



## Genesee Valley Organic Community Supported Agriculture

### Food and Agriculture in the United States at the Close of the Millennium

by Elizabeth Henderson

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"You Are What You Eat," and "Know Your Farmer" are the slogans of the New York Sustainable Agriculture Working Group (NYSAWG), a coalition of farming, environmental, farmworker, and faith groups of which I chair the board. At the close of the millennium, most of the people in North America are eating food grown by less than 5 percent of the farms. Only a tiny percentage know the farmers who produced their food, or understand very much about how those farmers work the land. The food system in the United States has bifurcated. I sell the produce from my 20 acres directly to 160 families whom I get to know well because they come out to my farm to help me harvest their food. As a farmer deeply committed to understanding and working in harmony with biological processes, I represent a small, but growing core of resistance to industrialized agriculture, wresting tiny pieces of liberated territory from the corporate miasma. Which force will prevail in the next millenium? Only time will tell...

#### The World Supermarket

On her birthday, a bouquet of roses arrived at the home of a woman I know in the city of Rochester, New York. She was surprised and pleased. As she unwrapped the shiny paper covering, she wondered who could have sent such fragrant flowers. Then she found the card. The roses came from the local super-supermarket. My friend belongs to their shoppers' club - and they know all about her, her tastes and preferences, exactly what she buys every week, her credit rating, her age, her birth date. She doesn't need admirers anymore. She has Wegman's Supermarket!

The food system of the future is happening right now in cities in the US. The retailers are the nerve center of food distribution. The dominant food production and distribution sectors are pursuing the path of industrialization to its logical conclusion, reshaping themselves in the image of computerized information systems gathering data from shoppers' cards to schedule just-on-time deliveries. 27,000 new food products a year dazzle the eye and tempt the pallette. With communication, strategic corporate alliances, and transportation links reaching all over the world, the seasons no longer influence what is for sale. Sourcing is global, and the supply is unlimited for those who can afford to pay.

The consumer in the US no longer needs to know how to cook, or even wash food. Fast food restaurants, work place food services, convenience stores, and vending machines supply 60% of the meals people eat. Half of the population eats breakfast in the car on the way to work. As the traditional housewife becomes an endangered species, food stores are becoming more like take-out restaurants, selling pre-cooked or half-cooked meals that can be eaten at home. My father-in-law, who lives in a suburb of New York City where a large proportion of the inhabitants commute to work, reports that every evening swarms of commuters drive from the train station to the supermarket where they pick up ready-made dinners before they zip home for the night. Frozen gourmet meals are on the shelf next to TV dinners in the freezer section. A growth sector in the produce industry is pre-cut packaged salads, made possible by improvements in packaging. Sales hit \$1.09 billion in 1997, for a 20 percent increase over 1996. Overall sales of all kinds of "fresh-cuts," including "baby" carrots (full-sized carrots cut into pieces lathe-turned for that baby shape), fruit, stir-fry mixes, and salad, added up to \$6 billion in 1997, for 10 percent of total produce sales. Industry publications predict \$19 billion in sales by 2003. American consumers will pay 2 to 3 times the cost of buying the separate ingredients to have their carrots peeled or

their lettuce washed and cut up for them.

When polled, these same consumers express more and more concern about health and nutrition. The food industry responds with massive publicity campaigns for low-fat and low calorie versions of popular products. The pre-cut salads often include packets of low-fat salad dressing. The United States Department of Agriculture (USDA), the government agency charged with overseeing agriculture, forestry and public food programs, has launched a drive to encourage people to eat five portions of fruit and vegetables a day. Supermarkets compete on the quality of their produce sections, which market research shows to be the biggest lure for customers.

But, while Americans are eating more fruit and vegetables, there is evidence that the nutritional value of these foods is declining. For almost every vitamin and mineral, the 1997 USDA food composition tables show a decline of 15 to over 50 percent from the figures published in 1975. For example, the calcium in 100 grams of broccoli has dropped from 103 mg. to 48 mg. An exception, is the vitamin A content of the average carrot, which has risen 155.7 percent, although the vitamin C, calcium and iron have fallen. According to staff at the USDA Nutrient Data Lab, the change in values results in part from more accurate testing methods, but also from shifts in the varieties available in the marketplace. As a grower, I have observed that suitability for mechanical harvesting, longer storage life and shipability outweigh nutritional content in the breeding of most commercial varieties. The catalogues I see for vegetable growers emphasize qualities such as stem length in new broccoli varieties that make harvesting easier, or uniformity and smoothness of skin in carrots to make peeling and cutting cheaper and faster.

In the constant scramble for ever new products, the food processing industry keeps its eye on profits and image. Need does not enter the equation. For a few years, when family fortunes were desperate, my mother worked for an outfit called the Institute for Motivational Research. Their unique purpose was to figure out how to induce consumers to buy products, whether they needed them or not. Since vitamin pills and supplements are selling so well, the processors are busy making "nutraceuticals," and venturing into "functional" foods. And I thought that all foods were functional and contributed to human nutrition, but that only shows how naive I can be. The new functional foods, such as Kellogg's psyllium-laced cereals designed to lower cholesterol, have medicinal qualities engineered into them. My local food buying club selects from a catalogue that offers the choice among breakfast cereals with St. John's Wort, Ginkgo biloba, or echinacea. Fast food stands in New York City are doing a booming business in "health smoothies," fruit-based juice concoctions for which the customer selects the ingredients from a list of fruit, medicinal herbs, vitamin and mineral supplements. Novartis has a new product called SMOG C, a mixture of grape seed extract and methionine-bound zinc supplement, which promises protection from damage caused by tobacco or air pollution. The next step is "Identity Preserved" crops: the big seed companies are selling farmers seed designed for targeted end purposes, such as high lauric acid canola, and high oil corn and sunflower blends. Research is under way to boost the anti-carcinogenic substances in grapes, onions, garlic, and other vegetables. A licensing agreement between Demegen, Inc. and Dow AgroSciences aims at increasing the protein content in food and feed crops.

The seed companies offer growers the choice between "input enabling technologies" (for example, Round-up Ready crops), and "output enabling technologies" (Identity Preserved crops), but no choice about whether to use genetically engineered seed. To purchase these seeds, growers must sign contracts with the patent holding seed companies, which just happen to be conveniently connected to the processors who manufacture the end product. What ever happened to the idea of a balanced diet of fresh foods in season?

The proponents of the US food and agriculture system never tire of telling us that "we have the safest, cheapest, most abundant food supply in the world." (I wonder how that boast sounds in European ears?) If I have heard it once, I have heard it 1000 times that US farmers not only feed the growing population of this country, but we keep the rest of the world from starving as well.

## US Food Realities

There is no question that food is readily available in the US to those who can afford to purchase it. For a middle-class family, food requires a smaller percentage of the monthly budget than in other developed countries - figures vary from 12 to 15 percent. However, that does not equate with genuine food security for the entire population. While the stores are well stocked with food and have no obvious shortages, the supply of food on hand in northeast cities would last only thirteen days should some emergency occur. A

USDA report on a survey of 45,000 households completed in April, 1995, revealed that 11,940,000 US households are "food insecure," including 820,000 suffering from severe hunger. A Cornell University study headed by Katherine Alaimo, based on a survey conducted between 1988 and 1994, confirmed that 10 million Americans, including 4 million children, do not get enough to eat. In 1996, 90,000 children in the State of Washington experienced sufficient hunger to affect health and school performance. In Vermont that same year, one child in seven experienced hunger regularly. In the US, the number of Food Banks, community warehouses distributing salvaged and donated food to emergency food providers, rose from 75 in 1980 to 225 in 1990, and the number of pounds of food distributed increased from 25 million in 1980 to 811.3 million in 1995. Second Harvest reports that almost 26 million people rely on the emergency feeding programs their network serves. Congress responded to this increase in need by reducing funding for Food Stamps, a program that provides a significant subsidy to low-income families.

For most of the population, our food system probably provides easy access to too many calories. Despite all the hype about low fat diets and cutting calories, we have more severely obese people than any other country in which I have travelled. And I do not mean pleasingly plump. I mean women my height (5'4") who weigh 300 pounds and more. Women in their twenties who can barely walk, and for whom bending over to tie their shoes is a real challenge. Eating disorders, obesity, and its opposite, anorexia, the obsessive refusal to eat, have become a major category of mental illness. We can only speculate on the causes - drinking gallons of sugar-laden sodas, processed foods made with cheap fats, lack of exercise, too much television, overcompensation for poor self-image through constant eating, terror at becoming overweight - but the shocking phenomenon remains.

When I hear the claim of a safe food system, I have to ask, "safe for whom?" Granted, the sanitation standards in most food processing plants, restaurants, food services and retail stores are adequate to ensure that most of the food distributed and sold in the US will not make you sick. But that is a rather narrow way to interpret food safety. A broader view would also include the risk of hunger, the safety of the people who work in the food system, and the safety of the environment from the production and distribution of food. On all of those counts, the US food system does not win a top grade. While a 1996 report from the National Research Council, the research arm of the National Academy of Sciences, concludes that the small amounts of carcinogenic synthetic chemicals in the US diet do not "pose an appreciable cancer risk," pesticide poisonings average about 110,000 a year, primarily affecting farmers and farm workers. When the Environmental Protection Agency (EPA) tested rivers, lakes and wetlands around the country, they found that barely half could support all uses: clean water for drinking, swimming and recreation; fish and shellfish that are safe to eat; habitat for healthy aquatic wildlife. Agriculture accounted for 72 percent of the pollution of rivers and streams with silt, runoff from fields, and excess nutrients, such as phosphorus. Forty six different pesticides and nitrates from nitrogen fertilizers have been found in the groundwater of 25 states, with the largest residues in big agricultural states, such as California and Iowa.

Jim Hightower, former Texas Commissioner of Agriculture, has the clearest grasp on the logic behind the industrial farming approach: "if brute force isn't working, you're probably not using enough of it." In 1965, arthropods, diseases and weeds reduced crop yields worldwide by 34.9 percent. Pesticide applications in the US in 1964 totalled 540 million pounds of active ingredients. By 1990, losses to pests rose to 42.1 percent, although US farmers poured on 886 million pounds of pesticides. Pesticide company profits continued to climb in 1997. Novartis, the largest pesticide company in the world, sold \$4.2 billion worth of agrochemicals, up 21% from 1996. In the State of the World for 1998, Lester Brown argues that the world has surpassed the environmental limits to continued increase in agricultural yields: soil erosion plus declining underground water supplies plus climate change due to global warming overbalance any further benefit from additional fertilizers, pesticides or improved varieties. This is the reality of a too full world.

In a fine essay in the collection *Rooted in the Land*, Jack Kittredge sums up eloquently the loss of soil to erosion:

"Much of the incredible productivity of North American industrial agriculture has been based on using up two irreplaceable capital assets: topsoil and petroleum. When our ancestors settled this continent, they benefited from the largesse of thousands of years of natural soil creation, virtually undiminished by agriculture. The careless practices of our modern world have seen up to half of that soil washed or blown away, and each year every acre loses an average of 7.7 tons more. Only when the last of this prehistoric legacy is washed to sea and we are on a 'level playing field' with the other continents will we appreciate the magnitude of our folly."

Even in the narrow sense of foodborne diseases, the US food supply shows severe signs of strain. According to E. Todd writing in the Journal of Food Protection, in the US approximately 6.5 million cases of foodborne diseases are counted each year, including 9000 deaths. The US Government Accounting Office released a report in 1996 warning that the risk of foodborne diseases has been rising. Their analysis of the causes points directly at the increasingly industrialized and global food system. The Accounting Office lists as probable causes: the crowding of ever larger numbers of animals in confinement systems and feed lots; the rise of suppressed immune systems among the population; the appearance of new, highly virulent, or newly antibiotic resistant pathogens, such as Campylobacter, Listeria and E. coli 0157:H7; and the spread of meat-associated bacterial contaminants to apple cider, lettuce, tomatoes, melons, alfalfa sprouts and orange juice. The report estimates the overall annual cost to the economy as anywhere from \$5.6 billion, if you only count direct medical expenses, to \$22 billion, if you include lost productivity. The US Center for Disease Control concludes a study on the rise of antibiotic resistant bacteria with the assertion that it is the result of the routine use of antibiotics in animal feed. Agricultural use, much of it for growth promotion, accounts for 40 percent of the antibiotics sold in the US. The Minnesota State Epidemiologist points out an additional set of causes: the increase in the consumption of out-of-season produce shipped from countries with low health standards, and the fact that so many of the food workers are low paid, uneducated and lacking in proper health care.

The cheap food policy in the US depends upon a steady supply of poorly paid, largely non-unionized workers to harvest the crops, work in the canning factories and meat packing plants, and staff the supermarkets, food services, and cheap food restaurants. In the county where I live, which ranks second in the US in apple production, some 4000 migrant farmworkers come each year to pick apples and other crops. Under New York State law, farmworkers have no right to unionize. Farmworker advocates, the state labor department, and the labor brokers who supply farms with crews all agree that 60 percent of the farmworkers in my county are illegals. Needless to say, that is where their agreement ends: there is no consensus about how to assure an adequate legal labor force. The federal government's policy on this issue is schizophrenic. On the one hand, legislation passed in 1996 pays for doubling the number of Border Patrol agents, stiffens penalties for those who smuggle foreigners across our borders, speeds deportation, and allows the politicians to claim that they have taken vigorous action to stem the tide of aliens. On the other hand, farms and businesses continue to hire hundreds of thousands of these foreign workers, and profit from the low wages their insecure legal status and lack of union protection force them to accept.

The same voices that tell us farmers that our food system is unsurpassed in safety, also tell us that the prospects for US farms have never been so bright. With barriers to trade cleared away by the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA), US farms will be able to outcompete all others. As the free trade provisions of the World Trade Organization set the norms of international behavior, the \$57 billion worth of agricultural exports in 1997 could rise to \$75 billion in the near future. The rising standard of living in China promises expanding purchases of US grains and meat products. The 48 million acres planted with genetically modified seed in 1998, amounting to 25 percent of the corn, 38 percent of the soy beans, and 45 percent of the cotton, is only the beginning. The library of genetic information is doubling every 12 to 24 months: Monsanto, the "life sciences" company, can create 10,000 new genetic combinations a year. Genetically engineered crops will resist pests, requiring fewer pesticides, and assimilate nutrients more efficiently, reducing the need for fertilizers. Novartis Seeds proudly announced that by 2002, it "expects to have corn hybrids with yield 'insurance' against every major economic pest." By using custom designed, genetically engineered seed varieties, global positioning satellites (GPS), and computerized precision farming technologies, as few as 50,000 farmers will supply 75 percent of the country's agricultural production from 50 percent of the farmland. Air seeding will allow them to plant 15, 20 or 30 inch rows without touching the ground. These farmers will work as "farm technology managers" under contract to the vertically integrated distributors and processors.

Since the 1950's, the agricultural establishment, including the Land Grant Universities (the US agricultural schools funded by the government), has been advising farmers to "get bigger or get out." This advice fits well with the US business dogma that "if you are not growing, you are dying." Many farmers have tried hard to follow this advice, transforming their farms into agribusinesses. A small percentage has been successful. According to the latest census of agriculture, 7.2 percent of the farms (130,645) account for 72.1 percent of all farm sales. These large farms reap over 30 percent of government farm payments through the various commodity programs. Among these are farms with thousands of acres in irrigated

vegetables located in California or Arizona, with cropland in Mexico as well. They grow and ship produce year round, employing thousands of migrant farmworkers. In California, there are dairy farms with 2000 cows, some of these organized in farm clusters with centralized processing for as many as 80,000 cows. In my county, there are two apple orchards with over 1500 acres each. The 2000 acre orchard also runs its own storage and packing plants. In name at least, some of the largest agribusinesses are family farms, like Murphy Farms, a major pork producer, or Tyson, a chick to check-out counter chicken integrator, contracting with hundreds of real family farms that actually raise the chickens. These biggest farms have industrialized, attempting to dominate the biological process of growing food with chemical and mechanical technologies, and achieving spectacular results in terms of production per acre. With chemical fertilizers, synthetic herbicides and insecticides, hybrid varieties, irrigation and ever larger machinery, yields of basic grains, corn, wheat and rice, have doubled and tripled. Wheat rose from one ton per hectare in 1950 to 2.6 in 1983; corn went from 4 tons in 1950 to 7.9 tons in 1995.

Fifty years ago, at the end of World War II, there were 23 million farmers in the US. The latest census counts 1,911,850, of whom 961,560 claim farming as their chief occupation. Within the memory of people still alive, fruits and vegetables grew on the outskirts of most major cities. Market farms across the Hudson River in New Jersey supplied the vegetables needs of New York City dwellers. Apple orchards blossomed in the Bronx. Urban and then suburban sprawl have paved over the cropland and planted houses and highways where cabbages used to grow. Food production has shifted to where it is most "efficient," where bigger machines can manoeuvre over larger, flatter fields, where chemicals and technology reduce the need for horse and human power, and where crews of poorly paid migrant workers do their jobs and then move on. The global food system plays economic hard ball. A vicious speed-up has been going on in the countryside. Where a farmer could support a family with 20 cows in 1950, today, 200 are needed. Where the 160 acre section produced enough grain for a family's living, 1600 acres with a much greater yield per acre are just barely enough today.

Rural areas, where the increasingly large and specialized farms produce basic commodities, no longer feed themselves. The Field to Family Community Food Project reports: "Iowa is a 'textbook example' of the effects of an expansive industrial food system. The state's agricultural production, focused on grain and livestock, is highly specialized for export purposes, and because there are few food processing industries based in the state, almost all of the food consumed by the state's 2.8 million citizens (including that derived from the basic commodities produced in the state) is imported. The state depends on such imports for essentially all of its vegetables and fruits. The 1992 U.S. Census of Agriculture considered the number of vegetable and fruit farms in the state to be so negligible that it reports no data for these entries."

As recently as 1910, one third of the population of the US, some 32 million people, lived on farms. The dust bowl, the Depression and the Second World War drove nine million people off the land. But those major upheavals pale in significance compared to the decimation of the farming population which followed the restructuring of farm price supports in the 1950s. By 1993, less than 2 percent of the population was left on only 2.2 million farms, so few that the US Census Bureau announced it would stop counting them. And the decline continues. Black farmers have been squeezed off the land even faster than white farmers: in 1920, one out of every seven farmers was black; in 1982, black farmers counted for only one out of 67 and operated only 1 percent of the farms. Between 1987 and 1992, Vermont lost 73 acres of farmland a day. New York State has been losing farms at the rate of 20 a week and farmland at the rate of 100,000 acres a year for 20 years. The country lost 8 percent of its dairy farms in 1996-1997. According to the National Agricultural Lands Study completed in 1981, the US was losing one million acres of prime cropland every year, or four square miles a day. Julia Freedgood of American Farmland Trust says that this rate of loss of 3000 acres a day is continuing in the 1990's.

The brutal economic pressures of the global marketplace are taking their toll on the farmers who are producing basic commodities: milk, grains, soy beans, cotton, potatoes, apples. US farmers have a saying - "farmers sell wholesale and buy retail." The terms of this deal get worse and worse. The index of prices farmers pay for seed, equipment and other necessities has risen 23 percent since 1950, while the prices paid to farmers at the farm gate fell 60 percent. The value of the basic commodities produced by farms is sinking: between 1978 and 1988, milk fell by 11 percent, potatoes by 9 percent, fresh vegetables by 23 percent, and red meat by 37 percent. In 1981 dairy farmers received \$13.76 per hundred weight (the national average), while consumers paid \$1.86 a gallon. In 1997, farmers were paid \$12.70 per hundredweight, but the consumer price was up to \$2.76 a gallon. A 1991 USDA study of 11,800 farm households concluded that 84 percent of US farms rely on off-farm income. The average farm income is

\$37,000, but only 16 percent of that comes from the farm.

Farmers are not the only ones suffering this loss of earning power. Since 1973, the average earnings for US men fell 11 percent. The median household income rose till 89 due to the increase in women's contribution. But since 89, women's wages have been decreasing too, such that between 89 and 95, median household income fell by 7 percent. At the same time, the percentage of total income received by the wealthiest 5 percent rose from 15.9 percent in 83 to 20.3 percent in 93. Corporate taxes made up 24 percent of IRS revenues in 1960, but only 13 percent in 1996. This in a world where 97.5 percent of foreign exchange transactions are in the money system - currency trading - and have nothing to do with real production of goods and services.

The complex and confusing Federal system of loans, set-asides, deficiency payments, etc., has not resulted in prices which cover the cost of the reproduction of the farms. Let me give an example: in 1993, the annual cash expenses for growing an acre of corn, as calculated by the Economic Research Service of USDA, amounted to \$177.89. The total gross value of selling that corn was \$227.36, for an apparent profit of \$49.47 a acre. However, when government economists added in the full "ownership costs", expenses that must be covered to keep a farm economically viable for the long run - such as capital replacement, operating capital, land, and unpaid family labor, the bottom line came out minus \$59.74, not including money towards retirement. Oats came out minus \$51.18, wheat minus \$52.87, and milk, per hundredweight, minus \$2.02.

Small surprise that farms all over the country are going out of business. In a little booklet in 1979, Mark Ritchie asked whether this is the inevitable course of history or the result of conscious policies. He concluded that the loss of so many farms is not the unfortunate result of policies which failed, but rather the result of a concerted and unrelenting drive by agribusiness, government, banking and university forces to restructure agriculture by reducing farm price supports, manipulating the tax structure and conducting research and development in support of large-scale agricultural enterprises. The men who made these policies were representatives of the largest corporations, banks and universities who saw their work, in their own words, as contributing "to the preservation and strengthening of our free society."

Middle-sized farms with gross sales ranging from \$10,000 to \$99,999 a year are disappearing the fastest. In 1997, farms selling less than \$9,999 increased by 1 percent and farms selling over \$100,000 increased by 3 percent, while the middle group fell by 4 percent. In *Family Farming: A New Economic Vision*, Marty Strange presents convincing evidence that farms in the middle category, particularly the \$40,000 to \$250,000 range, make better use of their resources and are more likely to practice careful land stewardship than the largest farms. For every dollar the family-run middle-sized farms spend, they produce more income. Production expenses on the largest farms averaged 85 percent of gross sales, but on the middle farms only 72 percent. On an organic community supported agriculture farm like the one I run, production expenses are even lower, in the range of 30 to 40 percent of gross sales. Like Ritchie, Strange concludes that the obstacles to the survival of these farms come from public policy, not from poor farm management or lack of efficiency.

In 1979, under Secretary of Agriculture Bob Bergland, USDA published *A Time to Choose*, which warned that "unless present policy and programs are changed so that they counter instead of reinforce or accelerate the trends toward ever-larger farming operations, the result will be a few large farms controlling food production in only a few years." Eighteen years and over 300,000 lost farms later, USDA convened a National Commission on Small Farms to examine the condition of farming and its place in the food system. The Commission held a series of hearings around the country where, on very short notice, hundreds of farmers and farmer advocates testified, and in January, 1998, issued *A Time to Act*. This report contains 146 recommendations for policies that would protect small farmers' access to fair markets and redirect existing federal programs which are currently skewed to serve the interests of large agribusinesses. Written by Barbara Meister, an active member of the National Campaign for Sustainable Agriculture, *A Time to Act* contains stirring language about the vital role of small farms as the embodiment of the ideals of Thomas Jefferson. Hopefully, nineteen years hence, it will not be gathering dust next to old copies of *A Time to Choose*. In January, 1999, 24 out of the 29 original commissioners met to review the agency's progress in implementing their recommendations. They gave USDA a report card with an overall grade that is just barely above failing.

The biggest farms may be getting bigger, but the farming sector of the food system is losing control to the increasingly consolidated multinational corporations like Novartis and Cargill. Many of the once

self-employed farmers become employees at larger farms or in the farm inputs, processing and marketing sectors, which are returning 18 percent on investment, and grabbing ever larger portions of the consumer food dollar from the farms. Stewart N. Smith, former Commissioner of Agriculture for Maine and an agricultural economist, has traced the downward trajectory of farming:

"The food and agriculture system has changed remarkably through this century under the regime of industrial agriculture, especially in shifting economic activities from the farm to the non-farm components of the system. Farmers contributed 41 percent of the system activity (and got 41 percent of the returns) in 1910, but only 9 percent in 1990. On the other hand, input suppliers increased their share from 15 percent to 24 percent, and marketers from 44 to 67 percent."

According to Smith's calculations, if current trends continue, farming as such will disappear completely in the year 2020.

The passage of the GATT and the NAFTA remove what few protections were left for the 93 or 94 percent of the farms that do not rank among the big boys. The Multilateral Agreement on Investments (MAI) will forge the final link in the choke collar of corporate control. Under GATT regulations, US agricultural exports have risen 5 percent, but imports have gone up 32 percent. In 1997, this country imported \$36.2 billion worth of food products, and that wasn't all coffee, chocolate and bananas. It included many crops we can produce right here. In the first six months of 1998, we exported \$3.2 billion worth of fruit and vegetables, but imported \$3.4 billion worth. According to a USDA study released September 3, 1997, the economic impact of the NAFTA on the balance of agricultural trade between the US and its two neighbors has been a negative \$100 million. Mexican tomatoes are underselling Florida tomatoes. US corn growers, however, like the NAFTA because it opened Mexican markets to them and even helped raise the price of corn 8 cents a bushel. The cost has fallen on Mexico where from 600,000 to a million small corn farmers, who could not compete with the lower price of the imported corn, have been uprooted from the countryside and forced into the army of unemployed in the towns or into the masses of migrants pouring over the borders to work in the US.

When international trade heats up, the greatest benefits go to the corporations that control the markets. Fewer than five companies control 90 percent of the export market for corn, wheat, coffee, tea, pineapple, cotton, tobacco, jute and forest products. Those same big traders - Cargill, Continental Grain, Bunge, Luis Dreyfus, Andre and Co. and Mitsui/Cook - also control storage, transport and food processing. Incidentally, Daniel Amstutz, a former Cargill executive, drafted the US agricultural proposal for GATT under President Reagan. Cargill is in the process of purchasing Continental Grain's worldwide grain operations, which will give Cargill control of 42 percent of US corn exports, 20 percent of wheat exports, and 31 percent of soy bean sales.

The consolidation of control of the food system inside the US is also increasing steadily. Tom Lyson has calculated that 10 cents of every US food dollar goes to Philip Morris, a conglomerate of nine tobacco brands, Miller Brewing, 7-Up, Post Cereals, Maxwell House Coffee, Sanka, Jell-O, Oscar Mayer, Log Cabin Syrup, etc., with total sales in 1995 of \$36 billion. As Karen Lehman and Al Krebs put it: "Between January 1 and January 31, 1995, while most Americans were still figuring out how to break their New Year's resolutions, Philip Morris merged Kraft and General Foods into Kraft Foods; Ralston Purina sold Continental Baking Company to Interstate Bakeries Corporation, the nation's largest bread maker; Perdue Farms, the nation's fourth largest poultry producer, acquired Showell Farms, the nation's tenth largest poultry producer; and Grand Metropolitan proposed to acquire Pet, Inc. The brand names are all that's left of the small companies that became huge conglomerates through mergers and acquisitions."

The buy-outs and mergers are made more complex by the pattern of interlocking strategic alliances. Rural sociologist Bill Heffernan concluded a study of the three major agribusiness clusters, Cargill/Monsanto, ConAgra, and Novartis/Archer Daniels Midland: "The complexity of the linkages in the system undermines market competition and makes it difficult to measure. The network of relationships is creating a seamless system with little market transparency along the various stages of the food system. Because of this complexity, a firm that does not hold a majority share of a specific market may still have great decision-making power within the food chain."

When four major packers control 86 percent of the beef slaughter, the greatest concentration in US history, what does this mean for consumers and small farmers? With only one or two buyers, farmers have to take what they can get if they want to sell their food. If they don't cooperate with the big packers, they can find themselves without any buyers at all. Between 1979 and 1997, the producer share of retail beef sales dropped from 64 percent to 49 percent, as the price farmers received for slaughter steer fell 50

percent. Consumers ended up paying less - but only by 15 percent, while the packing companies enjoyed unprecedented profits. Anti-trust legislation, the Sherman Act of 1890, requires that when as few as four companies gain control of 60 percent of any sector, the government must take action. Passed in response to public anger over concentration, the act assumes that dominance of an industry or market by a few firms will damage the public by raising prices, reducing quality and slowing technological advance. Obviously, the government has not chosen to enforce this set of laws very often.

Although most consumers in the US are still content filling their baskets in the global supermarket, farmers and their allies have begun to awaken to how unsustainable and anti-democratic this system is. Writing poems, novels and essays from his farm in Kentucky, Wendell Berry is one of the clearest voices helping us to understand the underlying meaning of the direction our food system is taking. He articulates a fierce critique of the irresponsibility of the impersonal relations of the industrialized, corporate, global food system, while lifting up the homely values of care for the land, and respect for the local people, their farms, businesses and living web of interdependencies. (See *The Unsettling of America - Culture and Agriculture*, 1977, and *The Gift of Good Land, Further Essays*, 1981). In "The Body and The Earth," Berry writes of the profound connections between how we nourish our bodies and how we treat the earth: "Around me here, as everywhere else I have been in this country...the farmland is in general decline: fields and whole farms abandoned, given up with their scars unmended, washing away under the weeds and bushes; fine land put to row crops year after year, without rest or rotation; buildings and fences going down, good houses standing empty, unpainted, their windows broken.

"And it is clear to anyone who looks carefully at any crowd that we are wasting our bodies exactly as we are wasting our land. Our bodies are fat, weak, joyless, sickly, ugly, the virtual prey of the manufacturers of medicine and cosmetics."

#### A Sustainable Food System

Over the last two decades of the twentieth century, the US food system has been dividing into two increasingly distinct segments as the grassroots movement for a sustainable food and agriculture system has been gaining momentum. From a scattering of isolated individuals practicing alternative farming methods, and small, local organizations, sustainable agriculture is swelling into a significant social movement with a national network, and an effective policy wing. Populist in spirit, with strong feelings for civil rights and social justice, and an underlying spirituality, this movement is not linked with any political party or religious sect. To paraphrase the German Greens, it is neither left, nor right, but firmly grounded in every region of the country, encompassing organic and low-input farmers; food, farming, farmworker, community food security and anti-hunger organizations; animal rights activists; environmental, consumer and religious groups.

Consumers alarmed about pesticide residues in their food and family health are realizing that how they spend their food dollars may be more important in determining their future world than how they vote. In every state in the US, local groups are springing up to support farmers markets, community supported agriculture projects, urban gardens, small-scale processing incubators, and a tremendous variety of programs to link consumers directly with the farmers who produce their food. There are no good statistics available yet on what is happening. This movement is emphatically decentrist, although energetic networking has helped to accelerate its growth. The very decentralization and lack of hierarchy that impedes the convergence of this movement into a political party or a unified organization are the source of its great populist vitality and increasing strength. Like a vast jigsaw puzzle that someone dropped in a dark closet, the pieces have had to discover one another and figure out how to fit together.

Many of the pieces have joined in the National Campaign for Sustainable Agriculture. The Campaign has a broad definition of sustainable agriculture as a food and agriculture system that is economically viable, environmentally sound, socially just, and humane. Or, in the simple words of Wendell Berry, "an agriculture that does not deplete the land or the people." By the end of the lobbying effort directed at Congress in relation to the 1996 Farm Bill, over 500 groups were associated with the National Campaign.

The briefest of descriptions of a few of these groups gives a sense of the movement's diversity. In the midwest, there is the Center for Rural Affairs, formed by rural Nebraskans concerned about the decline of family farms and rural communities. The Center provides technical assistance to farms in replacing off-farm inputs with renewable resources, and in developing lower cost ways of raising livestock, such as using hoop houses for hogs. The Federation of Southern Cooperatives, begun by civil rights activists in the 1970's, unites over 70 cooperatives with over 20,000 member families in the southern states. The



member cooperatives engage in agricultural production and marketing, community development credit unions, and consumer, worker and housing issues. The main objective of the Federation has been to help black landowners keep their land. The Hartford Food System, in the city of Hartford, Connecticut, is dedicated to planning, developing and operating local solutions for the city's food problems, which stem largely from poverty. Since its founding in 1978, the Hartford Food System has helped establish the first farmers' market in the city and then 47 more throughout the state; facilitated the creation of city and state food councils; initiated the Farmers Market Nutrition Program, which provides over 50,000 low-income residents with special vouchers that they can only spend to purchase fresh produce from area farmers; and founded a community supported agriculture farm in a nearby town. The National Farmers Union, representing over 300,000 farmers in 24 states, develops and lobbies for family-farmer friendly policy in Washington, D.C. At the local level, the Farmers Union has taken a lead in organizing a number of the "new wave" farmer cooperatives, a successful series of farmer-owned businesses producing such products as pasta, cheeses, and bread, and marketing grass-fed, antibiotic and hormone free meats.

In the absence of a definitive social history of this movement, or even a good first sketch, my personal experience as a consumer and a farmer may serve as a partial, but typical glimpse of our unfolding alternatives. My first encounter with organically grown food was as a shopper. As a city dwelling young professional (I taught at a university), I wanted to feed my young son the purest, freshest food possible. Frustrated in my attempts to discover which additives to avoid, I joined the local food coop, which stocked produce from regional organic farms and natural foods without additives. When my husband died in a car crash, I moved in with friends who had a garden. My parents came from generations of city people, and I had never grown food before. Gradually, I took over my friends' garden. They were too busy to weed or even harvest, and I found deep comfort in that little piece of city earth. The longing to make that a bigger part of my life grew as I moved through the early stages of an academic career. When I wasn't studying literary criticism for my lectures, I read voraciously about food, agriculture, and renewable resource alternatives to industrial pollution. A chemical spill that set the public school my son attended in a tizzy of ill considered defensive measures was the last straw. I decided to move to the country and learn how to produce my own food.

After considerable searching, I bought a farm in rural Massachusetts together with two friends. Neighbors told us that it had been the best farm in town before various misfortunes took their toll. We had to rebuild from scratch, first a barn to give us some construction experience, then a house, and a greenhouse. The second summer, we started gardens to grow our own food and a crop of leeks for market. The third year, we sold enough produce to cover farm expenses, marketing to three area food coops, a few restaurants, a farmers' market, and a new chain of natural food groceries. Over the next few years, we expanded to four acres of market gardens and a small flock of sheep.

Even before I moved to the farm, I joined the Northeast Organic Farming Association (NOFA), which held an annual conference where you could take workshops in almost any rural skill from bread and cheese-making, to organic gardening and animal husbandry, to solar home and greenhouse construction. And you could meet hundreds of people who were doing the same things. Though I never had the benefit of an apprenticeship, I visited and worked a few days at a time on the farms of many NOFA friends, which helped me learn the craft/science of farming. In 1982, I joined a study group with other more experienced organic farmers to learn more about soil health, cover crops, pest control and compost. After a year of reading and discussion, we decided to form an organic certification program and a state chapter of NOFA. We took the International Federation of Organic Agricultural Movements (IFOAM) basic organic standards as our guidelines. Since I was forty, I agreed I was old enough to be the founding president. In the next few years, NOFA chapters sprang up in seven of the northeast states. Maine maintained its independence with the Maine Organic Farming and Gardening Association. Similar groups formed all over the country. The number of farms certified organic by the NOFA chapters and MOFGA has grown from a handful in the mid-eighties to over 1300 in 1998.

After getting my start in organic farming and seeing my son off to college, I moved to a larger farm in my home state of New York. In 1989, in cooperation with the Politics of Food, an organization in Rochester dedicated to spreading urban gardens, food security and improving urban-rural links, we began a community supported agriculture (CSA) project, the first in upstate New York. Over ten years, this CSA, which took the name Genesee Valley Organic CSA, has grown to over 150 families. During the growing season, the members contract with the CSA to receive a packet of vegetables and small fruit from our farm every week for 25 weeks. In exchange, they pay on a sliding scale from \$250 to \$460, participate in 12 hours of farm work and 4 hours of work on distribution of the food. To help the members make good use

of the 70 different vegetables we supply them, my partner and I wrote a Food Book for A Sustainable Harvest, which provides a brief history of each vegetable, nutritional information, how to store it short and long term, anecdotes on how it is grown, and recipes. From the initial CSA in eastern New York in 1988, the network of CSAs has grown to over 40 throughout the state.

In *Sharing the Harvest: A Guide to Community Supported Agriculture* (Chelsea Green, 1999), a book I wrote together with Robyn Van En, we estimate that in 1998 there were over 1000 CSAs, almost all organic or biodynamic, ranging in size from 3 members to over 800. CSAs are cooperatives of a new sort joining consumers with a farm or small group of farms. The members agree to share the risks of farming with the farmers. If the crop is abundant, the sharers get more food; if there is a crop failure, they get less. The first CSAs in the United States, Indian Line Farm in Massachusetts and Temple-Wilson Farm in New Hampshire, both initiated in 1986, established the model of the "community farm," which dedicates its entire production to the members, or sharers. Only about a quarter of the CSA farms have emulated the community farm model. The amount of member participation in either growing or distributing the food varies from farm to farm. At one extreme are CSAs like the Genesee Valley Organic, which require all sharers to do some work as part of their share payment. At the other, are what have come to be known as "Subscription" CSAs, where the farm crew does all of the work, members pay a fee, and simply receive a box or bag of produce each week, much like the "box schemes" in England. Most CSAs range somewhere in between, with members volunteering for special work days on the farm, helping with distribution or defraying part of their payment by doing "working" shares. Besides supplying food, most CSAs also publish newsletters to inform members about the farm, how the food is grown and handled, and how to make best use of the food.

Repeated studies done on the spread of CSAs confirm that members join because they want fresh, nutritious, high quality organically grown food from a local farm. Price is less important than the farm connection. Knowing this, I select the varieties I grow for their taste and nutritional qualities, rather than shelf life, ease in harvesting, or even uniformity. I have learned that some of my members want a big head of lettuce or cabbage, but others prefer a small one. Anyone who has worked on my farm will attest that I set precise standards for quality that my helpers ignore at their peril. Around the US, CSA and farmers' market farmers are on the look out for varieties with distinctive flavors. Heirloom varieties, many preserved from extinction by only a few seed savers encouraged by the Seed Savers Exchange, are making a comeback. The realization that the consolidation in the seed industry will soon make it almost impossible to find non-genetically engineered seed, whether open-pollinated or hybrid, is inspiring a surge in seed saving by organic farmers and gardeners, and small new seed companies.

Besides farming, I am involved in community work in agriculture on the county, state and national levels. I chair the Agricultural and Farmland Protection Board in the county where I farm. While the global market pits farms against one another, regional food security suggests that farms need one another to survive. There has to be a critical mass of farms to support the service infrastructure we need: parts, materials and equipment stores, repair shops, and freight companies. In my county, our Farmland Protection Board has completed an action plan to give a boost to local farm morale and economic viability. In the towns closer to Rochester, the nearest city, we hope to initiate a program of purchase of development rights. Since we believe that economic prosperity is the best defense for farms, we have persuaded the county to hire an agricultural economic development specialist, a county staff person who helps farmers with new enterprises, cooperatives, marketing schemes, and agricultural tourism. We are exploring how to start a revolving loan fund, and a new farmer program to bring younger people into farming and provide them with experienced farmer mentors.

On the state level, I still serve on the Governing Council of NOFA, though I avoid taking office. In New York, NOFA runs an organic certification program, hosts an annual conference, workshops, and farm tours that focus on the how-tos of organic agriculture on all scales, and supports a mentoring program pairing people new to organic farming with farmers who have been at it a while. I represent NOFA on the board of the New York Sustainable Agriculture Working Group (NYSAWG), which concentrates on public policy and Land Grant accountability. When organic farmers tried to do this work alone, we got nowhere. NYSAWG is a coalition of farming, environmental, consumer, church and farmworker groups. We have developed an effective system of legislative alerts. With 24 hours notice, we can bombard a state representative or government office with 150 e-mails, FAXes and phone calls from all over the state. Our persistent messages have helped maintain funding for programs to reduce the use of pesticides, to cut farmers' taxes, and to aid dairy farmers with price supports. NYSAWG helped create a broader coalition to unite all the agricultural organizations in the state, organic and chemical alike, around the urgent message

"New York Farms!" and all our farms need the loyal shopping dollars of the state's consumers. NYSAWG is affiliated with the Northeast SAWG, which does policy work on the regional level, and with the National Campaign for Sustainable Agriculture.

In 1995, I was the first organic farmer appointed to the Advisory Council to the Dean of the Cornell College of Agriculture and Life Sciences, New York's Land Grant. I felt like a trespasser on alien territory. Under the tight reign of the dean of that time, the word "sustainable" provoked titters that were almost as nervous as the word "organic." At more recent meetings, we have discussed how to ensure that concern for sustainability is infused through all of what Cornell does, and the significance of retaining small, as well as large farms. For three years, there have been annual meetings between researchers and organic farmers to discuss research projects on organic farms, and undergraduate students have persuaded the university to allocate land for a student-run organic market garden. I don't want to exaggerate the changes taking place; Cornell is still a bastion of conventional agriculture and a world class center for genetic engineering. But at least Cornell recognizes the legitimacy of organic agriculture.

On the national level, I represented the organic farmers of the northeast on the steering committee which established the National Campaign for Sustainable Agriculture, the broadest, most diverse coalition for change in the food system in US history. Created to develop policy for the 1995-6 Farm Bill, the Campaign has retooled for the long run to keep up the momentum in pushing for appropriations and implementation. Even in the negative political climate in Washington, D.C. during recent years, the Campaign has succeeded in keeping funding for programs in sustainable agriculture research; resources and information for organic and sustainable farmers; technical and financial assistance for minority farmers; the Farmers' Market Nutrition Program; and grants for grassroots community food security projects. With Michael Sligh of the Rural Advancement Foundation International (RAFI), I co-chair the Campaign committee that helped orchestrate the 275,000 comments to USDA on its proposed organic regulations. We continue to coordinate among the many organizations and interests concerned with organic agriculture so that we will either get a government program that has integrity, or we will have the strength to repeal the organic law and run a national organic program in the private sector.

What Future Will We Choose?

In her book *Chicken Little, Tomato Sauce and Agriculture*, Joan Gussow raises the possibility of a sustainable agriculture based on genetically engineered perennial biomass production. Liquified into high protein syrups, the feedstocks will flow through pipelines to food extrusion machines for on-demand transformation into highly nutritious combinations at sites conveniently located close to population centers. This system would eliminate erosion, cut transportation costs, and reduce to a minimum production uncertainties due to weather. The majority of US consumers, accustomed as they are to highly processed junk foods, would never know the difference. Will this be the food reality of the 21st century? It is up to us and our actions today to decide.

If we - the farmers, gardeners, gourmet chefs, connoisseurs and ordinary food eaters, environmentalists, educators, scientists, health promoters, trade unionists, food justice activists, "green" entrepreneurs, members of religious groups of every faith - work together, we can create a just and peaceful world where all living creatures will coexist. Less predictable things have happened in the twentieth century. Citizens of all countries have prevailed against the madness of a nuclear war. We can create a food system based on priceless values: an intimate relation with our food and the land on which it is grown; a sense of reverence for life; cooperation, justice and equity; appreciation for the beauty of the cultivated landscape; a fitting humility about the place of human beings in the scheme of nature. We can build a global cooperative where human beings from diverse ethnic groups exchange seeds and recipes instead of bullets and missiles.

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