

## **Multifunctional Small Farms: Essential for Agricultural Sustainability and Global Food Sovereignty<sup>i</sup>**

John Ikerd<sup>ii</sup>

I am honored by the opportunity to present my perspectives on agricultural sustainability at this seminar on *Sustainable Tropical Production; a leadership tool for the Orinoquia*. First, I must admit that I am not an expert in tropical agriculture and have very limited knowledge of the Orinoquia region or of Colombia. Thus, I cannot speak as an authority regarding tropical production practices or farming systems that would be most sustainable for the region. That being said, I can speak with some authority on issues related to agricultural sustainability. The same basic *principles* of sustainable production are essential for all types of agriculture in all parts of the world, including tropical agriculture in the Orinoquia. This paper and my presentation will be focused on these basic principles rather than specific practices.

I often refer to my professional opinions as “my truth.” My truth reflects what I believe to be true based on my formal education, independent research, and life experiences. My truth is a reflection of “my story.” I grew up on a small farm, and I have spent my entire professional career working with farmers and people in farming communities. The farm I grew up on was a small dairy farm in the state of Missouri, in the central region of the United States (U.S.). I milked cows “by hand” for many years before we were able to buy a “milking machine.” My brother still lives on that farm and it is still small, at least by U.S. standards. He has made a good economic living for his family there and has been able to sustain a good quality of life.

After I left the farm, I earned my BS, MS, and PhD degrees in agricultural economics from the University of Missouri. I worked for three years for a large meat packing company between my undergraduate and graduate education. After receiving my PhD degree, I spent the first half of my 30-year academic career as an agricultural economist working with farmers, educating and advocating for what I now call “industrial agriculture.” However, I eventually was forced to conclude that the industrial approach to agriculture is not sustainable. It is not even meeting the basic needs of many people today, and it is not leaving opportunities for those of future generations to meet their needs. It is not sustainable.

Industrial agriculture is not meeting the needs of farm families and others in rural communities who depend on farming for their livelihoods. It is not meeting even the basic food needs of many, if not most, of the people of the world. And, it certainly is not leaving equal or better opportunities for those of future generations. As I have become increasingly aware of these failures, I have focused my work on issues related to agricultural sustainability. I now have more than 45 years of professional experience in both sustainable and unsustainable agriculture.

---

<sup>i</sup> Prepared for presentation at the Seminar “*Sustainable Tropical Production; a leadership tool for the Orinoquia*,” Univerisad de los Llanos, Vía Unillanos, Apiay, Meta, Colombia, South America, 24-25 August, 2016.

<sup>ii</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](http://www.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> .

Over the years, I have come to believe that the false promises and real dangers posed by industrial agriculture are similar in all parts of the world. For example, Professor Sergio Schneider, in his report to the Food and Agricultural Organization of the United Nations (FAO-UN) entitled, *Family farming in Latin America and the Caribbean*,<sup>1</sup> writes about threats to family farms posed by industrial agriculture: “Latin American and Caribbean family farming faces strong pressure from agribusiness corporate sector interests in land acquisition, access to mineral reserves and areas prone to commercial exploitation of services and tourism.”<sup>2</sup> Very similar words could easily be used to describe the threats faced by small family farms in the United States and probably in many other parts of the world.

Schneider defined “family farms” as farms that are managed and operated by families, relying on family members, both men and women, to provide most if not all of the labor. Since they rely on family labor, most such farms are small. “The family and the farm are linked, coevolve and combine economic, environmental, social, and cultural functions.”<sup>3</sup> Small family farms in Latin America could be described as being “multi-functional. The same description is appropriate for many remaining small family farms in the United States. That being said, my observations and conclusions regarding farms and farming obviously are limited by my unique personal and professional experiences.

I have concentrated much of my work in sustainable agriculture on small-scale farming because I believe “small family farms” are absolutely essential for agricultural sustainability. I have addressed issues related to small family farms in my FAO-UN report, *Family Farms of North America*.<sup>4</sup> I have also written a book about small-scale farms called *Small Farms Are Real Farms*.<sup>5</sup> Only small family farms have the essential characteristics of the farms that have sustained societies over many centuries in the past. Over time, these sustainable small farms have been replaced with the large, industrial farms in many parts of the world. However, today’s large industrial farms are not sustainable and thus eventually must be replaced with smaller sustainable farms. Those countries where small farms are still prevalent need to find ways to make small farms sustainable rather than replace them with unsustainable industrial farms. I believe the industrial era of agriculture will be a short-lived aberration in the history of farming.

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 that small farms naturally have the characteristics essential for a farm to be managed sustainably. I believe that in order for today’s large industrial farms to be managed sustainably they would have to be divided into much smaller farms and managed as “multi-functional family 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 the Caribbean, 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 compared with small, *subsistence*

farmers in other parts of the world. However, very few farmers in the U.S. are subsistence farmers; the vast majority are “market-dependent” farmers. U.S. farmers 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 than in a society that meets many of its basic needs locally through subsistence farming and personal relationships.

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 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 would be difficult if not impossible to manage sustainably – although the critical size obviously will be different for different types of farms in different countries.

The farmers who sustained agriculture over past centuries held positions of high esteem in the U.S. as well as in much of the rest of the world. Thomas Jefferson, the third president of the U.S., believed 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 who ranked farmers second only to academics or scholars in social standing. Farms provided not only the food but also the economic and social foundation for past societies. Farmers were valorized not only as producers but also as the caretakers of farms and thus caretakers of the earth, of economies, and societies.

I am not familiar with the etymology of the Spanish words for a farm, or *la granja*, and farmer, or *el granjero*. However, the historic roles of farms and farmers are reflected in the English words that have been used to define them. For example, 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>6</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* also is related to Old English words such as *feormian* (“to provision, sustain”), and *feorh* (“life, spirit”).<sup>7</sup> It’s notable that the words for farm and farming have always had multiple meanings.

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, 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 *permanence and sustainability*. So farms of the past were multifunctional farms.

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>8</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*.

All of the historic root words for farm and farmers tended to be positive or beneficial, confirming the positions of “high esteem” of farms and farmers held in past societies. Although, economics has always been an important aspect of farming, those people involved primarily in economics and business were never 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.

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. The benefits were obviously the result of *intentional* decisions. If the benefits had been natural consequences of farming, rather than intentional, there would have been no reason to honor the farmers. Likewise, there would have been no reason to condemn businessmen if the negative impacts of their businesses on society had been *unintentional* or unavoidable.

Farmers of past centuries obviously made many mistakes, including some very 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 sustainable farms must be ecologically sound, socially just, and economically viable, and thus only intentionally multifunctional farms can sustain humanity in the future.

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 or cultivated 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 industrialists and businessmen.

Today's large farms likewise have far more in common with industry and business than with family farms of the past. Farms in the U.S. have been specialized, standardized, and consolidated into ever-larger production units to achieve "economies of scale." Specialization, made possible by commercial fertilizers and agrichemicals, has allowed farms to function more efficiently. Standardization of production has allowed routinization and mechanization of the specialized functions, reducing the skill level of farming and replacing farm workers with machines. 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 have achieved economies of scale and small farms have been transformed into large, industrial farming operations. They are organized and managed for economic efficiency – even when doing so is detrimental to nature and society.

For the large farms that dominate U.S. agriculture today, success is measured by economic performance rather than by the multiple economic, social, and ecological benefits traditionally associated with farming. They are intentionally *mono-functional*, rather than *multifunctional*. These farm business managers rationalize their decisions by relying on the now-discredited belief that the market economy 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 economics invariably has *detrimental* ecological, social, and economic consequences – even if unintended. For example, industrial agriculture is inherently dependent on monoculture systems. Crop production depends on non-renewable fossil energy and agricultural chemicals and pesticides rather than diversified cropping systems. Livestock are produced in single-species 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.

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, as farms grow larger in size, fewer in numbers, and increasingly corporate-controlled. It takes people, not just production to sustain rural communities. It takes people to sustain the economies of small towns and rural villages, to support local schools and hospitals, to serve in local governments, and to provide vital social services. Workers on factory farms, although they 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 allows people to meet their needs through *impersonal* relationships – through buying and selling rather than personally relating. Impersonal transactions allow economic resources to be used more efficiently but also diminish the sense of connectedness among people and between people and their natural environment. Mono-functional industrial agriculture is degrading the usefulness of nature and society – its natural and human resources – and thus is not even economically sustainable.

In the U.S., we are told we must accept the inherent ecological and social consequences of our 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>9</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 the U.S.

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 associated with dramatic increases in crop yields, the industrial farms promoted by the Green Revolution invariably became consolidated into large agribusiness operations. A significant portion of agricultural production was then exported to higher priced markets in other countries, leaving the remaining poor and hungry people at home without enough food to meet their basic needs. Millions of once self-sufficient, subsistence farm families remain unemployed in the urban slums of Green Revolution nations. The urban ghettos of the U.S. were created decades ago by this same basic process. Mono-functional farms consistently have failed in their most fundamental purpose: to provide food security.

These are not just my opinions of unsupported assertions. A recent independent study by an International Panel of Experts in Sustainability stated: “The evidence in favor of a major transformation of our food systems is now overwhelming.”<sup>10</sup> The study, *From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems*, concluded:

- “Today's food and farming systems have succeeded in supplying large volumes of foods to global markets, but are generating negative outcomes on multiple fronts: widespread degradation of land, water and ecosystems; high GHG emissions; biodiversity losses; persistent hunger and micro-nutrient deficiencies alongside the rapid rise of obesity and diet-related diseases; and livelihood stresses for farmers around the world.
- Many of these problems are linked specifically to ‘industrial agriculture’: the input-intensive crop monocultures and industrial-scale feedlots that now dominate farming landscapes. The uniformity at the heart of these systems, and their reliance on chemical fertilizers, pesticides and preventive use of antibiotics, leads systematically to negative outcomes and vulnerabilities.
- Industrial agriculture and the ‘industrial food systems’ that have developed around it are locked in place by a series of vicious cycles. For example, the way food systems are currently structured allows value to accrue to a limited number of actors, reinforcing their economic and political power, and thus their ability to influence the governance of food systems.”<sup>11</sup>

The large mono-functional farms that dominate global agriculture today quite simply are not sustainable. It’s important to understand: *Large farms aren’t mono-functional and unsustainable because they are large, they are large because they are managed mono-functionally.* As a consequence of being managed mono-functionally, large farms 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.

Sustainable farms 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. Products from some enterprises become raw materials for others. 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. They 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.

There are still 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. 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>12</sup> The U.S. is in the process of creating a new post-industrial food system based on small multifunctional farms. The agricultural challenge in the U.S. is not further increases in agricultural productivity but instead is to achieve agricultural sustainability.

Globally, further increases in food production are essential, but the need for greater agricultural productivity does not justify or support the current quest to industrialize global

agriculture. Globally, small-scale farmers still produce food for more 70 to 80 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>13</sup> Multifunctional systems, such as organic farming, permaculture, and agroecology offer real hope for achieving and even moving beyond global food security. The IPES report previously cited focused on the concept of agroecology as a multifunctional approach to farming sustainably. The conclusions are equally applicable to other legitimate approaches to sustainability. Again, the scientific evidence is compelling:

- “Tweaking practices can improve some of the specific outcomes of industrial agriculture, but will not provide long-term solutions to the multiple problems it generates.
- What is required is a fundamentally different model of agriculture based on diversifying farms and farming landscapes, replacing chemical inputs, optimizing biodiversity and stimulating interactions between different species, as part of holistic strategies to build long-term fertility, healthy agro-ecosystems and secure livelihoods, i.e. ‘diversified agroecological systems’.
- There is growing evidence that these systems keep carbon in the ground, support biodiversity, rebuild soil fertility and sustain yields over time, providing a basis for secure farm livelihoods.
- Data shows that these systems can compete with industrial agriculture in terms of total outputs, performing particularly strongly under environmental stress, and delivering production increases in the places where additional food is desperately needed. Diversified agroecological systems can also pave the way for diverse diets and improved health.
- Change is already happening. Industrial food systems are being challenged on multiple fronts, from new forms of cooperation and knowledge-creation to the development of new market relationships that bypass conventional retail circuits.
- Political incentives must be shifted in order for these alternatives to emerge beyond the margins. A series of modest steps can collectively shift the centre of gravity in food systems.”

Government farm programs in the U.S. have consistently supported and subsidized industrial agriculture. Other nations must learn from the mistakes of U.S. farm policy. Humanity simply cannot afford for South America, Africa, China, and India to make the same mistakes we have made in the U.S. by allowing small family farms to be displaced by large industrial farm businesses.<sup>14</sup> To ensure that “all people” have enough good food to support healthy active lifestyles, the focus of government policies for agriculture must move beyond increasing production as a means of providing food *security* to policies that support global food *sovereignty*.

The concept of food sovereignty accepts food security as a “fundamental human right” – not something left to the indifference of markets or vagaries of charity.<sup>15</sup> Food sovereignty also proclaims the rights of small farmers and rural people to protect themselves from the corporate economic exploitation that threatens agriculture globally. Farm policies for food sovereignty support self-determination, relocalization, beneficial trade, environmental protection, land stewardship, social justice, and intergenerational equity. Food sovereignty represents a logical *multifunctional* approach to the revolutionary change in farm policy that will be essential to ensuring agricultural sustainability, global food security, and a positive future for humanity.

Like sustainability, food sovereignty is specific to the local culture, people, and place. People in rural communities must be granted the right to control their own choices of food and nutrition, at least to the extent that their needs could be met locally. Multifunctional farms programs would give local communities the right to manage local farmlands, public spaces, and species diversity through local land use planning. Local control would give communities the ability to control water for irrigation and access to crop and livestock genetics. Farmers, rural residents, and consumers would work together to develop state and national farm and trade policies that resist, dismantle, and replace the current corporate trade and global food regime.

These revolutionary changes in farm policy needed to ensure agricultural sustainability and food sovereignty will require a commitment to social justice. Social sustainability will require freedom from oppression and inequality and a new, deeper sense of equality and respect between men and women, among racial and ethnic groups, social and economic classes, and across generations – including those of future generations. A sustainable multifunctional agriculture will empower “peasant farming” and family farmer-driven agriculture, artisanal-fishing, and pastoralist-led grazing – in the U.S. as well as elsewhere in the world. These occupations may look different in different countries but the traditional values of farming, ranching, and fishing as multifunctional ways of life will be the same, regardless of location.

Finally, to ensure food sovereignty and agricultural sustainability we must redefine the fundamental *purpose* of agriculture within the larger purpose of human life on earth. Agriculture must move beyond the monofunctional purpose of maximizing economic productivity. Agriculture must provide enough good food for all, not just those with enough money to buy enough good food. Agriculture must also sustain the overall well-being of society and contribute to the long run sustainability of humanity. By accepting economic productivity and growth as a proxy for purpose, we have been denying our unique responsibilities as human beings. To meet the food needs of the both present and future generations, “we must honor our uniquely human [*multifunctional*] responsibilities as both members and caretakers of the earth’s integral communities.”<sup>16</sup> Nowhere is the responsibility of being human clearer than in farming.

In his Encyclical Letter, *Laudato Si, for Care of our Common Home*, Pope Francis challenges frequent claims that the biblical reference to “dominion over the earth” gives humans the right to use the other living and non-living things of the earth as we choose. He states: “The biblical texts are to be read in their context, recognizing that they tell us to ‘till and keep’ the garden of the world ‘Tilling’ refers to cultivating, ploughing or working, while ‘keeping’ means caring, protecting, overseeing and preserving. Each community can take from the bounty of the earth whatever it needs for subsistence, but it also has the duty to protect the earth and to ensure its fruitfulness for coming generations.”<sup>17</sup> Thus farmers have multifunctional moral and ethical responsibilities to meet the needs of themselves and their families while meeting the food needs of their communities and caring for the earth for the benefit of future generations. The necessity for multifunctionality in farming means that small farms, or *la granjas*, will be essential for agricultural sustainability and global food sovereignty.

## End Notes

---

<sup>1</sup> Sergio Schneider, “Family farming in Latin America and the Caribbean,” *In Deep Roots*, 2014 International Year of Family Farming, Food and Agricultural Organization of the United Nations, 2014, pp 26-29.

<sup>2</sup> Schneider, p 29.

<sup>3</sup> Schneider, *Deep Roots*, p 26.

<sup>4</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>5</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>6</sup> “Farmers,” <http://en.wiktionary.org/wiki/farmer>, (accessed September 15, 2014).

<sup>7</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).

<sup>8</sup> 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) .

<sup>9</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>

<sup>10</sup> Andrea Germanos, “Overwhelming' Evidence Shows Path is Clear: It's Time to Ditch Industrial Agriculture for Good” *Common Dreams*, Thursday, June 02, 2016,

[http://www.commondreams.org/news/2016/06/02/overwhelming-evidence-shows-path-clear-its-time-ditch-industrial-agriculture-good?utm\\_campaign=shareaholic&utm\\_medium=facebook&utm\\_source=socialnetwork](http://www.commondreams.org/news/2016/06/02/overwhelming-evidence-shows-path-clear-its-time-ditch-industrial-agriculture-good?utm_campaign=shareaholic&utm_medium=facebook&utm_source=socialnetwork)

<sup>11</sup> IPES – Food, International Panel of Experts on Sustainability, *From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems*, June 2016, [http://www.ipes-food.org/images/Reports/UniformityToDiversity\\_FullReport.pdf](http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf)

<sup>12</sup> Allison Worthington, *Sustainability, the Rise of Consumer Responsibility*, The Hartman Group, Bellevue, WA, Spring, 2009.

<sup>13</sup> 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) .

<sup>14</sup> 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>.

<sup>15</sup> Nyeleni Forum on Food Sovereignty, “Declaration of Nyeleni,” February 27, 2007, <http://nyeleni.org/spip.php?article290> .

<sup>16</sup> John Ikerd, “Toward an Ethic of Sustainability,” *The Economic Pamphleteer, Journal of Agriculture, Food Systems, and Community Development*, May 15, 2016.

<http://www.agdevjournal.com/component/content/article/645-ikerd-column-ethic-of-sustainability.html> .

<sup>17</sup> Francis “Encyclical Letter *Laudato Si’* Of The Holy Father Francis On Care For Our Common Home” . . (2015, May 24). Retrieved from [http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html) , para. 67.