

## How Big Should A Small Farm Be?<sup>1</sup>

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Back in the 1960s, I had an opportunity to work with a genuine “giant.” His name was Henry Hite. I worked with merchandizing and sales promotion for Wilson & Co., meat packers, and Henry was one of the “gimmicks” we used to lure people to supermarkets to buy our bacon and hams. Henry billed himself as being eight feet, two inches tall – although the Guinness Book of World Records lists him at something like seven feet, nine-and-a-half inches. Henry admitted to me that he wasn’t actually eight-foot-two, but he said he was at least two inches taller than some other fellow who claimed to be eight-foot-even. Regardless, Henry Hite was a tall fellow – a genuine “giant.”

Even more impressive, Henry was in his mid-forties at the time and he lived into his early sixties. Most “giants” die young – few even survive their thirties. Henry was lucky. All of his abnormal growth came during his teenage years and by age nineteen he had stopped growing. Most “giants” keep right on growing, until their body becomes so large its vital organs can no longer support its bulk and they die. In the case of giants, the biological process that naturally limits the size of the human body fails to function. Apparently, each of us has a “normal” size, beyond which our health begins to decline, and a maximum size, beyond which we get sick and die. Henry wasn’t particularly healthy, at least partially due to his size, but he had quit growing before he grew too big to live. Henry’s case was notable because he pushed the limits of size and survived.

So what does the size of Henry Hite have to do with the right size for a small farm? Henry, like you and me, was a living being – a living biological organism. And, all living organisms have a “right size,” or at least a “right size range.” Some elephants are bigger than others and some mice are smaller than others, but the “right size” for all elephants obviously is much larger than the “right size” for a mouse. If a mouse were as big as an elephant, it couldn’t survive by doing the things that mice do, and if an elephant were as small as a mouse, it couldn’t survive by doing the things that elephants do. But equally important, a mouse could never live to grow nearly as large as an elephant and an elephant couldn’t survive without becoming much larger than a mouse. In nature – in the “grand order of things” – living things have evolved over time so their size now fits their purpose and function within nature. Living things are naturally the right size to do what they need to do. And, a farm is a living thing.

A farm is a living organism – in many respects, like the body of a plant or an animal. A farm is a complex “organization” made up of biological organisms within the soil, of plants and animals above the soil, and of the farmer, who cares for the farm and lives from the farm. The health of the farm is dependent upon the health of its various elements, or “organs,” but also, upon the health of the relationships among the various organs that make up the living organism or farm as

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a whole. And, as with all other living organisms, each farm has a “healthy size,” beyond which its health begins to decline, and a “maximum size,” beyond which it will “become sick and die.”

Unlike plants and animals, however, healthy farms may be different sizes. Unlike natural organisms, farms have neither a predetermined purpose to perform nor a specific set of elements, organs, or resources to be used in carrying out their necessary functions. Thus, farmers must decide the purpose of their farms and then must organize the resources – the land, labor, capital, and management skills – necessary for the farm to function effectively. In a sense, farmers create their unique farm “organism.” However, all farm organizations still must function according to the basic principles of living organisms. Each unique farm organization, being a living organism, has a healthy size and a maximum size, beyond which it cannot survive. But for each farm, the farmer must discover the “right size” necessary to keep their farm healthy and the size beyond which it must not be allowed to grow.

In general, the health of a farm depends on its ecological, social, and economic dimensions. A healthy farm, as with any other living organism, must function in harmony within its ecological niche. The farm organization and the diversity of its enterprises must fit its natural environment and the diversity of its natural resources – its climate, land, and biological environment. A healthy farm also must function in harmony with the people who farm the land and the people affected by the way it is farmed – the farm family, community, and society. And a healthy farm must meet the realistic expectations of those who depend upon it for their economic livelihood.

A farm that expands beyond its ecological niche invariably degrades its natural resource base – soil, air, or water – and eventually diminishes its health and productivity. If it persists in trying to function in conflict with nature, the farm will not survive. A farm that expands beyond its social niche invariably creates conflicts within the family, within the community, or within the larger society. If it persists in trying to function in conflict with its social environment, the farm will not survive. However, a farm that fails to expand enough to fulfill its economic purpose, without creating ecological or social conflict, likewise, is not a healthy farm. For a farm to be healthy, it must be of a size that allows balance and harmony among its ecological, social, and economic functions. If it is too small, it cannot perform its economic purpose, but if it becomes too large, at some point, it will become sick and die.

Many farms today are too large to survive. Although today they may appear to be productive, even profitable, they are not sustainable over time. They are exploiting and degrading the natural resource base upon which their productivity ultimately depends. On many farms, soil is eroding at rates far in excess of its natural regenerative ability and agricultural chemicals are polluting groundwater and streams and destroying the biological life of the soil. Many farms are exploiting and degrading the people who work the land, the people of the surrounding rural communities, and people of society in general. The occupation of farming is being “de-skilled” through corporate contractual arrangements, which reduce the function of farming to that of low-skilled, low-paid labor. Consequently, the productivity and profitability of such farms are not sustainable. Sustainable farming systems must be ecologically sound and socially responsible if they are to be economically viable, and thus, sustainable over time. Many farms today have expanded beyond their naturally healthy size. Their health is declining each year, and they are dying a slow death. Many farms today have become too big to live.

It seems reasonable to ask why so many farms have become so large. Why would so many farmers organize their farm resources in ways that ultimately destroy its health and its long run viability? The answer is, they have lost sight of the fact that a farm is a living organism. Instead, they treat their farms as if they were inanimate mechanisms. In the minds of many farmers today, a farm is simply a factory without a roof and fields and feed lots are nothing more than biological assembly lines. Agriculture is just another industry and a successful farm must be run like any other business. There is no natural limit to the size of industrial business organizations – the bigger they are the more successful they are considered to be. Thus, farmers who have this industrial, business organization mindset see no reason to limit the size of their farming operation. The bigger the farm, the more successful the farm, at least in the eyes of many.

Every farm has a purpose. The purpose of many farms has shifted over the years, from farming as a “way of life” to farming as an “economic investment.” This emphasis on economics has caused many farmers to adopt an industrial approach to farming – industrialization being the dominant economic development model of the 20<sup>th</sup> century. Industrialization is characterized by specialization of function, standardization of process, and consolidation of control. Once-diverse crop and livestock farming operations first specialized in either crops or livestock, next in one or two crops or a single livestock species, and for many, in a single phase of production of a crop or livestock species. Specialization allowed the various production processes to be broken down into their basic elements so they could be standardized, routinized, and in many cases mechanized. In fact, processes had to be standardized so the various specialized elements of production would fit together in producing a single product – just like activities at each position on an assembly line must be standardized so they all work together.

Finally, specialization and standardization make it far easier to control a production process. Each person involved in the process simply carries out a predetermined specialized function according to some standard operating procedure, greatly simplifying the management process. Management decisions are then reduced to deciding how much land, labor, and capital will be invested and how these resources will be allocated or employed. Through industrialization, each decision-maker or manager can effectively control a larger business organization. This allows consolidation of control into fewer and larger production units, in the case of agricultural industrialization, into fewer and larger farms.

The key point of this discussion is that industrial organizations have no natural limits to size. As a production processes is reduced to smaller and smaller elements, and as each element is standardized, routinized, and mechanized, it becomes possible for larger and larger production units to be brought under the control of a single decision maker. The continuing consolidation of giant corporations that are already multinational in scope provides clear evidence of the lack of natural limits to size for industrial business organizations. The production processes on thousands of farms is now controlled by a few of these giant business organizations, providing equally clear evidence of the lack of natural control on the size of industrial organizations that we once called “farms.”

But, how can we be sure that the increasing size of these industrial farming operations will degrade the health and destroy the sustainability of farms? The answer: because the fundamental processes of industrialization conflict directly with the fundamental requirement for ecological and social health and for long run economic sustainability. The only way to maintain the health and sustainability of a farming operation is to treat the farm as a living organism rather than an inanimate mechanism. The size of a farm must be limited to a size that is consistent with its ecological and social health, and thus, with its economic viability.

The question of a healthy sustainable farm size is essentially a question of “boundaries” – how much land, labor, and capital should be included within the “boundaries” of a single decision-making unit or farm. In addition, the health and sustainability of the farming operation depends directly on the health of the boundaries that define the various elements, or “cells,” which constitute the farm organization. A healthy farm must be of a size consistent with maintaining healthy boundaries.

All living things are made up of cells and cells are distinguished and defined by their boundaries. I recall learning about cells in a high school science class. Each cell is surrounded by a membrane or cell wall. The walls of living cells let some things pass through, but keep other things in and out – so they are called “semi-permeable” membranes. If the cells in our body were permeable or non-permeable, rather than semi-permeable, they would not support life. If they didn't keep anything in, we would dry up. If they didn't let anything out, we would blow up. If they weren't semi-permeable, they wouldn't be able to retain moisture or minerals; they wouldn't be able to metabolize food, release energy, or eliminate waste. We would die. All living things are made up of cells, which are distinguished and defined by their semi-permeable boundaries.

This principle of healthy boundaries extends to many other aspects of life. All living organisms, plants, animals, people, etc. are defined by boundaries – skin, bark, leaf surface, scales, etc. – which give them form and identity. As with cells, the boundaries of organisms must be semi-permeable or selective with respect to what they allow to pass through and what they keep in or out. An organism that lets nothing in will starve from lack of nutrition and energy. An organism that allows nothing out will be poisoned by its own waste.

Larger living organizations, such as families, communities, and nations, have boundaries that are social or cultural rather than physical. The relationships we have with people within the boundaries of families, communities, or nations are different from those with people outside our family. Without these personal, cultural, and political boundaries, human civilization, as we know it, could not exist. Without civilized human behavior, life on earth might well cease to exist. Good boundaries are necessary for life.

Business organizations are living organizations, and the boundaries of businesses define their span of control. Economic relationships within a healthy economic organization are inherently different from relationships between organizations. For example, relationships among the various economic enterprises on a healthy farm are managed differently than are business transactions between the farm and its suppliers of inputs or markets for products. As with all living organisms, semi-permeable economic boundaries are necessary for the economic health of

a farm. Economic viability is not a matter of either self-sufficiency or mutual-dependence, but rather of maintaining semi-permeable, selective, economic boundaries.

Another fundamental characteristic of living things – plants, animals, insects, bacteria, etc. – is their ability to recreate and to reproduce themselves, and thus, to create new cells, new organisms, and thus, new boundaries. In fact, the natural tendency of all living systems is toward the creation of greater biological diversity – meaning more different identities and forms of things, and thus, more boundaries. For example, after a field has been stripped of all vegetation, the first life to return likely will be a single, or possibly a few, species of “weeds.” The weeds will mature, reproduce, and die, but their rotted residue will create a favorable environment for other plant species. As a succession of regeneration processes continues, an increasing diversity of plant species will create favorable habitat for an increasing diversity of microorganism, insect, and animal species. And, this increasing diversity of form and structure is defined by a multitude of new boundaries.

Unlike living things, the natural tendency for “dead things” – including inanimate, mechanistic things – is toward the dissolution or destruction of boundaries. In physics, this is called a natural tendency toward “entropy.” Entropy is defined as “the ultimate state reached in degradation of matter and energy of the universe; a state of inert uniformity of component elements; absence of form, pattern, hierarchy, or differentiation.” Entropy is characterized by the complete absence of boundaries.

In the definition of entropy, “degradation of energy and matter” refers to the fact that boundaries are destroyed by the release of energy from matter and that new energy is required to rebuild boundaries. For example, when an oak log is burned, energy, in the form of heat, is released from the wood and the structure of the wood is turned to ashes. The boundaries that once defined the structure of the log are destroyed through the releasing of energy. The human body converts food to energy by a similar process of digesting or breaking down the structure of the things we eat. In both cases, the energy consumed is renewable because the energy lost can be replaced by new energy captured from the sun.

Each time energy is released from matter some energy must be used to restore the boundaries of matter, leaving less “useful energy” than before. Lacking a new infusion of energy from “outside” – as from the sun – systems slowly lose their ability to restore the structural boundaries of matter, and thus, slowly lose their ability to store and release energy. This is the essence of entropy – the degradation of energy and matter, as systems lose their form, structure, and diversity through the destruction of boundaries.

This may all sound a bit esoteric; however, the concept of entropy is critically relevant to the health and sustainability of a farm. The dissolution of biological, social, and economic boundaries that define different fields, family values, business enterprises, etc., removes the obstacles to specialization, standardization, and consolidation, and thus, allows maximum productivity and economic efficiency. On farms, we have seen tremendous gains in productivity and economic efficiency through the removal of boundaries. Farmers removed fences that had separated fields, as they moved toward more mechanized and standardized systems of farming. The different functional roles of different family members at different stages of life have

disappeared; as such tasks are now performed by mechanical or chemical technologies. The diversity of crops and livestock enterprises that once defined the structure of typical family farms has been abandoned to achieve greater specialization. The ecological, social, and economic “landscapes” of many farms today are left without form, pattern, hierarchy, or differentiation.

This dissolution of boundaries, this industrialization of agriculture, has resulted in tremendous gains in agricultural productivity and economic efficiency. As with industrialization in general, it has released tremendous stocks of stored energy that were constrained by the boundaries that once defined different fields, family functions, enterprises, farms, and even farming communities. The boundaries have been removed and the energy has been released. But, once the stored energy has been used up, where will these industrial farming operations get new energy?

Industrialization is a “dead” system. It destroys boundaries in order to extract the stored energy from land, water, air, plants, animals, and people. However, it has no means of restoring boundaries, no means of recreating matter, and thus, no means of renewing sources of energy for the future. The amount of fossil energy – fuel, fertilizer, pesticides, etc. – used by today's industrial farming operations far exceed the amount of solar energy they are able to capture from the sun. Industrial systems inherently tend toward entropy – toward degradation of matter and energy; toward a state of inert uniformity; toward an absence of form, pattern, hierarchy, or differentiation. A lifeless desert is about as close to entropy as most of us have seen. It is without form, pattern, hierarchy, or differentiation – without boundaries. Such will be the ultimate state of an industrial agriculture.

Sustainable farming systems must be managed as living systems – they must be self-renewing, reproductive, regenerative systems of production. Living systems must have boundaries – not barriers that keep everything in or out, but semi-permeable boundaries that keep “some” things in and keep “some” things out. Living systems are dynamic. Boundaries are destroyed, through use and decay, but boundaries also are restored through regrowth and reproduction. Living systems are able to capture energy from the sun, either directly or indirectly, which offsets the natural entropy brought about by inevitable death and decay. Living systems tend toward greater diversity of form, structure, and pattern, as they create new boundaries. The process of energy renewal and regeneration, this natural tendency of living systems, is our only means of offsetting the natural tendency of dead systems toward entropy.

Through an understanding of the necessity of maintaining healthy boundaries, farmers can begin answering the question of how big their farm should be. The answer will be different for each farm and each farmer, because each farm has a different ecological, social, and economic niche to fill within the “grand order of things” and each farmer has a different purpose for farming. Each healthy, sustainable farm must be large enough to fulfill its purpose, but small enough to maintain healthy ecological, social, and economic boundaries. In sustainable farming, the goal is never to continue to become ever larger and more profitable; such farms are not sustainable. Instead, the “right size” for a farm is big enough to fulfill its purpose, but small enough to maintain its ecological, social, and economic health.

Thus, the question of size must begin with the question of purpose. Again, while the purpose of each farm may be different, a healthy, sustainable farm, being a living organization, must be regenerative as well as productive; its purpose must allow it to renew itself in the process of being productive.

So the purpose of any farm should include both to produce— whether the products are economic, social, or ecological – and to renew and regenerate. A farm that lacks either productivity or regenerative capacity eventually lacks health and will “become sick and die.” Many large farms, however, have no “right size,” because their purpose is inconsistent with the size necessary for their health and sustainability. Like a giant, they simply strive to become larger and larger until they become unhealthy and eventually die. If the purpose of a small farm is to become a large farm, then like a large farm, it has no “right size.” The farmer will simply strive to make the farm larger until it eventually “gets sick and dies.”

Those on small farms, who want to keep their farms small, still may have different purposes for farming. But in one way or another, the purpose of successful small farmers is always related to quality of life, rather than just making money. Certainly, economic well-being is an important aspect of quality of life. And, some small farms are organized for the specific purpose of generating income, and many of them succeed quite impressively. Such farms tend to rely on high-valued enterprises, lower-input production methods, and more direct, niche marketing than do larger farms. Small farms can be quite profitable, however, to sustain the profitability of a low-cost and higher-valued farming operation, the farmers must maintain a healthy relationship with the land and healthy relationships with their customers and neighbors. Thus, the economic success of a small farm is intrinsically linked with the overall quality of life of the farmer, regardless of its purpose.

Many small farms are “quality of life farms.” Their primary purpose is not to generate cash income, but instead, to provide the farmer or farm family with those things that are made possible through a life on the farm. The primary purpose of many small farms is to provide an opportunity for open spaces, fresh air, scenic landscape, privacy, peacefulness, or other unique qualities of rural life. Others are looking for a good place to raise a family within the context of a caring community, where families can both live and work together, and people actually know their neighbors. Others farm because they want to live close to nature; many are stewards of the land by choice, because stewardship gives purpose and meaning to their lives. For them, farming is an expression of spirituality.

Quality of life farms, by nature, are not full-time, family farms. One or more family members typically have significant off-farm income to meet the needs of the family for cash income. But, such farms make possible a quality of life that would be unaffordable to most families, if they tried to “buy” the amenities of rural farm life in an urban area. The economic value of such amenities can add up to tens of thousands of dollars, even if they have no net income to report for tax purposes. And, most of these quality of life farms are small farms.

Regardless of whether the purpose is to generate profits or create a desirable quality of life, the purpose of most small farms is consistent with finding a “right size” for a farm to maintain its health and sustainability.

Living systems must be managed by principles rather than by prescriptions or standardized processes. Principles define the basic nature of the production process, and thus, determine whether the process is consistent with the purpose. Principles provide the conceptual DNA for a farm. The DNA of living things determines what they are – plants, animals, insects, humans, etc. – but it also defines the uniqueness of each member of each living species. Likewise, the principles by which a farm operates define the basic nature of a farming operation, e.g. whether it is industrial or sustainable, as well as define the uniqueness of each particular farm.

The principles of a living farm replace the goals of an industrial farming operation. The number and nature of guiding principles should be sufficient to ensure that, if followed, the purpose of the farm can be carried out. However, principles that are not necessary in carrying out the purpose should be omitted, to avoid unnecessary complexity and distraction. For example, for sustainable farming the principles must ensure ecological integrity, economic viability, and social responsibility. Any farming operation that fails to address these basic principles cannot be sustained over time.

Once the principles by which a farm is to operate have been defined, the most useful strategy to follow is discovering the “right size” to focus on maintaining healthy boundaries – economic, social, and ecological. Healthy boundaries must let some things in while keeping some things out, and allow some things out while keeping some things in. Healthy boundaries must be “semi-permeable” selective boundaries. Boundaries are inevitably destroyed in the process of productivity, in the process of releasing energy, and thus, boundaries must be rebuilt to replace those inevitably lost in order to maintain health and sustainability. A healthy farm is a productive farm, but also, a self-renewing farm.

Admittedly, a farm can be too small – at least, too small to meet the expectations of the farmer or farm family. In many cases, however, the problem is a matter of unrealistic expectations rather than inadequate farm size. It takes a lot of land and money to support a family using a management-extensive, industrial approach to farming. Many farms that seem too small actually are plenty big to support a family using a more management-intensive, sustainable approach to farming. The problem is not a matter of too little land or money, but too little management or labor per acre farmed or dollar invested. However, in some cases, a farm may be too small to meet the income and quality of life goals of the farmer, regardless of how well it is managed. The extent to which management and labor can be substituted for land and money has finite limits. The most common sign that a farm is too small is when everyone on the farm is working so hard and thinking so hard that no one is having any fun and the farm still isn't generating an acceptable income. When a farm is too small, the family must either lower its expectations, expand the farm, or abandon farming and try to find an acceptable quality of life elsewhere.

However, most American farms are not too small but rather too large. A farm that is too large eventually will lose its health and sustainability – although it may seem to be productive, at least for a while. Even many farms that are still small in acreage, investment, and production, are bigger than they need to be to do what they need to do. The clearest signs of a farm that has become too large are the deterioration of health of boundaries and then the loss of boundaries – as more boundaries are being destroyed than are being restored. Healthy relationships across

healthy boundaries must be mutually beneficial to those on both sides. With unhealthy boundaries, one side benefits at the expense of the other. When farms become over-specialized, standardized, and centralized, relationships become exploitative and destructive.

Healthy boundaries promote the integration of diverse elements of living systems – each part functions for the benefit of the system as a whole. As a farm becomes too big, the farmer begins to look at each enterprise on the farm in isolation, as a separate profit center that is supposed to stand on its own. The farmer then begins to specialize in those specific enterprises that appear to be more profitable and to eliminate those that appear less profitable – with little regard for the ecological or social consequences for the farming system as a whole. Specialization allows the farm to be routinized, standardized, and expanded in size. With expansion comes the necessity of acquiring more land, inevitably creating conflicts between larger farmers and their neighbors. With expansion, farms begin to bypass local input suppliers and marketing channels, creating conflicts within the community. As farms become more specialized and larger, they adopt large-scale machinery and industrial farming methods, which pollute the natural environment with noise, dust, chemicals, and animal wastes, creating conflicts not only within the community but also with the larger society.

A farm is too big when its boundaries are no longer healthy, semi-permeable, or selective. A farm is too big when the farmer lives behind a wall of mutual contempt separating the farm and its neighbors because the farm has become a nuisance to the community. A farm is too big when it has become contractually dependent upon others to provide the technology, inputs, or markets the farm must have to survive. A farm is too big when the relationships between the farm and those who depend upon it have become purely economic relationships, with little consideration of how the farm contributes to their social and spiritual well-being.

*How do you know if your farm is too big? Your farm may be too big if...*

- If the fence rows are either gone or so clean you no longer hear the birds singing.
- If gullies appear on slopes and road ditches are filled with muddy water after a rain.
- If the soil feels like pavement under your feet, or you don't like walking across it anymore.
- If the farm begins to look more like a sea or desert, rather than a patch work quilt.
- If your cows no longer have names and your children wouldn't know them if they did.
- If your animals never feel the sun, don't have room to walk, or never touch the dirt.
- If your farm no longer smells like a farm but stinks like a sewer or a factory.
- If it's no longer safe for anyone but an adult to work with your machinery or chemicals.
- If you work harder and harder, but it always seems there is more work to be done.
- If a bigger tractor, combine, or new pickup truck seems like it might solve your problems.
- If your banker or contractor owns more of your farm than you will ever own.
- If the farm is keeping the family apart, or tearing it apart, rather than bringing it together.

- If your children begin to dislike farm life and vow not to return to the farm.
- If you no longer feel good about asking your family to live on a farm.
- If you're too busy to bother with community affairs, and rarely go into town anymore.
- If you drive right through “your” town to buy things in the city, just to save a few dollars.
- If neighbors complain about dust, noise, or odors from your farm, and you don't care.
- If caring for the land no longer gives purpose and meaning to your life.
- If continuing the farming tradition feels more like a burden rather than a privilege.
- If you're too busy to notice changing seasons, to watch the sunset, or to feel the wind blow.
- If farming is no longer exciting, no longer fun, if it's hard to face a new season.
- If you have forgotten why you wanted to be a farmer in the first place.

*If very many of these things ring true, odds are your farm is too big.*

How big should a small farm be? A farm is a living organism. Each farm has a right size and a size beyond which it begins to lose its health and vitality. A small farm should be big enough to fulfill its purpose, whether to generate income or support a desirable quality of life, but to do so without destroying the health or vitality of either the farmer or the land. A farm doesn't have a natural biological process to limit it to a size that's necessary to fulfill its purpose within the “grand order of things.” Thus, the farmer ultimately must decide how big a farm should be.