

SUSTAINABLE AGRICULTURE:
A CRITIQUE OF THE SLOW FOOD MOVEMENT

BY

RICHARD D. OGBURN JR.

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Approved By:

Carol Browne, Ph.D., Advisor

William K. Smith, Ph.D., Chair

Adam Friedman, Ph.D.

DEDICATION

This thesis is dedicated to the loving memory of my mother and father:

Richard DeWitt Ogburn Sr.

And

Katherine (Miss Kitty) Ogburn

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ABSTRACT

The industrialization of agriculture over the past 100 years has led to tremendous increases in yields and the availability of food worldwide. However there are serious concerns about the impact those practices have had on the planet and it's potential to continue to provide food for people long into the future. Many believe that current industrial agricultural practices are unsustainable and as a result a number of alternative methods have been proposed to provide food for today without compromising production in the future. One such proposal is referred to as the Slow Food Movement. Slow Food supporters advocate a return to traditional, local and predominately organic production, and though these practices may be more sustainable than current industrial agriculture there are many who question the ability of such practices to produce enough food to feed an ever growing human population. This paper will examine the Slow Food movement and its rationale as a viable sustainable alternative. Starting with a brief introduction to agriculture and the current questions of sustainability, it will conclude with an analysis of Slow Food as a practical model.

A Brief History of Agriculture

The human species began domesticating plants and animals around 10 to 12 thousand years ago. Referred to as the Neolithic Revolution; this departure from the nomadic hunter-gatherer to agrarian lifestyle led to great changes in human culture. Increased food production resulted in larger populations, the development of cities and job specialization as certain individuals in society were freed from the need to forage for food. However food surpluses were small, population increases were minimal and agricultural production was still the primary human occupation.

In the late 1700's with the advent of the Industrial Revolution, agriculture began another metamorphosis as new machinery and practices increased yields and displaced workers who were relocated to developing cities to work in factories of production. This transformation was not worldwide and at first was rather limited to European nations beginning with Great Britain; however it was the beginning of industrialized food production. The industrialization of agriculture accelerated over the past 60 years which has had social, cultural and economic impacts worldwide that in many ways are “unprecedented in human history” (Petrini, 2007).

Since the end of WWII that transformation has led to dramatic change as new technologies, chemical use, and mechanization along with government policies that supported maximum production; especially in the developed nations of the world, have

produced higher yields to the benefit of many (Feenstra et al., 2014). During the 20th century while the human population doubled, food production tripled leading to an increase in average life expectancy from 46 in the 1950's to around 65 today (Tacio, 2000-2010). This development however has been a linear process in which resources are constantly being extracted from the earth without being replaced. Industrialization seems to separate humans from the earth; nature becomes another input in the production process and ecosystems merely another resource to exploit (Goering, 1993). This narrow minded vision of the planet establishes a destructive relationship between man and nature; one that is unsustainable and threatens food availability in the future.

The Globalization of Agriculture

Accompanying the industrialization of agriculture is its globalization. To globalize is the practice of making something available worldwide (Ikerd, 2002). Modern technological advances have made the world a global market for agricultural. The economic principle behind globalization is that free trade will result in greater production at lower costs to the benefit of all and to certain degrees this has been realized.

The benefits of global industrial agriculture

Organizations such as the World Trade Organization (WTO) and the International Monetary Fund have worked to increase access to markets worldwide by removing all barriers that exist between nations and people and thus create “free trade”. Under this system a greater standardization of production and measurements has allowed global corporations to maximize economies of scale and produce more at lower costs. In countries around the world people have benefitted from an increase in their standard of living, a decrease in malnutrition and a decrease in the difficulty of finding food (Petrini, 2007). These benefits were not shared universally nor equally among those who did receive them; still, during the 20th century food prices declined, food production exceeded population growth and yields per hectare of staple crops such as wheat and rice increased (Gleissmann, 2007). According to the United Nations Food and Agriculture Organization, in 2005, when the world population was six billion, food production was

enough to feed a population of twelve billion. However, while the globalization of economic activity has been popular in many economic sectors it has produced critics who are concerned about the social, environmental and economic impact that accompanies it.

The social, environmental and economic weaknesses of globalization

Globalization seeks to remove any and all barriers that exist to restrict human activity in the world (Byrne and Glover, 2002). However, if we carefully think about the purpose and potential usefulness of these barriers we might conclude these intentions are misguided. Consider the purposefulness of environmental boundaries that distinguish one ecosystem from another. Mountains, oceans, deserts, rivers and climates create and establish boundaries that protect ecological diversity and sustainability. Diversity has long been understood as essential to giving life on earth the ability to be resilient and resistant to changes that threaten it. Historically the introduction of foreign plants, animals and microbes has proven disastrous to ecosystem sustainability and diversity. To eliminate the ability of these natural boundaries to protect ecological diversity threatens the life such systems protect, including human life (Ikerd, 2002).

Barriers were also created by cultural boundaries which protected the diversity of cultures around the globe. These barriers are considered to be obstacles to economic progress but they are also important to sustainable agriculture. Before the advent of globalization the barriers that existed between nations and people created great diversity of cuisine, diets, consumption patterns and agricultural practices. Food had a direct

relationship with the natural environment and those who produced that food had a direct relationship with the consumer and the land. Diets were limited to what could be produced in the environment in which people lived, populations were regulated by the amount of food that environment could produce and farming practices had to be compatible with that same environment. Most of a civilization's population had a connection to agricultural production; people knew who produced their food and how it was produced. Barriers established a sustainable model which was practiced for thousands of years (Gliessman, 2007). In the global agricultural market removing barriers has led to the small farmer being overwhelmed and replaced by the large corporate farm controlled by giant multinational corporations (Grega, 2008) motivated by profit over ecological and cultural sustainability. Diversity has given way to a global community in which the differences in ethical, social and moral values are being ignored (Ikerd, 2002).

Even as globalization emerged during the 20th century nations were able to protect agricultural diversity by establishing political barriers such as subsidies to farmers, health and safety regulations and limits on imports and exports of agricultural products. Economic boundaries allowed a nation to promote free trade within its economy and to practice 'selective free trade' with those outside its economic system. Economic diversity promoted choice, sustainability and resistance to global economic challenges (Goering, et al., 1993). However 'free trade' proponents want the elimination of all barriers which inhibit trade. Advocates would restrict regional environmental protections and seek to globalize regulations on the levels of toxins and pesticides acceptable, basically eliminating cultural and national sovereignty over the health and safety of their

populations food supply. Limitations on exports and imports would be rejected eliminating the ability of developing nations to protect small farmers from competition and eventual submission to developed nations agricultural industrial giants (Goering, et al., 1993).

As globalization progresses and the profitability of food products increases the landscape of agriculture will continue to change. Small farms cannot compete; they will increasingly be bought out by larger farms that are then controlled by multinational corporations (Ikerd, 2002); enormous agro-industries motivated by economies of scale to use practices that maximize productivity and profitability. Many argue that this is a necessary evolution in agricultural production to produce enough food for an increasing human population. However this administrative change is accompanied by a philosophical change in agriculture and human culture that some suggest makes the whole process unsustainable.

Sustainability

What sustainability means

In 1987 the World Commission on Environment and Development defined sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The human species must continue to provide the basic needs of life to survive and with a population of 7 billion and growing those needs are increasing. The problem of sustainable agricultural development comes down to ensuring that enough food is produced in the present without destroying the means for those to produce in the future. The concept is simple; life on this planet depends on the natural environment and that environment must be well-managed so that humans and nature can exist in harmony. Unfortunately most evidence suggests that industrial agricultural practices do not promote sustainability. The sobering fact is that the very practices that were used to increase yields over the past fifty years are contributing to the inability of the land to continue such productivity. Current industrial agricultural practices consume natural resources at rates that cannot be sustained at present levels of production much less at increased rates. If these conditions persist the negative consequences will stretch far beyond food production deficiencies; the collateral damage will affect every aspect of life on earth.

What we are doing is unsustainable

In 2000 United Nations Secretary-General Kofi Annan called for a study to analyze the impact human activity has had on ecosystems around the world. The study, titled the Millennium Ecosystem Assessment (MA), began in 2001 and involved more than 1,360 experts worldwide over a four year period. The main findings of the MA were that human activity, over the last 50 years, has contributed to greater ecosystem change than any other period in human history. That ‘change’ has resulted in ecosystem degradation that, if not addressed immediately, will substantially limit the benefits of those ecosystems for future generations. The study suggests that 60% of ecosystem services have been used unsustainably including fresh water, capture fisheries, soil erosion regulation, air and water purification, and regulation of local and regional climates. This degradation is the result of increasing demands in the production of food, timber, fresh water, and fuel, and the unsustainable methods employed to satisfy those demands (Millennium Ecosystem Assessment, 2005). Although there are many contributing factors to this degradation one of the most important is the current practice of industrial agriculture.

Industrial agriculture is a rather new development in the history of mankind, however it has resulted in social, cultural and economic changes worldwide that in many ways are “unprecedented in human history” (Petrini, 2007). Conventional agriculture has

two primary goals; the maximization of production and the maximization of profit. To achieve these goals agricultural industries have adopted seven interrelated practices that pay little attention to long term consequences or ecological compatibility. The seven practices include intensive tillage, monoculture, irrigation, application of inorganic fertilizer, chemical pest control, genetic manipulation of domestic crops and animals, and factory farming of animals. (Gliessman, 2007) Competitive markets and stagnant commodity prices have motivated producers to mechanize, simplify, and specialize to increase production, and to that end they have been successful (Safley, 1998), this growth has come at great environmental and social cost however.

Land and Water Consumption and Availability

The list of environmental dangers that result from industrialized agriculture continues to grow but one of the more pressing issues involves the very lifeblood of agriculture; land and water availability. Increased land development and degradation accompanied by consumption and pollution of fresh water resources, have placed current agribusiness practices at odds with ecological sustainability. Agriculture is a major consumer of the earth's available land using 30% for cultivation and pastureland (State of the Worlds Land and Water Resources for Food and Agriculture, 2011). According to a 2004 report by the Food and Agricultural Organization (FAO) of the United Nations about 99.7% of the food consumed by humans comes from the land which makes maintaining land fertility crucial to feeding the human population. However instead of

promoting soil fertility, reports indicate that each year more than 10 million hectares of cropland are degraded and lost because of wind and water erosion; and an addition 10 million hectares are lost or damaged due to salinization of the land caused by irrigation (Pimental, 2006).

Soil erosion is particularly dangerous because it takes about 500 years for one inch of topsoil to be replenished (Nierenberg, 2011). According to a report by the Worldwatch Institute, the rate of soil erosion in the United States per hectare per year is about 10 metric tons, while in China the rate is around 40 metric tons. In India the report sites a 1996 study that found approximately 5,600 tons per hectare per year were lost. A report sited by the United Nations Environmental Programme in 2006 stated that the expansion of agriculture throughout Africa has subject 25 per cent of the land to water erosion and 22 percent to wind erosion. This places 46 percent of Africa at risk of desertification, with 55 percent of that being a high or very high risk (United Nations Environment Programme, 2006). One of the primary reasons for such losses is the contemporary agricultural practice of intensive tillage. The agriculture industry encourages the maximization of production. This results in the land being plowed and aerated frequently to allow better drainage, root growth and seeding. However this intensive cultivation means that the land is often left uncovered which increases rates of erosion by wind and rain and the removal of organic material from the land which reduces fertility. (Gliessman, 2007)

The degradation of the quality of the land encourages another source of poor land management, the intensive use of chemical synthetic fertilizers which are made relatively

cheaply from fossil fuels and mined minerals. From 1950 to 1992 the use of fertilizers increased tenfold world wide, a trend in agriculture that Carlo Petrini calls a transition from natural to “unnaturalness” (Petrini, 2007). Since synthetic fertilizers provide all of the nutrients needed to grow food they have allowed modern farmers to ignore the long-term fertility of the land (Gliessman, 2007). A 2013 FOA Plant Production and Protection report states that high levels of external inputs of any kind have far reaching effects on cropland including; deterioration of soil quality, reduction in productivity, and loss of beneficial crop-associated biodiversity, that provide important ecosystem services, due to poisoning (SOLAW, 2013).

Accompanying these dangers to available cropland are the threats that industrial agriculture presents to the world’s fresh water resources. Water is necessary for all life on earth, yet it is becoming increasingly scarce as industry, urban areas and agriculture compete for its use. In countries with little natural water reserves, water may be the limiting factor in further agricultural and industrial development. Water availability has traditionally been one of the natural barriers to food production. Through the use of irrigation mankind appears to have overcome this obstacle, although this accomplishment is starting to reveal that its benefits are short-term with long-term limitations and consequences. Irrigation allows for the cultivation of arid land provided that there is a water resource nearby and the power available to transport it. Today more than 70% of worldwide fresh water use is for agricultural purposes, mostly for irrigation. (Nierenberg, 2011) Eighteen percent of the world’s croplands are irrigated but this 18% produces 40% of the world’s food (Gliessman, 2007). Clearly world food production has become

dependent on irrigation. The problem is that irrigation systems are depleting world fresh water reserves at rates many times faster than the earth's ability to replenish them (Gliessman, 2007). Aquifers (underground water sources) normally are able to recharge only 0.1 to 0.3 percent per year meaning that water consumption must be managed carefully. In many parts of the world however, these rates are being dwarfed by consumption.

In the United States the Ogallala aquifer is the most important source of water in the High Plains region providing nearly all the water for residential, agricultural and industrial use. Irrigation for agriculture accounts for 95% of water use from the aquifer providing for one-fifth of the corn, wheat and cattle produced in the United States. The Ogallala has the water storage capacity of Lake Huron but it is being used three times faster than its ability to recharge. If the rate of water usage continues the Ogallala could be depleted in a few decades, (Kromm, 2013) and this is not an isolated problem. Overall U.S. consumption is 25% higher than replenishment rates (Nierenberg, 2011). This practice is not confined to the United States either.

In Northern China where two-thirds of China's total cropland exists, water consumption is creating an alarming situation. Although two large aquifers sit below Northern China, water is being consumed at such a rate that a water crisis looms. The aquifer in Hebei Province, next to Beijing, falls an average of three meters every year. Lakes and rivers are also used for water with devastating results, of the 1,052 lakes that existed in Hebei, 969 have been lost and the Yellow River, the main river of Northern China, has dried up every year since 1985 (Sekiguchi, 2006). In India the situation maybe

even worse; NASA (National Aeronautics and Space Administration) satellite images revealed a one foot drop in groundwater reserves a year from 2002 to 2008 in Punjab, Rajasthan and Haryana. A World Bank report said that 60 percent of the countries aquifers will be in a “critical” state by 2025 and that 29 percent are already semi-critical (India’s Vanishing Aquifers, 2012).

Agricultural consumption is not the only threat to fresh water availability; adding increased pressure on our water resources is the growing demand for meat in the human diet. Farming uses an enormous amount of water to hydrate and cool livestock as well as wash out the waste the animals produce. Accompanying this is the water used to produce the feed for stock animals. Generally the amount of water needed to produce food from animals is much greater than that needed to produce food from plants. For example, it takes only 89 liters of water to produce 500 calories of potatoes but it requires 4902 liters of water to produce the same number of calories in grain-fed beef (Gliessman, 2007).

Our water quality is also being threatened by the pollution industrial agriculture produces. This pollution comes from a variety of sources, including fertilizers, pesticides, herbicides, and animal waste. The chemical fertilizers that are used to increase crop yields are easily leached into water sources where they not only pose a threat to the health of human and wild animal populations but also damage aquatic ecosystems causing an increase in oxygen-depleting plant life (eutrophication). Eutrophication, the over-enrichment of water with nutrients such as nitrogen and phosphorous, is the leading cause of water quality depreciation around the world (Diaz, et al., 2012).

Pesticides and herbicides, touted as the next great development to increasing agricultural productivity, are also easily accumulated in land and water resources with even greater toxic impact (Walker, et al., 2002). The use of pesticides in the United States increased ten times between 1945 and 1989 even though it is estimated that only 0.1% of those applied reach their targeted pests leaving 99.9% in the environment. This results in tremendous collateral damage to ecosystem sustainability. For instance, pesticides have reduced the populations of helpful insect populations such as the honeybee. In the United States honeybee populations on farmland declined from 4.4 million to 1.9 million between 1985 and 1997 because of pesticide exposure. Honeybees provide free pollination to farmers contributing to at least \$10 billion in crop production. Pesticides also contribute to animal and insect deformities and immune deficiencies (Walker, et al., 2002). This contributes to another frightening result of modern agricultural practices; a decline in ecosystem biodiversity.

Biodiversity

The earth is an amazing home to millions of plant, animal, and microbial species, as well as a wide variety of ecosystems upon which all life depends. This biodiversity supports a vast array of functions in forestry, agriculture and aquatic systems that are essential to maintaining the health and quality of the global environment. These include waste recycling, pest population control, plant pollination, and soil formation (Pimental, 2006). Human agriculture, for much of its history, increased the diversity of plant and

animal species by selectively choosing and cross breeding different organisms for specific and often local environmental adaptability into the domesticated gene pool (Gleismann, 2007). However, over the past 100 years this trend has been reversed as human agriculture has contributed to the lessening of biodiversity. In 1998 the United Nations Food and Agriculture Organization estimated that two domesticated species of animals become extinct each week worldwide and in a Worldwatch Institute publication, *State of the World 2004*, Danielle Nierenberg and Brian Halweil have found that crop plant species genetic diversity has also declined by 75% since 1900 (Gleismann, 2007). The Millennium Ecosystem Assessment's research also provided evidence to the loss of biodiversity.

The MA attributes much of the loss in biodiversity to the conversion of more land to agriculture and increased chemical fertilizer and pesticide use and pollution. These practices tend to unintentionally contribute to species loss and ecosystem depletion. However the loss of biodiversity is not entirely an unintended consequence. In many instances various species are lost as a result of conventional agriculture's focus on short-term economic gains. Industrial agriculture lessens biodiversity because the economies of scale encourage choosing highly productive strains of vegetation and livestock over others, which then often vanish from our biological gene pool. Genetic homogeneity is also favored for maximizing product efficiency by allowing for standardized management practices (Gliessman, 2007). Current agricultural practices maximize harvest yields and reduce the monetary cost of production to the benefit of many; however there are serious

problems that future generations will have to address due to the loss of biodiversity that result from these practices.

Biodiversity is an essential component of food production. Even though eighty crop plants and fifty animal species account for most direct agricultural production, behind the scenes an incalculable number of species play a part. Billions of microbes fix essential nitrogen into the soil. Mycorrhizal fungi connect thousands of strands to plants to obtain water and nutrients. The fungal strands provide natural scaffolding that prevent soil erosion. Insects, worms and other burrowing creatures turn the soil and help to renew it. Above the soil certain insects eat damaging plant parasites; other insects as well as animals help pollinate future crops. (Bernstein, 2008) The complexity of the interaction between the many species in any ecosystem to provide such services cannot be reproduced artificially nor can we fully understand how the extinction of even one component of this process will impact the whole.

Besides providing services that make life and agriculture possible, biodiversity also serves as an insurance policy that food production will provide adequate yields to feed human populations when environmental conditions change. The ability to grow food and the types of food grown varies from place to place because of differences in soil nutrition, water availability, indigenous insect populations, and temperature. Modern agriculture favors the production of one type of vegetation that grows best under the conditions of a particular area to maximize output. However such crop monoculture also makes food production more vulnerable to any change that may occur in the environment than diverse crops would be. When crops are essentially identical they can be decimated

by any change in the ecosystem to which the crop cannot adjust. Diverse crop stands would still be somewhat productive and although they would not be as profitable under ideal conditions they at least offer some protection against crop failures (Berstein, 2008).

One illustration of the devastation monoculture production can result in is the Irish potato famine in the mid 1800's. It was caused by a fungus that arrived accidentally from North America that was particularly virulent to the genetically identical potato crop that had become a staple for the Irish people. The ensuing crop failure subjected over one million Irish to starvation (Bernstein, 2008).

A more recent example of the vulnerability that monoculture production presents is the outbreak of *Fusarium* (scab or head blight) on wheat and barely crops in Minnesota and the Dakotas of the United States in the 1990's. The losses were so severe that it caused many in the area to give up farming for lack of a profitable alternative crop. Another threat to wheat production is the reappearance of stem rust which caused devastating crop failures in the early part of the twentieth century and then again appeared in Uganda in 1999. Scientists believe that if not effectively controlled this stem rust strain could spread out of east Africa to the Middle East and Asia. The fact that more than half of the nutritional calories consumed by human beings come from three primary crops, (wheat, rice and corn) makes the impact of such an epidemic particularly disconcerting (Berstein, 2008).

In the tropics plant diversity has long been used by small-scale farmers as a method of avoiding crop failures due to pest infestation (Berstein, 2008). Different crops offer a variety of protections against predatory pests including camouflage, where one

plant protects another by concealing it from pests; crop background, where certain pests prefer a particular environment, such as color or texture, when feeding; repellent, where some plants emit odors that make it difficult for insects to find other plants; and mechanical barriers in which one crop can prevent the migration of herbivores across them to get to host crops (Berstein, 2008).

The assault on the natural balance of the global environment has been devastating to the biodiversity of the world. These ecological changes have led to great increases in the standard of living for many people on the planet but at great cost. The gains have been accompanied by a loss of the protection biodiversity provides, increased poverty for some, and growing risk of crop and ecosystem vulnerability. Without making necessary changes to offset these negative effects the gains of the past will not be available in the future and may actually be the primary contributing factor to a decline in the quality of life for many. The call for sustainable agricultural development is not new, however as awareness of the dangers of the current system grows a sense of urgency is beginning to emerge.

The Sustainable Agricultural Movement

Sustainability is required for survival. Key to this survival is the preservation of resources, be they financial, capital, cultural or environmental. One venture that must be sustained is the production of food. The difficulty with sustainability is that it is never something that can be evaluated in the present; it is always an aspect of the future and therefore there are no absolutes about whether a practice is headed in a sustainable direction. What can be evaluated more precisely is when a practice is unsustainable as it appears industrial agricultural production is. Modern agriculture consumes resources at rates that cannot be replenished in a timely manner, contaminates and degrades precious land and water resources, and lessens biological, ecological and cultural diversity. The world faces a crisis in that the current method of mass food production cannot be sustained and yet many would argue that the only way to support a growing human population is through large scale industrial production. Some however have argued that we need to abandon mass production and instead adopt a new approach to agriculture. One proponent for change is Carlo Petrini who started a local Italian culinary movement in the 1970s that has evolved into a worldwide sustainable cause referred to as the Slow Food Movement.

The Slow Food Movement

The History of the Slow Food Movement

Carlo Petrini is a self-labeled gastronome who is credited with establishing the Slow Food movement; a reaction to the bland tastelessness of food as produced by agricultural industries who seek to mass produce at the cheapest cost to maximize profit. Gastronomes attempt to promote the taste and pleasure of food while at the same time connecting food to culture with respect to “quality, biodiversity, sustainability, and social justice” (Schneider, 2008).

The movement has its earliest origins in the tumultuous political atmosphere of Italy in the 1970s. In its first incarnation, the movement was called Arcigola (arch-taster), emerging out of the Italian Communist Party as a gastronomical wing in 1983 and was more formally organized in 1986 as events in Europe gave the movement momentum. In 1986 wine from the Langhe region of Italy that contained methyl alcohol resulted in nineteen deaths. Later that year the Chernobyl nuclear disaster occurred and herbicide contamination was found in the Po River Valley. Both drew greater attention to the need for safe food production. However to Petrini and other members of Arcigola, the most defining event was the opening of a McDonalds fast food restaurant in Rome. The organization protested this event by encouraging people to instead adopt a “slow food” approach to agriculture(Schneider, 2008). The mantra of slow food became so popular

that the group officially changed its name in 1991 to Arcigola Slow Food and since 2002 it has been called Slow Food Italia (Schneider, 2008).

Arcigola was primarily a national movement focusing on protecting and preserving Italian culture and cuisine from the homogenizing effects of multinational agricultural industries and the trend towards 'fast food'. In 1989 however the organization went international as it recognized a worldwide threat to indigenous agriculture and cuisine. In December 1989, four hundred members representing eighteen countries met in Paris to establish Slow Food International. As of today Slow Food International has 100,000 members from 153 countries (Tencati, 2012).

How Slow Food Movement differs from other sustainable plans

The call for sustainable agriculture in response to growing industrial practices is not new. Origins for sustainability can be traced back at least to the humus movement of the '1850s' (Kirschenmann, 2004). The need for sustainability is inarguable, the question is how best to achieve it. The Slow Food Movement differentiates itself from earlier movements by seeking to find a holistic approach to sustainability that takes into account all participant groups; not just the producer but also the consumer, distributor and regulator (Tencati, 2012). Slow Food recognizes that the right 'fix' to sustainability is going to have to embrace all the ecological relationships in life; it is not merely the responsibility of the farmer but of everyone. It also calls for a broader knowledge of what is behind food; its historical, natural, social, ecological, institutional, and productive

methods (Tencati, 2012). This approach recognizes that at the heart of sustainability is food but, as with the human heart, a realistic approach to health depends on nurturing the whole body; and concerning agricultural health this means all of society.

The recommendations of Slow Food

From the beginning Petrini and his colleagues were concerned that they would be dismissed “as a bunch of selfish gluttons who couldn’t care less about the world around them” (Petrini, 2007) However Petrini points out that it is the gastronomes’ understanding and appreciation of food that makes them very concerned about the world. As Petrini says; “it is precisely the gastronome’s skills – which range from a finely tuned sense of taste (a skill that has deep implications for our odorless and tasteless world) to knowledge of food production – that make him care very much about the world around him, make him feel that he is in a sense a co-producer of food, a participant in a *shared destiny*” (Petrini, 2007).

Petrini seems to overemphasize the importance and ability of culinary enthusiasts to lead what amounts to be a revolution in food production. Although he does go on to state that the gastronome cannot accomplish his goal alone, that he will need the aid of ecologists, politicians, and farmers as well as each individual consumer, to be successful. His argument for the gastronome as someone whose desire for particular tastes makes him a great utilitarian leader in a ‘shared destiny’ is questionable. The gastronome still evokes images of “a bunch of selfish gluttons” in the pursuit of personal satisfaction.

However the gastronomes role in agriculture is not essential to an analysis of the potential of Slow Food's approach to agriculture as a means of sustainable production.

Addressing Sustainability

The objective of the Slow Food Movement encouraging people to slow down the rhythm of their lives to appreciate, recognize and preserve the characteristics of our world that the increasingly fast pace of society discards as impediments to progress. At the heart of slowness is sustainability and preservation, not only of agriculture but of all life; of plant and animal species, ecosystems, human traditions, and distinctive cultural traits.

As Petrini states:

Since speed has become the dogma of modern life, we are compelled for the sake of our survival not to think too much and to discard anything that seems to slow us down. Moreover, the consumer society merely justifies the creation of new "garbage"; it justifies waste and the discarding of anything that seems unproductive or "slow." Anything that is of no use (people, cultures, countries) is rejected (Petrini, 2007)

Slow Food suggests we start our quest for slowness with how we eat so as to rediscover the taste we have been neglecting in a fast food world. Thus begins an education and appreciation of what the industrial world 'dumps' as no longer useful. This appreciation will spread to cultures and traditions that science and the agricultural industry reject as unproductive. The gastronome understands the importance of this

knowledge and that it is being lost with the death of an elderly generation and the traditional cultures who are the keepers of these time tested practices.

It is this type of rhetoric that I feel causes many to reject the slow food idea as utopian. I don't believe that many will do more than whimsically entertain an idea of 'slowness' as saving the world by getting people to appreciate traditional knowledge and practices. It is an unrealistic premise to suggest that billions of people will abandon the 'dogma' of modern life and slow down so that we can eat sustainably produced food. However, if we remove the veil of sentimentality and look at what the idea of 'slowness' is supporting we can find some value.

The basic goals of Slow Food include:

- Preserving traditional practices, knowledge and values that are threatened by global industrialized agriculture.
- Supporting local communities and connections by bringing consumer and producer closer together for mutual support and benefit.
- Educating consumers and producers to be more aware of agricultural practices
- Reducing transportation miles between farm and table.
- Protecting the natural environment by lessening pollution, preserving biodiversity, avoiding waste of natural resources through proper use, recycling and recovering materials, lessening the carbon footprint of transportation and fossil fuel use, and developing production models that follow the natural cycles of the local ecosystem.

- Preparing citizens through a network of community organizations working at the grassroots level to bring about sustainability. This is accomplished through a number of educational projects. Slow food seeks to be an international organization of regional movements protecting local identities.
- Ensuring the right to a good life.
- Overcoming the industrial agriculture model and replace it with approaches that protect and benefit all of society, taking into account the many different stakeholders.

(Tencati, 2012)

The feasibility of these goals is determined by the individual as much as the system. The individual's greatest power as a consumer in a world driven by profit is in the choice he or she makes. Therefore a key element to the Slow Food approach is education; people must have the knowledge to make choices that communicate to producers a demand for sustainable production. These choices must be guided by three principled questions; is it good, is it clean and is it fair; three questions that are indispensably connected to one another in the quest for sustainable agriculture (Petrini, 2007).

The good is intrinsic to the produce itself; its taste, its quality. Whether a product is good is subjective to each individual, but it should be tasty and diverse, and reflect the geographic and cultural traditions from which it came. The determination of the good

involves an understanding of the “naturalness” of the product; a knowledge and appreciation of the raw materials, their production and cultivation (Petrini, 2007).

The second characteristic Slow Food stresses in the production of quality food products is that it must be clean. Clean is less subjective than the ‘good’ but it too is determined by its naturalness. Naturalness regarding the ‘clean’ does not refer to the quality of the product itself but rather the methods of production and transportation. Clean food is produced in such a way as to preserve and not destroy the environment. To determine if a product is clean requires knowledge of the environmental effect of its production and acquisition by the consumer. It is not as easy as it may seem; which product is more sustainable, organic apples produced in California and consumed in North Carolina or bread baked in a local bakery around the corner? To consider the sustainability of each product requires the consumer to have access to knowledge and factors, such as the fuel used to transport organic apples to NC, that he or she has never had to consider before (Petrini, 2007)

In our quest for the clean we start again with rejecting anything that is unnatural.

We must reject:

- Pesticides and chemical fertilizers except in the most extreme cases.
- Intensive production of plants and animals breaks down their “natural mechanisms.” We cannot expect more from the soil or the chicken than it can naturally produce.
- Industrial breeds and produce, they require too many natural resources and reduce the biodiversity necessary to ecosystem strength.

- GMOs (Genetically Modified Organisms). They are the epitome of the unnaturalness of industrial agriculture. Even though evidence is not yet conclusive most reports point to GMOs as unsustainable environmentally. They spread and contaminate other species limiting biodiversity and promote monoculture. Monoculture is unnatural and environmentally destructive. It eliminates diversity of plant and animal species and threatens ecosystem sustainability
- Foods that have traveled great distances, accumulating what professors from the University of Essex and London University termed *food miles*.
- Choose local *and* organic produce when possible (Petrini, 2007).

The third characteristic used to measure the quality of a product is fairness. Fair food is one that provides the producer and the consumer with a quality product at a reasonable price, one that is socially sustainable with “an emphasis on fair wages and social justice” (Schneider, 2008). Social justice goes beyond adequate compensation; it involves the reevaluation of the significance of the farmer in our relationship with food. Slow Food identifies “fair” sustainability as one that provides social and financial gratification to those who provide food with practices that respect the land, the biodiversity and the culture that goes into its production (Petrini, 2007).

To implement these ideas Slow Food is involved with a number of projects aimed at educating and bringing the multiple participants (i.e. consumers and producers) together. They seek to establish a network of networks that are both innovative in that

they promote an alternative to current agricultural trends, and traditional in that they seek to protect and promote regional traditional practices (Petrini, 2012).

In 2004 the University of Gastronomic Sciences accepted its first class of students. The university, initiated by Petrini and supported by Slow Food, was established to train future leaders of the movement to promote and coordinate its agenda of good, clean and fair (Krummer, 2008).

The Slow Food Foundation for Biodiversity is a nonprofit organization that seeks to protect the environment, defend biodiversity, promote sustainability and support small-scale food producers through a variety of projects such as the Presidia movement, the Ark of Taste, Earth Markets, and the Terra Madre gathering. The Presidia is the organizational and economic side of Slow Food. Presidia are local groups through which the foundation seeks to defend local biodiversity and sustainable practices, increase the income of producers, improve the social status of producers, and strengthen producers cultural identity. There are currently over 300 Presidia worldwide, promoting everything from cheese makers in Tibet to nomadic fishermen in Mauritania. The Ark of Taste is a catalogue of food products at risk of extinction. Its publication educates people on the value of these products and invites them to participate in their preservation. With the Earth Markets project, the foundation works to lessen the distance between field and table by supporting farmers markets and reducing the number of intermediaries between producer and distributor. The foundation also participates in Terra Madre a gathering of several thousand Slow Food members and leaders biannually in Turin, Italy to articulate Slow Food's evolving political rhetoric. It is a platform for communication and

cooperation that helps to educate and promote territorial qualities and to oppose the current globalized marketplace (Slow Food International: What we do, 2014).

Feeding the world with Slow Food

One of the hurdles Slow Food must overcome if it is going to bring about the change it seeks is making good, clean and fair food available in quantity and price to feed seven billion plus people. There is a reason that industrial agriculture and the fast food industry have such a dominate share of the food market; they produce a large quantity of food at relatively low cost that results in low prices for the consumer. On any given day in the United States about one quarter of the adult population will visit a fast food restaurant and purchase food that has been mass produced on large industrial farms (Schlosser, 2001). The popularity of the American culture has resulted in its fast food lifestyle being exported around the world with a similar affect. In a relatively brief period of time the fast food industry has transformed our food, economy, social culture, workforce and landscape with potentially dangerous consequences (Schlosser, 2001). It is these consequences that Slow Food seeks to offset; but does the movement provide a practical solution? Many criticize Slow Food as elitist and narrow minded, arguing that ‘good, clean and fair’ food produces too little at too high a price (Walsh, 2008).

The FAO reported that an estimated 925 million people are living in constant hunger around the world. With such a large number of people suffering from hunger the elitist criticism aimed at Slow Food has a more forceful punch and it is one that has

justification. The movement's emphasis on organic foods is more sustainable but also more expensive and far less productive than conventional agriculture. Organic farming yields less per acre than current industrial production and would require a much larger farming community to match current output. If the US were to transform to organic production alone it is estimated that it would require 40 million farmers to produce what one million produce with industrial practices and would mean more forests turned into farmland. FAO director Jacques Diouf said that to suggest organics can solve the food challenge is "dangerously irresponsible" (Walsh, 2008).

Slow Food does not suggest abandoning all other food production in favor of organics. Sustainability requires providing for the needs of present populations, organic production is unsustainable if it does not provide those needs. Organics are favored and should be emphasized but not exclusively (Petrini, 2007) . One misconception that I believe causes many to reject Slow Food as impractical is its relationship to science and technology. Slow Food does not seek to reject science and technology in favor of traditional approaches. Petrini views traditional practices as more of a temperance to unrestricted and harmful scientific and technological agriculture. Traditional agriculture can benefit from science and technology if they are used to promote biodiversity and local food communities (Schneider, 2008).

Probably the greatest obstacle to Slow Food and sustainability is not one of production as much as it is one of marketing (Jones, et al., 2003). For Slow Food to succeed it must be accepted by the masses. It must make its way into the rural communities of the United States, India, Australia, France, and China. It must also

become a presence in the large urban centers of the world; New York, London, Beijing, Sidney, and Paris. It needs to be in the psyche of men, women and children, of poor, middle class and wealthy. The likelihood that a group of likeminded, small, local producers and consumers can compete with the marketing power of industrial agriculture and its fast food counterpart is almost laughable. The extent to which the current industry has become a part of the world's eating culture is evident in the near universal recognition that McDonald's 'golden arches' have around the world. The entrenchment of industrial agriculture in modern society cannot be understated in any discussion of sustainable alternatives (Jones, et al., 2003).

The potential for Slow Food to make real lasting changes will require more than the education of a few gastronomes, more than protecting some endangered traditional products and practices, and more than a meeting of a few thousand enthusiasts. Success will depend on making profound global economic and cultural changes. A survey of 964 Utah farmers conducted by researchers at the University of Utah on the barriers to adopting sustainable agriculture found that among farmers the most challenging barrier was the financial cost and the ability to maintain profits. One survey respondent stated that, "If farmer's pay was better, he could operate less land and do a better job of practicing sustainable agricultural practices" (Drost ,et al., 1996). Sustainability requires that farmers be sustained as well as the land.

Another leading obstacle cited in the article were federal farm programs (Drost, et al., 1996). For any sustainable program to succeed governments around the world will have to give substantial support. In the United States the federal farm bill traditionally

give subsidies to large agricultural industries to keep prices affordable and profits coming in. National agricultural policies generally favor large industries that spend millions in lobbying efforts to maintain the status quo. In 2013, as a new federal farm bill was being drafted the food industry spent more than \$150 million on lobbying for policy that benefitted their interests (Bjerga, 2014). If Slow Food is to move forward they will need to make inroads into the political arena and promote legislation that will benefit the small local farmer over the international corporation.

Conclusion

The fight for sustainability is formidable but there are signs that change is happening. Even though the farm bill signed by President Barak Obama still gives large subsidies to traditional commodities they were cut by thirty percent to \$23 billion over the next 10 years and support for organic programs increased by about fifty percent over the same period to almost \$3 billion. Additionally money to help farmers make the transition from conventional agriculture to organic increased from \$22 million to \$57.5 million and financing for oversight of organic programs nearly doubled to \$75 million. (Steinhauer, 2014) Title X of the bill also gives support to farmers markets and local food producers (United States Senate Committee on Agriculture, Nutrition and Forestry, 2013). Still the difference in support is great and maintains the hierarchy of large industries.

There are also signs that cultural changes are emerging as more people become aware of the health and environmental costs of poor food production. Around the world more people are shopping for local produce that travels less distance and thus is fresher, has less of an environmental impact, and supports local farmers. Big food chains are paying attention. In the United States, Walmart reports that it hopes to increase its stock of local produce to 9% of its total inventory by 2015 and Supervalu Stores, the parent company of several grocery chains, states that 25-40 percent of its produce is local (Rushing, et al., 2013) Similarly, the British supermarket chain Waitrose is just one of many European chains touting its local produce (Rushing, et al., 2013). A 2013 survey

conducted by the consulting group A.T. Kearney found that people were willing to pay more for local food with 38% saying they would pay 5% more, 24% saying they would pay up to 10% more and 8% saying they would pay more than 10% (Rushing, et al. 2013) Even more surprising than people willing to pay more was that this was true across economic classes with a majority of lower income families (57%) and senior citizens (68%) saying they would pay more for local food (Rushing, et al., 2013).

These are indications that political, cultural, and economic institutions are warming to the idea of changing our ways of producing and marketing food. However these changes need to be substantially accelerated and expanded upon globally to have any real effect on sustainability. The ideas advocated by Slow Food are ones that promote a more sustainable method of food production. Using traditional, time tested practices that work with regional environmental conditions instead of in opposition to them, focusing on indigenous diverse crop species, minimizing the use of chemical fertilizers and pesticides, buying locally produced food to lesson 'food miles', and employing organic methods whenever possible, will help to protect the fertility of the land. I believe that, as time passes, these practices will become more prominent and perhaps even institutionalized whether they use the moniker of Slow Food or not. Unfortunately it seems that human nature is more reactive than proactive and therefore that transition will likely not occur until much damage is done and suffering incurred.

Perhaps there is no true sustainable model. Agriculture in and of itself is an unnatural process, a manipulation of nature. Anthropologist Jarred Diamond referred to it in a paper as "*the worst mistake in the history of the human race*" (Diamond, 1987). In

his award winning novel *Ishmael*, Daniel Quinn points to agriculture as the beginning of a culture existing in opposition to the laws of nature that cannot survive indefinitely. He illustrates this by comparing agricultural man's violation of how to live with nature to a society that believes it can violate the laws of gravity. This society leaps from a cliff in its cultural machine and believes that it is flying; its population increases and it develops many wonderful technologies. However it mistakes flying for falling, for it is a very high cliff and for many years they cannot see the ground rushing up towards them. Every now and then someone recognizes their mistake and warns the people, but the people are comforted by their culture saying that all they need to do to keep flying is develop new technology. Eventually, as the craft starts to near the ground and the people recognize that there are no parachutes.

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Curriculum Vitae

Richard D. Ogburn Jr.

I. Educational Background

- a. Masters in Liberal Studies Wake Forest University 2014
- b. Social Studies Secondary Education A Certification University of North
at Greensboro 1994
- c. B.A. Philosophy Lenoir Rhyne College 1989

II. Professional Background

- a. Social Studies Teacher Salem Academy 1994-1998
- b. Social Studies Teacher East Forsyth High School 1998-2002
- c. Social Studies Teacher Mount Tabor High School 2002-2013
- d. Social Studies Teacher Ronald Reagan High School 2013-Present