

New Farmers for a New Century

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Presented at 21st Annual Ecological Farming Conference, organized by the Ecological Farming Association, Asilomar, CA, January 24-27, 2001.

As corporations move toward control of agricultural production, and some people even talk of the end of agriculture in America, any discussion of “new farms for the new century” might seem a bit out of touch with reality. In a recent book, “The End of Agriculture in the American Portfolio,” a California economist, Steven C. Blank, claims that corporate production will replace family farms, and that corporations eventually will move agricultural production to other countries. Land and labor costs in the US are simply too high, he says, to allow the US to be competitive in agriculture in a global economy. Admittedly, if we look only at economic trends, farming in the US might seem to be a dying occupation. We might question whether there would be any realistic possibilities for new farmers in the new century.

Throughout much of human history, the occupation of farming, worldwide, has been in almost continuous decline. In the beginning of agriculture, when humans first began cultivation of crops and livestock for human use rather than just hunt and gather, the occupation of farming blossomed and grew. But once people became capable of producing more food than they needed for their own families, people begin to choose something other than farming as an occupation. The ability to produce more than needed for home consumption, allowed some people to leave the land – to become neither hunters, gatherers, nor farmers – and to barter with farmers to meet their needs for food and fiber. Those who left the farms became medicine men, warriors, blacksmiths, storekeepers, dentists, schoolteachers, entertainers, etc – they did the things that farm families were least able to do for themselves.

In the US, as in many other nations, the absolute numbers of farmers eventually began to decline, even as total populations continued to grow. Some scholars called this process industrialization, as people left farms and rural areas for manufacturing jobs in the cities. In times of famine or other crises, such as the Great Depression of the 1930s, people returned to the land to produce their own food and fiber, to increase their odds of survival. But throughout most of past two centuries, those leaving farms in the industrializing nations consistently have outnumbered the total of those continuing and beginning to farm.

At the turn of the twentieth century, however, America was still an agrarian nation. In the 1890 census, forty-percent of the U.S. population still listed their occupation as farming – by far the largest of any occupation – and well over half of all people lived in rural areas. However, a hundred years later, in 1990, the percentage of farmers in the U.S. population had dropped to less than two-percent, and only about 25 percent lived outside of major metropolitan areas. American agriculture had to be industrialized to support the industrialization of the rest of the economy. Consequently, American farms grew more specialized, larger in size, and fewer in number. The number of U.S. farms

dropped from a depression-years peak of 6.6 million in the 1930s to less than two million some sixty years later. In addition, farm households now rely on non-farm sources for about 90 percent of their income. In the span of a century, the nation transformed itself from a rural-farming to urban-industrial nation. The other so-called developed or industrial nations of the world followed similar patterns of transformation from rural to urban.

Against this historical backdrop, however, an increasing number of farmers are finding ways to succeed where others have failed. These farmers are challenging the conventional wisdom that farmers must either “get bigger, give into corporate control, or get out.” These farmers represent a new breed of farmer with new ideas. They are redefining the occupation of farming. They are finding ways to capitalize on the weaknesses of the industrial approach to farming that has dominated agriculture for the past century. They are successfully bucking the trend toward larger farms, fewer farms and fewer farmers. They are finding ways to make a better living on smaller farms, making room for more, rather than fewer, farms and farmers. They are lowering the barriers for beginning farmers by creating an agriculture that depends more on knowledge and understanding of nature, including human nature, and less on capital and access to technology. This new breed of farmer is creating new opportunities for anyone who has a willingness to work hard, a commitment to continual learning, and a love of the land and its people. They are the new farmers for the new century.

The Old Farm

To understand why the “new” farms work, we have to understand why the “old” farms do not work – at least don’t work to the long run benefit of people. The conventional farm of today is a product of the industrial revolution. Industrialization, with its specialization, standardization, and mechanization of production, required large numbers of people to “man” the assembly lines and offices of large manufacturing operations. People moved into cities by the millions as a country goes through the industrialization process. In America, the simultaneous industrialization of agriculture – specialization, standardization, and consolidation of control – made it possible for fewer farmers to feed more people better and at a lower cost. This “freed” farmers and other rural people to go to work in the cities and freed consumers’ incomes to buy those things the industrial economy produced.

The same technologies that pulled rural people toward the cities pushed them off the farms and out of rural communities. These technologies increased production per person by substituting capital and commercial inputs for labor and hands-on management. As successful new farming technologies were developed, they invariably reduced production costs – per bushel or per unit of production – but only if each farmer operated at a larger scale and produced more output. Thus, the incentive to realize greater profits by reducing costs inherently was an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably increased, market prices fell, and the earlier promise of continuing profits vanished. The new technologies then became necessary – no longer for profits but now for survival. Those who adopted too late or expanded too little were unable to compete.

This is the process by which farmers were “freed” from their farms to fill the manufacturing jobs in the city. The farms that survived grew larger and fewer in number. In fact, with a limited population to feed and a limited amount of land to farm, it was possible for only fewer and fewer farmers to survive.

As the industrialization of agriculture moves into its final phase – the centralization of control and decision making among giant agribusiness corporations – there might seem little hope for family farms. Within a decade, the independent producer of basic agricultural commodities, such as corn, hogs, soybeans, cattle, may be a rarity. Those not on the payrolls of the large agribusiness corporations quite likely will be producing under comprehensive corporate production contracts. Moreover, as Steven Blank contends, corporate agriculture may eventually move to other countries where labor and land costs are more competitive, spelling the end of the American farm. The future of conventional farming most certainly is at risk; nevertheless, there are signs of hope on the horizon. The industrial era appears to be nearing an end elsewhere in the economy, even as it continues to consume agriculture. A new post-industrial, knowledge-based era of human progress is emerging – most prominently in other sectors of the economy, but also in agriculture. This new era of human development will continue to create opportunities in the new century for a new and better kind of farming.

The Inevitability of Change

Admittedly, if the dominant trends of today were to continue, there would be little hope for the future of farming. But, trends never continue, at least not indefinitely. A few years back, a couple of scientists proposed a list of the top twenty “great ideas in science” in Science magazine, one of the two most respected scientific journals in the world (Pool). They invited scientists from around the world to comment on their proposed list. Among the top twenty were such ideas as the relationship between electricity and magnetism, the laws of gravity and motion, and the first and second laws of thermodynamics. The top twenty also included the proposition that “everything on the earth operates in cycles;” everything physical, biological, social, economic – everything. Some scientists responding to the Science survey disagreed with the proposed theory of universal cycles, saying that things “tend to operate in cycles,” but most left it on their list of the top twenty great ideas in science (Culotta).

In essence, the theory of universal cycles implies that trends never continue forever. Trends are nothing more than phases of longer-term cycles that eventually will turn and move in the opposite direction. In reality, it’s just common sense – everything that goes up eventually comes down, and everything that goes around eventually comes back around.

The theory of cycles implies that farms will neither get larger and fewer nor smaller and more numerous forever, but instead will cycle back and forth over time. If we think back over past centuries and around the globe, we can find examples where control of land became concentrated in the hands of a few, such as in feudal times, only later to be dispersed among the many. The most significant example in the U.S. may have been

the development and later demise of plantation agriculture in the South. The most significant such occurrence in the world at present is taking place in what once was the Soviet Union, where large communal farms are being divided into individual farmer-owned plots. Cyclical turning points typically have been associated with major historical events. However, large-scale, industrial agriculture is coming under increasing environmental and social challenges all around the globe. Another major historical change in farming may well be in the offing.

The Transition to Sustainability

Many futurists – people who study trends and cycles – believe we are in a time of a *great transition*.

“We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed.”

These are not the words of a priest or a philosopher but of Dee Hock, founder of one of the largest financial institutions in the World, the VISA Corporation. Hock is certainly not alone in this thinking. A whole host of futurists from the political and business communities, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John Naisbitt, and Robert Reich agree that we are in a time of fundamental change. They talk and write of a shift in worldview from the mechanistic, industrial model of the past, where people derived power from control of capital and the technical means of production, to a new life-centered, post-industrial era where knowledge has become the source of power, of wealth, and of future human progress.

The old and new worldviews are fundamentally different. The old views the world as a complex machine; the new views the world as a living organism. Factories are mechanistic. Factories are built, they function for a while, inputs come in, outputs go out, and eventually, they wear out, and they must be replaced. Knowledge is biological rather than mechanical in its fundamental nature – it is discovered, it changes, it grows, it reproduces, and it multiplies over time pretty much on its own. Living things cannot be “built,” and are difficult to control; instead they must be nurtured and cared for. Thus, the knowledge-based era of human progress will require greater understanding of and respect for living systems, including people.

The transition of agriculture is taking place under the conceptual umbrella of sustainable agriculture. The transition to the post-industrial paradigm of sustainable agriculture is but a small part of the great transition that is taking place all across society. The questioning that is driving changes in agriculture, however, exemplifies the broader questioning of society that is fueling the great transition. The questions relate to sustainability – “Is society in general, or agriculture in particular, sustainable over time?”

People may disagree on the specific words, but there is a growing consensus that a sustainable agriculture is “an agriculture that is capable of meeting the needs of the present while leaving equal or better opportunities for the future.” The concept of sustainability applies the Golden Rule across generations. *We should do for those of future generations, as we would have them do for us, if we were of their generation and they were of ours.* We must find ways to meet our needs, all of us who are here today, without diminishing the ability of those of future generations to meet their needs as well.

A sustainable agriculture must have three fundamental characteristics. It must be ecologically sound, economically viable, and socially responsible. Any system of farming that lacks any one of the three quite simply is not sustainable. This is not a matter for debate; it is just plain common sense. A sustainable agriculture must protect and maintain the productivity of its natural resource base. If the land loses its ability to produce, the farm is not sustainable. A sustainable agriculture must provide for the food and fiber needs of people, but it also must provide people with opportunities to lead successful lives. Agriculture must do its part to sustain society or society will not sustain that type of agriculture. Finally, a sustainable agriculture must make sufficient profits for farms to remain economically solvent. If the farmer goes broke, the farm is not sustainable.

No one of the three dimensions is any more or less important to sustainability than the others. The ecological, economic, and social dimensions of sustainability are like the three dimensions of a box. A box that is lacking in height, width, or length quite simply is not a box. A farm that lacks economic viability, ecological integrity, or social responsibility quite simply is not sustainable. It's just common sense.

Sustainable farming is knowledge-based – based on knowledge of how to work with nature, rather than dominate it, in order to generate production and profits. Whereas, industrial agriculture substituted capital and off-farm technology for labor and management, sustainable agriculture substituted labor and management for capital and off-farm technology.

Sustainable farmers farm in harmony with the world around them. They match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of themselves, their capabilities, their values, and their purpose in life. This requires a higher level of understanding of consumer tastes and preferences and of the uniqueness of relationship markets. This requires a higher level of understanding of the land and of nature's productive processes. In general, sustainable farming requires more intensive resource management – more thinking and creativity per acre of land or dollar of investment. Farming sustainably is very much in harmony with a knowledge-based paradigm for future human progress – the post-industrial era of human development.

Wendell Berry, a Kentucky farmer, has clearly articulated the connections among people, the land, and sustainable agriculture.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement,

therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).

The words of Wendell Berry, the farmer and writer, are completely consistent with Peter Drucker, the industrial business consultant and writer,

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center (p. 210)." Sustainable agriculture, the new vision for the future of agriculture, is a knowledge-based approach to meeting the food and fiber needs of society that decreases the importance on capital and technology by putting people at the center of productivity.

The New Sustainable Farm

This new paradigm for agriculture is being developed by thousands farmers all across the American continent and all around the world. These farmers are developing the replacement for the old industrial model of agriculture. They are developing a new pattern for farming in the future. Farming sustainably is no simple task, but thousands of farmers are finding ways to succeed. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of farming.

These farmers, not the experts or the scientists, are the ones on the new frontier – they are the explorers, the colonists, the revolutionaries, and the builders. As on any frontier, life is difficult because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.

These new farmers are diverse, but they also share much in common. First, they share a common pursuit of a *higher* self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

There are no blueprints for this new way of farming. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new farm relies instead on the

advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to *bend nature* – to augment, supplement, alter, and force it -- to create an illusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchased inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities. These new farmers focus on giving consumer full value – giving them what they want. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. So, industrialization has to treat us as if we are all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That's why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word-of-mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging, and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New farmers focus on what *they* can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to *bend people* -- train, bribe, and coerce -- to make them behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many problems of today's society are symptoms of people being used

by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don't fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural "alternatives." They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can't compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through uniqueness – among consumers, among producers, and within nature.

In general, new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems for meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

Is Organic Farming Sustainable?

Many people seem to equate sustainable agriculture with organic farming. The two concepts certainly are related, but they are not the same. The recent rapid growth in organic markets has attracted the attention of many conventional farmers. Growing organic markets and organic price premiums also have attracted the attention of the giant agribusiness corporations. The Hudson Institute's Dennis Avery and a few other high-input junkies notwithstanding, organic production has gained in both interest and credibility. The "o-word" – a curse word in the agricultural establishment a few years ago – has become almost an "in-word."

Unfortunately, the "S-word" remains a curse word in the vocabulary of most folks in the agricultural establishment – including many university people. Sustainability is OK if it means a profitably, environmentally sound agriculture. Even Monsanto and DuPont have their "sustainable agriculture" programs. But, once you start bringing in the social issues – family farms, rural communities, quality of life, ethics and values – the establishment abandons sustainability. They have grudgingly accepted the fact that an agriculture that uses up its resource base and pollutes its environment is not sustainable. But, they claim industrial systems can be environmentally friendly. They balk at accepting the social dimension of sustainability, because any claims they might make of being socially responsible would not be credible. They want to sustain agriculture, and their own profitability, but feel no responsibility to sustain people through agriculture. They reject the mandate for a socially responsible agriculture, because industrial systems are quite simply not socially responsible. They are

interested in organic markets, only if they can convince the organic movement to shed its “social baggage.”

Up to this point in time, organic farming and sustainable agriculture have generally traveled the road of enlightenment and progress together. Organic farming is as old as agriculture. However, history indicates that organic – in and of itself – does not ensure sustainability. Civilizations have risen from fertile lands only later to fall when nutrients were depleted or crops were destroyed by pests – while using farming systems that were “organic,” in the sense of no commercial inputs were available. Thus, “organic” systems are not inherently sustainable. However, many still believe that ultimately all sustainable systems must be organic, even if all organic systems are not sustainable.

The sustainable agriculture movement evolved out of the organic community a decade or so ago. The evolution was an attempt to widen the circle of people involved in the search for systems of farming that will last, and thus, will be sustainable over time. The early organic advocates of sustainable agriculture probably still believe that all sustainable systems will be organic, but they have been willing to accept those taking alternative means in hopes of reaching a common end.

Advocates of organic and sustainable agriculture have generally agreed on purpose and principles, even if not always on means or methods. The generally accepted purpose of sustainable agriculture is to meet the needs of the present, while leaving equal or better opportunities for the future. General agreement also exists concerning the principles of sustainability. Most agree that sustainable systems must be ecologically sound, economically viable, and socially responsible – that all are necessary and none alone or in any pair is sufficient. Up to this point, organic and sustainable have been held together by purpose and principles, but their continuing in harmony may be in jeopardy.

Historically organic farming has been as much a philosophy of life as a method of production. Organic farming methods are based on nature’s principles of production – on farming in harmony with nature rather than trying to conquer nature. Diverse farming systems which integrated crops and livestock enterprises are designed to capture solar energy, to recycle waste, and to regenerate the soil. Organic farmers also believe in living in harmony with other people – in cooperating rather than competing. Healthy food, a healthy environment, caring communities, and a strong society are considered natural products of pursuing an organic farming philosophy.

However, many of the new organic farmers, or would-be organic farmers, see organic mostly, if not purely, as a matter of economics. Some conventional farmers brought land out of the Conservation Reserve Program (CRP). Much of this land had no pesticides or inorganic fertilizer applied to it in more than three years, and thus, could qualify quite easily for organic farming. Other conventional farmers were going broke producing basic commodities and were looking for any profitable alternative. Large-scale, corporate farming operations saw organic as a growth market to be exploited for as long as it lasts. The early organic standards debates over use of biotechnology, sewage sludge, and irradiation were all reflections of conventional and industrial

interests in organic farming. Thus, many conventional farmers and corporations alike seem to be looking at the organic production as an immediate, short-run economic opportunity. They do not see organic as a means to the end of a more sustainable agriculture.

Even the traditional “organic community” is no longer of one mind. Most agree that they want to protect their markets from industrialization. But they don’t necessarily agree on whether organic markets should remain niche markets or become mass markets. If organic markets become mass markets, they eventually will become industrialized markets. And industrial production is inherently unsustainable – regardless of the inputs and practices approved or used. The materials and methods may be organic but the paradigm for production will be industrial. Allowable materials and methods will be changed over time, if necessary, to accommodate the industrial paradigm. It makes little difference whether “industrial organic” systems emerge as existing organic producers become corporate giants or as current corporate giants capture the market. Neither will be sustainable.

National organic standards are almost certain to lead to industrialization of a substantial segment of the organic market. National standardization will allow those who can meet the minimum standards at the lowest “dollar and cent cost” to prevail – which almost certainly will be the industrial, mass producers. The most critical element of the recent certification debate was whether state and non-government entities would be allowed to maintain their own certification programs, and that individuals be allowed to truthfully label whatever they offer for sale. Without such rights, all organic markets will become industrial, mass-markets. But even the maintenance of organic niche markets does not ensure the sustainability of organic production. Those who are driven mostly, or solely, by the promise of profits from niche markets – ignoring their ecological niches or places of production – also will threaten its sustainability.

For production to be sustainable, the system must be ecologically sound as well as profitable and socially responsible. The process of production must be compatible with the ecology of the place of production. Niche markets will be sustainable only if the means of production are tailored to conform to their ecological niches. Those who violate the ecological principles of sustainability will not be able to sustain their uniqueness, and ultimately will not be able to sustain profitability. However, those organic farmers who continue to pursue organic farming as a means for sustainability will continue to travel the road of enlightenment and progress. Those who continue to pursue organic farming as a philosophy of life, rather than just a business, will continue to find a life of quality. They will help build an agriculture that is ecologically sound and socially responsible, as well as economically viable. They will continue to realize a higher quality of life – personally, interpersonally, and spiritually, as they remain true to the purposes and principles of sustainability.

A Matter of People

Sustainability is fundamentally a matter of people. Sustainable agriculture promotes smaller, more-diversified family farms because of its focus on people. Sustainable

agriculture promotes greater concern among people – people making conscious, purposeful decisions for the common good rather than relying on the impersonal forces of the marketplace. The *invisible hand* of theoretical economics that is supposed to transform individual greed into the common good has been mangled in the machinery of corporate industrialization. The markets will not ensure that the hungry will be fed. The markets will not ensure that people willing to work will have an opportunity to work. The markets will not ensure that future generations will have adequate resources for food, clothing, and shelter. The only way to ensure that the needs of the present and future are met is for people to make conscious, purposeful decisions to care for the natural environment and to care for other people.

If agriculture is to be sustainable, we must have enough people on the land to sustain the productivity and ecological health of the land. Thus, sustainability will require more, rather than fewer, farmers – more who understand their particular parcel of land, who know how to take care of it, who are motivated to care for it, and who have the time and money to care for it well. A smaller farm may leave more time for people to care about each other and care for the land. In a sense, sustainability demands that farmers “love the land.” And, each farmer can “love” only so much land.

In general, the new sustainable farmers must put more of themselves into their farms – as managers, workers, neighbors, friends, family – as people. But farming in harmony, economically, socially, and ethically, allows the farm, the farmer, and the family to become part of the same whole. So, there is no conflict between the personal, interpersonal, and spiritual because they work in harmony for a common purpose – to achieve a higher self-interest. A measure of economic success is necessary for harmony and balance, but getting wealthy is not a priority.

New farms for the new century will center on people. New farmers will rely far more on knowledge than on capital or technical inputs. Knowledge is not impersonal, like money or technology. Knowledge does not reside in a book, a databank, or a software program – these things contain only information. Knowledge is always discovered by a person, enhanced by a person, taught by a person, and put to use by a person. The transition to the knowledge-based society will bring people back to the center of society and will bring people -- farmers, customers, citizens, -- back to the center of farming.

What guarantee do we have that these new farmers will succeed? There are no guarantees, but there most certainly is hope. To quote Vaclav Havel; writer, reformer, and President of the Czech Republic:

“Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed.

Hope is definitely not the same thing as optimism. It's not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.

It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that seem hopeless.

Life is too precious to permit its devaluation by living pointlessly, emptyly, without meaning, without love and, finally, without hope.”

Even when things don't seem to be going well, and when it's obvious that success is going to require a lot of time and effort, as long as we are able to keep working and thinking, there is hope. Even when we have no logical reason to be optimistic, when we are not sure that things will ever turn out well, if what we are doing makes sense, there is still hope. It's this hope that gives us the strength and courage to try to make the world a better place, even if others think our cause is hopeless.

Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love and, finally, without hope.

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