, Adam Smith never trusted businessmen in general and corporate managers in particular. He could conceive of very few situations that would justify a need for corporate organizations. Jefferson, likewise, did not believe financiers, bankers, or industrialists could be trusted to be responsible citizens and therefore should not be encouraged by governments. Confucius ranked businessmen at the bottom of Chinese society – well below farmers. All of these respected historical figures placed farmers at or near the top of society and those involved with business and economics at the bottom.

Using the popular terminology of today, the farmers of the past whose virtues were extolled by Jefferson, Smith, and Confucius were *intentionally multifunctional* farmers. Their farms performed multiple functions and provided multiple economic, social, and ecological benefits. They provided benefits not only for farm families but also for their communities, societies, and humanity. A recent international report of the global food system pointed out that agriculture is *inherently* multifunctional: “It provides food, feed, fiber, fuel and other goods. It also has a major influence on other essential ecosystem services such as water supply and carbon sequestration or release. Agriculture plays an important social role, providing employment and a way of life. Both agriculture and its products are a medium of cultural transmission and cultural practices worldwide. Agriculturally based communities provide a foundation for local economies.”<sup>viii</sup> However, as is now clear in the U.S. and elsewhere in the world, the multiple economic, social, and ecological impacts or consequences of agriculture may either be *beneficial* or *detrimental*.

The farms valorized by past cultures obviously produced multiple *benefits* for ecosystems, communities, and societies, rather than multiple *detriments*. If their functioning had been detrimental, the farmers would not have been held in high esteem. Also, the farmers obviously were *intentionally* multifunctional farmers. If the *benefits* had been natural consequences of farming, rather than intentional, there would have been no reason to credit farmers for the benefits. The businessmen ranked at the lowest levels of esteem by past cultures also managed multifunctional organizations. However, their *detrimental* social and ecological impacts weighed heavily against their economic *benefits*, resulting their low social status. Again, there would have been no justification for condemning businessmen if their negative impacts were inherent or unavoidable rather than a consequence of the managers' intent – or more likely neglect.

Farmers of past centuries obviously made many mistakes, including some bad mistakes. Past civilizations have failed because their farms were not sustainable. However, the *intentions* of farmers have been consistently perceived to be moral or good by the societies in which their farms functioned. In today's society, the farms that are deserving of respect and esteem also must be *intentionally* managed for multiple benefits – economic, social, and ecological. We now understand that only intentionally multifunctional farms can sustain humanity in the future because sustainable farms must be ecologically sound, socially just, and economically viable.

With respect to the question of farm size, the highly regarded farms of the past were small farms. Confucius and Smith did not hold the owners of large estates or the landed nobility in high esteem; instead, they valorized the small-holders who actually farmed the land. The large plantation owners of early America were not considered the foundation of democracy by

Jefferson; instead, he valorized the yeoman farmers on small farms. These distinctions in social standing reflected the stark differences between large farms and small farms in their contributions to the greater good of society and humanity. Those farmers held in high esteem managed small farms, while those who managed large farms apparently were ranked lower, along with the industrialists and businessmen.

Today's large farms likewise have far more in common with industry and business than with farms of the past. They are organized and managed for economic efficiency – even when doing so is detrimental to nature and society. U.S. farms have been specialized, standardized, and consolidated into ever-larger production units to achieve “economies of scale.” Specialization has allowed farm workers to work more efficiently, resulting in a need for fewer farmers. Standardization has allowed routinization, and mechanization of the specialized functions, reducing the skill level of farming. Specialization and standardization have simplified management allowing consolidation of control into large-scaled, and eventually corporately-controlled, agribusiness enterprises. This is the process by which farms in the U.S. have achieved economies of scale. Small farms have been transformed into large, industrial farming operations.

The large farms that dominate U.S. agriculture today are intentionally *mono-functional*, rather than *multifunctional*. They are managed to maximize economic performance rather than for the multiple economic, social, and ecological benefits traditionally associated with farming. These farm business managers rationalize their decisions by relying on the now-discredited economic belief that market economies will somehow transform their mono-functional pursuit of economic self-interests into multifunctional benefits for society as a whole. Market economies have never provided food for those who are hungry – and never will. Markets provide food for those who are willing and able to pay the highest prices, and most people are hungry because they are poor. Unfortunately, industrial agriculture is supported by agricultural economists who steadfastly refuse to address the multiple dimensions of agricultural sustainability.

The fundamental problem with industrial agriculture is that its mono-functional focus on the economic bottom-line invariably has *detrimental* ecological, social, and economic consequences – even if unintended. For example, industrial agriculture is inherently dependent on monoculture cropping systems – which must rely on non-renewable fossil energy and agricultural chemicals and pesticides. Industrial livestock operations rely on mono-functional confinement animal feeding operations or “factory farms.” In the U.S., we see the detrimental ecological consequences of these mono-functional production systems in eroded and degraded soils, polluted streams and groundwater, depleted streams and aquifers, and the growing threat of global climate change. Mono-functional farming is degrading the natural resources upon which the productivity of agriculture ultimately depends, and thus, are not ecologically sustainable.

As farms grow larger in size, fewer in numbers, and increasingly corporate-controlled, we see the negative social and economic consequences of mono-functional industrial agriculture in the demise of independent family farms and the social and economic decay of rural communities. It takes people, not just production to support rural economies and to provide a desirable quality of life in rural communities. It takes people to sustain the economies of small towns and rural villages, to support local schools and hospitals, to serve in city governments, and be volunteers in rural fire departments. Workers in factory farms, although may be good people, have none of the

responsibilities or abilities associated with multifunctional family farmers. Mono-functional farms are degrading the human and social resources upon which their productivity also depends, and thus are not socially sustainable.

Ultimately everything of use to humans, including everything of economic value, must come from the resources of the earth – soil, minerals, air, water, energy; there is no place else. Beyond self-sufficiency, people must depend on other people – on relationships within society – to make the things of nature economically useful. The economy simply facilitates relationships of people with nature and among people within society – through impersonal buying and selling rather than personally relating. Mono-functional industrial agriculture is degrading the usefulness of nature and society, and thus is not even economically sustainable.

In the U.S., we are told we must accept the inherent ecological and social risks of our mono-functional, industrial food system in order to provide for domestic food security – meaning to ensure enough safe and healthful food for all people. However, a larger percentage of people in the U.S. are classified as “food insecure” today than during the 1960s – before the current phase of agricultural industrialization began. More than 20 percent of U.S. children live in food insecure homes – having no assurance of enough food to eat.<sup>ix</sup> In addition, the only foods affordable to many lower-income families are high in calories and lacking in essential nutrients, leading to an epidemic of obesity and other diet-related health problems. People in the U.S. now spend more than twice as much on health care as they spend for food. Rising healthcare costs are increasingly linked to the American diet, which is a consequence of the industrial food system. Mono-functional, industrial agriculture has failed to provide food security, even in America.

Internationally, the “Green Revolution,” which relies on industrial farming methods, also failed to provide food security in the so-called developing world. After showing early prospects for success, its mono-functional farming systems inevitably become consolidated into large agribusiness operations. Production surpluses are then exported to higher priced markets in other countries rather than devoted to providing food for those who are poor and hungry at home. Millions of once self-sufficient, subsistence farm families still remain unemployed in the urban slums of Green Revolution nations. Mono-functional farms consistently have failed in their most fundamental purpose: to provide food security.

The large farms that dominate global agriculture today are not meeting the basic needs of many, if not most, of the people in the world today, and they most certainly aren't leaving equal or better opportunities for those of future generations. These large mono-functional farms quite simply are not sustainable. *Large farms aren't mono-functional because they are large, they are large because they are managed mono-functionally.* As a consequence being managed mono-functionally, they are not sustainable.

*Likewise, small farms are not multifunctional because they are small, they are small because they are managed multifunctionally.* They are managed to provide ecological, social and economic benefits. They are managed for sustainability. As a result, they are diverse, individualistic, and independent rather than specialized, standardized, and corporately controlled. They integrate a diversity of crop and livestock enterprises to mimic the mutually beneficial relationships within healthy living ecosystems. Wastes from some enterprises become productive

inputs for others, and the products from some enterprises become raw materials for others. The wastes not utilized within farming systems are of magnitudes and concentrations that are easily neutralized and assimilated by natural ecosystems. Multifunctional farmers respect both the bounty and bounds of nature.

Multifunctional farmers make their own decisions rather than relying on so-called experts. Like farmers of the past, they rely on experience, knowledge, and insights to manage their diverse, individualistic, dynamic farming operations. Multifunctional farmers can produce as much or more food per acre as mono-functional farms. For example, a comprehensive review, in the journal *Nature* concluded that well-managed “organic” farming systems “can nearly match conventional yields.”<sup>x</sup> In the so-called developed nations, the challenge is not increasing yields but instead achieving ecological and social sustainability. Admittedly, multifunctional farmers can't manage as many acres of crops or as many head of livestock because their farms are “management intensive.” Since their farms are smaller, however, they provide more employment opportunities than do mono-functional industrial farms. So small farms are particularly beneficial in a world with more people than opportunities for productive employment?

There are many intentionally-multifunctional/sustainable farmers in the U.S. today, although they are still make up a small percentage of all U.S. farmers. These farmers may label themselves organic, biodynamic, ecological, natural, holistic, or choose no label at all; but they are all pursuing the same basic purpose. They are producing food that has ecological, social, and economic integrity. They are creating systems of farming capable of maintaining their productivity and usefulness to society indefinitely – meaning a permanent, sustainable agriculture. These new small-scale farms probably account for about seven to ten percent of total U.S. food production today, and their numbers are growing. Industry surveys show that approximately one-third of American consumers have a strong preference for sustainably produced foods.<sup>xi</sup> The U.S. is in the process of creating a new post-industrial food system based on small multifunctional farms.

Globally, small-scale farmers still produce food for more than 70 percent of the world's population. Global studies sponsored by the United Nations indicate that yields per acre or hectare on such farms could easily be doubled or tripled without resorting to industrial farming systems.<sup>xii</sup> Multifunctional farming systems, such as organic farming, permaculture, and agroecology offer real hope for moving beyond global food security to global food *sovereignty*. Food sovereignty would ensure enough safe and healthful food for everyone, as a basic human right, not something left to the whims of markets or vagaries of charity.<sup>xiii</sup> Food sovereignty proclaims the basic rights of small farmers and rural people to protect themselves from economic exploitation. Humanity simply cannot afford for China, India, and Africa to make the same mistake the U.S. has made by replacing their small family farms with large industrial farm businesses.<sup>xiv</sup>

To achieve food security and food sovereignty, small-scale farmers must produce food first for people in their local communities and then trade their surpluses to meet needs that cannot be met locally. They must form trusting relationships both within their communities and with others in the like-minded communities with whom they trade. Local food networks in the U.S. are being formed to ensure ecological, social, and economic integrity through personal connections among

farmers and between farmers and their customers. Obviously, they must find ways increase their economic efficiency, but they must do so without compromising their ecological, social, and economic integrity. To maintain their integrity and thus sustainability, both the farms and local food networks must remain small enough for farmers and their customers to retain a sense of personal connectedness and mutual trust. They must sustain their personal commitment to caring for the land and caring for each other as they care for themselves.

Wendell Berry, an American farmer, writer, and philosopher, writes elegantly and insightfully about the culture essential for sustainable small-scale farming. He writes that if the land is to be “used well,” farmers who use the land must “know it well, must be motivated to use it well, must know how to use it well, and must be able to afford to use it well.”<sup>xv</sup> He also writes that farmers must tend “farms they know and love, farms small enough to know and love, using methods they know and love, in the company of neighbors they know and love.” I would add: producing food for people they know and love. To truly love anything or anyone you must know them well. Farmers can only know a limited amount of land and limited number of people well enough to truly love them. This means both the sustainable farms and community food systems of the future must be appropriately small.

#### End Notes

---

<sup>i</sup> Ye Jingzhong, “Concepts and realities of family farming in Asia and the Pacific,” *In Deep Roots*, 2014 International Year of Family Farming, Food and Agricultural Organization of the United Nations, 2014, pp 10-13.

<sup>ii</sup> John Ikerd, “Family farms in North America,” *In Deep Roots*, 2014 International Year of Family Farming, Food and Agricultural Organization of the United Nations, 2014, pp 30-32.

<sup>iii</sup> John Ikerd, *Small Farms are Real Farms, Sustaining People Through Agriculture* (Austin TX: Acres USA, 2006) <http://www.acresusa.com/books/results.asp?action=search&pcid=2>

<sup>iv</sup> Franklin H. King, *Farmers of Forty Centuries; Organic Farming in China, Japan, and Korea*, (Minneola, NY; Dover Publications, Inc., 2004).

<sup>v</sup> Sir Albert Howard, *An Agricultural Testament*, (Oxford, England: Oxford University Press, 1940), also in Small Farms Library [http://journeytoforever.org/farm\\_library/howardAT/ATtoc.html](http://journeytoforever.org/farm_library/howardAT/ATtoc.html) .

<sup>vi</sup> “Farmers,” <http://en.wiktionary.org/wiki/farmer>, (accessed September 15,2014).

<sup>vii</sup> “Farm,” from Wikionary, Open Content Dictionary; cites The Century Dictionary and Cyclopedia; Wedgwood, Atkinson, A dictionary of English etymology; and Mantello, Rigg, *Medieval Latin: an introduction and bibliographical guide*, 11.3, <http://en.wiktionary.org/wiki/farm> , (accessed September 15, 2014).

---

viii International Assessment of Agricultural Knowledge, Science, and Technology for Development, *Agriculture at a Crossroads, Global Report*, (Washington DC: Island Press, 2009), page 2.

[http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads\\_Global%20Report%20%28English%29.pdf](http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Global%20Report%20%28English%29.pdf) .

ix 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>

x Verena Seufert, Navin Ramankutty, and Jonathan A. Foley, “Comparing the yields of organic and conventional agriculture,” *Nature*, Number 485, May 10, 2012, 229–232, <http://www.nature.com/nature/journal/v485/n7397/abs/nature11069.html> .(accessed September 15, 2014).

xi Allison Worthington, *Sustainability, the Rise of Consumer Responsibility*, The Hartman Group, Bellevue, WA, Spring, 2009.

xii United Nations Environmental Program, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, 2010, [www.unep.org/greeneconomy](http://www.unep.org/greeneconomy) .

xiii Ye Jingzhong, “Concepts and realities of family farming in Asia and the Pacific,” *In Deep Roots*, 2014 International Year of Family Farming, Food and Agricultural Organization of the United Nations, 2014, pp 10-13.

xiv Fred Kirschenmann, “The challenge of ending hunger,” Leopold Center for Sustainable Agriculture, Leopold letter, winter 2012, <http://www.leopold.iastate.edu/news/leopold-letter/2012/winter/future>.

xv Wendell Berry, “Nature as measure,” in *What are people for?* (New York: North Point Press, 1990): 206—207.