

Agricultural Policies for Food Securityⁱ

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I was pleased to be invited by the Canadian Department of Agriculture and Agri-food to share my perspectives on agricultural policy of particular relevance to small and mid-sized farms. Obviously, I am far more familiar with agricultural policy in the U.S. than in Canada, however, I have made three or more trips to Canada each of the past several years to speak at various events on issues related to sustainable agriculture. I also have had an ongoing relationship with the folks at FoodTrust of Prince Edward Island. I get the impression that Canadians are more willing to work together for the common good and have more confidence in their government than do most people in the U.S., probably with good cause. I realize that my views are limited by the nature of my experiences. I will attempt to address issues of relevance to agricultural policies of both countries. But I will leave it to Canadians to decide the extent to which my perspectives are relevant for agricultural policy in Canada.

Food security is the primary justification for all government involvement in agriculture. Governments would have little justification for farm and food policies if their citizens could otherwise be assured of dependable access to adequate supplies of safe and wholesome food at reasonable costs. Programs subsidizing farm commodity prices and incomes are justified as a means of stabilizing prices at levels that will ensure consumers with a stable and affordable supply of food. Pesticide and animal health regulations are justified as means of ensuring food safety. Soil conservation and water quality programs are means of protecting the agricultural resources necessary for long productivity. Even government subsidies for development of technologies that enhance agricultural productivity are justified as means of making food less costly and more available to more people. Public policies affecting agriculture have persisted in countries around the world because governments have not been willing to leave the food security of their constituents to the impersonal forces of the marketplace.

For more than 30 years, I was involved in government support of U.S. agriculture. I was employed in agricultural research and education at four different major state agricultural colleges. During the first half of my career I was a traditional, free-market agricultural economist. I believed that competitive markets were most capable of meeting the food security needs of people; the less government involvement, the better. I advised family farmers to farm for the economic “bottom line,” and to not let family business interfere with farm business. I believed that competition would continue to force farmers to pursue economies of scale; that farmers needed to be prepared to continue getting bigger or to get out of farming. I was a neoclassical, free market economist who just happened to be working in agriculture.

However, the U.S. farm financial crisis of the 1980s began to challenge my beliefs. I was head of the Department of Extension Agricultural Economics at the University of Georgia at the

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time, with primary responsibility for agricultural policy. Many U.S. farmers had borrowed heavily and expanded their operations during the 1970s to take advantage of sharply rising commodity prices fueled by booming export demand. However, a domestic recession and the loss of export markets in the early 1980s left farmers with large debts, high interest rates, rising input costs, as commodity prices plunged back to lower levels. An important priority for my department at the time was to help farmers find some way to survive. As I sat across the table and talked with these farmers in crisis, I began to understand that I and my fellow agricultural experts were an important part of the cause for the crisis that was then confronting American agriculture.

The farmers with the biggest financial problems were those who had been doing the things that we so-called economic experts had been telling them to do. They had routinized, mechanized, and standardized their production processes, in order to achieve greater economic efficiency through specialized, larger-scale farming operations. Farmers were failing not because they were poor managers, but because some had to fail so the survivors would have room to expand. The financial crunch of the 1980s simply made this chronic crisis of American agriculture more apparent.

The kind of agriculture I had been promoting certainly wasn't working for farmers. The more I understood the situation, the more I came to understand that the industrial agriculture that I had been promoting was also threatening the economic viability of rural communities and degrading the land and the rural environment. It wasn't even keeping food prices low in the supermarkets, as increasing marketing margins more than offset declining farm level prices. Eventually, I understood that the industrialization of agriculture was actually sacrificing the long run food security of the nation because it quite simply was not sustainable. The long run food security of any nation is in the natural productivity of its land and its people, and the industrialization of agriculture was degrading both.

The lack of sustainability of the industrial approach to agriculture is not a matter of personal opinion. It is a direct consequence of the most fundamental laws of physics, the laws of thermodynamics. The sustainability of agriculture, like the sustainability of any other type of development, ultimately depends upon the use of energy, because anything that is useful in sustaining life ultimately relies on energy. All useful material things – food, clothes, houses, automobiles – require energy to make and energy to use. And all human energy – working, managing, thinking – comes from the energy in things people eat, wear, or use. Physical scientists lump all such useful activities together and call them “work.” All work requires energy. And most important, each time energy is used to perform work, some of the *usefulness* of the energy is lost.

In performing work, energy is always changed from more-concentrated to less-concentrated forms. In fact, this natural tendency gives energy its ability to perform work. Material things, or matter, are simply highly concentrated forms of energy. When matter is converted into energy, as in eating food or burning gasoline, or when energy is used to do any kind of work, energy invariably changes from more to less concentrated forms. However, the total energy contained in matter and energy always remains unchanged. This is the first law of thermodynamics, the law of energy conservation, as in Einstein's famous $E=MC^2$.

At first, it might seem that energy could simply be recycled and reused forever. If so, sustainability would be inevitable. However, once energy is used to perform work, before it can be used again, it must be reconcentrated and restored, which inevitably requires energy. The energy used to reconcentrate and restore energy, is simply no longer available to do anything else. It has lost its usefulness; meaning it has lost its ability to perform work.

This is the law of entropy, the second law of thermodynamics; the tendency of all closed systems to tend toward the ultimate degradation of matter and energy; a state of inert uniformity of component elements; an absence of structure, pattern, organization, or differentiation.¹ For example, as a burning log releases heat and radiant energy, its stored energy is depleted and the log turns to ashes; its structure, pattern, and organization are lost as it tends toward entropy. Since the loss of useful energy to entropy is inevitable, it might seem that sustainability is impossible. In fact, life on earth quite simply would not be sustainable without the daily inflow of new solar energy. Sustainability ultimately depends upon the use of solar energy to offset the effects of entropy.

Industrial approaches to economic development, including industrial agriculture, give no consideration of the ultimate necessity of using solar energy, the only truly renewable source of energy to offset the usefulness of energy lost to entropy. The pursuit of economic efficiency, which drives the process of industrialization, values only short run, individual self-interests. This narrow focus accounts for the advantage of industrialization in economic efficiency, but also accelerates the natural tendency of all closed systems toward dissipation and depletion of energy – toward entropy. Economic efficiency provides no incentive for “bottom-line” farmers invest in renewal or regeneration of resources for the benefit of future generations. Industrial agriculture inevitably tends toward *physical entropy*.

The law of entropy applies not only to physical energy but also to social energy. All human energy is a product of social energy or social relationships. Humans cannot be born, reach maturity, and become *useful* without the help of other people. People must be educated, trained, civilized, and socialized before they can become productive members of complex societies. All organizations – including business organizations, governments, and economies – depend on the ability of people to work together for a common purpose, which in turn depend upon the sociability and civility of human societies. Human resources are the products of healthy personal relationships within families, friendships, communities, and societies.

Industrialization inevitably dissipates and disperses social energy because it weakens personal relationships. Maximum economic efficiency requires that people relate to each other *impartially*, which means *impersonally*; people must be competitive. When people spend more time and energy working, they have less time and energy to spend on personal relationships within families and communities. When people buy things based solely on price rather than buy from people they know and trust, personal relationships suffer from neglect. Industrialization devalues personal relationships, disconnects people, and thus dissipates and disperses social energy. here is no economic incentive for capitalists to invest in families, communities, or society for the benefit of future generations. And, it's typically more profitable to find new people to exploit than to invest in education and training programs to restore the economic productivity

of people. Markets allocate resources to .“Bottom-line” Markets provide no rewardsfarmers see no incentives forfor those who investing in long run community or societal well-being. Market agriculture inevitably tends toward *social entropy* – they are not sustainable.

Economies are simply the means by which people facilitate their relationships with other people and with their natural environment in complex societies. There are obviously too many people in most societies today to barter with each other or to produce their own food, clothing, and shelter. Economies actually *produce* nothing; they simply transform physical energy and social energy into forms that can be traded or exchanged in *impersonal* marketplaces. All economic capital, meaning anything capable of producing something of economic value, is extracted from stocks of physical or human energy – meaning from natural or social capital. Once all natural and social capital has been extracted from the land and people, agriculture's source of economic capital will be gone. agriculturesWithout capital, the economy will lose its ability to produce anything of economic value; it will have reached a state of *economic entropy* – it will no longer be sustainable.

A sustainable agriculture must be fundamentally different from the mechanistic paradigm of industrialization. Sustainable agriculture must be based on the paradigm of living systems. Living things are self-making, self-renewing, reproductive, and regenerative.² Living plants have the natural capacity to capture, organize, and store solar energy, both to support other living organisms and to offset the energy that is inevitably lost to entropy. Living things also have a natural propensity to reproduce their species. Humans, for example, devote large amounts of time and energy to raising families, with very little economic incentive to do so. Obviously, an individual life is not sustainable because every living thing eventually dies. But, communities and societies of living individuals clearly have the capacity and natural propensity to be productive while devoting a significant part of their life's energy to conceiving and nurturing the next generation.

The productivity and regenerative capacity of all living systems – including organisms and organizations – depend upon relationships, specifically, upon interdependent relationships among diverse elements within inseparable wholes. A living system cannot be separated into its individual components nor can its sequential processes be stopped without destroying the essence, i.e., the life, of the whole. Spatial and temporal relationships among the elements of living systems, and the diversity of those elements, make the whole of life something fundamentally different from a collection of individual parts. The whole of a living system is something *more* than its parts, rather than something less, whenever the relationships among its parts, across space and over time, are interdependent or mutually beneficial.

Since relationships within healthy living systems must be mutually beneficial, healthy living relationships must be *selective* in nature. For example, all living organisms are made up of cells and each living cell is surrounded by a selective or semi-permeable membrane. These semi-permeable boundaries keep some things in but let other things out and keep some things out but let other things in. Living organisms likewise are defined by boundaries – skin, bark, scales, etc. – that selectively allow different elements – air, water, food, waste, etc. – to enter and to leave the body of the organism. If these boundaries were either completely permeable or impermeable – if they let everything in or out or nothing in or out – the organism would be incapable of life,

and thus, incapable of producing or reproducing. Living organisms depend upon mutually beneficial, *selective* relationships.

The same principle holds for all living systems, including farms, families, communities, and societies. The boundaries which define healthy families, communities, and societies must be semi-permeable. Thus, relationships within farm families, communities, and societies must be different from the relationships among families, communities, and societies. The relationships among elements of healthy organisms and natural ecosystems are mutually beneficial by nature. However, healthy relationships among people and between people and nature are matters of choice, not predetermined, and thus must be consciously and *purposefully* selective.

Entropy is characterized by the absence of boundaries: inert uniformity, absent of form, pattern, or differentiation. Boundaries invariably are destroyed as energy is released from matter in the process of performing work. Thus, the natural tendency of all *non-living* systems toward entropy is reflected in their tendency toward the dissolution or destruction of boundaries. This relationship between boundaries and entropy also is relevant to cultural, political, and economic systems. The dissolution of cultural differences removes social constraints to economic development. The dissolution of political boundaries removes legal restraints to economic industrialization, allowing consolidation of control. The dissolution of economic boundaries removes restraints to trade and investment, allowing free access to all natural and human resources. Markets provide powerful incentives to remove all cultural, political, and economic boundaries.

These fundamental concepts are readily apparent in the industrialization of American agriculture. Tremendous gains in productivity and economic efficiency have been achieved by removing boundaries in agriculture to facilitate industrial production methods. Farmers have removed field boundaries to create larger fields, in order to accommodate more specialized, mechanized, larger-scale systems of production. The diverse crop and livestock enterprises that once characterized family farms have been abandoned to achieve greater economic efficiency. As farms grew larger, farmers looked beyond the boundaries of their communities to purchase inputs and market their products. With no effective economic boundaries, communities lost their ability to be selective in their relationships – to protect themselves from outside exploitation. Rural cultures lost their distinction and rural communities lost their economies. Rural landscapes have tended toward inert uniformity, without form, pattern, hierarchy, or differentiation.

Today, national economic boundaries are being removed to create a single global marketplace. Nations are being pressured to abandon traditional social and cultural values, including land stewardship, food equity, and food security, to achieve global economic efficiency. In a single global free market, no nation would be able to protect its farmland, its farmers, or its consumers from exploitation by the multinational corporations that increasingly dominate the global food system. In a single global market place, food would eventually be produced in those places of the world where nations were least able to protect their land and farmers from exploitation and sold to those people of the world who are willing and able to pay the highest prices. The wealthier nations of the world would lose the farming sectors of their economies and the poorer nations would see their lands and their farmers exploited to provide food for the wealthy. With a single global food market, no nation would have true food security.

So what is the logical response to this challenge, specifically in terms of public policy for agriculture? First, the people all nations must recognize the legitimate need for government policies to ensure long run food security, regardless of the short run economic consequences. Food security simply cannot be left to the market place. Markets simply do not value the ecological and social resources necessary to sustain the food economy over the long run. The current challenge to global food security is a direct reflection of the unwillingness of governments to challenge the free market philosophy of neoclassical economics. A blind faith in free markets is being used to justify the removal of all ecological, social, and political restraints to economic efficiency. However, none of the conditions necessary for classical economic free markets exists in today's global economy. True free trade must be selective trade, which takes place across semi-permeable boundaries, where each party is free to choose not to trade. The global "free trade" of today simply facilitates extraction and exploitation of natural and human resources, accelerating the tendency toward entropy. Food security demands that every nation claim its right and accept its responsibility to protect its natural resources and its people from economic exploitation.

Agricultural policy to ensure food security need not be radical. No one is suggesting a return to individual self-sufficiency or even community or national self-sufficiency, where farmers meet the entire food needs of the people of their respective communities or nations. Specialization and trade have real and important benefits at local, national, and global levels. Food security simply requires food sovereignty. People must maintain the *freedom to choose* when, where, and from whom they acquire their food. When people lose their freedom to choose, their food is no longer secure.

Agricultural policy should give people an opportunity to choose between global, industrial food systems and sustainable, local food systems. In order to choose wisely, they must be informed of the ecological and social consequences of their food choices, not simply the dollar and cent costs or even relative safety, quality, and nutrient values of foods. People need to understand that that their food choices have important consequences for the land, for farmers, and for the people employed in food processing and distribution systems. They need to be given a clear choice between the economic efficiency of industrial agriculture and the ecological, social, and economic integrity of sustainable agriculture. Ultimately, the people must *choose* food security over convenience and price.

The goal of farm and food policy should be to facilitate a voluntary transition from an energy using agriculture to an energy renewing agriculture. This necessity for such policy perhaps is most clear in the prospects for declining supplies of fossil energy. I realize that Canadians may view their fossil energy prospects with a bit more optimism than we do in the U.S., given the current enthusiasm for energy from the tar sands of Alberta. However, there is little debate among energy experts concerning the prospect for declining global fossil energy production over the next several decades, driven primarily by declining supplies of petroleum. Nor is there serious disagreement about the decreasing energy efficiency, increasing environmental risks, and rising economic costs associated with all the logical alternatives to petroleum.

The world has perhaps a fifty-year window of opportunity to make the logical transition to a fossil-energy free agricultural and food economy. The farm and food system in the U.S. currently consumes about 17% of total fossil energy use, with farming requiring between one and three kilocalories of fossil energy for each kilocalorie of food energy produced, depending on whether energy production is calculated for farm commodities or food products.³ Regardless of whether the fossil energy crunch comes sooner or later, industrial agriculture eventually will run out of energy because it is an energy *using* process, rather than energy *renewing* process. The future of American agriculture clearly is not in producing fuel for automobiles to replace fossil energy but instead in producing food for people in a world running out of fossil energy.

The logical alternative to the energy-using industrial agriculture is an energy-renewing sustainable agriculture. The sustainable agriculture movement in North America has been going on for more than two decades. It emerged during the 1980s from a merging of concerns about declining profitability, reliance on agrichemicals, and the viability of rural communities. The sustainable agriculture movement includes farmers who identify with organic, biodynamic, holistic, bio-intensive, biological, ecological, and permaculture, as well as many who claim no identification other than family farmer. These farmers and their customers share a common commitment to creating an agriculture that is capable of maintaining its productivity and value to society indefinitely.

Sustainable farms must be ecologically sound, socially responsible, and economically viable. A farm that degrades the productivity of the land or pollutes its natural environment cannot sustain its productivity. A farm that fails to meet the needs of a society – not only as consumers, but also as producers and citizens – cannot be sustained over time by that society. And, a farm that is not financially viable is not sustainable, no matter how ecologically and socially sound it may seem to be in the short run. Sustainable agriculture is the only means of ensuring long run food security.

Sustainable agriculture embraces the historic principles of organic farming. Sir Albert Howard, a pioneer of organics, began his book, *An Agricultural Testament*, with the assertion, “The maintenance of the fertility of the soil is the first condition of any permanent system of agriculture.”⁴ He contrasted the permanent agriculture of the Orient with the agricultural decline that led to the fall of Rome. He concluded, “The farmers of the West are repeating the mistakes made by Imperial Rome.” J. I. Rodale, another prominent proponent of organic farming, wrote, “The *organiculturist* farmer must realize that in him is placed a sacred trust... As a patriotic duty, he assumes an obligation to preserve the fertility of the soil, a precious heritage that he must pass on, undefiled and even enriched, to subsequent generations.”⁵

Rudolph Steiner, the founder of Biodynamic Farming defined an organic farm as a living system, as an organism, whose health and productivity depended on healthy relationships among its ecological, social, economic, and spiritual dimensions. He wrote, “A farm is healthy only as much as it becomes an organism in itself – an individualized, diverse ecosystem guided by the farmer, standing in living interaction with the larger ecological, social, economic, and spiritual realities of which it is part.”⁶ To Steiner, organic farming was about mutually beneficial, interdependent relationships within living systems.

Sustainable farmers rely on green plants to capture and store solar energy and to regenerate the organic matter and natural productivity of the soil. They use crop rotations, cover crops, intercropping, managed grazing, and integrated crop and livestock systems to maintain the fertility of their soils. Sustainable farmers reflect a sense of ethical and moral commitment to preserve the productivity of their land – to leave it as good as or better than they found it. Even though many of today's *industrial organic* producers have adopted large-scale, specialized, standardized systems, *sustainable organic* farmers have remained committed to creating a permanent agriculture capable of supporting a permanent society.

The farm and food policies needed to facilitate a transition to sustainability would be very different from the agricultural policies of either the U.S. or Canada today. First, governments should clearly distinguish between those agricultural producers who choose to compete in global export markets and those who choose to produce for domestic food security. Those who choose to produce for export should be encouraged to do so, as long their practices do not threaten domestic food security. But they should not expect taxpayers to subsidize their farming ventures. Neither should they be allowed to participate in government programs supporting food security, as such support inevitably would be diverted to subsidize their export ventures.

The principles guiding international trade policies would be simple and straightforward. Leaders of nations would refuse to submit to either coercion or bribery and would feel no obligation to open their national boundaries to outside exploitation of their natural and human resources. Nations would trade when it was deemed mutually beneficial to do so, to achieve greater economic security, but would refuse to participate in trade that threatened ecological or social security. The World Trade Organization would be redirected to empower every nation with both its *right* and its *responsibility* of protecting its natural resources and its people from economic exploitation. People within nations should be allowed to decide the conditions under which they will choose to trade or choose not to trade – people would have sovereignty.

To sustain productivity of agricultural land, government farm programs should be based on the premise that no one has the right to degrade land or the natural environment. Thus, all farmers should be required to meet environmental standards that conserve the soil, protect the quality of water and air, and in general, in order to ensure the integrity of the nation's natural resource base. The rights of private property have never included a right to destroy the productivity of the land or to degrade the natural environment. Accordingly, long run food security should be given priority over economic development in public choices concerning farmland in urbanizing areas.

To ensure the continuing productivity of people, farmers and food system workers should be given opportunities to lead personally and economically rewarding lives. This doesn't mean that everyone who chooses to farm should have a right to do so, regardless of their aptitudes or abilities. However, those who are willing and able to farm sustainably should be given an opportunity to do so. To support such opportunities, government benefits should be limited to individually-owned and family-operated farms. The objective should be to provide self-employment opportunities for farmers and others in rural areas, not to subsidize landowners and corporations. The overall goal should be to keep enough independent family farmers on the land, who are committed to farming sustainably, to ensure the long run food security of the nation.

The same dollars used to support current farm programs in the U.S. and Canada probably would be more than adequate to fund the new long run food security program. And in contrast to existing farm programs, a true food security program could be designed to be self-liquidating over time. For example, the \$20 billion currently authorized for farm commodity programs in the U.S. would fund \$20,000/farmer annual payments for one-million “full-time” farmers. One possibility would be to authorize a \$20,000 *tax credit* for each family farmer that *demonstrates progress toward sustainability*. A farmer that just breaks even, with no net farm income, would receive a \$20,000 payment from the government to compensate them for conserving natural resources, protecting the natural environment, contributing to the economy of their community, and helping ensure the food security of their nation. Farmers with positive net farm incomes would be receive credits reduced by the amount of income taxes they owed.

Farmers qualifying for the tax *credit* might be given a relative alternative farm tax *rate*, possibly 50% of total net farm income compared with 15-20% paid by most farmers today. Thus, as net farm income increased, the advantage of the tax *credit* would diminish as the higher tax *rate* claims a larger share of total income. At a net farm income of \$40,000, for example, the taxes owed (50% of \$40,000) would completely offset the \$20,000 tax credit, and thus the farmer would neither pay anything to nor receive anything from the government. At some higher level of income, probably between \$60,000 and \$80,000, it would be advantageous for the farmer to forego the special farm tax credit and pay the usual farm tax rate. At this point, however, the sustainable farming or ranching operation would be sufficiently profitable to ensure its sustainability without any further government support.

Farmers and ranchers would be free to own and operate as many acres and to produce as much as they choose, but the tax credit would be limited to \$20,000 for each full-time, independent farmer. Off-farm income might be added to farm income for part-time farmers, reducing the benefit of the farm tax credit as more income is earned off-farm. Production decisions would be made by farmers, not by the government, and not by the multinational corporations. Farmers who chose not to participate in the long-run food security program would not be required to have a sustainability transition plan but still would not be allowed to exploit their land or to degrade the natural environment.

The tax credit would facilitate the transition to sustainability by subsidizing farmer's incomes during years of crop failures, depressed prices, ill health, or other economic setbacks during the transition. Over time, farmers would be required to show progress toward ecological and social sustainability to remain eligible for the tax credit. They would also have to show progress toward becoming economically sustainable as well. If, after some specified number of years, they fail to achieve economic sustainability, they could be helped to find employment elsewhere, freeing up their farms for a beginning farmer, who would then be eligible for the food security program.

Food security programs would be the same for all sizes and types of farms. Farm size tends to be a reflection of sustainability, rather than sustainability being a reflection of farm size. Farms are large today because they have followed industrial rather than sustainable farming strategies. As agricultural policies reward sustainability and penalize exploitation farms will become smaller and size and greater in numbers as farms become more sustainable. Sustainable

farms of the future will be of a wide range of sizes, depending on the natural resources of specific farming regions and the crops and livestock produced. But sustainable farms will invariably be smaller than their industrial counterparts.

The success of such a transition to food security would depend upon large numbers of consumers ultimately being willing to pay the full cost of sustainable food production and distribution in the marketplace. Government farm and food policies however would need to play a key role in facilitating the transition from government subsidies for food security to food security through the marketplace. First, consumers must be able to identify products in the marketplace that have been produced by domestic farmers using sustainable production methods. Governments could work with sustainable farmers, along with environmental and social justice advocates, to develop uniform national minimum standards for sustainable production.

Consumers must also have assurance of sustainability in processing, distribution, and retailing of sustainably produced foods. Governments can work with independent, domestic processors, distributors, and retailers also to develop minimum national standards for their operations. The government then could accept responsibility for ensuring the integrity of the standards for domestically produced, sustainable foods – labeled, for example, as being “Produced with Canadian Integrity.” Regional and provincial organizations of farmers, processors, and retailers should be encouraged to work together to *exceed* national standards for social and ecological integrity, by developing products and processes that are uniquely suited to specific geographic locations and cultures – labeled, for example, as “Prince Edward Island FoodTrust.” Local communities should also be encouraged to develop cooperative relationships among local consumers, retailers, processors, and farmers to ensure the sustainability of food production and distribution, forming local community-based food systems.

The objective of such programs would be to encourage as much food as practical to be consumed as near as practical to the places where it is produced, and to ensure that minimum ecological and social standards are met for foods distributed regionally and nationally. In addition, all domestically produced, sustainably produced foods could be clearly distinguished in the marketplace from industrially produced foods of either domestic or international origin. The government should then undertake a nationwide educational campaign to inform domestic consumers of the differences between sustainably and industrially produced foods, not simply in terms of quality, safety, and nutrition, but also in terms of the social and ecological consequences for national food security. Consumers would then have an opportunity to make informed choices that reflect not only their individual economic preferences, but also their ethical and moral commitment to their neighbors, their nation, and to humanity.

Such an approach to farm policy in Canada would seem to be consistent with agricultural policy recommendations of several major Canadian study groups over the past year. For example, government food security programs might limit access to farm income supports to owner/operators, ban government support for corporate contract agriculture, strengthen the competitive position of domestic farmers and food firms relative to global corporate agribusiness, support farmer and consumer co-operatives, and encourage values-based partnerships among consumers, retailers, processors, and farmers. The suggested program would focus government programs on development of profitable domestic markets, while giving

farmers opportunities to compete in global markets, if they choose to do so. The government would be called upon to make strategic investments in infrastructure and the establishment of domestic advisory groups to address food production, distribution and retailing issues.

The food security program would use existing funds to help farmers make the necessary transition from industrial to sustainable agriculture, encouraging local food systems, reduced reliance on agro-chemicals, energy conservation, and ultimately, a fossil-energy free agriculture. It could establish “Green Labels” to brand foods produced in Canada and meeting ecological and social standards that clearly distinguish “sustainable” from “industrial” foods. Labels might also serve to educate consumers, by providing calculation of the “the farmers' share” of the consumer dollar, genetically-modified ingredients, country of origin, and “food miles.”

Perhaps most important, the farm and food policies suggested here would leave the ultimate food security to choices of sovereign consumers in the marketplace, to an informed, truly competitive capitalistic marketplace, functioning within the context of a socially and ethically responsible society. In order for consumers to choose long run food security over short run convenience and costs, they must have clearly defined choices, must have adequate products from which to choose, and must be fully informed of the short and long term consequences of their choices. To make wise choices concerning farm and food policy, taxpayers and consumers must not view government farm and food policy as a collection of special-interest driven programs, but instead as a comprehensive policy serving the common good by ensuring food security.

End Notes:

¹ For additional discussion of entropy, see Ikerd, *Sustainable Capitalism*, 2005.

² For a more in depth discussion of living systems, see Ikerd, *Sustainable Capitalism*, Chapter 5.

³ David and Marcia Pimentel, ed., 1996, *Food, Energy, and Society*, University Press of Colorado, Niwot, CO.

⁴ Sir Albert Howard. 1940. *An Agricultural Testament*. Oxford University Press: Oxford, England. also in Small Farms Library <http://journeytoforever.org/farm_library/howardAT/ATtoc.html>

⁵ J. I. Rodale. 1948. *The Organiculist's Creed*, Chapter 8. *The Organic Front*. Rodale Press: Emmaus, PA, USA. <<http://www.soilandhealth.org/copyform.asp?bookcode=010133>>

⁶ Rudolph Steiner. 1924. *Spiritual Foundations for the Renewal of Agriculture*. Gardner, M. (1993) (ed). Bio Dynamic Farming and Gardening Association of USA: Junction City, OR, USA. <<http://www.biodynamics.com/index.html>>