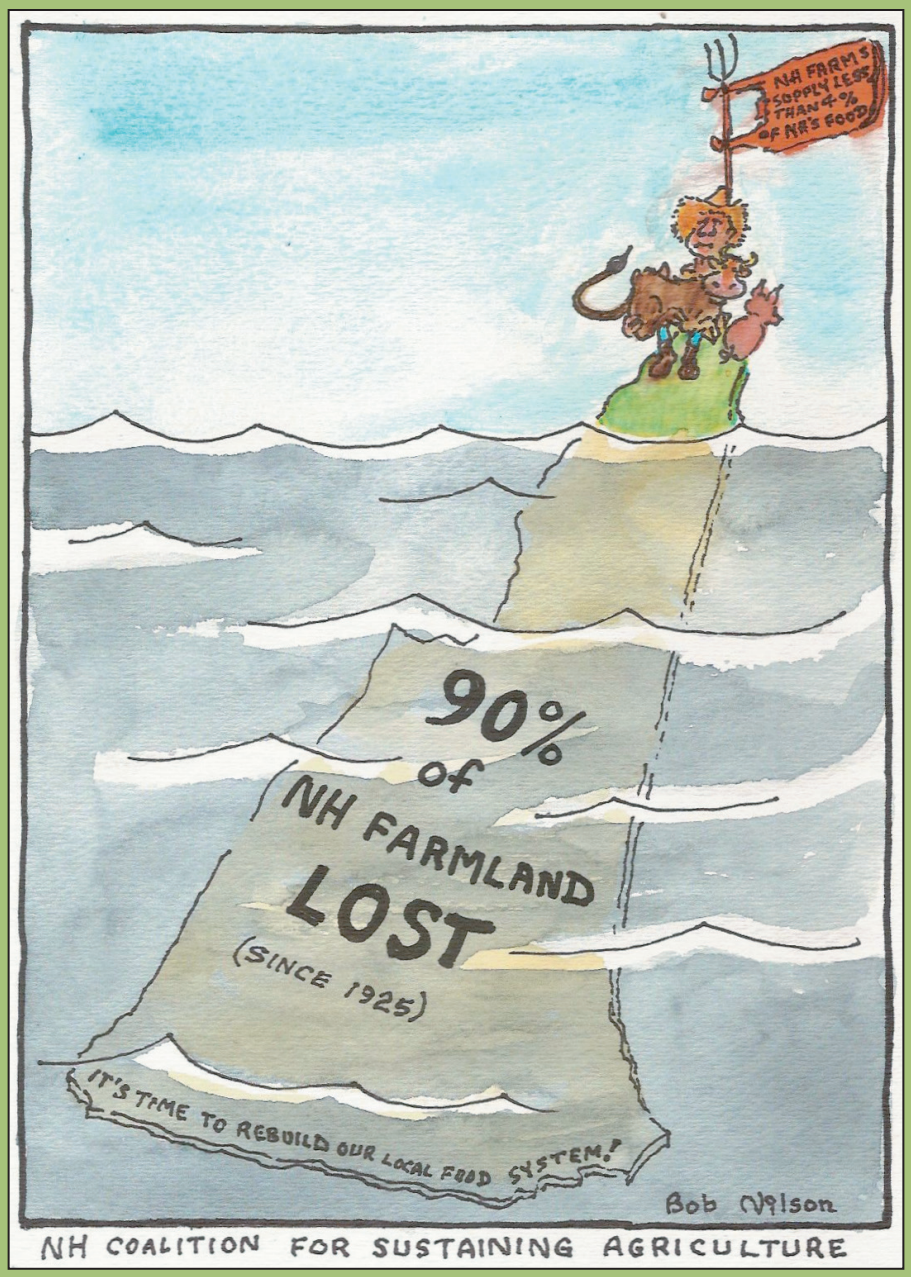
Sustaining Agriculture in the Granite State



A Citizen's Guide to Restoring Our Local Foods, Farms and Independence

Jeremy Lougee

Sustaining Agriculture in the Granite State

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Published by:

THE NEW HAMPSHIRE COALITION FOR SUSTAINING AGRICULTURE

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The New Hampshire Coalition for Sustaining Agriculture is an informal network of organizations and individuals dedicated to enhancing the social, economic and environmental sustainability of agriculture in New Hampshire. The Coalition brings together members of the farm community and the non-farming public with agricultural conservation and community development professionals to implement a shared vision:

Agriculture is a valued and vital part of New Hampshire's economy, environment and communities. A dynamic agriculture makes New Hampshire a better place to live, work and visit. The future of agriculture in New Hampshire depends on profitable farms that can nurture families and be passed on to future generations.

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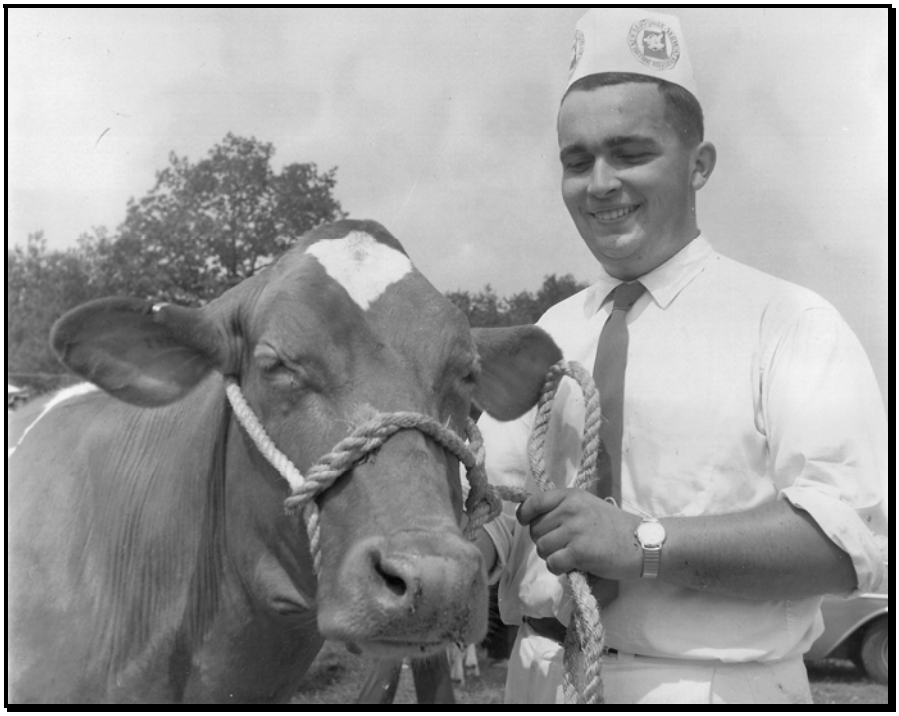
DEDICATION



Gordon Melvin Huckins 1947-2005

This publication is dedicated to Gordon Huckins, a lifelong dairy farmer and well known Guernsey breeder among the circles of New Hampshire's farming community.

Born in 1947, Huckins was raised on his family's historic farmstead in the town of New Hampton. At an early age, he learned the value of helping run the family dairy farm alongside his father, Melvin, and showed cows at many of New Hampshire's agricultural fairs and 4-H events.

Beyond high school, he attended Cornell University in the College of Agriculture and Life Sciences and received his associate's degree in Animal Husbandry. With the exception of a brief period in Oneida, NY, Gordon held close to his roots, eventually taking over operations at the family farm. Throughout his career, he received several All-American awards and nominations for his prized herd of Guernsey cows.

In addition to the farm, Gordon was Director of Public Works for the town of New Hampton and served several terms as selectman. He also held a position on the Conservation Commission and maintained a lifelong connection with the New Hampton Community Church.

Gordon passed away in the fall of 2005. He is remembered by family and friends for his sense of humor, perseverance, and uncompromising commitment to an agrarian lifestyle. His children and grandchildren continue this tradition with various farming endeavors across New Hampshire.

This dedication is fitting because Gordon's own life mirrored many of today's challenges to New Hampshire's agriculture. Like so many other farmers, Huckins faced an uphill battle to keep his small farm viable in the face of global competition. Despite long hours and little return, his hard work provided the surrounding community with food, open space, and the cherished rural character that makes New Hampshire such a wonderful place to live. As a state, we must always remember to support our local farmers.

"Let us not forget that the cultivation of the earth is the most important labor of man. When tillage begins other arts will follow. The farmers therefore are the founders of civilization."

-Daniel Webster

FOREWORD

A growing number of New Hampshire residents and visitors are discovering and celebrating the enjoyment and nutritional benefits of locally and regionally produced foods. More citizens appreciate the values contributed to their communities by farms, agricultural activity, and our rural heritage. Nearly 80 cities and towns host regular farmers markets, which draw people to downtown and park areas. Farmers and other food artisans, as well as chefs are supplying new markets created by Slow Food and local food enthusiasts.

The ice storm of December 2008 left some parts of the state without power for weeks. In some areas parents went from supermarket to supermarket in search of milk for their children. Suddenly the security of our food supply was on the minds of the state's political leaders. The fuel crisis of the summer of 2008, and the specter of pandemic raised by the sudden appearance of H1N1 influenza in the spring of 2009 got people thinking about the mere three- to four-day supply of food that our food retail and distribution system keeps on hand. What would happen if normal transportation and business operations were disrupted for even a few days by natural or man-made disaster?

Jeremy Lougee describes the recent resurgence of agriculture in New Hampshire. Demand for local foods in many cases exceeds supply. Yet the stumbling block to sustainability of agriculture and local food systems in the state and New England region remains economic profitability. In the midst of all this renewed appreciation for local food and farms, in 2009 the region's keystone agricultural sector—dairy farming—has been wracked by ferocious financial losses. Never has the farmer's share of the consumer milk and dairy product dollar been so small. This is no way to sustain our farm families or feed our state or country.

Jeremy recounts previous periods, such as the 1970s, when energy prices and conversion of land for development sparked interest in protecting farmland and food security issues. Since then, more land and human capital represented by farm families and agricultural businesses, education and research resources have been lost. It is too easy in a land of abundance to take food for granted. Will our attention spans prove any longer this time?

We have the capacity to produce much more food in this state and the New England region. It will take conservation of land, creation or rebuilding of profitable local processing, distribution and marketing businesses, investment in agricultural education and research, and state and community support for farming. Agriculture will need to be seen as a priority for the state, region, and local communities when it comes to decisions involving land use, water resources, and regulations affecting farming and agricultural businesses.

This paper is a clarion call for today's generation. Jeremy Lougee sees the state on the brink of some key decisions. He looks to our heritage of independence, thrift, self-reliance, strong communities, and determined, conservation-minded farmers. He wants this generation to reclaim those roots. Where farming is allowed to flourish, he envisions a strong, healthy and independent future.

-- Lorraine Merrill
New Hampshire Commissioner of Agriculture, Markets & Food

EXECUTIVE SUMMARY

The roots of freedom stretch deep into the granite patchwork of New Hampshire's landscape. Throughout our history, we have been known for an uncompromising dedication to the ideals of independence and self-sufficiency. However, the true definition of independence would require us to be "free from the influence, guidance, or control of others or self-reliant". Over the past century, our ability to provide the most basic need of our citizens, that of food, has deteriorated to the point that we now rely on outside sources for 96% of the food we consume. Although famine in New Hampshire may sound absurd, the possibility of widespread hunger hides behind fewer than five days of grocery supply. If travel and transport restrictions were enforced to halt the spread of a deadly disease, how could we possibly avoid food shortages? This looming threat to our sustenance and security cannot go unnoticed.

Over the next few decades, we should expect a dramatic increase in the cost of growing and transporting food around the world due to scarcities in fuel and water. Add to this the unknown hazards of climate change and the solution becomes clear; our best protection from the uncertainties of global crisis will be to develop our agricultural capacity here at home. As early as the 1970s, people across our state have warned us to rebuild our local food system or suffer the consequences. Still, farmland today is being lost at an alarming rate. Farm operators continue to struggle with the increased costs of production and land values, despite a recent attempt to improve their long-term viability. Calls for added infrastructure and new farmers have languished without the necessary financial and human investment. If we truly enjoy the open spaces and beautiful rural vistas of New Hampshire, we must value them accordingly. Considering that food is such a basic necessity, these issues must be met with swift action.

While recent trends encourage globalization, we must refuse this offer when it compromises our rural character or steals our common wealth. This guide offers New Hampshire citizens an alternative future where agriculture, once again, becomes a central nexus for community prosperity. This move would not only help to preserve our open spaces, but it would also inspire new windows of economic potential in a state that desperately needs financial stability. By growing our local farming enterprises, we would naturally create new opportunities in the fields, kitchens, and workplaces across our state. More importantly, this stimulus would be grounded in the land, not in the phantom wealth of Wall Street. In short, the road to a secure future and strong economy in New Hampshire asks that we reconnect our population with the soil necessary to support it.

Expanding our agriculture to a sustainable level will require the immediate action of legislators, businesses, schools, farmers, and citizens alike. If we refuse this responsibility today, what will our cupboards look like in 50 years? Where will we turn for our food? Keep in mind, this decision will forever shape the future character and landscape of this great state. The choice is ours, but make no mistake…the time to decide is now.

RECOMMENDATIONS FOR SUSTAINING AGRICULTURE IN NEW HAMPSHIRE

The following is a list of recommendations to be enacted at all levels of our state. Refer to them frequently, or better yet, put them on your refrigerator as a reminder of how to ensure the continued presence of food within…

At the State Level…

- Enact recommendations from 2005 Farm Viability Task Force
- Declare moratorium on conversion of prime farmland to non-agricultural use
- Reconstitute a statewide agricultural land trust
- Develop a comprehensive food policy
- Increase support for Cooperative Extension

At the Institutional Level…

- Revive land grant mission at UNH with focus on agriculture
- Grow new farmers through formal education, outreach, and hands-on training
- Connect institutional food purchases with local producers whenever possible
- Integrate food and agriculture into standard curriculum

At the Local Level…

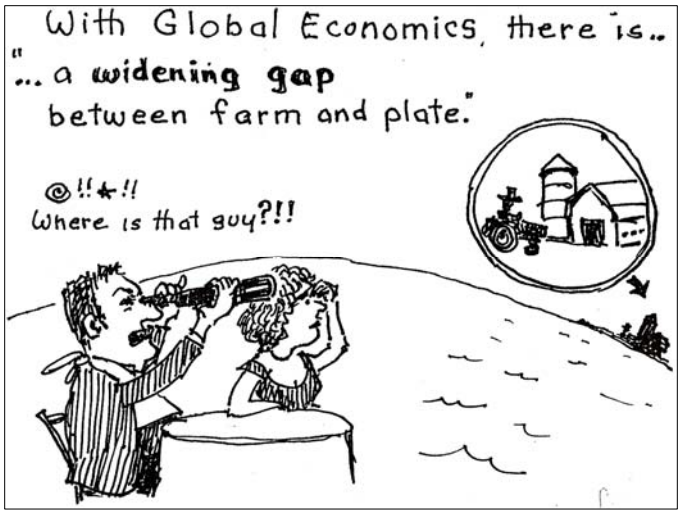
- Initiate and support agricultural commissions in every town
- Consider food self-sufficiency on par with other community needs
- Ensure local laws and regulations encourage strong agriculture
- Integrate food self-sufficiency into land conservation goals

At the Individual Level…

- Become educated about your food system (history, current status, new directions)
- Support farmers' markets, restaurants, businesses that offer local products
- Learn how to eat seasonally and ethically with local foods
- Put food away for the winter/improve storage capacity
- Get involved with local food advocacy groups
- Become active in policy/legislation/town meetings
- Plant family gardens or initiate civic gardens in urban settings
- Start a farm business or other local food-related enterprise
- Improve farming infrastructure through support services or new business development

INTRODUCTION

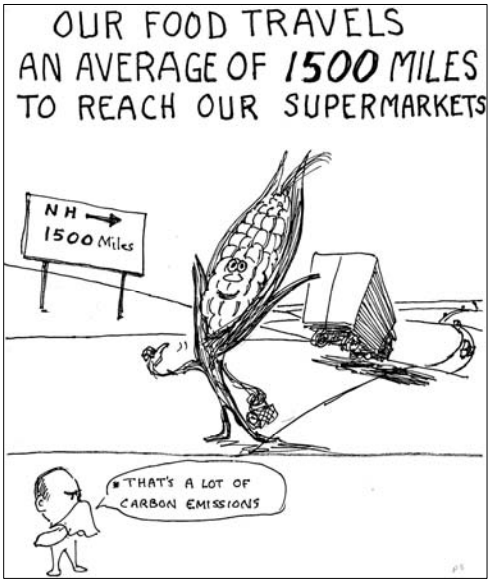
Where does your food come from? This question, at its foundation, unites all citizens of New Hampshire and beyond. Rich or poor, everyone must have access to an adequate and secure food supply. For thousands of years, agriculture has sustained our populations with relatively few surprises. However, recent trends in global economics have encouraged an ever-widening gap between farm and plate. The notion that food now comes from the supermarket shows just how disconnected our population has become from its agricultural roots. Agrarian philosopher Wendell Berry reminds us that famine can happen anywhere. But with no inherent memory of starvation in our modern American culture, this hubris has affected the way in which we grow, transport, and eat our food. It has also changed the way in which we preserve our soils and quality farmland for future generations. This rapid development towards a global economy has disregarded the time-honored wisdom of local capacity and self-sufficiency. Even as we face major environmental, economic, and social disasters, we assume that our global food supply will continue unaffected by these larger problems. In short, our next meal depends on a system that appears quite vulnerable to collapse.



According to former Commissioner of Agriculture, Steve Taylor, New Hampshire produces less than 4% of the food we consume[1]. This is both unsustainable and irresponsible. For a state so proud of its heritage, this goes against our founding ideals of liberty and independence. "Live free or die" is hardly an honest motto for a state that is 96% dependent on outside sources for our most basic need…food. The vast majority of our farmland is not permanently protected and remains susceptible to future development and non-agricultural use. Since 1982, we have lost over 20% of our cropland and 28% of our pastureland here in New Hampshire[2]. In this same time period, our population has increased by nearly 40%. In effect, we have an ever-increasing population with an ever-decreasing ability to feed ourselves.

A strong agriculture benefits the local economy beyond simply food production. A recent study by the Institute for New Hampshire Studies showed that there was a total of $929.1 million in direct spending by agriculture, horticulture, and agriculture-related tourists, contributing 2.1% of the gross state product[3]. The Society for the Protection of New Hampshire Forests concluded that every acre of open space contributes $1500 of economic benefit to local economies[4]. Cost of community service (COCS) studies have consistently shown that open space and agricultural lands provide municipalities with tax revenues that far exceed the cost of services to maintain them[5]. Though often not measured, farms offer environmental services such as filtering and absorbing surface and ground water, provide habitat and travel corridors for certain wildlife species, and allow for recreational and educational opportunities to the public[6]. Our state has long depended upon its tourism industry that is largely due to our scenic views and pastoral landscape. These benefits and more are lost in a piecemeal fashion as farms are slowly converted into subdivisions and commercial uses.

Beyond the benefits to our own state, a strong local agriculture suggests a commitment towards a more sustainable planet. Today's food supply travels an average of 1500 miles to reach the supermarket. This unnecessary use of petroleum, an important and limited resource, is not only a waste of energy, but it is having a major impact on our global climate. Today, we see more frequent water shortages in the agricultural West, with entire food-producing regions losing their supply of irrigation water. Without this vital resource, they cannot feed themselves, never mind supply our hungry populations in the Northeast. Local foods not only reduce carbon emissions on the road, but they also provide the opportunity to sequester additional carbon in the crops and soil. As America's energy future is uncertain, NH farms might also provide a variety of sources of clean, renewable energy that are vastly more reliable and locally profitable than foreign supplies.



Ultimately, the citizens of New Hampshire will decide the future of our state's agriculture. Without a viable market for their products, farmers cannot be expected to maintain their fields simply for aesthetic appeal. We have a proud heritage of agricultural production, based largely on our ideals of independence and self-reliance. But the burden of industrial agriculture weighs heavily on the viability and future of this optimism. Without the support of their local communities, our farms cannot succeed. Yet, without farms, our communities may only survive with the help of industrial agriculture, an institution without respect for the soil or other environmental limitations. Their goals are motivated by profit and short term gain, and this blind confidence will ultimately fail because it depends on a system that is clearly unsustainable. When this megalith falls, a large part of our society will go with it, unless of course, we choose today to make an investment in our *local* future. As a state, we must consider this task a top priority because it relates to the health and safety of our population. As individual citizens, we must treat this as a personal responsibility to strengthen our communities. Together, we must embrace the challenge of rebuilding our local economies from the ground up. There is no time to waste, so use this guide as a springboard for action. With this knowledge, you will begin to see that *your own life* is only as secure as *your food supply*.

THE HISTORY OF NEW HAMPSHIRE'S FOOD SYSTEM

The state of New Hampshire boasts over three hundred years of agricultural tradition. For the majority of this period, a large percentage of the population earned their living in farming. The isolated hill country of New England necessitated farms that were largely self-sufficient. For many generations, families were forced by circumstance to develop a diverse and dynamic farming operation resulting in a highly efficient form of agriculture when measured strictly by inputs versus outputs. Patterns of settlement were most often determined by land grants from the royal governor, and only those families hardy enough to carve out an independent life in the wilderness were able to survive those early years. Yet, as these individual farmsteads matured, towns were established, and local economies flourished in support of this agricultural productivity. As Ronald Jager states in his book, *The Fate of Family Farming*, "The settlers of New England's backcountry almost inadvertently invented the rudiments of an entire culture: not only their politics but also the fabled Yankee qualities of independence, localism, thrift, tenacity, and so on were the accompaniments of the way the land was assimilated into their lives."[7]

From the 1600s through the early 1800s, farms remained highly diversified, and what they didn't grow for themselves, they acquired through trade among their local markets. However, from approximately 1820 to 1870, a booming wool industry convinced many farmers to specialize their production towards perhaps a more appropriate endeavor for the rocky, hillside pastures of New Hampshire. This newly developed "cash crop" shifted farms away from their traditional multipurpose agriculture in favor of the more lucrative merino sheep. The 1840 census counted over 617,000 sheep which was twice the population in New Hampshire at that time. It was during this period that vast mill complexes were built along rivers, and the industrial revolution took the raw material from the countryside to develop a burgeoning economy of its own.

As New England's prosperity increased, roads and other forms of transport were constructed. Rural communities suddenly found themselves connected to an ever-expanding marketplace. Unfortunately, this very connection eventually led to the crash of New England's sheep era and not surprisingly, it was found that sheep could be raised more cheaply almost anywhere else south and west of here, even as far away as Australia and New Zealand. At the same time, cotton from the south began to find favor in the mills of New England. Almost as quickly as it had come, the financial prosperity of the sheep era was gone. Making matters worse, it had helped to bring forth a growing dependence on distant sources for our food supply. This lesson in shifting markets is especially important to recognize today given our current dependence on markets beyond our control.

The ideals of self-sufficiency and independence slowly declined for two related reasons. First, this increase in development allowed the transportation of products to more distant markets. Farmers could focus their energy on a single product because the opportunity now existed to supply the demands of a larger population. However, once these lines of transportation were constructed, there was little incentive to maintain local supplies. Put simply, if it was cheap enough to transport agricultural products from elsewhere, New England's soils and landscape could not compete. Second, the money acquired from these transactions was sufficient to purchase goods and services that had previously been supplied on the farm such as food, energy, and fertilizer. The door was open for children to leave the farm in search of work among the many mill towns across southern New Hampshire. Our population increased and began to

concentrate around urban areas. The industrial revolution had come to New England, and the face of agriculture and our rural landscape had begun its slow but steady transition.

Inevitably, agricultural production moved west to flatter land and deeper soils, increasing in size beyond the scale of anything seen in New Hampshire. This trend was matched along much of the East Coast, as the bulk of agricultural production spread out across the Midwest, the South and ultimately, California and the Pacific Northwest.

With the availability of excess nitrogen from World War II and a surging trend towards mechanization, the "green" revolution began a long lasting assault on what remained of New Hampshire's farmsteads. Fueled by an army of synthetic fertilizers and other chemicals, the shape of today's industrial agriculture was developed in total opposition to the small, local, family farms of New England. With the ability to feed our nation's population and beyond, we now design our food supply around vast monocultures of corn, wheat, soybeans, and other "commodities" that today are traded and valued like stocks on a global scale. The desires of a free market economy dictate that we purchase our food at the lowest possible price, which in New England, most often meant from distant suppliers.

Increasingly, our citizens have become complacent about their food supply. It is true of human nature that we overlook shortcomings in what appears to be a successful system. As the saying goes, "If it ain't broke, don't fix it". However, there have been times in New Hampshire (much like today) when our traditions of independence and self-sufficiency have questioned this far-flung, industrial model, and for good reason. In fact, over the past forty years, there have been several unique opportunities when the shortcomings of our modern food supply have become apparent. In every case, we have asked more from nature than she could provide. Put simply, we have ignored our limits. Undoubtedly, the industrial food supply has fed literally billions of mouths in times of plenty. But we cannot ignore the very real possibility of failure due to unforeseen or extraordinary events. In these situations, our only alternative will be to look inward towards a reliance on our own local food supply.

Our supermarket shelves are typically supplied by only a handful of large corporations and are dependent on the annual success of disturbingly little genetic diversity. Our delivery chain has become entirely dependent on petroleum, a fuel source tainted by its unpredictable, limited, and increasingly expensive nature. In today's world, an unforeseen break in New England's food supply lines would leave us with about four days of nutrition on our supermarket shelves. Given the lack of farms or local food in this state, we would have little ability to respond to such a disaster. If this were to happen in winter or spring, the effects would be devastating and the suffering immediate. Take a moment to consider this idea…having less than a week's supply of food on hand is not an exaggeration…this is not a test…this is our current reality!

Voices from the Past

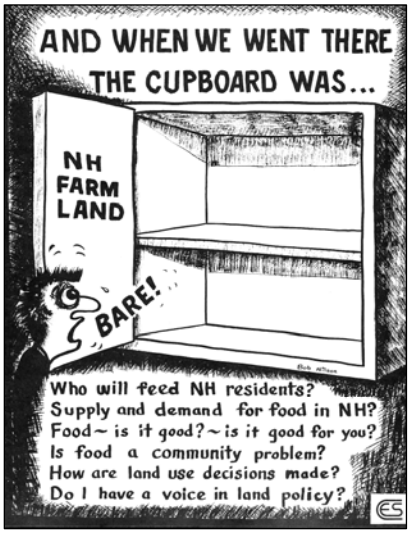
Due to several events in the 1970s such as rampant inflation and oil embargos, people in New Hampshire began to question the security of our food supply. The following pages describe such moments in our history when, for a variety of reasons, we were forced to consider such a shift. Several documents remain which asked some of the same questions about our food security. In fact, by removing the dates, one could imagine that these documents were prepared with our current situation in mind. These are voices from the past with very real concerns. Yet, we continue to struggle with these same issues today.

In the prologue of his newest book "Pastures of Plenty", UNH Professor John Carroll looks back on why the 1979 document, "Recommendations for a New Hampshire Food Policy", failed to instigate a lasting change in our food system:

> *"[It] never went anywhere and gathered dust on the shelf for nearly thirty years. Its intent was to lead to a food policy that never saw reality, and for one very good reason: with the onset of a quarter century of cheap food fueled by cheap energy, people turned away and ceased to care. Full supermarket shelves at the lowest food prices in the world did the trick: who cared about lost nutrition, lost soils, lost farms and farmers, lost rural communities, lost food and farming culture, lost ability to feed ourselves on our own land?"*[8]

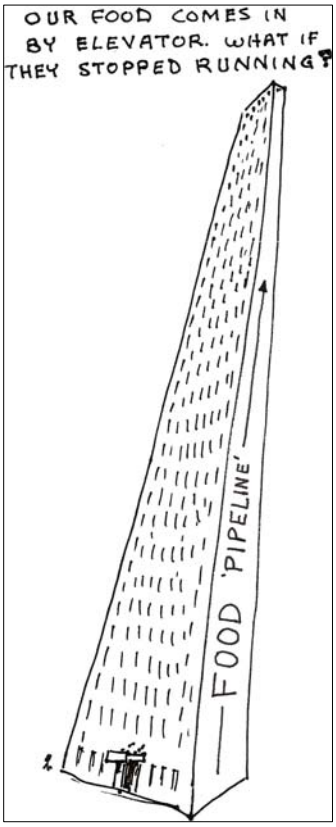
Will we finally address these problems to our own mutual benefit? Indeed, we have returned to a time of uncertain energy costs, rising inflation, and an economy teetering on collapse. With the recent H1N1 flu offering a glimpse into the reality of a global pandemic, the world seems even more exposed to unforeseen calamity. If travel and trade were restricted to avoid the spread of a deadly disease, how would we survive? Where would New Hampshire find its food? For this and many other reasons, the answer lies here at home. We must rebuild our local food production to a level that supports our population through times of scarcity. The next few pages offer a return to our past with the hope that it might offer us solutions for the coming century.

And When We Went There The Cupboard Was…Bare[9]



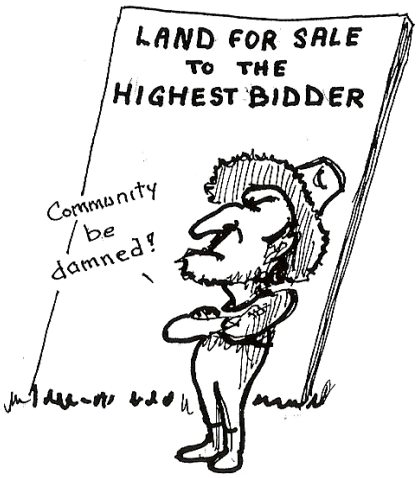
The first document on this subject was written in the mid-1970s by a group of Cooperative Extension educators who wished to call attention to our diminished local food supply. Titled "And When We Went There The Cupboard Was…Bare", the authors of this booklet explained where our food was produced and why. Then, they went on to question the logic and future of food production in these distant regions of our nation. With population growth and water shortages in the South and West, and with petroleum markets becoming increasingly expensive and volatile, they proposed a return to our agricultural roots. By producing more of our own food and by encouraging more regional food supplies, we might avoid the potential for a disastrous food supply failure:

"In New Hampshire, we have alternatives. Do we wish to import all the food we require? We then will be wholly dependent upon the food 'pipeline'. A second alternative would be to maintain our reserve agricultural land in condition for future agricultural usages. It is doubtful we will ever again be wholly self-sufficient in food production. But, with the other Northeastern states, we could reduce our dependency on the Southern and Western growing areas for many agricultural products."



Using a crude analysis of our population's food consumption and our agricultural production, they determined that we were only producing 14% of our food needs in 1975. The two factors that led to this inequity were a dramatic increase in population with a parallel decrease in productive farmland. In fact, they noted that over the previous 50 years, we had lost 10,000 acres of cropland while adding an additional 7,300 people to our state *each year*. While population growth may have seemed unavoidable, the loss of farmland was not. The decision to convert existing agricultural land into housing or other commercial uses was almost always motivated by profit. According to the authors, this became the reason why we, as a state, had refused to halt the loss of farmland…a community resource. They concluded:

"The attitude that land is a commodity to be bought, sold, and used for profit has speeded up land use changes…the ramifications of the decision are much more far reaching than just the motives of the two parties. The cost, and therefore the profit, must also be analyzed on a much broader scale…Land use decisions must be analyzed with a futuristic eye…as [they] are irreversible in the long run."



Clearly, this group understood the importance of an adequate base of farmland. Without this local base, correcting other deficiencies in the food system becomes less realistic. And there was no mistaking the tone in this document. This was not "just another issue" to be debated, contemplated, or shelved for another day. Our survival and sustenance were on the line. If we left this responsibility to outside sources, at best, we would be wholly dependent and subservient to those who controlled our food supply. At worst, in times of disaster, we would be left to starve. Yet, they did not point the finger at any one group. Instead, they invoked the role of the community and the individual citizen to incite the change that was needed:

"Food is a community responsibility…If this system is to function well over time for the benefit of all people concerned, the community must become involved in its maintenance…The process of decision-making is now going on. Are you joining in with your thoughts and ideas? The choice is yours…but the basic issue in the long run is survival and this is important enough to warrant the energy necessary to solve the problems of the future."

Recommendations for a New Hampshire Food Policy[10]

Thanks in part to the Cupboard document, the resulting buzz about our food supply attracted the attention of many stakeholders from around the state. Then, in April of 1978, a New Hampshire Food Policy Study Committee was commissioned to examine the current status of our food system. In an opening letter to all "producers, consumers, processors, transporters, wholesalers and retailers of food in New Hampshire", Maynard Heckel, director of the University of New Hampshire Cooperative Extension, wrote:

> *"There is a quiet, but widespread, concern among the citizens of our state about the future availability of food at a price we can afford to pay, and at a price that is adequate to assure producers a fair return on their investment. This concern started to gain momentum in 1973 with the oil embargo and has increased with severe weather conditions, increased cost for fuel to transport food into the state and the shift in the use of good farm land from food production to other uses."*

This document became known as the "Recommendations for a New Hampshire Food Policy" and outlined a list of long range goals for six broad food system areas: consumer needs, food processing and storage, land use, transportation, agricultural production, and marketing. Each goal was tied to a series of objectives and recommendations that were to be acted on by the larger New Hampshire community. The introduction points to a startling reality which, today in 2009, is perhaps even worse. It read:

> *"New Hampshire imports approximately 85 percent of the food consumed in the state. Food prices in New Hampshire average 10 to 15 percent higher than in other regions of the nation. This is because New England is at the end of the food and transportation supply line. The state and the New England region are without stored food surpluses, other than supermarket stocks, which would be needed in the event of a crippling storm or other natural disaster…Although New Hampshire lacks the resources to become totally self-sufficient, the people of the state should work to create an environment in which the New Hampshire agricultural industry and the citizens upon which it depends can work toward increasing their self-reliance…No one group is responsible for the food in our cupboards. Rather, food is a community responsibility."*

Again, we see a keen understanding that New Hampshire had become a dependent entity given our location in the food supply chain. In addition, this document recognized the communal responsibility of a safe and secure food supply. As consumers, our purchases dictate the success and vitality of local agriculture. If we truly value the open space and sustenance afforded by our farms, we must support them with our business. At the same time, however, our state must recognize its own role in cultivating an environment where our local farms succeed. In its summary, this group was cautiously optimistic that we might appreciate the critical need for a statewide food policy. It read:

> *"Clearly, the formulation of a food policy for New Hampshire is a complex enterprise. A comprehensive food policy would necessarily involve every segment of the state's population in a cooperative effort...It is reasonable to expect that, given a new direction in the consideration of its agricultural industry, New Hampshire could produce more of its own food needs. This would result in optimum use of its land as well nutritional and*

economic benefits for its citizens…The ultimate decision rests with New Hampshire's people."

When this document was written, they noted that approximately 150,000 acres of farmland had been removed from production between 1952 and 1972. To slow this trend, they proposed two clear goals that seem both obvious and simple: "to preserve land that is presently in agriculture and to expand agriculture to land capable of production". They went on to pose a series of objectives and recommendations that referenced saving sites with high quality soil from development and compensating landowners who voluntarily choose to protect agricultural lands permanently. While the former suggestion has since been overshadowed by high value development, we continue to seek conservation easements from willing landowners in a piecemeal fashion across the state. In fact, it was here that they recommended support be given the Agricultural Lands Preservation Program (ALP). This was New Hampshire's first statewide conservation effort and was a direct reaction to the loss of farmland and an attempt to secure a land base for future food production and security. The ALP program has since evolved into the popular but drastically underfunded Land and Community Heritage Investment Program, and the successes and failures of this and other farmland preservation programs are discussed in a later chapter.

The New Hampshire Food System: Working Towards Self-Reliance[11]

A third document of interest, written in 1983 by Lydia Stivers, was entitled, "The New Hampshire Food System: Working Towards Self-Reliance". Funded by the Cornucopia Project of the Regenerative Agriculture Association, this study was conducted several years after the "Recommendations for a New Hampshire Food Policy". Even going so far as reprinting these recommendations with caveats, it was clear that people were thinking about our food system and relative lack of food security. This document by Stivers was an attempt to summarize the list of deficiencies within New Hampshire's food system. She separated these issues into five categories: imports/exports, land and people, farming expenses, energy, and agricultural industries.

Her introduction explained how New Hampshire grew from a largely self-sufficient region to one that became mostly dependent on "those states which had economic and environmental advantages in food production: California and the deep South for fruits and vegetables, the Midwest for grains and meat, and the Great Lakes states for milk and milk products". She went on to calculate that in 1983, New Hampshire was importing between 63 and 72 percent of its food and that "using current production systems and techniques, it would take 884,572 acres of cropland, excluding pastureland, to produce the food consumed [here]". This estimate was in contrast to the 136,000 acres of total in-state cropland in 1978, a mere 15 percent of what was needed to feed our growing population.

Pointing towards a problem that we face today with volatile petroleum prices, Stivers described the need to redesign some of our agricultural practices. Raising beef on pasture instead of imported grains would lessen our dependence on transportation from the Midwest. Adding processing and storage capabilities for our fruits, vegetables, meat, and dairy products would greatly enhance our regional self-sufficiency:

"New Hampshire is seriously hampered by a lack of produce processing plants and storage facilities. It is estimated that New Hampshire has only a 5-10 day reserve of

food; if we suffered an oil embargo or across-the-board truckers' strike, cutting off supplies, retail stores would run out of food after about a week."

While the price of oil will undoubtedly climb in the 21st century, we stand to gain even more from our sources of in-state production. Stivers and her contemporaries in 1980 were keenly aware of this multiplier effect from transportation costs:

"Of course, what New Hampshire produces not only depends on available resources but also on economics…However, what is not economical today may be economical tomorrow. As production and transportation costs rise over the entire country, and we pay more and more for our food, we may find it profitable and beneficial to produce once more things which haven't been produced in New Hampshire in decades."

Yet, when this rise in transportation costs begins to affect our overall food security, our farmland acreage may be far too small to accommodate the growing need for locally produced food. Stivers pointed to the time period between 1949 and 1974, when New Hampshire lost 68.5 percent of its farmland. During this same period, our population grew from 530,000 to 877,000. Most of this growth was focused in the southern tier of the state that was also home to some of the more productive farmland. New Hampshire continues to be one of the fastest growing states in the Northeast with a population of over 1,300,000. We simply cannot continue this growth in a responsible manner without setting aside quality farmland to support these increases in population.

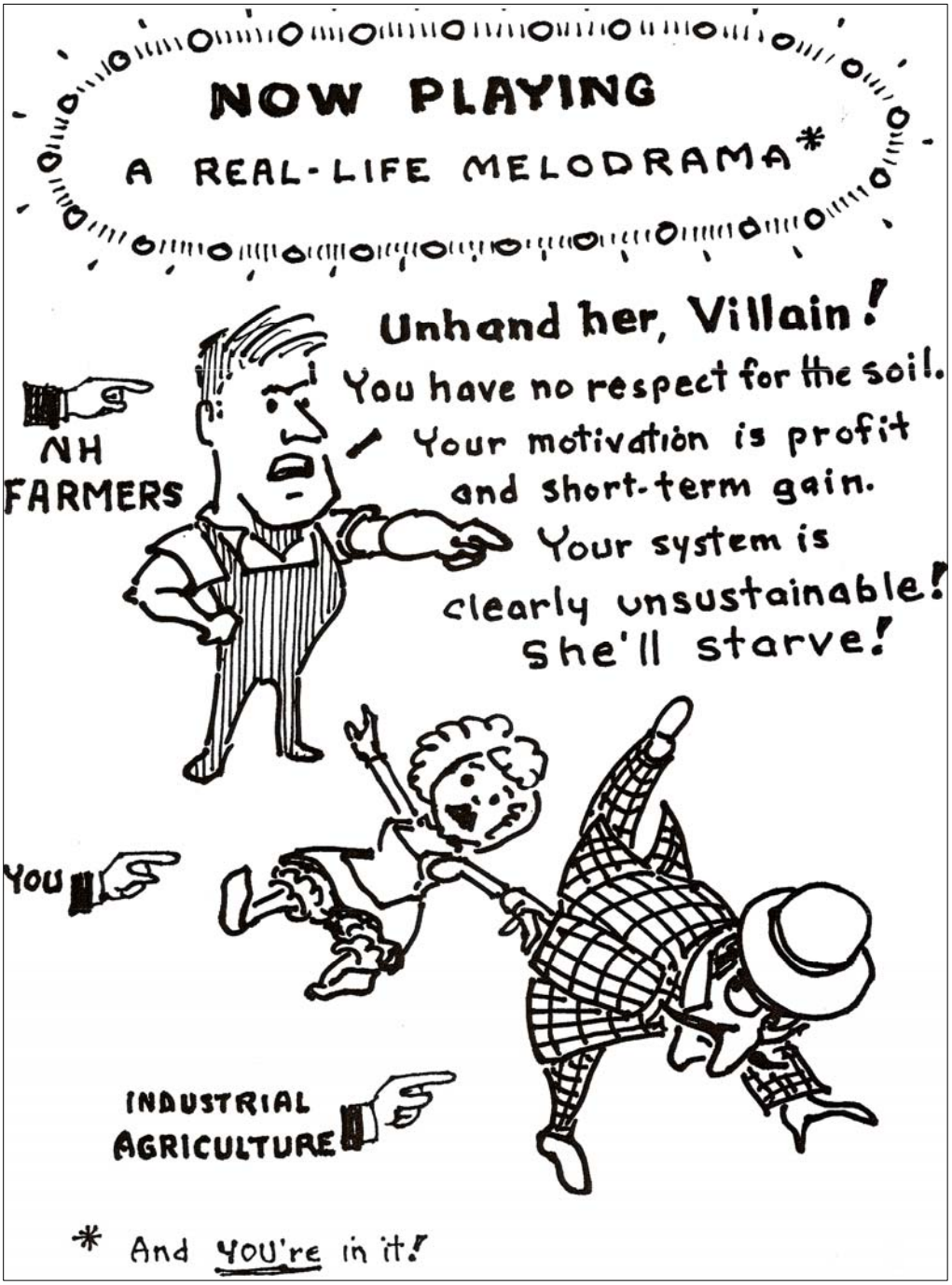
In conclusion, Stivers brought together the complex factors which contribute to our food system:

"New Hampshire currently produces small quantities of many of the foods we consume, and the potential to expand this production exists. In order to develop a more stable and sustainable food system, we need to alter our current methods of production and distribution. We must learn to use our resources to everyone's advantage. We need to strengthen direct marketing channels that best serve New Hampshire's growing number of small farms. We should grow more food at home, and learn how to keep the harvest through the winter. We need to limit our use of expensive, imported energy. Many people in New Hampshire have already started work in these areas. By joining and supporting them, we are assuring ourselves of a stable, sustainable, and vital food system."

This document by Stivers was the last in a series of attempts during this period to shift our dependencies towards a more local supply of food. It was perhaps the most comprehensive look at food self-sufficiency, with topics ranging from farm viability to land-use to infrastructure. However, all three documents provide clear warnings of the growing inadequacies and unsustainable nature of our food system. Yet, when we look back to evaluate our response to these warnings, we find ourselves in similarly dire straights today. While these documents might be somewhat outdated, very little has changed in terms of the need for our state to address the complex issues surrounding our levels of food security. In fact, we are even more vulnerable now because we have more people and less available farmland.

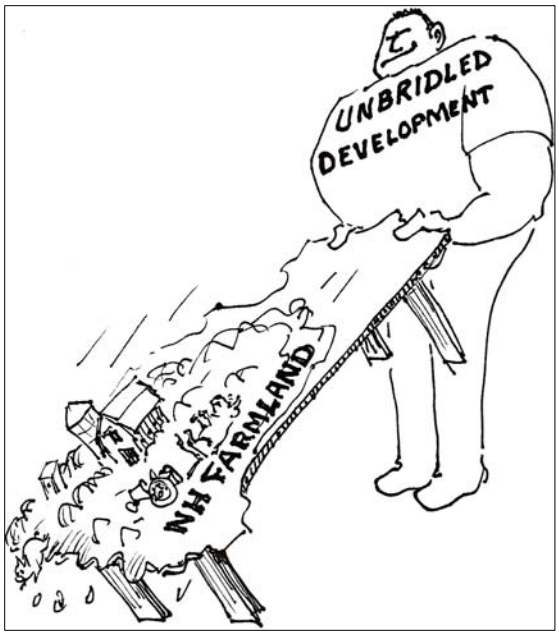
Granted, we missed our opportunity thirty years ago. So why reprint these cautionary words another time? Surely, critics will ignore or dismiss these warnings as "doomsday" propaganda. They might even point to our existing food system as proof that we need not worry about our local systems of production because our cupboards and supermarkets remain stocked. It is an unfortunate trait of human behavior that we cannot appreciate a threat until we have experienced it. We have little or no collective memory of starvation in America, and this fact

allows our hubris and ignorance to grow beyond a responsible level. When our government invests in disaster relief or homeland security, it is not necessarily because these events have already happened. Rather, it is to prepare us for the unexpected. At the same time, however, the political will for these investments almost always stems from being unprepared in the first place. “Never again” we say, and move forward with programs to ensure our future security. Yet these proponents of a more local food supply have warned us of a disaster of epic proportions, of starvation in America because our soils, water or transportation system will fail. We are especially vulnerable here in New England because we are at the end of this supply line. Yet, we have chosen to ignore these difficult choices, and instead, allowed individual profit to motivate our land use and purchasing decisions. We have failed to match our population growth with appropriate reserves of productive farmland and the local industries vital to its function. What will the future hold?



FARMLAND PRESERVATION IN NEW HAMPSHIRE

There is no doubt that we are losing farmland at an alarming rate. The comforts afforded by our current food system have left many of us complacent. The once common awareness of the necessity to preserve the rural beyond the urban was somehow left behind in our race towards progress. If our goal is to (re)build a more sustainable state, we must first consider the balance of land use that will be necessary to support our population. Our efforts must begin with the soil, the most valuable and necessary resource of all civilization. Without an adequate base of protected farmland, "Live free or die" becomes little more than unfounded rhetoric. Or worse yet, it becomes a stark warning from the past to reconsider our modern approach to land use and the ability of our state to provide for our citizens' basic needs. While the issues of food security are complex, the absolute foundation of a food secure state is an understanding and appreciation for good land. Home gardens and urban agriculture will make a healthy contribution to our overall capacity. However, given our modern propensity for sprawl, we must retain the more productive and accessible tracts of soil for agriculture. This issue must take center stage, especially in times of recession and hardship. Our growth-based economy becomes meaningless if we cannot feed ourselves.



In his wisdom, soil scientist Sir Albert Howard is now considered one of the founding fathers of modern organic agriculture. His book, An Agricultural Testament, has influenced the likes of Robert Rodale, Wendell Berry and Wes Jackson. In it, he observed the folly of modern civilizations' tendency to undervalue quality soil and farmland as a vital resource. Even in 1943, before the green revolution and resulting population boom, he issued a stark warning to industrialized nations that is worth repeating here:

> *"The Roman Empire lasted for eleven centuries. How long will the supremacy of the West endure? The answer depends on the wisdom and courage of the population in dealing with the things that matter. Can mankind regulate its affairs so that its chief possession - the fertility of the soil - is preserved? On the answer to this question the future of civilization depends."*[12]

The History of Farmland Loss

From our early settlement through the mid-nineteenth century, our primary endeavor in New Hampshire was to clear land suitable for agricultural production. From the rich soils of the Connecticut Valley to the thin, rocky hillsides that crisscross this state, our survival was measured by the ability of farmers to bring land into active food production. However, beginning in the late 1800s, both our food system and our landscape began to change. When the sheep

industry collapsed, much of our marginal pastures were allowed to return to their natural forested condition. As the population slowly increased over the next 50 years, we lost nearly half of what we had once considered to be productive farmland. From 1925 to 1978, this trend continued as we lost almost 460,000 acres of cropland and an astounding 980,000 acres of pasture. In total, this loss amounted to roughly 84% of our original farmland base[13]. It was no wonder that by the 1970s, the people of our state began to question such a rapid loss of civilization's most essential resource.

Unfortunately, this trend of farmland conversion didn't end there. When the citizens of our state called for an aggressive investment in farmland protection, we still counted nearly 280,000 acres of crop and pasture lands. In fact, the 1978 USDA Census of Agriculture tallied 170,000 acres of tillable cropland in our state[14]. Since then, however, New Hampshire has lost an additional 25%, mostly to development. As of 2007, we only have 128,938 acres of cropland remaining. This means that, on average, 1,460 acres were lost per year despite our increased efforts to protect farmland. Our pastures have also shrunken precipitously from 107,184 acres in 1978 to 64,646 acres in 2007. This totals more than a 40% loss in available pastures for both meat and dairy production. In many cases, the losses in pasture reflect our shrinking number of dairy farms. While much of this land is still accessible beneath a cover of scrub lands and forests, the historical efforts to originally clear this land has been lost forever. Cropland found in the southern tier of the state have, more often, succumbed to a death of subdivisions and box stores, and their quality soils have been removed or buried beneath pavement indefinitely. All told, we have lost over 86,000 acres of potential food production in just the last 30 years. And of the 193,584 acres that remain, less than 10% is permanently preserved by a conservation easement, meaning that 90% remains vulnerable to future development.

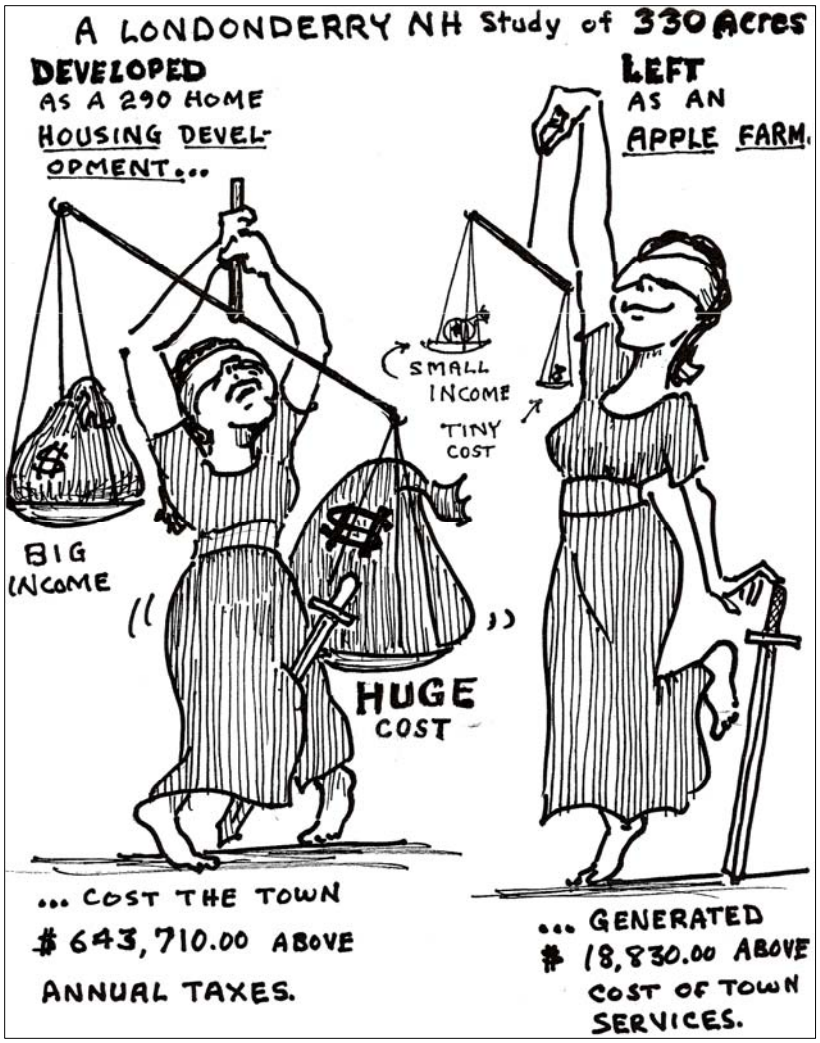
Why Protect Farmland?

Beyond food production, the acres of farmland across New Hampshire benefit our citizens in many ways. In a recent study, over 90% of residents agreed that the state's cultural and scenic heritage was important to them[15]. Beyond aesthetic appeal, there are a growing number of studies that suggest that open space, particularly farmland, provides a financial surplus to our economy. As mentioned before, New Hampshire agriculture contributes over $900 million to our state's economy each year. Most important, however, are the tax advantages of open space, a subject near and dear to the hearts of many Granite Staters. Put simply, farmland offers a net gain to the tax rolls as opposed to its more "progressive" counterparts such as commercial and residential land uses. However, as more land is converted to these higher uses, our property tax rates must increase to meet the financial needs of additional services. Is this really what we want?

As each town is faced with the inevitabilities of development and so called "progress", there are always a relative few who profit while the great majority of residents end up footing the bill through their taxes. While each new project begins with a promise to *lower* taxes through

madditional revenue, recent research suggests the contrary. Cost of community service studies have become a useful tool for towns to determine the fiscal contribution of existing local land uses. As farmland in New Hampshire is slowly converted to other non-agricultural uses, especially residential development, it is important for each municipality to consider the fiscal impacts of land conversion. In every New Hampshire community studied by the American Farmland Trust (AFT), agricultural land generated a surplus in revenue which was used to offset the drain created by residential development[16]. While it may be true that residential development contributes more revenue than agricultural land uses, it also requires much more public infrastructure and services. Simply converting farmland into subdivisions will not help balance local budgets. Rather, it will create an added financial strain to municipal services. The AFT confirmed this trend across the country as town planners began to question the wisdom of developing farmland. The following study conducted by the Statewide Program of Action to Conserve the Environment (SPACE) illustrates this point:

> *[They] compared the taxes generated and community costs of a 330 acre Londonderry apple farm enrolled in Current Use to those generated if the open space were converted to a 290 single family residential housing development. As a working farm enrolled in Current Use, it was generating $18,830 per year above the cost of services it required from the town. By contrast, the development would have cost the community $643,710 per year ($2,219.69 per home) above and beyond taxes and fees generated.*[17]



The identity and comforts provided by this landscape is why many of us have chosen to live here over anywhere else in the world. Others can trace their roots straight back through the early days of self-sufficiency, and by way of family memory and traditions, they are forever bound to their particular place. However we have come to love this beautiful state, most people prefer the scenic vistas of back roads to highways, mountains to mini-malls, and rolling farmland to cramped subdivisions. Sometimes referred to as "rural character", New Hampshire's tourism-based economy depends on our ability to conserve these qualities. Written in 2000, "Preserving Rural Character: The Agricultural Connection" sought to provide citizens with a more complete understanding of our open spaces. It points out that "the public yearns for rural quality of life, but may not understand the realities of working farms and woodlots – of the productive, resource-based rural economy, as opposed to the consumptive uses of land and natural resources found in a typical suburban community.[18]" This bulletin also provides a wealth of information concerning town planning and zoning strategies that may have a drastic effect on agricultural production. One particular resource found in the bulletin asks "Is Your Town Farm Friendly?" and offers a checklist for residents to contemplate.

A recent book entitled, "The History and Economics of the New Hampshire Dairy Industry", describes the difficulty in measuring the true value of our farms to their surrounding environment. Since dairy farming often requires large tracts of land, there is much at stake when these operations struggle with financial security:

> *"New Hampshire's dairy industry delivers positive impacts beyond those attributable to its direct financial contribution to the state's economy. Because the social and environmental impacts of the New Hampshire dairy industry are difficult to measure, they are often overlooked. Dairy farmers are the stewards of 83,365 acres of cropland and forest that maintain open space. These farmers have a long-term commitment to their working landscapes…Since the average dairy farm is in excess of 430 total acres, decisions by dairy farmers to leave the business can lead to sizable land use changes and loss of these generally unmeasured and overlooked indirect benefits…Dairy farmers' responsible management of open space delivers millions of dollars worth of ecological services, which are not reflected in the economics of farming, the state's gross returns or the way our society values agricultural land. Dairy farmers help maintain the quality of life that is so precious to the residents of the state."*[19]

When asked about these losses, the overwhelming majority of people have answered "no more!" A 2003 study by New Hampshire Department of Agriculture shows just how united people have become around the issue of local food and farmland preservation[20]. Survey respondents recognized that the absence of laws have likely increased conversion rates. In fact, over 90% of those surveyed felt that keeping farms viable was important and virtually all respondents (98%) agreed that buying local produce was a way to keep farms viable. Not surprisingly, 90% of respondents also felt that laws should try to protect farmland from urban development, and 82% agreed that a portion of their property tax should be used to preserve open space. Unfortunately, this message has failed to resonate at the local level, as town officials in many cases refuse to address the loss of farmland in their own towns. Aside from the token attempts to save specific farms, there has been little strategy or discussion about conserving the capacity to feed ourselves. It is also regrettable that our state's conservation fund, the Land Conservation and Heritage Investment Program (LCHIP) has languished in recent years, sometimes even having its annual budget rescinded entirely. This move is usually justified in the name of reducing taxes or balancing the budget, although it seems clear that citizens overwhelmingly support this program. LCHIP benefits all who live in and enjoy New

Hampshire's open spaces, and our future economy depends on the value we place on such resources today.

The Future of Farmland Preservation

In order for our state to address the growing concern over our level of food security, we must develop a plan, both literally and figuratively, from the ground up. Without a significant base of protected farmland, we cannot ever hope to break our dependencies on distant producers or brittle supply lines. Our goals for a more holistic approach to food security must begin with an attempt to conserve what remains of our productive soils before it is too late. As each year passes, we lose on average 700 acres of prime farmland[21]. This loss of farmland is clearly unsustainable and must be met with a successful attempt to reorganize our strategies of conservation. For the benefit of all, we must find a way to arrest this senseless conversion. If there is agreement that a strong local agriculture is vital to the long-term sustainability of New Hampshire, how then can we improve our methods of farmland preservation so that we might conserve enough acreage to maintain agricultural viability and long-term food security? After all, it is our independence that is at stake.

First, we must declare a moratorium on the development of any federally-designated "prime farmland". Losing 700 acres of this valuable resource each year is utterly unsustainable, and this moratorium would represent a small sacrifice today in the name of future generations' ability to grow food in desperate times. This modest set-aside represents less than 200,000 acres, a mere 3% of our total surface area, much of which is already in agricultural use. These soils were delineated by the USDA under the Farmland Protection Policy Act of 1981, which was established "to minimize…the unnecessary and irreversible conversion of farmland to non-agricultural uses".[22] Currently, these soils are extremely vulnerable to conversion due to their level grade, non-rocky substrate, and proximity to population centers, all highly desirable traits to developers. This is yet another example of a very small group of people profiting from the sale of a resource that is arguably part of our state's communal wealth. Once these lands are converted, their usefulness in food production is lost indefinitely. We were warned of this selfishness in the 1970s, but our desire to maintain private ownership rights have always prevailed. Looking back at the Cupboard document, we find an early recognition of this problem coupled with an inability to halt these conversions:

> *"The decision was made by two basic parties, the person(s) who sold the land and the person(s) who bought the land. In both cases, the motive was profit. This is not a bad motive but the ramifications of the decision are much more far reaching than just the motives of the two parties…Most land use decisions are irreversible in the long run and therefore a great deal of consideration must precede the actual decision. All parties affected must accept their responsibility for their role in this process for it is their future and the future of their children which are being decided upon."*[23]

Second, we must reconstitute our Agricultural Land Preservation (ALP) program in a more modern incarnation. While each new strategy offers a modest increase in acres protected, there is no silver bullet. However, our lack of a statewide land trust dedicated solely to agricultural conservation has seriously hindered our ability to measure both victories and losses in farmland preservation. Instead, we have attacked the problem in a piecemeal fashion, protecting farms when the opportunity presents itself. Without taking the place of smaller, more local land trusts, this organization could act as a clearinghouse for agriculture-specific expertise and easement preparation. A statewide land trust would necessarily become a default partner in such transactions. In addition to its conservation duties, it might also serve a function in food security issues. By conducting assessments of regional food production, it could help communities, counties, and the state as a whole determine their relative food self-sufficiency. This information will be useful in the formation of a statewide food policy (discussed in a later chapter). It would also provide a liaison for out-of-state resources such as the federal government and the American Farmland Trust, both of whom provide funding and expertise to farmers.

Third, we must examine the Land and Community Heritage Investment Program (LCHIP) which serves as our current in-state system of conservation funding. Over the years, LCHIP has provided millions of dollars to conservation projects ranging from wildlife habitat to historical resources to farmland. However, this diversity of conservation goals has limited its ability to protect New Hampshire's farmland. This is not to suggest that other conservation objectives should receive less money. Rather, it is an attempt to make a distinction between conserving our important environmental resources from the necessity of feeding ourselves. While these goals are linked by the bonds of nature, our food security is a man-made requirement that deserves its own consideration. If we funded agricultural conservation with a minimum of $3 million a year, we could double this investment with matching federal funds from the Farm and Ranchland Protection Program (FRPP). This level of support would offer $6 million annually towards permanent protection of farms in the Granite state. As earlier surveys suggested, the people of New Hampshire are behind the goals of preserving our remaining tracts of farmland.

Too often, we miss these opportunities either because the funding is not readily available or because the conservation restrictions are too cumbersome for an active and evolving farm operation. As community members, we must agree to step back from the cutting edge of land conservation and remember that protecting our agricultural resources requires managing a working landscape. This task is quite different from preserving nature from the human hand. Rather, we are seeking protection for the food-producing capacity of a given property. As our society changes and evolves, so too will our agriculture, and the flexibility to adapt must be available to those who farm on protected land. A statewide agricultural land trust could cater to these unique needs, and the time has come for us to improve our strategies and increase our protection.

Fourth, we must embrace a series of new conservation strategies that have proven successful in other states with similar problems and development pressures. Specifically, the State of Maryland has become well known for their use of Installment Purchase Agreements (IPA's) that have boosted the effect of their conservation expenditures tremendously. Currently, there is an advisory committee whose purpose is to examine these IPA's and develop protocol which would allow their use in New Hampshire. Pending their initial research, we should follow through with legislative action. We will also find creative examples from our neighbors, such as Vermont, Massachusetts and Maine, who continue to provide a glimmer of hope that we might still save farmland from the spoils of development. Now is the time to support and protect our local farms in New Hampshire before it's too late. As the saying goes, if we refuse this challenge, all that remains is to "watch the houses grow"[24].

FARM VIABILITY IN NEW HAMPSHIRE

Farm viability is a term that explores the success and permanence of agriculture over the long term. It reminds us that farms are more than just a hobby or family tradition. They are also a business, and in order to continue providing their communities with food, fiber, and open space, farmers require a certain level of profitability. While many farm families toil the year around to offer goods and services to their neighbors, no business can survive over the long term if it is not profitable. While farms belong in the domain of the private sector, society cannot ignore the fact that our survival largely depends on the ability of our farms to produce a sustainable harvest of food. Therefore, we must all engage ourselves in the difficult and sometimes unpredictable nature of farming. As everyone must eat, no one should be excluded from this task of understanding their food supply.

This commitment has already begun to take place at the state level. A thorough investigation of farm viability was completed in 2005 called "Cultivating Success on New Hampshire Farms". While this report displayed a conscientious attempt to address the issues of farm viability, very few of these recommendations have been exercised to their full potential. We would be wise to take a lesson from the 1970s about the necessity for actions to follow policy. Also important are the roles of private business in our attempt to revitalize our food system. During these times of economic contractions, local entrepreneurs would be wise to consider the opportunities available in agriculture. From food processing and storage, slaughter, equipment sales and service to training new farmers and developing cooperative markets, there is clearly an open vacuum waiting to be filled. Local farms supported by local businesses creating local prosperity by feeding local communities. Through these connections, we become stronger, more secure, and more sustainable together.

Cultivating Success on New Hampshire Farms[25]

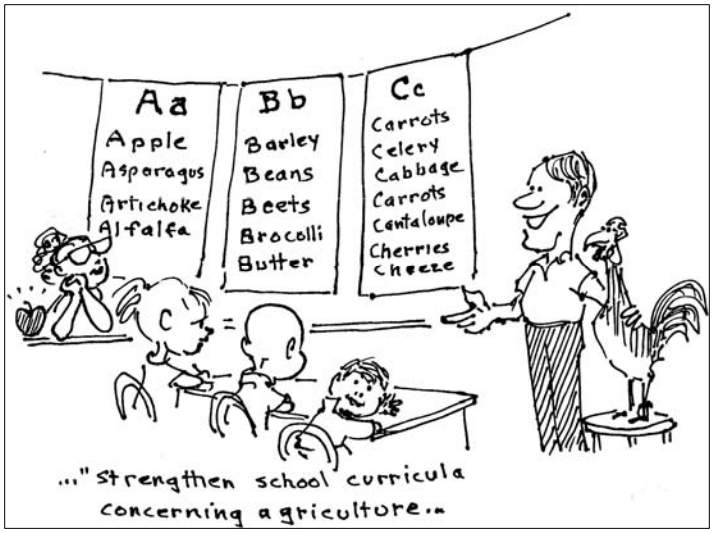
In 2005, the New Hampshire General Court passed *Senate Concurrent Resolution 1*, authorizing a Farm Viability Task Force, because "farming and other agricultural interests are a vital part of New Hampshire's economy and need much more attention; and … intertwine many different state agencies and programs, which need each other for survival and growth." The Task Force was asked to study and recommend policy and actions to promote the strength and vitality of the state's agricultural sector, in recognition of its role in the state's food system, economy, and environment. In November 2005, Governor John Lynch appointed the Task Force, with broad representation from farming, food marketing and processing, economics and finance, nutrition, education, conservation, and consumers.

After a year of research and discussion, the Task Force released their final report entitled "Cultivating Success on New Hampshire Farms". In it, they recommended public policy changes and actions for our governing and public institutions to support farmers in making the most of the opportunities for a dynamic agriculture in New Hampshire. The report is divided into four sections. The first section is entitled *An Overview of New Hampshire Agriculture* and looks at the current conditions and trends to provide a baseline analysis of farming in 2005. The second section, entitled *Recommendations*, addresses opportunities to enhance short and long-term farm income and viability, education and attitudes, and burdensome or duplicative regulations. Each recommendation concisely explains the opportunity or problem addressed, outlines goals,

implementation, and funding needs. The third section, *A Closer Look*, offers further background and supporting information for each of the ten recommendations. The final section, an *Appendix*, identifies specific State laws or regulations as burdensome to agriculture, and proposes changes to emphasize favorable law, redirect unfavorable law, and establish a uniform definition of agriculture.

While it is unnecessary to reprint this report in its entirety, its list of ten recommendations offers a glimpse into the difficulties of maintaining a viable farming community here in New Hampshire:

1. *Fund agricultural extension, education, and research of direct benefit to agriculture in New Hampshire.*
2. *Increase direct marketing opportunities for producers.*
3. *Establish a Farm Viability Program.*
4. *Make conservation of farmland a high priority and dedicate a minimum of $3 million annually to buy permanent conservation easements that protect agricultural land.*
5. *Establish a Lease of Development Rights (LDR) program.*
6. *New Hampshire Department of Agriculture, Markets, and Food and University of New Hampshire Cooperative Extension should collaborate with other Northeast states to enhance the dairy industry in New Hampshire and the Northeast region.*
7. *Strengthen school curricula concerning agriculture to help students understand our food system.*
8. *Authorize Agricultural Commissions that local governments may choose to adopt as an advisory committee.*
9. *Remove rules and regulations burdensome to agriculture and identify ways the State of New Hampshire can assist.*
10. *Continue the Task Force process of looking at the current status and future needs of agriculture in New Hampshire.*



Nearly three years have passed since these recommendations were issued. Recommendation 1 has been largely ignored. In fact, Strafford County recently voted to cut their entire budget for Cooperative Extension. If not for a national stimulus package grant unrelated to Extension, Strafford would have lost its Cooperative Extension as well as its soil and water district personnel. Recommendation 2 has seen marked growth as evidenced by the increasing number of farmer's markets across the state. In 2009, there are now 73 active farmer's markets in New Hampshire, including several which operate during the winter months. In addition, the 2007 USDA Census of Agriculture showed a dramatic increase in direct-to-consumer sales. Recommendation 3 has seen no action as of yet, but this is precisely what is needed to assist farm operators in trouble. Recommendation 4 has languished given the poor economic climate. While LCHIP was given a dedicated funding source, there was no provision that requires any of that money to go specifically to farmland conservation. Recommendation 5 is currently awaiting legislative approval and may become a viable tool for temporarily conserving agricultural resources. Recommendation 6 has seen little activity despite a

rollercoaster ride of milk prices and fixed costs. The year 2009 will likely prove to be the worst year for milk prices and dairy farm viability in New Hampshire's history. Recommendation 7 has seen improvements to our current Ag in the Classroom program. Recommendation 8 has become a success with agricultural commissions popping up throughout the state in response to local concerns. Recommendation 9 has seen many adjustments to state rules and regulations that formerly hindered the operation of farm enterprises. However, many municipal regulations continue to detract from our farms' full potential. Agricultural commissions (Rec. 8) are designed to help ease these burdens. Recommendation 10 has languished without any formal meetings of the Task Force since 2006, although ad hoc groups such as the NH Coalition for Sustaining Agriculture continue to discuss and act towards improving the climate for local farms and local foods in New Hampshire.

For further information, the executive summary and recommendations of this report are offered in their entirety in the Appendix section of this guide (See Farm Viability Task Force Report).

The Integral Role of Cooperative Extension[26]

The first goal set forth by the Farm Viability Task force was to "secure additional funding for research that helps New Hampshire farm producers and for the Agricultural Specialists (Extension Educators) who communicate the practical knowledge that is responsive to the changing needs of agriculture in New Hampshire".

UNH Cooperative Extension (UNHCE) provides a needed connection between the scientific knowledge of the University and its practical application in the field. For farmers, Cooperative Extension is often the first call for questions about crop production, such as identifying soil fertility problems, insect pests, or plant diseases. Having rapid access to Agricultural Specialist Extension Educators to consult on production problems that may lead to immediate crop damage or livestock losses is a beneficial leveraging of agricultural research knowledge to mitigate crop production risk. UNHCE is a prudent institutional solution to protect the economic value of crops and livestock in the state. Agricultural producers rely on UNHCE to respond quickly, effectively, and carefully when dealing with new pest and disease problems, as well as successfully managing existing crop threats.

UNHCE provides the communication pathway for scientific knowledge that keeps agriculture sustainable and attentive to emerging environmental concerns. This background information is the basis of Best Management Practices, which are specific guidelines adopted by the Department of Agriculture. UNHCE provides the aggregated knowledge of academic research about agricultural practices from other institutions across the world so that New Hampshire farmers are supplied with the most current and reliable technical advice.

Cooperative Extension effectively supports the future of agriculture by putting Agricultural Specialists in contact with farm producers who are trying out new crops and production methods. Extension Agricultural Specialists are often called on as consultants to critique emerging technologies as they are first put into practice on the farm. Cooperative Extension's on farm delivery of experience and knowledge requires a hands-on approach. On-farm viewing of a complex collection of crop symptoms that requires analysis of soil or tissue samples can't be done with mouse clicks. Face to face visits, tours, and instructional seminars by experienced UNHCE Agricultural Specialists who constantly compare practices they see on different farms has built a knowledge force with high technical proficiency in the scientific background that is a competitive advantage for New Hampshire growers.

UNHCE is in the knowledge communication business, and not just with farmers. Extension Specialists also respond to the general public's questions about gardening, tree care, insect pests, and nutrition. Cooperative Extension's technical communications efforts on behalf of the non-farm public touches a much larger client base than commercial on-farm recipients of these services.

The Case for Agricultural Commissions[27]

Agricultural commissions are a new idea for New Hampshire municipalities seeking to balance growth and quality of life issues, and preserve local character. A New Hampshire town or city may choose to establish an agricultural commission to promote, enhance and encourage the interests of farming, agricultural resources and rural aspects of community life. Citizens can use an agricultural commission to help keep farming viable and vibrant in their community, whether rural, small town, suburban or urban. An agricultural commission gives farming a voice, but is not regulatory.

The purpose of an agricultural commission is to protect agricultural lands, preserve rural character, provide a voice for farmers, and encourage agriculture-based businesses. For years New Hampshire farmers have served as stewards of land and water resources, and provided habitat for native plants and animals. As New Hampshire communities grow and change, citizens are looking for ways to support local farms, and foster new ones.

Establishing an agricultural commission is an option for communities that value their local farms and rural character, keeping land in open space and healthy, locally-produced foods. An agricultural commission has no regulatory or enforcement authority. In general, an agricultural commission serves a similar role for local agriculture as a heritage commission for historical resources, or as the non-regulatory aspect of a conservation commission for natural resources. Heritage and conservation commissions, and other municipal boards, may spend some time on agricultural issues, but they also have many other responsibilities that prevent them from concentrating on agriculture.

An agricultural commission focuses primarily on agriculture. It will typically work cooperatively with other town or city governing and land use boards and commissions to make sure the concerns and interests of farmers are better understood and considered in their decision-making processes. An agricultural commission may:

- *Advise and work with other boards and commissions on issues facing farming in the town,*
- *Conduct inventories of agricultural resources,*
- *Conduct inventories of historic farms and farm buildings,*
- *Educate the public on matters relating to farming and agriculture,*
- *Serve as a local voice advocating for farmers, farm businesses and farm interests,*
- *Provide visibility for farming,*
- *Give farmers a place to go to for help,*
- *Help resolve farm-related problems or conflicts, and*
- *Help protect farmland and other natural resources.*

Improving Infrastructure and Farm Services

As we restore our local agriculture, it will become increasingly important to provide farmers with additional infrastructure and services necessary to succeed. Much like any other

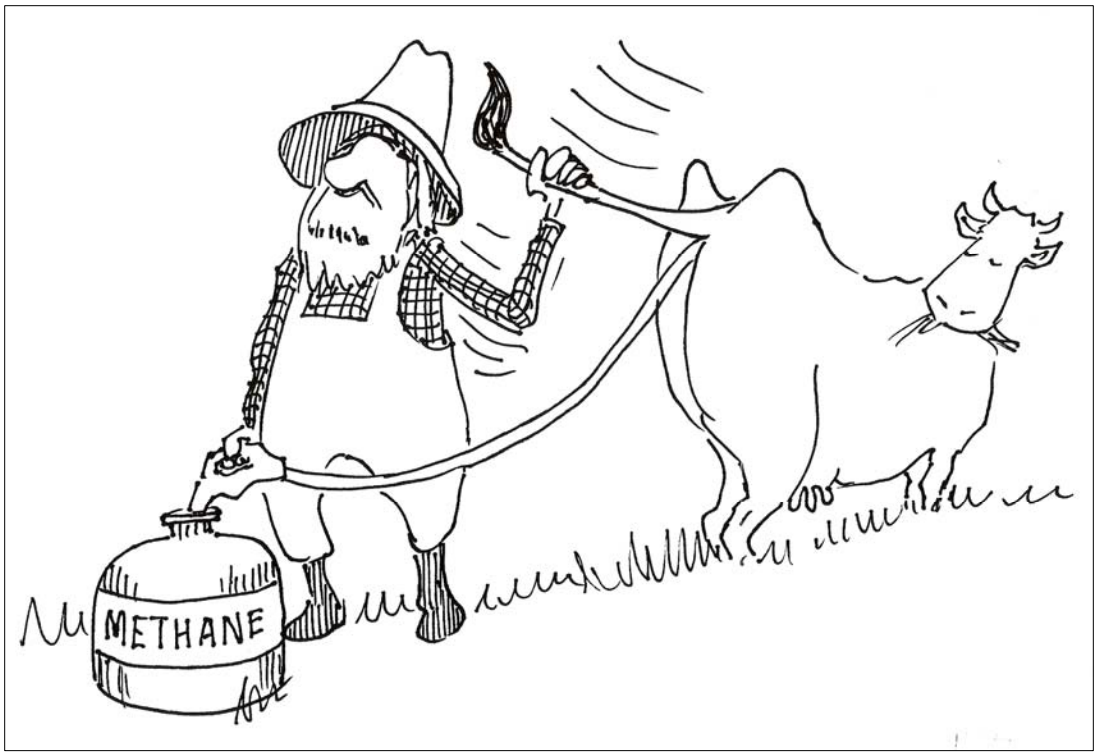
business, farms require a significant level of support services and outside infrastructure in order to bring their products to market. Depending upon the type of product, many farms are simply growing the raw material that must then be processed before it is sold to the consumer. While this multi-level system of processors, transporters, wholesalers, distributors, and retailers can easily diminish the potential profits to the farmer, some farmers prefer this design and the appeal to be left alone to simply grow their crops without having to maintain a retail side to their business. At the same time, many farms in New Hampshire are realizing the overall benefits of direct-to-consumer sales. If our goal is to increase our overall food self-sufficiency, we will need to accommodate all models of production and distribution.

Still, almost no farm is able to grow, package and sell their products without some form of input or support service. For example, in order to sell meat products off the farm, food safety regulations require that it be butchered at a USDA licensed facility. Currently, New Hampshire only has one of these facilities, which dramatically limits our ability to provide consumers with local meat products. Other forms of infrastructure that would increase our agricultural potential include farm equipment sales and service, credit brokers familiar with agricultural situations, and processing facilities that could help to store more produce through our long winters. Food storage will become increasingly important as we wean ourselves from foreign markets. Therefore, we must redevelop an infrastructure that will store enough nutrition to eat well from November through May. For example, as the global corporations founder, we may find ourselves with large, vacant box stores. Their size, placement, and surrounding open space (removing the parking lots) would provide a wonderful opportunity to grow, process, and store our crops through the winter. And their flat roof design could easily accommodate solar panels equipped to provide temperature controlled storage below. This is only one example, but creative solutions that are both efficient and sustainable must ultimately prevail over consumptive and wasteful designs. Cooperative markets will also become a useful tool by allowing smaller farms to leverage bulk sales to grocery stores. This step offers a vital resource which allows an easy and convenient connection between local farms and consumers without the additional efforts of direct sales and purchases. As you can see, given the appropriate circumstances, our local communities could not only support themselves, but they could recreate an economy that cycles our investments rather than sending them to Wall Street and beyond.

Another newly emerging opportunity for farms across New England is the ability to provide energy to the grid[28]. For years, we have heard the call to decrease our dependence on foreign oil and nonrenewable sources of energy. A growing trend across the country has found this source for clean, dependable, and renewable energy at the farm gate. By not relying on solitary power plants for our electricity, we could instead develop "homegrown" supplies of electricity that would be distributed throughout each community. Not only would this conserve the vast amount of energy lost in transmission, but it would also displace the risk of large scale blackouts when one facility malfunctions. This new "cash crop" would undoubtedly improve the profitability of farms as well as increase community security and independence. Examples of farm-based, renewable energy include manure digesters, solar panels, and wind turbines. Farms

present a unique environment for these installations because they often provide an open location away from urban settings with the building and engineering resources available to house such technology. Here in New Hampshire, we would be wise to invest in these local systems, as this is yet another instance where we could build stronger, more resilient economies by creating a homegrown solution to what today appears to be a global problem.

The process of rebuilding infrastructure is difficult to legislate in a free market economy.



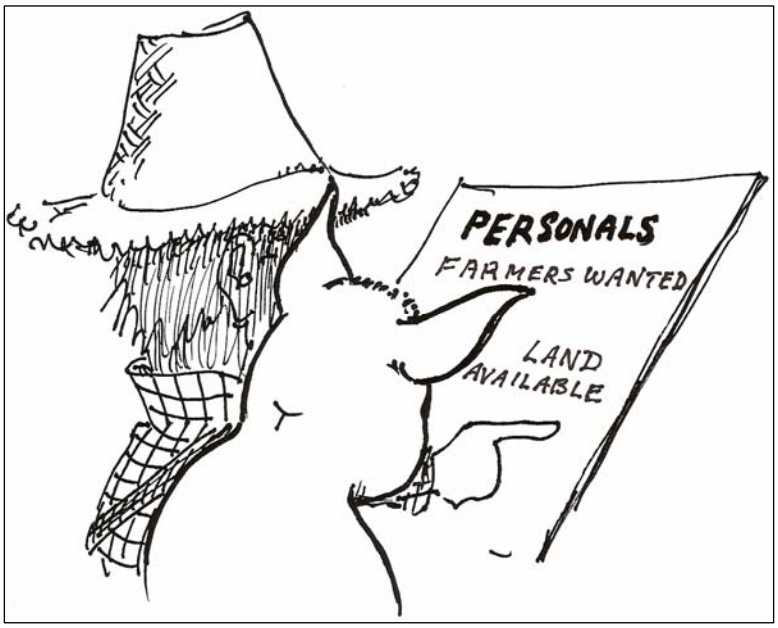
However, as our citizens realize the multiple benefits of local foods and agriculture, there will be an exceptional period of opportunity for entrepreneurial spirit and investment. In tough economic times, the safest market to explore and expand a new business is often within your local community, where you can identify and verify a true need for additional services. Whether you're a venture capitalist or have experience in a specific service, it will be worth your time to explore these growing opportunities presented in the rebirth of our local agriculture

Growing the Next Generation of Farmers

There is no doubt that our farmers are aging. The 2007 Census of Agriculture lists the average age of New Hampshire farmers at 56.2, an increase of over six years since 1978 (50.7). Part of the reason for this shift is due to the perceived difficulties in raising a family on such marginal incomes. Farm kids have grown up witness to the struggles and debt load carried by their parents and grandparents, and many of them have chosen alternative career paths. With so many other occupations offering more money, less risk, and better benefits, why would these children choose to supply the next generation of farming talent? In fact, if you look around and get to know many of the new farmers in today's agricultural circles, they often come from family upbringings without a great deal of farming experience. Another hurdle pits the modest income of farmers with the higher costs of land, especially in southern New Hampshire. And even when a farm is transferred to the next generation of willing children, the current economy and sales environment demand adaptive personalities and require a redesign of production or marketing

techniques. All this requires that we provide today's farmers with up-to-date training that will help them to maintain a profitable farm business.

Today, more than ever, there is a need to match farmers who want to sell or rent their farms with people who want to go into farming. Farmland is expensive and hard to find, and there is a younger generation with a desire to farm and supply local food. Some landowners might even make special arrangements for people who show promise of carrying on their enterprise. The New Hampshire Farm Link program was organized on June 21, 2000 with the purpose of joining willing farmers to willing renters or sellers of farmland. However, it never really had the financial backing or staffing to fully do the job. After several years of being somewhat dormant and looking for a home, the New Hampshire Farm Link program has merged with New England LandLink, run by the New England Small Farm Institute (NESFI) in Belchertown, MA. The New England LandLink program serves all of New England and eastern New York. Its database currently has 510-plus seekers and over 60 farm offerings. Merging with this regional program will provide a considerably larger pool of prospective farmers and available land and be a win-win situation for everyone involved[29].



In addition to the individual and physical improvements needed on our farms, there is an educational and outreach component that cannot be overlooked. As evidenced by its appearance as the first recommendation of the Farm Viability Task Force, we must make every effort to support institutions such as Cooperative Extension and other outreach-related programs. Without them, our agriculture becomes stagnant, outdated, and underserved as an industry. In addition, there are many other programs through the Department of Agriculture, Markets, and Foods, UNH, and other non-profits that have become integral components in our strategies of farm viability. Programs such as NH Farm-to-School, Ag in the Classroom, and Farm-to-Restaurant have all made significant contributions towards supporting our local farmers and their agricultural businesses. Another similar program is known as the Small and Beginner Farmers, a working group overseen by the New Hampshire Resource Conservation and Development (NH RC&D), offers training and services to new farmers. For more information on these and other programs, refer to the Food and Farming Resources section at the end of this document.

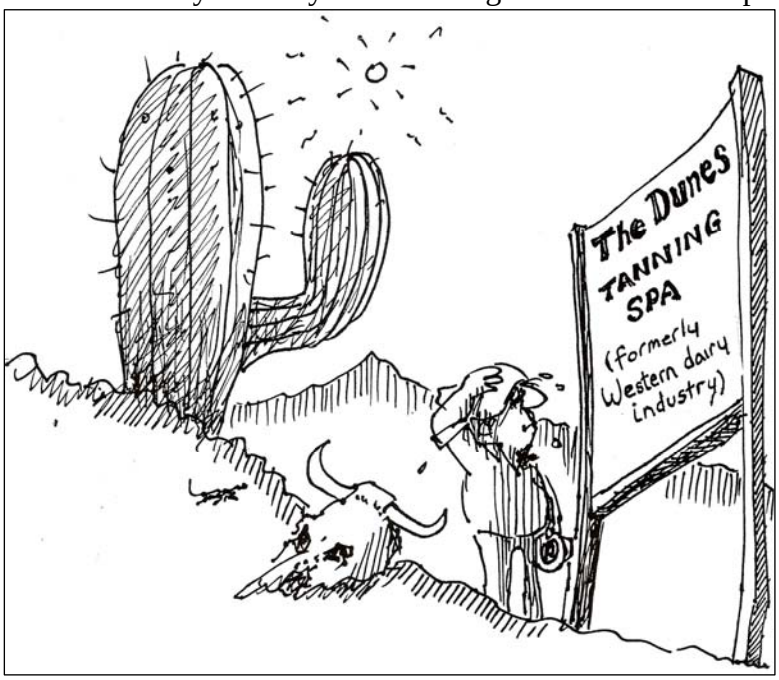
One program, in particular, is gaining attention across New Hampshire for its common sense approach to a well-rounded education. Monadnock Regional High School has begun integrating agriculture and farming into their annual curriculum as a way to connect students with their community. Named "Growing Our Own – food, people, community and future", the program reflects the critical importance of both a strong local agriculture and an informed citizenry who appreciate where their food comes from. Noting that the school's mission is to provide quality and excellence in education for all students, Principal Brian Pickering asked, "How can we have that without agriculture?"[30] The program will rely on extended learning opportunities which allow students to connect academic work with hands-on learning experiences sponsored by local businesses and other community organizations. In the years to

come, this holistic approach towards education will provide a beneficial model for other school districts in the state.

Lastly, there is one group that has affected much change within our state known as the New Hampshire Coalition for Sustaining Agriculture. They are an informal network of organizations and individuals dedicated to enhancing the social, economic and environmental sustainability of agriculture in New Hampshire. They bring together members of the farm community and the non-farming public with agricultural, conservation, and community development professionals to implement a shared vision. Essentially, they combine their communal knowledge and networks in order to move forward initiatives and programs designed to improve our agricultural system. On the ground, they support workshops each year at the Farm and Forest Expo in Manchester, as well as take part in other events. Examples of their written work include "Conserving the Family Farm" by Annette Lorraine, "Creating an Agricultural Commission in your Hometown" by Lorraine Stuart Merrill and "Energy Cash Crops: Opportunities for NH Farmers" by Caroline Robinson. In fact, the document that you are reading now is a direct result of the Coalition's energy and commitment towards sustaining agriculture here in the Granite State. Without the efforts and personal commitments of this group, New Hampshire's farming landscape today might be quite different. As Margaret Mead once said, "Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."

The Vital Importance of Our Dairy Industry

The significant loss of dairy farms across New Hampshire currently provides a premier example for the need to reexamine our farms' overall viability. Although we seem to have no shortage of milk in this state, the absence of a dairy industry would change both our landscape and economy forever. There is no doubt that milk can be produced at a lower cost on massive confinement operations in the arid West. However, this design steals away the benefits of fresh, locally produced fluid milk. The West's advantage is due to topography, the low cost of petroleum (feed and transport), and their reliance on subsidized water resources. Over the next few decades, however, we will see a dramatic surge in the cost of both petroleum and water, and when cheap fluid-milk no longer floods our markets from the West, we will look back and wish we had done something sooner to save our local markets.



As Commissioner of Agriculture, Lorraine Stuart Merrill points out, dairy farms utilize vast tracts of open space, and their economic impact maintains much of the agricultural infrastructure across the state. Losing our dairy industry would change the landscape of New Hampshire forever and would affect the overall viability of all types of farming enterprises[31]. In addition, the renewed interest in multipurpose agriculture (dairy, meat, grains, and vegetables) will require a significant source of fertility that would most likely come from dairy farms. Also important, there is no cheap replacement for the traditional wisdom used to farm. Impossible to measure, the knowledge and experience that is lost as farmers go bankrupt or retire without a successor is something that cannot be replaced. While the dairy industry is only one example of the need for our state to address farm viability, its struggle begs attention. We must meet this priority with a swift and direct attempt to stabilize this important cornerstone of our past, present, and future agriculture.

"...fertility would most likely come from dairy farms."

One organization that has recently surfaced to address the growing discrepancies between our dairy farms' costs of production and their dwindling milk checks is "Keep Local Farms"[32]. Following the model of the "Fair Trade" certification of products such as coffee, bananas, and chocolate, the Vermont Dairy Promotion Council, the New England Family Dairy Farm Cooperative with Cooperative Development Institute, and the New England Dairy Promotion Board have developed a program that enables consumers to help dairy farmers. By contributing to a fund that will be shared with the farmers of New England and the Northeast, consumers will be able to assist farmers when market prices do not cover their production costs and help guarantee a fair wage for their labor. Essentially, it allows citizens the ability to directly impact a system that has traditionally relied upon the federal government for help. Indeed, this idea is new, and although its success has yet to be determined, it will provide us another tool to help preserve our agricultural capacity here at home.

FOOD SELF-SUFFICIENCY IN NEW HAMPSHIRE

So far in this document, you have learned something about the history of New Hampshire's agriculture and food system, how our farming landscapes have changed, and why it is so important to maintain viability in today's agricultural economy. Now, it is time to discuss New Hampshire's food self-sufficiency. While it can be extremely complex to track how food moves through the system, it is essential that we measure our capacity to feed ourselves in the event of disaster. If our food supply lines were cut off, for any reason, how would our local production meet the demands of our population? The short answer to that question is "we could feed roughly 4% of our population". This means that 96% of our population would go hungry if, for any reason, we lost our outside supplies of food. But how much more land and agricultural energies would be needed to meet the goal of self-sufficiency? Is it even realistic to consider the goal of being 100% food self-sufficient? These are the questions that must be answered as we begin to estimate our food self-sufficiency. Maine recently declared a desire to produce 80% of their food needs by 2020. New Hampshire would be wise to at least take the first step of constructing a new food policy. The task is long overdue and has become even more critical for the safety and security of our citizens given these times of economic uncertainty. But the responsibility of this effort must be met by politicians, farmers, and consumers alike, as we all share the common goal of eating well and feeding our families.

Recent Estimates of Self-Sufficiency

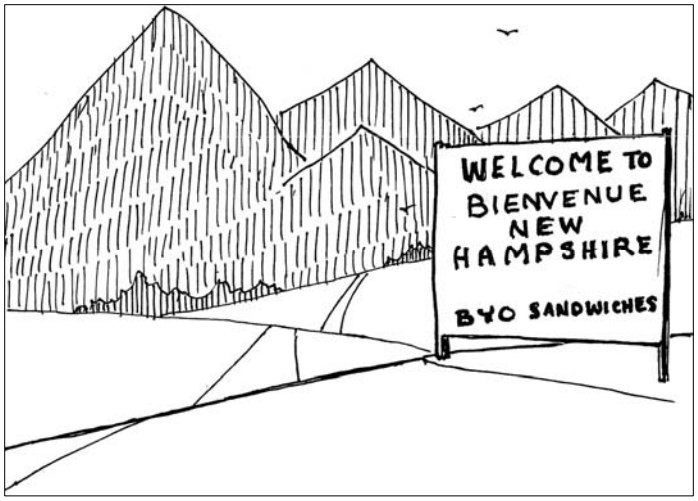
It is important, first, to acknowledge that food knows no boundaries. The task of determining New Hampshire's food self-sufficiency is mostly an exercise in local capacity and disaster preparedness. In a sustainable world, our food supply would naturally revolve around a regional system with its boundaries blurred by seasonal and environmental necessity. In times of need, people will instinctively seek out food from wherever it is available. State lines, and ultimately, state policies as well, will cease to determine local foodsheds. However, when assessing our ability to survive periods with little or no external input, we must draw the line somewhere, and so it would seem useful to understand our own state's ability to feed itself within the context of our larger region which is New England.

A recent document entitled "Food Self-Sufficiency in the New England States, 1975-1997" was released from the Department of Resource Economics at the University of Massachusetts-Amherst[33]. Written by Davis Holm in 2001, this paper examined the major food production sectors of New England and calculated each state's ability to "feed" its population. By dividing these sectors into meat, dairy, poultry, eggs, vegetables, fruits, and seafood/aquaculture, the authors were able to estimate the proportion of consumer demand that was met by each state's agricultural production. Using data from 1975 and 1997, they compared the changes occurring in each state with respect to increases in population and food production. They also calculated bakery/cereals and miscellaneous food products into household food expenditures, although neither was considered to be a food production sector in New England. It is, however, interesting to note that dietary preferences have shifted from 1975 to 1997 favoring more usage of the bakery/cereal food sector. This is particularly important to our food self-sufficiency because it shows how far our modern diets have shifted away from locally produced food sources.

Determining food self-sufficiency is always a difficult exercise, requiring a host of unavoidable assumptions. This document, written by David Holm and other colleagues from UMass, chose to determine food self-sufficiency from a consumer cost perspective. By estimating the average household food expenditures and multiplying these figures by each state's population (number of households), they determined the overall food expenditures within each food sector. From here, they totaled cash receipts from farm marketings and multiplied these totals to reflect the disparity between farm gate and retail prices. Then, for each state and food sector, they compared the estimated consumer expenditures to the estimated retail value of in-state production. The resulting surplus or deficit was considered a reflection of the state's "percent self-sufficiency".

Holm concluded that New England, as a whole, was 28.1% food self-sufficient in 1997, nearly identical to our situation in 1975 of 27.8%. The estimated total food consumption expenditures in New England was $27,312,400,000 while the estimated retail value of food produced was $7,665,900,000. Vermont led the individual states with 111.3% food self-sufficiency followed by Maine at 97.9%, Rhode Island at 18.6%, Massachusetts at 17.8%, New Hampshire at 15.2%, and Connecticut at 11.9%. New Hampshire lost 8% since the survey in 1975 when it was determined that the state was 23.2% food self-sufficient.

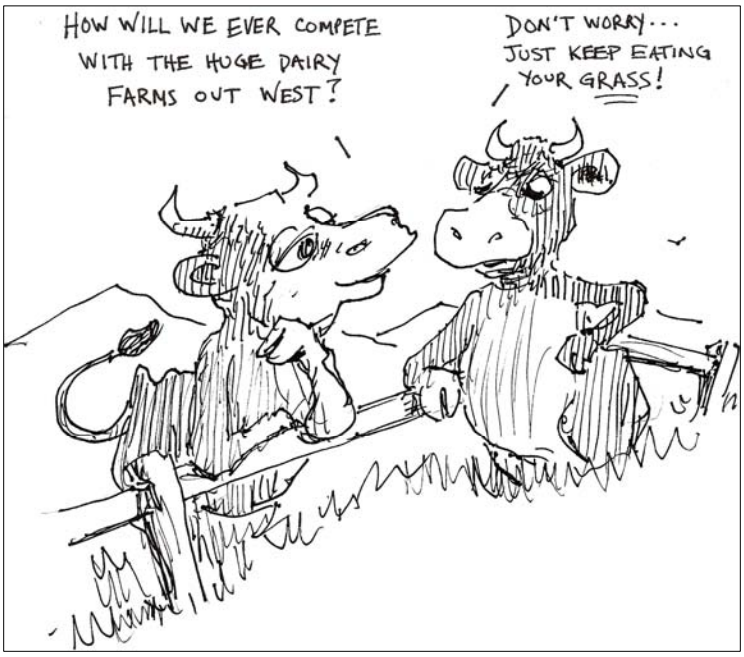
In this case, it is extremely important to examine the assumptions linked to these values. There are several reasons why this particular study gives a false sense of security to its readers. First of all, it is important to note that states specializing in certain food sectors were allowed to exceed 100% self-sufficiency within this sector, and this excess was then carried over into their overall self-sufficiency. For example, Vermont produced 830% of its dairy products needs, obviously causing a lopsided effect on the state's overall food self-sufficiency. In the event of a break in our food supply, we cannot rely solely on one food sector nor will an overabundance of one food type make up for a shortage in another. For New Hampshire especially, it is important to note that our leading industry is tourism. Much of the food consumed here is by out-of-state visitors. Of course, no one is suggesting that we attain food self-sufficiency on a scale that matches these influxes of food consumers. Yet, one cannot help but consider the economic effects if we remove tourism from either our food security calculations or our larger economic dependencies.



In relation to the authors' overestimation of some food products (830% dairy in VT's case), another point of concern is the concept of absolute versus comparative advantage. These classic theories have proven useful in our current global marketplace, but they also provide cause for concern when addressing local capacity. Absolute advantage occurs when "a particular region can produce certain foods and goods at a lower cost than can another region. This cost advantage is due to factors such as regional climate, indigenous natural resources, or the existence of an established specialized labor force"[34]. Comparative advantage, on the other hand, "comes about because of differing opportunity costs-the amounts of goods or services that could be produced instead of current products. A region has a comparative advantage in producing foods and goods for which it has to give up little (in terms of other foods and goods that it could otherwise be producing) compared to the price that it receives from exporting the products"[35]. They go on to say that "economists also look to the gains offered by specialization and trade. If

farmers in New England realize they are better off specializing in those foods and products offering a comparative advantage, they will produce a surplus of those foods and products, which can be traded for the many other goods and services that consumers demand".

While these practices certainly lower the cost of food to consumers, there remain two unique problems with outsourcing your food supply. First and foremost, you lose the benefits of true independence as your specialization creates major gaps in your dietary needs in the event of disaster. And of growing concern, the trappings of an overly specialized agriculture will leave you exposed to the unexpected fluctuations and unmerciful crashes of a global economy. Second, you lose the ability to capture and cycle money in the local economy before it is lost to outside entities. Clearly, absolute and comparative advantages have their place in our current global food system. However, if this system fails, so too do these so called advantages. For these reasons, we should attempt to increase our agricultural production here in New England, while also seeking to maintain a diverse portfolio of food products that could sustain our populations in times of need. Nature's law of diversity in any system could provide us with a more appropriate and locally fulfilling model of stability in the face of disaster.



For example, New England once had a comparative advantage in providing dairy products to its regional consumers. While the hill country afforded little land for cultivation, forests were cleared and lush pastures fed the growing demand for fluid milk and other dairy products. Grains and other agricultural production slowly moved south and west, but New England retained its dairy heritage due to our family traditions and early investments in the blooming industry. Other factors which maintained this long term advantage had to do with the difficulties of transporting fluid milk and its perishable nature. However, as the industrial scale of dairy farms slowly grew across the country, our ability to provide milk at a price competitive with factory farms decreased. Keep in mind, these distant dairies aren't more efficient in terms of resource use. In fact, when you compare the traditional grass-based dairies of New England with the corn and petroleum dependent mega dairies of the West, our product is vastly more efficient. However, their milk continues to flood the New England markets at prices that few local dairies can match. So what happens when our dairy farms are gone, leaving only subdivisions and an occasional sports field? When the petroleum or water or subsidies dry up for these mega dairies out West, where will we turn for our milk? It is this type of situation that begs us as citizens and consumers to question economic theories entrenched in a system on the verge of failure. Instead, we should consider our long term sustainability by supporting local farms to produce as much food and diversity as possible.

In an interview with Steve Taylor, former NH Commissioner of Agriculture, the reality of how little we actually produce begins to sink in[36]. By his own anecdotal estimates, we only produce around 3-4% of our food supply. The remainder must be shipped into the state by roads, rails, and ocean. As he says, "Take a walk around most any grocery store in the state. With over 30,000 products on their shelves, what can you find that's really grown and sold here in New

Hampshire…a small percentage of the fluid milk, maybe some apples in the fall…that's about it." He says that our situation has grown far worse than even the late seventies, when we first began to question our levels of food self-sufficiency. Our populations have grown, our larger farms have decreased in numbers, and our aging farmers have not been replaced by younger generations. Given the rollercoaster ride of profitability (most notably in the dairy industry), who could blame these young adults for choosing a different career path.

Taylor points out that New Hampshire has long struggled to meet the needs of its population. With our short growing season and relatively poor soils, nearly every state to our west has an absolute advantage over our agricultural potential. "But this situation may change", he says. "Look for a growing battle over water resources out West to tip the scales back East." Many of the regions that today grow our vegetables and produce our fluid milk may lose their own advantages when water allocation becomes their limiting factor. "What's more", he says, "are the growing drug wars down in Mexico. If they really lose control and we can no longer get fresh produce through the winter, we will return to our historical familiarity with canned peas and frozen vegetables." This possibility would at least offer our population a minor wakeup call that our current food supply has limits beyond our control.

Realistic Estimates for the Future

The problem with estimating the food produced versus consumed in New Hampshire is the fact that we have no current system in place to monitor this ratio. The University of Massachusetts study on food self-sufficiency gave us a general idea, but their study was more an exercise in economics rather than an in-depth calculation of food production. Given our current global system, it has become nearly impossible for the average citizen to appreciate the true vulnerability of our food supply. However, because food is such a basic necessity of life, we must acknowledge our deficiencies in food production. The current attitude that somehow other regions will always provide for us is both arrogant and unsustainable. As Taylor points out, many of the agricultural regions we depend upon are running into their own social and environmental limitations, and we would be foolish to assume that, in times of need, they would service our needs over their own.

Today, 80% of our current cropland in New England is planted to feed livestock[37]. This system has been developed to service the growing trend of confinement agriculture, especially in the dairy industry. Based primarily on the availability of cheap oil, this age of inefficiency will lose appeal as petroleum grows scarce (and expensive). Before the large scale use of machinery, 1 calorie of energy input produced roughly 16 calories of food energy. Today, the average U.S. farm expends 2.8 calories of energy to produce a single food calorie[38]. As we strive to feed our growing populations, we cannot afford to waste land or energy in this way. As UNH Professor John Carroll points out, our climate offers a tremendous potential towards grazing and the production of meat and dairy from grass. Although some of these lands have been converted to non-agricultural uses, much of our historically pastured landscape remains untapped beneath a cover of forest and brush[39]. Utilizing this advantage would free up some of the better cropland

for human consumption. Through the use of more sustainable, efficient, and multipurpose agriculture, we could increase our local production dramatically.

While it may be unrealistic to attain 100% self-sufficiency, it is nonetheless important to consider our production potential as a state. In order to understand this, we must develop a more rigorous calculation for calories produced versus calories consumed. Therefore, the following calculation represents a rudimentary attempt at depicting such a ratio. In a 1977 study on population growth and land use, Colin Clark estimated that it takes approximately half an acre to feed one American for a year[40]. Hence, our current cropland (~129,000 acres) could feed approximately 258,000 people. Additionally, pastured lands, through the production of meat and dairy products, will compliment this number by offering an additional 1.4 million calories per year per acre (assuming a grass-based system). Given our current acreage of pastures (~65,000), we could feed an additional 83,000 people with these calories for a grand total of 341,000 mouths fed annually. Over 1.3 million people call New Hampshire home, meaning that our current farmland has the potential to support approximately 26% of our population.

Keep in mind, however, that there are many assumptions built into this calculation. First, it assumes that all crops are grown for human consumption. We already know that 80% of the cropland in New England is used to grow animal feed. This practice, while boosting milk production, is not necessarily the best or most efficient use of productive cropland. In the near future, our dairy industry may return to a grass-based system, due in part to its relative efficiency in both inputs and profitability. Also, it is also important to understand that as much as 40% of food may be lost between production and consumption[41]. Much of this is due to transportation and spoilage which is largely a symptom of the global food supply chain. These losses will inevitably decline as we move towards a more localized system. Taken into account, these two observations suggest why today's in-state production may be actually be less than 10% of our consumption.

Additionally, this figure assumes an average American diet of about 3,000 calories per day which far exceeds the necessary requirements for human health. Also, this calculation dates from 1977 and assumes the standard cropping techniques of industrial agriculture. Utilizing sustainable methods in combination with our smaller farms, we might support more people on less acreage than Clark assumed. In fact, according to the 1992 U.S. Agricultural Census report, relatively smaller farm sizes are 2 to 10 times more productive per unit acre than larger ones[42]. Here in New Hampshire, 83% of our farms are less than 150 acres. Finally, this calculation only depicts the potential of our current farmland. Imagine the potential if we were to expand our urban and home gardening sectors, as well as modify our horticultural industry to provide for additional season extension. Should we choose to invest in our local agriculture and thus return more land to production, we could drastically increase our ability to meet the growing demand for local foods.

Developing a more specific calculation for food self-sufficiency than offered here is beyond the scope of this guide. Given the observation that we are only producing 4% of the food we consume, being able to precisely measure our inadequacies seems less important than action. What we really need is a commitment by all levels of the population to reinvest in our local farm economy. By converting to a more regional food supply, we would regain the ability to provide our markets with a dependable, homegrown source of nutrition. This production, however, relies on the continued availability of farmland and the viability of our agricultural enterprises. As an added benefit, a diverse and prosperous agriculture would provide our state with a renewed sense of self-sufficiency and independence. We cannot have a more secure food system in the future without confronting the pressing issues of today.

THE RENAISSANCE OF NEW HAMPSHIRE'S FOOD SYSTEM

In order to fully address the inadequacies of our food system, we must further engage our citizenry with the complex issues surrounding our food supply. Clearly, the tide has shifted over the past ten years, as we have seen a growing awareness of the importance of agriculture. Around the millennium, people in New Hampshire and across New England began to release a new wave of reports, recommendations, and food policy initiatives. This attempt to re-examine our level of food security was a response to the growing concern over the fragility and non-local dependence of our current food supply. Based partly on the growing trend towards sustainability, local communities began to question the benefits and vulnerabilities of a corporate-owned, petroleum-dependent, global food system. As *global* citizens, we began to feel a greater responsibility towards maintaining a cleaner, more efficient planet, and as *local* citizens, we now were beginning to understand the benefits of a thriving agricultural community here at home.

Food Policy in New Hampshire

A successful food policy examines the connections between topics such as consumer needs, food processing, land use, transportation, nutrition, and agricultural production. Food security is a term that is receiving more attention as our global food system shows its weaknesses. In its broadest definition, food security is a way to evaluate the overall safety of our food supply. Beginning with farmland preservation, a careful study of New Hampshire's food security would ensure that all people have access to a healthy and sustainable supply of food. This was naturally the central goal of everyday life during the early days of self-sufficiency. It was not until the industrial revolution that we became increasingly dependent on sources beyond our local region. For most of the past 150 years, our markets have seen little in the way of food shortages. Due in part to our extensive transportation systems and use of fossil fuels, large-scale agriculture has consistently supplied New England with access to the bread and produce "baskets" of the South and West. However, this false sense of security has left our more urbanized populations indifferent to the importance of food self-sufficiency and quality farmland at home. As we delve deeper into the roots of food security in New Hampshire, the lack of any official food policy becomes glaringly obvious.

Unfortunately, New Hampshire currently has no official food policy document. Our most recent attempt dates back to 1979, where many of the recommendations lay dormant without action. However, one can find a more modern and significant commitment to food security "just ovah the bordah". In 2005, the Maine legislature acknowledged that many of their current laws governing agriculture in their state were out-of-date and needed attention. Upon review by the Agriculture, Conservation, and Forestry Committee, it was decided that the Department of Agriculture should rewrite the Maine Food Policy previously enacted in 1984. To accomplish this goal, a working group was assembled which included a diverse group of individuals spanning all aspects of food production, distribution, and policy. An advisory committee complimented this group with state government personnel, and together, these two committees developed the document entitled, "*A Food Policy for the State of Maine*"[43].

This report offered three main recommendations for the legislature. First, they offered a new version of the State's food policy that set out clear and concise principles useful in guiding future policy decisions. Second, they recommended that the state establish a Food Policy Council

that would oversee implementation of a food policy. This council "should include legislators and consumers, represent all aspects of the food system, and include the involvement of state agencies, the university and other entities whose policies and actions have significant roles to play in the viability and sustainability of Maine's food system". Third, it was recommended that state agencies and programs be coordinated so that all policies, rules and regulations are consistent with the implementation of the food policy. Essentially, they were making a statement that food security was a top priority in Maine and that everyone was to be involved in bringing this goal closer to reality. For the full text of their resolve, refer to the Appendix section of this guide (See Maine Food Policy).

The ultimate goal of the Maine Food Policy is for the state to produce 80% of its food by the year 2020. This is, to say the least, a very admirable goal. There can be no argument that Maine's landscape and agriculture will be more prepared for this task than New Hampshire. They simply have more prime farmland, better infrastructure, and more access to the oceans (for seafood) than we do. The flat and fertile fields of Aroostook County are a resource that even allows grain production and other larger scale endeavors. Here in New Hampshire, we have a tremendous potential for grazing, and our relative distances from farm to markets are much shorter. So rather than be jealous or competitive, we must remember that we are partners in a more regionalized and local food system. All members of our New England community should make a similar commitment towards establishing a food policy that will stimulate growth in our agricultural production.

Indeed, New Hampshire would be wise to follow the lead of our neighbor, Maine, in completing an updated analysis of our food system. Regardless of whether or not we could attain 25, 50, or even 100% food self-sufficiency, we must move forward with this debate. Our last food policy was written in 1979, and although some progress was made, the vast majority of its recommendations were either ignored or left behind. In fact, no official "policy" was ever enacted, only recommendations for the state to adopt. It is imperative that we revisit this task, especially given our current economic depression. With less and less support from the federal level, we must recognize our duty as a state to provide our citizens with a thoughtful analysis of our food system and a declaration of how we will provide safe and equitable access to food, the most basic need of every citizen.

To initiate this effort, another working group should be convened whose goal it would be to design a comprehensive food policy for New Hampshire. The original document from 1979 was addressed to "producers, consumers, processors, transporters, wholesalers and retailers of food in New Hampshire", and this working group should include members from a similarly diverse array of interests. However, it is important to recognize that some groups (such as multi-national agribusiness corporations) stand to lose profits from any relocalization effort. This conflict of interest must be avoided when designing a food policy that is meant to benefit the citizens of New Hampshire. It should also be important to include members of the legislature, as the overall success of any food policy requires the notice and consideration of state government. The model for such a policy already exists both from our own history and from those of neighboring states. A serious attempt at such a policy would include:

- *A current estimate of NH's food self-sufficiency*
- *A concise summary of food system deficiencies and vulnerabilities*
- *Recommendations for improvements/changes to existing system*
- *A list of guiding principles for the state's new food system*
- *Draft legislation to recognize new policy*
- *Commitment towards future analysis and adaptive strategies*

The need for a new food policy is obvious. Who could honestly claim that our existing system is secure or sustainable given the host of economic and environmental problems we face today? As food is such a basic necessity, this task should sit at the top of our list. It encompasses both our security and our identity as an independent state. In addition, we stand to benefit greatly from this effort, both economically and socially. If we lose our plentiful supply of imports, where will we turn for our food? What will happen to our tourism when our farms and hillsides become house lots? Thankfully, iit seems that a new paradigm shift is emerging to address this task.

A Citizen Panel on the Future of Food in New England

Convened in April 2003, the Citizen Panel on the Future of Food in New England sought to explore our local food system in more depth[44]. Clearly, it was time to revisit this topic, essentially picking up where our predecessors left off back in the 1980s. Echoing the focus of "communal responsibility" towards our food system, this panel was made up of farmers, scientists, nutrition experts, planners, conservationists, economists, community activists and more. It was sponsored by the University of New Hampshire Office of Sustainability Programs and Cooperative Extension. Despite the heavy sponsorship by New Hampshire-based organizations, the group made constant reference to the other New England states and the need for "a strong regional approach built on our collective strengths". Again, using this regional approach towards food security might well provide the most secure and sustainable design for our food system. On their first page, they state:

> *"The six New England states must move beyond individual state parochialism to build interstate strategies. A regional approach, by enabling greater diversity and integration of our food system, leads to stronger regional self-reliance. Increased self-sufficiency means more profitable, viable farms, a more secure food system with greater local and therefore regional economic growth."*

This document examined six key areas of our food system: the regional approach, economic development, farm viability, resource conservation, food security and food safety, and consumer behavior and citizen action. The panel takes up each area of the food system using a clear description of facts and recommendations, much like would be expected from a public policy document. The introduction frames an eloquent summary of why we must engage this challenge with action:

> *"We are honored and humbled by our experience. We offer an informed perspective forged by a deeper understanding of ourselves as active, concerned citizens and by a commitment to a stronger regional food system…We celebrate and salute the essential but largely unseen farmers and food producers who nourish our bodies, enrich our culture and connect us to the land. We are inspired to urge our fellow citizens to put a face on our food and get involved…As residents of the six New England states, we believe individuals can influence and shape the future of the local food system. We believe citizen action, both individual and collective, can create a diverse, flexible and resilient food system – one that is more self-reliant and self-sufficient in the future…Food is both universal and exquisitely personal. We address our report to all New England residents – every one of us has a stake in the future of our food…Over the next two decades we envision a region characterized by entrepreneurial agriculture and active citizen involvement. Our report is comprised of findings and recommendations to achieve this vision, some of which require immediate attention and action…We view this report as a*

public policy statement. As such, we urge our fellow citizens, as well as local, state and federal officials to take action on these recommendations."

New Hampshire Center for a Food Secure Future

The stage had been set for action in New England. In fact, after sponsoring the Citizen Panel, the UNH Office of Sustainability launched a program of its own. Started in 2005, the New Hampshire Center for a Food Secure Future (NHCFSF) has taken the recommendations of the Citizen Panel and developed a long-term project addressing food security in New Hampshire. Their mission statement is to "advance a renaissance of New Hampshire food culture from farm to table, promoting food systems that support sound nutrition and healthy sustainable communities". This holistic approach acknowledges the complexity of our food system and unites the three topics of food, farm and nutrition into one cohesive subject[45].

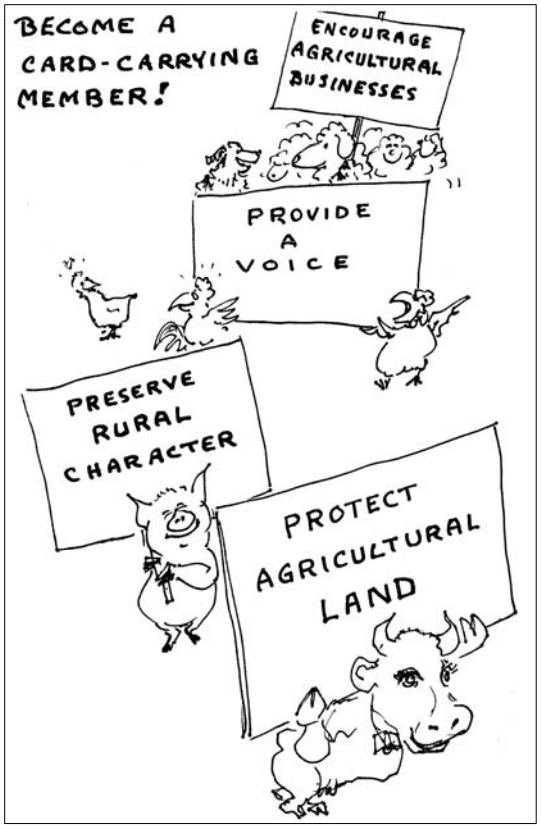
In a unique attempt to merge the concerns of all stakeholders in the food system, they held a series of "regional input meetings" throughout the state. These meetings included all walks of life from grocers to dieticians to farmers to regulators. In total, over 130 agencies, organizations, and businesses were invited to share their experiences in an attempt to frame a realistic picture of our current food system. The result of these meetings was both a humbled appreciation for its complexity and a cooperative response that might lead to a more food secure future. In other words, their work is ongoing but the fact remains that in order to supply our populations with fresh, local foods, we must make this a top priority in our everyday lives. From the top of the legislature to the food pantries and farm stands across our state, everyone must engage in this renaissance.

Recently, NHCFSF began a new series of inquiries concerning the food system in our state. Dubbed "Food Solutions New England", this interactive, web-based tool attempts to merge the major areas of our food system including agriculture, food, the environment, and nutrition. Each area relies on a key indicator that is used to display the future outcome based on different scenarios. One assumes we continue "business as usual", while other outcomes display results if various actions are taken. For example, one of the key indicators which they chose to examine was the rate of farmland loss in New Hampshire. Using a new research tool known as "wedges", they took historical data on farmland conversion and extrapolated this change into the future. This tool certainly provides a startling example of what can and will happen to farmland in the face of development pressure. It is exactly the diffuse and piecemeal nature of such conversions that makes it so difficult to appreciate the magnitude of this problem. When this tool is ready, they hope it will help educate others, ultimately forcing more attention and discussion around food security issues here in New Hampshire[46].

Clearly, there is a wide range of topics to consider when discussing food security. While this guide has mostly focused on food self-sufficiency, it would be irresponsible not to include a mention of hunger and inadequate food distribution across our state. From 2002 to 2004, 6.4 % of New Hampshire's population (about 82,400 people) suffered from hunger, and the usage of food stamps increased about 44% from 2001 to 2005[47]. The New Hampshire Food Bank has seen a dramatic increase in need, especially given the current economic downturn. We live in a state with one of the highest per capita incomes in the nation, and we should therefore commit more resources in an attempt to eliminate hunger at home. NHCFSF examines this inequality and studies ways to change our food system so that all citizens might have access to a healthy and sustainable diet.

REBUILDING OUR FOOD SYSTEM FROM THE GRASSROOTS

As a citizen, you might ask yourself, "What can I really do to change such an entrenched and monolithic system. It can often feel overwhelming to take on this responsibility when you have your own family and commitments at home. In this situation, and almost all others in our democratic and free market economy, there are three ways to solve this problem. All three require direct and personal involvement, though the time commitments vary depending on your own schedule and lifestyle. The first action that must be taken is to allocate more of your daily expenditures towards local products. This is not to say that you are *spending more*, only that your hard-earned money will be retained in your local economy, continuously cycling in ways that benefit both your family and community. The second action requires engagement in direct civic action. Share your support for local economies with family, friends, and, especially, members of town and state government. This message must reach all ends of the spectrum, as it offers benefits to the entire community. Third, you might find that your involvement in the local foods movement has awakened a burning desire to grow food yourself. Or perhaps you enjoy preparing local foods and want to contribute a new line of New Hampshire-made products to the local grocery shelves. Direct participation in agriculture is needed at all levels, and by opening your mind to the possibilities, you will be providing others with the opportunity to invest in their local communities.



Buy Local

In today's capitalist society, you are a consumer and the money you spend everyday supports and strengthens whatever system you choose to invest in. When you make your daily or weekly visit to the grocery store and purchase mostly corporate labeled and processed foods, whether you like it or not, this is the system that wins your support. Think of your money as a vote. Instead, if you make the conscious decision to purchase more wholesome foods grown within your local region, this is the system that accepts your vote and reinvests it into the future growth of our local communities. You have this type of decision to make in almost every purchase, on almost every day of the year. And just like dieting or saving money, it adds up. Every time you take the shortcut or give in to the easier or more immediate purchase, the opportunity for long-term communal benefit is forfeit and the money is lost to the global system. If instead, you make a commitment to seek out local products and services, the return on your investment will build a stronger, more secure, and more sustainable community in which to live.

Although difficult to imagine, one responsibility we all share as local consumers is to show respect for the seasonality of our diets. While some enjoy a strawberry in January (despite

its lack of flavor), we must begin to develop a pattern of eating that more closely reflects the reality of our limited growing season here in New Hampshire. This is not to say that we should expect perfection or sacrifice our nutritional health for the goal of eating 100% locally the year around. However, we need to approach this task with the intent to follow trends of seasonal availability more closely. The classic diet of meat and potatoes was a direct result of those foods' ability to store well throughout the winter, and it would behoove both consumers and farmers alike to recognize the benefits of a seasonally varied diet. Besides, if we do not make this transition willingly, it may be forced upon us in times of need.

Just like anything in life though, you cannot expect a perfect record. Clearly, there are items that simply do not exist at the local level yet. And for those situations, you should relish the ease of the transaction and move on. An appropriate example of this might be certain technologies or electronics. However, not all purchases are created equal! Just remember, accountability wanes with distance. Traceability and responsibility also go right out the window when it comes to the corporate and agro-industrial complex. A good example of this is the recent food safety dilemmas that have surfaced more frequently over the years. Whether it be spinach, tomatoes, peanut butter, or even lead paint in toys, it has become virtually impossible to regulate a safe supply of goods in the global marketplace. Purchasing locally fundamentally avoids this dilemma because you know exactly who grew or built your products. In the event that problems arise, the source is known and it immediately becomes in everyone's best interest to fix it, especially the individual who is selling that product. As you can see, there is more to this idea of purchasing local products than simple economics. Many situations where you find yourself helpless in a global, disconnected system, the solution might just be waiting for you literally "just around the corner". By seeking them out, you will be building an inherently stronger community. Two books that speak volumes to this concept are "Small is Beautiful" and "Deep Economy". A list of these and other books can be found in the Appendix section of this guide (See Additional Reading).

A Civic Duty

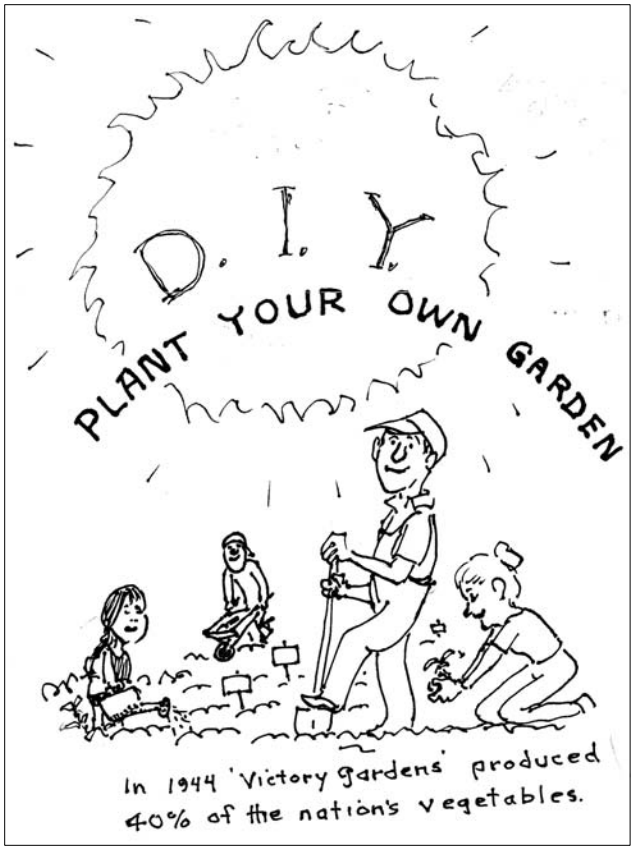
The second form of direct action involves our duties as citizens of New Hampshire. In this country, we are part of the grandest experiment of democracy the world has ever known. Through our hard work and dedication to the ideals of life, liberty, and the pursuit of happiness, we have created the single-most prosperous nation on the planet. Still, there is a growing sense of disconnect and abandonment of our civic responsibilities. Over the past century, our economies have slowly given way to the industrial model of bigger, better, and faster. Our sense of community has slowly waned as the needs of each family become more and more a solitary and time consuming endeavor. The gap between rich and poor grows each year, as corporations motivated only by profit develop ways to siphon money away from local economies into the global pot of executive wealth. For these reasons, many people justifiably spend the majority of their time providing for the needs of their own family. This is not selfishness, but instinct and compassion. However, this treadmill is reinforced by our inability as citizens to stand up against this impersonal and industrial complex. In a democracy, the citizens are charged with deciding their own fate, and inaction only leads to subjugation over time. Let New Hampshire be the first state to join together and declare independence from any business entity who removes our collective wealth of people and resources. Instead, we should rebuild our local economies so that they provide jobs and prosperity here at home.

So how do we begin this task? It all starts with education. It doesn't take a college degree to think critically, but it does take knowledge, information, and a yearning for the truth. The purpose for providing our children with a free public education was to grow generations of

responsible citizens who could make informed decisions. What we really need is for people to engage in discussion and discourse, thus gaining a greater appreciation for the benefits of a locally-based economy. With this knowledge, we attend town meetings. We get to know our representatives and make it clear that their job is to represent the needs of the community, and not necessarily the dogma of any specific political party. We share our thoughts with neighbors and business owners. We support non-profit organizations working to spread the message. One particular group that strives to communicate the benefits of eating local is known as Slow Food. With chapters popping up across New Hampshire and the world, they offer a wonderful opportunity to embrace the local food chain from farm to plate. In the end, everyone in our community stands to benefit from this intense engagement at the local level, and it is our responsibility as citizens of New Hampshire to get this message out to the community at large.

Do it Yourself

The third and final action needed as we transition back to a greater level of self-sufficiency requires a mobilization of agricultural capacity. Whether you prefer to grow food, prepare food, sell food, or write about food, we will need a much larger human commitment towards all things related to farming and food production. By doing this, the food that you consume will be more fresh and tasty. Our economy will grow with the addition of more jobs centered on our local economies. And last, the working landscape of New Hampshire, one of gardens, pastures, and open space, will continue to nourish both our imaginations and our stomachs.



The absolute most direct way to ensure greater food security at home is to plant your own garden. At the height of the "Victory Garden" era of World War II, 20 million Americans responded to the call of "Plant More in '44". Altogether, they produced nearly 40 percent of the vegetables consumed nationally that year. Leading by example, First Lady Michelle Obama has already dug up a section of the White House lawn to plant an organic family garden. Soon after, our new Secretary of Agriculture, Thomas Vilsack, followed suit by "breaking pavement" at the USDA building in Washington. He called this area "The People's Garden" and asked that community gardens be planted at all USDA facilities worldwide[48]. Otherwise known as a cottage or kitchen garden, families have, for millennia, taken responsibility for growing their own food during summer months. Not only does this action provide homegrown sustenance, but it offers an activity that the entire family can enjoy. This interaction with the biology of nature offers children an early respect for the task of food production. Gardens need not be limited to the countryside. In fact, there is a growing trend towards urban agriculture that adds efficiency and beauty to the city landscape. Following the lead of countries like Cuba, UNH Cooperative Extension specialist Charlie French, believes there is much potential amidst the city

streets of New Hampshire. And if we follow this track, we might discover ourselves producing nearly all our nutritional needs during the harvest months.

Going beyond the home garden, more full-time farmers will be needed. As highlighted before, this will require conserving high quality soil and farmland. Equally important, however, will be the need for training the next generation of farmers. This necessitates professional training at both the university level and through apprenticeships with experienced farmers. Land grant universities, although founded as agricultural institutions, severely lack the funding and resources necessary to provide today's farmers with an education in small-scale, sustainable agriculture. Also, there are relatively few apprenticeships available, and there is a clear need for an "incubator" program of sorts to model and train our future growers. Suzanne Brown, of Granite Spirit Farms and Forests, has recognized this need and is actively planning an incubator project in the Mt. Washington Valley. Look to this growing model to provide examples for other regions around the state. As our farmers age, we must attempt to retain their place-based wisdom by effectively training their replacements *in situ*.

As was mentioned previously, there will be an increasing need for infrastructure and support services ranging from butchers to processors and tractor repair to farm building design. Many of these jobs have vanished from our local communities as industrial agriculture found ways to gain efficiencies elsewhere. If our farms become responsible for providing electricity to the grid, there will become an increasing need for manufacturing of these products as well as technicians qualified to service them. However, these jobs will not be controlled by corporate interests from around the globe. A more localized system will provide jobs that reflect a concrete need for services grounded by our population's basic desire for food and energy. We would be creating an economy that offers a direct link between the size of our population and the need for jobs to support them, and this connection will ensure a more stable future for all.

In a perfect world, food would pass directly from the farmer to the consumer. However, the reality is that the modern family must make the majority of their food purchases in one location. Hence, the supermarket designs of today. With more locally produced food available, grocers will need to develop ways in which to offer these products to their hungry customers. At present, it can be difficult for large grocers to offer local foods because their consumer demand far exceeds the production potential of smaller farms. They need a consistent product available in large quantities. To meet the needs of these supermarkets, farmer cooperatives might spring up in order to meet this demand. By centralizing the local food supply, they could satisfy the demands of our larger grocers. The important detail here is to maintain short, simple connections that allow profits for both farmers and retail grocers. There was much interest in cooperatives in the late 1970s and this literature is worth a second look. With these investments, we will be providing more jobs, more food, and more independence to our state's economy.

Perhaps the most succinct list of rules for a local economy was constructed by an agrarian writer by the name of Wendell Berry. At his root, he is a Kentucky farmer, and his philosophy towards culture and agriculture has influenced many of today's leaders in sustainable farming. Though he is a true supporter of all things local, I believe he would agree that these rules should apply equally well whether talking about Kentucky or New Hampshire. In fact, the landscape and rural character of the Granite State afford us a unique opportunity to apply these ideas in our everyday lives. Consider how these rules would change both our communities and our overall economy for the betterment of everyone here in New Hampshire. Read them with care, attention, and most of all, a sincere optimism. This list can be found in the Appendix section of this guide (See Rules for a Local Economy).

CONCLUSION

At this point, we have identified the issues, justified the cause, and recommended a list of clear solutions. It is now time for action at every level across New Hampshire: politicians, institutions, organizations, and, most importantly, from our citizens. Our generation did not necessarily create the problems that we face today. We live with them, we contribute to them, and we attempt to solve them. What is unique, however, is the enormity and scale of these issues. And this is a direct result of the industrial revolution and its propensity towards bigger, faster, and more lucrative pursuits. By building a global economy, we have connected all who engage to its inherent failures and limitations. The solutions become more complex and less attainable, while the consequences appear imminent. In order to address these issues, we must focus our efforts back to the local level. By doing so, many of our struggles will suddenly become more manageable. Here in New Hampshire, we are blessed with the advantage of being small and the changes we make are naturally more swift and effective. The simple act of buying and eating local food represents a major revolt given our current paradigm, and there could be no better testing ground than right here in the Granite State.

Despite the odds, it is safe to say that we are, indeed, experiencing a renaissance of local foods and farms. The release of the United States Department of Agriculture's 2007 Census offers much hope for the future. Here in New Hampshire, the number of farms has increased 24%, from 3,363 in 2002 to 4,166 in 2007. Land in farms has also increased from 444,879 acres to 471,911 acres, a jump of 6%. More telling is the market value of agricultural production which grew from $144 million to over $199 million, a 37% increase. Adding to the overall viability of our farms, direct market sales increased 54%, from $10 million to over $16 million. In fact, New Hampshire now leads the nation in farms that sell directly to consumers with 23.6%. Across the country, people are once again embracing the benefits of growing their own food. According to a recent poll performed by the National Gardening Association, two million more households grew vegetables in 2008 than in 2007. As New Hampshire's Commissioner of Agriculture, Lorraine Stuart Merrill, recently noted in her weekly column, "People are looking to become more self-reliant. They want to involve their families in producing at least some of their own food, and engage in wholesome outdoor activities together. Auto sales may be slumping, but there's a run on roto-tillers."[49]

Based on these new statistics, the future looks bright for New Hampshire agriculture. The growing trend towards direct purchases and increasing farm numbers suggests a resurgent interest in both farming and local foods. However, a careful study of our recent history shows that we have travelled this road before. Documents from the 1970s portend us to reconsider our growing dependence on external forces. Still, we have chosen to ignore these warnings by continuing our wholesale assimilation into the global economy. Farmland necessary to support our growing population is being developed at a record pace, and land values have skyrocketed beyond the reach of new and beginner farmers. Farm owners remain unable to improve their long term viability given the higher costs of production. The calls for added infrastructure have yet to materialize into a more robust and functional system. And this atmosphere continues despite the fact that in some regions of our state, local food demand is exceeding supply.

New Hampshire was the first state to secede from the colonial stranglehold of Great Britain in January of 1776. In this act, we chose to embrace self-reliance over servitude to a global power. This decision has forever colored the character of our state from our license plates to the halls of town meeting. By necessity, the settlers were forced to develop an economy that reflected sources of common wealth, derived from both nature and human ingenuity. These

traditions have been passed down through generations of families by the representative values of independence, localism, and thrift. Without question, the prosperity that we enjoy today is built upon centuries of hard work and sacrifice by those who came before us. Yet, the industrial mindsets of specialization and simplification have stolen much of our communal wealth through the singular goal of maximizing profits. We must acknowledge this sucking sound of the global economy by choosing, instead, to circulate our earnings among the local economy. Granted, our motto of "Live Free or Die" reflects an uncompromising level of autonomy. However, we must find a balance between the values of self-determination and overall community benefit. There are some things in life that should not be supplied by the industrial system and the act and culture of eating is perhaps our best example. The question of where your food comes from must be answered here at home, and supporting local farms ultimately provides our citizens with a way to secure both their individual and community needs *together* into the future.

Support Your New Hampshire Farmers!

~NH COALITION FOR SUSTAINING AGRICULTURE~

APPENDIX

I. Snapshot of New Hampshire Agriculture in 2009

This resource, courtesy of NH Department of Agriculture, Markets and Food, offers a monetary description of agricultural production in the state. It appears each year in a document entitled, "Who's Who in New Hampshire Agriculture". Copies may be obtained through the Department's website [http://agriculture.nh.gov].

Ornamental Horticulture:
This segment of New Hampshire agriculture includes over 1,100 greenhouse and nursery plant production and landscape construction operations. **$381 million**

Dairy:
Nearly 40 million gallons of milk are produced each year on 140 New Hampshire dairy farms. Purebred cattle are sold all over the world. **$59 million**

Horses:
Pleasure horses are important to many aspects of New Hampshire recreation. Standardbreds and thoroughbreds raised and trained in New Hampshire are vital to racing. Horse farms are major consumers of local hay crops. **$50 million**

Livestock:
Beef, sheep, swine and poultry are among the types of livestock raised for home food supplies and commercial markets. Specialty livestock such as angora goats and rabbits, llamas and sheep are grown for wool and specialty fiber markets. Farm-raised fish and game including deer, bison and elk are gaining markets in restaurants and other outlets. New Hampshire egg and turkey products are favorites among local consumers looking for fresh, native foods. New Hampshire research farms have developed poultry strains that have influenced flocks worldwide. **$37 million**

Hay/Forage & Field Crops:
Hay, corn silage and other forage crops are produced annually on thousands of New Hampshire acres. These are grown for on-farm consumption by livestock and for cash crops as well. **$31 million**

Vegetables:
Through direct-to-consumer outlets such as farm stands and markets, as well as regional supermarkets, New Hampshire growers provide a large variety of fresh, quality vegetables to local consumers. **$13 million**

Apples:
New Hampshire orchards produce about one million bushels of apples annually that are sold throughout the Eastern U.S. and Europe. In addition, apple cider has become a major product line for many orchard operations. **$11 million**

Christmas Trees:
New Hampshire grown Christmas trees, including Balsam and Fraser Fir and other species of pine and spruce, are harvested from across the state and sold throughout the region for fragrant holiday celebrations. Other evergreen products such as wreaths and roping are made at numerous farm operations and widely sold. **$4 million**

Berries & Other Fruit:
By the quart, bushel or the pound, strawberries, raspberries, blueberries and other fruit such as peaches are enjoyed by New Hampshire consumers each year. Wild, low-bush New Hampshire blueberries are a baker's favorite! **$4 million**

Maple and Honey:
An average of 75,000 gallons of maple syrup is produced each year in New Hampshire from over 450 maple operations. Beekeepers raise bees for honey and to provide important crop pollination services for other farmers. **$4 million**

II. New Hampshire Farm Viability Task Force Report

This resource, written in 2006, provides a unique example of our state engaging its citizens to help improve the viability of our agriculture. Only the Executive Summary and Recommendations are printed here, but the full document may be downloaded from the Department of Agriculture, Markets, and Food's website [http://agriculture.nh.gov].

Executive Summary

Agriculture in New Hampshire is changing. The resourcefulness and determination of the state's farmers has led to a modest increase in the number of farms and the aggregate dollar value output of farm businesses. Yet for many in farming there are long-standing problems to address and new challenges to face.

The diversity in size, type, and amount of land used by a farm operation is highly variable, making uniform public policy prescriptions difficult to identify. The various sectors of New Hampshire agriculture are adapting to new opportunities, with ornamental horticulture becoming the largest segment. Innovation of new products and marketing approaches has occurred in all sectors of agriculture as the state's population has spread into rural areas and brought with it a customer base of new residents.

By its nature, farming is both a land use and a business. It is a long-term investment with high annual risk. When farm profitability is measured as a return on the value of farm real estate, farmers have been receiving a poorer return over time. Most of the decrease has not been a result of lower farm earnings, but rather a rapid increase in the value of farm real estate. Existing New Hampshire public policy to purchase conservation easements addresses this problem only to the nominal degree that it has been funded.

The focus of the Farm Viability Task Force was to craft Policy Recommendations that deal with specific issues or potential programs. Those Recommendations and goals are:

1. **Fund agricultural extension, education, and research of direct benefit to agriculture in New Hampshire.** Increasing public and private funding for UNH Cooperative Extension and the UNH Agricultural Experiment Station will improve the expertise needed to provide educational and applied research programs directed at farm viability.
2. **Increase direct marketing opportunities for producers.** Direct sale of agricultural production is the most profitable channel for many New Hampshire farms. A modest increase in promotion of farm product purchases can stimulate large gains in consumer demand and boost farm profitability.
3. **Establish a Farm Viability Program.** The purpose of a Farm Viability Program is to increase on-farm income through business planning and capital investment in order to keep land in agricultural use.
4. **Make conservation of farmland a high priority and dedicate a minimum of $3 million annually to buy permanent conservation easements that protect agricultural land.** Lack of funding for the existing statewide farmland conservation program puts New Hampshire farmers at a competitive disadvantage to those in other states and leaves prime agricultural resources at risk. The recommended funding level is based on the minimum required to match the federal Farm and Ranchland Protection Program (FRPP) funds annually available

to New Hampshire. State funding will enable the implementation of a cohesive New Hampshire-wide strategy for farmland conservation, based on well-established criteria and procedures.

5. **Establish a Lease of Development Rights (LDR) program.** Leasing development rights for a specific term of years would help communities "buy time" and stabilize farmland ownership that has come under pressure to be sold. This would allow farmland owners the opportunity to carefully plan the diversification, expansion, or generational transfer of their farm businesses and resist the temptation to sell out quickly.

6. **New Hampshire Department of Agriculture, Markets, and Food and University of New Hampshire Cooperative Extension should collaborate with other Northeast states to enhance the dairy industry in New Hampshire and the Northeast region.** Regional cooperation will help strengthen the state's dairy industry, ensuring the supply of fresh, locally produced milk and dairy products and preserving a cornerstone of New Hampshire's rural landscape.

7. **Strengthen school curricula concerning agriculture to help students understand our food system.** How food is safely produced, transported, prepared, and consumed is essential knowledge. By giving students a broader knowledge about agriculture and how it affects their world, we enable them to make informed decisions for future issues on land use, stewardship, and maintaining the working landscape.

8. **Authorize Agricultural Commissions that local governments may choose to adopt as an advisory committee.** Local Agricultural Commissions can be the voice of agriculture in each municipality. They would ensure that agriculture remains in their town by identifying barriers to the viability of farming, such as local regulations or ordinances.

9. **Remove rules and regulations burdensome to agriculture and identify ways the State of New Hampshire can assist.** Many rules, regulations, and state laws inadvertently hinder the operation of farm enterprises. Modest changes that remove inappropriate obstacles and promote uniform application and reasonable interpretation of rules, regulations, and State law would help maintain the viability of farms.

10. **Continue the Task Force process of looking at the current status and future needs of agriculture in New Hampshire.** The nature of agriculture has substantially changed since a task force last addressed agricultural issues in the 1979 Recommendations for a New Hampshire Food Policy. The need for more frequent review and recommendations addressing the economic viability of farm enterprises is emphasized by the pace of change they must respond to and extent to which those farms "rub elbows" with residential, recreational, and other land uses. Assuring the survival of a solitary farm can never be certain, but ensuring that policy makers consider the effect of future challenges to the farming industry can be achieved by authorizing a regular review process.

III. Maine Food Policy

This resource was taken from a document entitled, "A Food Policy for the State of Maine". The report and recommendations come from the Working Group and Advisory Committee convened by the Commissioner of the Maine Department of Agriculture, Food and Rural Resources in June of 2005. The resolve printed below offers New Hampshire a strong example from which to structure its own food policy.

RESOLVE, Establishing a Food Policy For Maine:

It is in the best interest of the State to ensure the availability of an adequate supply of safe, wholesome and nutritious food to its citizens.

To this end, the State of Maine supports a food supply system that:

1. Ensures Maine residents have a safe and stable food supply; free of interruption by natural or human events;
2. Enhances the access, availability, affordability and quality of food for all its citizens;
3. Maintains a safety net to ensure food security from hunger for its most vulnerable citizens;
4. Contributes positively to the nutritional, economic and social well-being of its citizenry and its rural communities;
5. Is economically and environmentally sustainable;
6. Recognizes that Maine is a unique place with a diverse land, soil, climate and fishery conducive to the production of a wide variety of food products;
7. Promotes a fair return to all participants, provides entrepreneurial freedom and allows access to opportunity to participate in the food supply system;
8. Increases food self-reliance through increasing production of food in Maine and increasing the consumption of Maine produced fish and farm products;
9. Is recognized as a vital sector of the Maine economy, enhances rural economic development and contributes positively to Maine's rural quality of life;
10. Is supported with assurance of an adequate supply of farmland and access to working water fronts to sustain Maine's food and fisheries industries and provide for their future growth;
11. Is accompanied by public and consumer information on the health values of a proper diet, healthy lifestyle and access to Maine produced agricultural and fish products;
12. Is supported by stable and consistent state policies and programs.

IV. Rules for a Local Economy

This resource was taken from an essay entitled, "Conserving Communities" by Wendell Berry in his book, "Another Turn of the Crank" (published in 1995 by Counterpoint):

If the members of a local community want their community to cohere, to flourish, and to last, these are some things they would do:

1. Always ask of any proposed change or innovation: What will this do to our community? How will this affect our common wealth?
2. Always include local nature - the land, the water, the air, the native creatures - within the membership of the community.
3. Always ask how local needs might be supplied from local sources, including the mutual help of neighbors.
4. Always supply local needs *first*. (And only then think of exporting their products, first to nearby cities, and then to others.)
5. Understand the ultimate unsoundness of the industrial doctrine of 'labor saving' if that implies poor work, unemployment, or any kind of pollution or contamination.
6. Develop properly scaled value-adding industries for local products to ensure that the community does not become merely a colony of the national or global economy.
7. Develop small-scale industries and businesses to support the local farm and/or forest economy.
8. Strive to produce as much of its own energy as possible.
9. Strive to increase earnings (in whatever form) within the community and decrease expenditures outside the community.
10. Make sure that money paid into the local economy circulates within the community for as long as possible before it is paid out.
11. Make the community able to invest in itself by maintaining its properties, keeping itself clean (without dirtying some other place), caring for its old people, teaching its children.
12. See that the old and the young take care of one another. The young must learn from the old, not necessarily and not always in school. There must be no institutionalized 'child care' and 'homes for the aged'. The community knows and remembers itself by the association of old and young.
13. Account for costs now conventionally hidden or "externalized." Whenever possible they must be debited against monetary income.
14. Look into the possible uses of local currency, community-funded loan programs, systems of barter, and the like.
15. Always be aware of the economic value of neighborly acts. In our time the costs of living are greatly increased by the loss of neighborhood, leaving people to face their calamities alone.
16. A rural community should always be acquainted with, and complexly connected with, community-minded people in nearby towns and cities.
17. A sustainable rural economy will be dependent on urban consumers loyal to local products. Therefore, we are talking about an economy that will always be more co-operative than competitive.

These rules are derived from Western political and religious traditions, from the promptings of ecologists and certain agriculturalists and from common sense. They may seem radical, but only because the modern national and global economies have been formed in almost perfect disregard of community and ecological interests.

V. NH Food and Farming Resources on the Web

Organization Name	Office Location	Website Address
Ag in the Classroom	Concord	www.nhagintheclass.org
Center for Land Conservation Assistance	Concord	www.clca.forestsociety.org
Concord Cooperative Market	Concord	www.concordfoodcoop.coop
Co-op Food Stores	Lebanon	www.coopfoodstore.com
D Acres	Dorchester	www.dacres.org
Early Sprouts Garden Project	Keene	www.earlysprouts.org
Global Awareness Local Action	Wolfeboro	www.galacommunity.org
Granite Earth Institute	Durham	www.graniteearth.org
Hannah Grimes	Keene	www.hannahgrimes.com
Harvest to Market	Fitzwilliam	www.harvesttomarket.com
Keep Local Farms	Barrington	www.keepinglocalfarms.org
Land For Good	Keene	www.landforgood.org
Littleton Food Coop	Littleton	www.littletoncoop.org
Local and Organic Foods Canterbury	Canterbury	www.localfoodscanterbury.org
Local Foods Plymouth	Plymouth	www.localfoodsplymouth.org
New England Small Farm Institute	Belchertown, MA	www.growingnewfarmers.org
New Hampshire Agricultural Experiment Station	Durham	www.colsa.unh.edu/aes
New Hampshire Association of Conservation Commissions	Concord	www.nhacc.org
New Hampshire Center for a Food Secure Future	Durham	www.nhcfsf.org
New Hampshire Dept. of Agriculture, Markets and Food	Concord	www.agriculture.nh.gov
New Hampshire Division of Historical Resources	Concord	www.nh.gov/nhdhr
New Hampshire Farm Bureau	Concord	www.nhfarmbureau.org
New Hampshire Farms Network	Upper Valley	www.newhampshirefarms.net
New Hampshire Farm to Restaurant Connection	Concord	www.nhfarmtorestaurant.com
New Hampshire Farm to School Program	Durham	www.nhfarmtoschool.org
New Hampshire Farmers Market Association	Milford	www.nhfma.org
New Hampshire Virtual Farmers Market	Statewide	www.nhfarms.com
New Hampshire Resource Conservation and Development	Statewide	www.nhrcd.net
NH Made	Andover	www.nhmade.com
Northeast Organic Farming Association – New Hampshire	Concord	www.nofanh.org
Seacoast Eat Local	Seacoast	www.seacoasteatlocal.org
Seacoast Growers Association	Seacoast	www.seacoastgrowers.org
Slow Food Seacoast	Seacoast	www.slowfoodseacoast.org
Small and Beginner Farmers of New Hampshire	Statewide	www.sbfnh.org
Stonewall Farm	Keene	www.stonewallfarm.org
UNH Office of Sustainability - Food and Society Initiative	Durham	www.sustainableunh.unh.edu/fas
UNH College of Life Sciences and Agriculture	Durham	www.colsa.unh.edu
UNH Cooperative Extension	Statewide	www.extension.unh.edu
Upper Valley Localvores	Upper Valley	www.uvlocalvore.com
Valley Food and Farm	Upper Valley	www.vitalcommunities.org

VI. Additional Reading

For New Hampshire…

And When We Went There The Cupboard Was … Bare. University of New Hampshire Cooperative Extension Service.

Creating an Agricultural Commission in Your Hometown. 2007. By Lorraine Stuart Merrill. NH Coalition for Sustaining Agriculture and UNH Cooperative Extension.

Cultivating Success on New Hampshire Farms. 2006. The New Hampshire Farm Viability Task Force Report.

Does Open Space Pay? By Phil Auger. 2006. UNH Cooperative Extension.

Energy Cash Crops: Opportunities for NH Farmers. 2009. By Caroline Robinson. NH Coalition for Sustaining Agriculture.

Preserving Old Barns. By J.C. Porter and F.E. Gilman. 2001. UNH Press.

Preserving Rural Character: The Agricultural Connection. 2000. Revised Technical Bulletin. NH Office of State Planning.

Recommendations for a New Hampshire Food Policy. 1979. New Hampshire Food Policy Study Committee.

Saving Special Places: Community Funding for Land Conservation. 2002. By Brian Hart and Dorothy Tripp Taylor. Society for the Protection of New Hampshire Forests.

The History and Economics of the New Hampshire Dairy Industry. 2007. University of New Hampshire Cooperative Extension.

The New Hampshire Food System: Working Toward Self-Reliance. 1983. By Lydia Stivers. The Cornucopia Project of the Regenerative Agriculture Association.

And Beyond…

Agriculture's Hold on the Commonwealth: Food Self-Sufficiency in the New England States, 1975-1997. 2000. By David Holm. Massachusetts Department of Food and Agriculture.

All Flesh is Grass: The Pleasures and Promises of Pasture Farming. 2004. By Gene Logsdon. Swallow Press.

A Food Policy for the State of Maine. 2006. Food Policy Working Group and Advisory Committee.

Citizen Panel on the Future of Food in New England. 2003. University of New Hampshire Office of Sustainability Programs and Cooperative Extension.

A Long, Deep Furrow: Three Centuries of Farming in New England. 1976. By Howard S. Russell. University Press of New England.

Deep Economy: The Wealth of Communities and the Durable Future. 2007. By Bill McKibben. Times Books.

Inquiries Into the Nature of Slow Money: Investing as if Food, Farms, and Fertility Mattered. 2008. By Woody Tasch. Chelsea Green Publishing.

Pastures of Plenty: The Future of Food, Agriculture and Environmental Conservation in New England. 2008. By John Carroll. New Hampshire Agricultural Experiment Station Publication #2340.

Small is Beautiful: Economics as if People Mattered. 1973. By E.F. Schumacher. Harper and Row, Publishers, Inc.

The Contrary Farmer. 1994. By Gene Logsdon. Chelsea Green Publishing Company.

The Fate of Family Farming: Variations on an American Ideal. 2004. By Ronald Jager. University Press of New England.

The Gift of Good Land: Further Essays Cultural and Agricultural. 1982. By Wendell Berry. North Point Press.

The New Agrarianism: Land, Culture, and the Community of Life. 2001. By Eric Freyfogle. Island Press.

The Soil and Health: A Study of Organic Agriculture. 2006. By Sir Albert Howard. University Press of Kentucky.

The Unsettling of America: Culture and Agriculture. 1977. By Wendell Berry. Sierra Club Books.

The Wisdom of Small Farms and Local Foods: Aldo Leopold's Land Ethic and Sustainable Agriculture. 2005. By John Carroll. New Hampshire Agricultural Experiment Station Publication #2260.

ENDNOTES

[1] Taylor, Steve. April 15, 2009. Personal Interview.
[2] Census of Agriculture. 2007. United States Department of Agriculture.
[3] Goss, Laurence E. 2003. The Impact of Agriculture on New Hampshire's Economy in Fiscal Year 2002. Institute for New Hampshire Studies, p. 12.
[4] The Economic Impact of Open Space in New Hampshire. 1999. The Society for the Protection of New Hampshire Forests, p. 16.
[5] Cost of Community Services Fact Sheet. 2006. Farmland Information Center. American Farmland Trust.
[6] Preserving Rural Character: The Agricultural Connection. 2000. New Hampshire Office of State Planning, p. 3.
[7] Jager, Ronald. 2004. The Fate of Family Farming: Variations on an American Ideal. University Press of New England, p. 35.
[8] Carroll, John E. 2008. Pastures of Plenty: The Future of Food, Agriculture and Environmental Conservation in New England. New Hampshire Agricultural Experiment Station Publication #2340, p.7.
[9] And When We Went There The Cupboard Was…Bare. University of New Hampshire Cooperative Extension Service.
[10] Recommendations for a New Hampshire Food Policy. 1979. New Hampshire Food Policy Study Committee.
[11] Stivers, Lydia. 1983. The New Hampshire Food System: Working Toward Self-Reliance. The Cornucopia Project of the Regenerative Agriculture Association.
[12] Howard, Sir Albert. 1943. An Agricultural Testament. Oxford University Press, p. 20.
[13] Census of Agriculture. 1925. United States Department of Agriculture.
[14] Census of Agriculture. 1978. United States Department of Agriculture.
[15] Robertson, Robert. 1997. Assessment of Outdoor Recreation in New Hampshire. Department of Resource Economics and Development, University of New Hampshire.

[16] Cost of Community Services Fact Sheet. 2006. Farmland Information Center. American Farmland Trust.
[17] Auger, Phillip. 1996. Does Open Space Pay? UNH Cooperative Extension.
[18] Preserving Rural Character: The Agricultural Connection. 2000. New Hampshire Office of State Planning, p. 2.
[19] The History and Economics of the New Hampshire Dairy Industry. 2007. University of New Hampshire Cooperative Extension, pp. 71, 80.
[20] Marketing Research and Recommendations. 2003. New Hampshire Department of Agriculture. Rumbletree Incorporated.
[21] U.S. State Reports on Population and the Environment: New Hampshire. 2003. Center for Environment and Population, p. 20.
[22] New Hampshire Soil Attribute Data Dictionary. 2002, p. 11.
[23] And When We Went There The Cupboard Was…Bare. University of New Hampshire Cooperative Extension Service. p.13.
[24] Quotation references popular slogan coined by New Hampshire produce farmer, Harry Lewis.
[25] The New Hampshire Farm Viability Task Force Report: Cultivating Success on New Hampshire Farms. 2006.
[26] Verbatim from: The New Hampshire Farm Viability Task Force Report: Cultivating Success on New Hampshire Farms. 2006.
[27] Verbatim from: Creating an Agricultural Commission in Your Hometown. 2007. University of New Hampshire Cooperative Extension.
[28] Robinson, Caroline. Energy Cash Crops: Opportunities for NH Farmers. 2009. Unpublished Resource. NH Coalition for Sustaining Agriculture.
[29] Verbatim from: New Hampshire Farm Link to Merge with New England LandLink. May 27, 2009. Press Release. UNH Cooperative Extension.
[30] Weekly Market Bulletin. April 29, 2009. Vol. 88. No. 9.
[31] Merrill, Lorraine Stuart. March 23, 2009. Presention at University of New Hampshire Sustainable Agriculture Seminar Series.
[32] Excerpted from www.keepinglocalfarms.org on June 30, 2009.
[33] Holm, David, Richard Rogers, Daniel Lass. 2000. Agriculture's Hold on the Commonwealth: Food Self-Sufficiency in the New England States, 1975-1997. Massachusetts Department of Food and Agriculture.
[34] Ibid., pp. 91-92.
[35] Ibid., p. 92.
[36] Taylor, Steve. April 15, 2009. Personal Interview.
[37] Taylor, Steve. April 24, 2009. Keynote Address. Rhode Island Historic Preservation Conference.
[38] Ensminger, Audrey. 1994. The Food and Nutrition Encyclopedia. CRC Press, Inc., p. 660.
[39] Carroll, John. 2008. Pastures of Plenty: The Future of Food, Agriculture and Environmental Conservation in New England. New Hampshire Agricultural Experiment Station Publication #2340.
[40] Clark, Colin. 1977. Population Growth and Land Use. Macmillan.
[41] Cohen, Joel. 1995. How Many People can the Earth Support? W.W. Norton and Company, p. 171.
[42] Census of Agriculture. 1992. United States Department of Agriculture.
[43] A Food Policy for the State of Maine. 2006. Maine Department of Agriculture, Food, and Rural Resources.
[44] Citizen Panel on the Future of Food in New England. 2003. University of New Hampshire Office of Sustainability Programs and Cooperative Extension.
[45] Verbatim from www.nhcfsf.org.
[46] New Hampshire Center for a Food Secure Future. Food Solutions New England. Unfinished web tool.
[47] New Hampshire Center for a Food Secure Future. Research Summary.
[48] Vilsack establishes The People's Garden project on bicentennial of Lincoln's birth. February 12, 2009. News Release No. 0042.09. United States Department of Agriculture.
[49] Weekly Market Bulletin. February 11, 2009. Vol. 87, No. 50.

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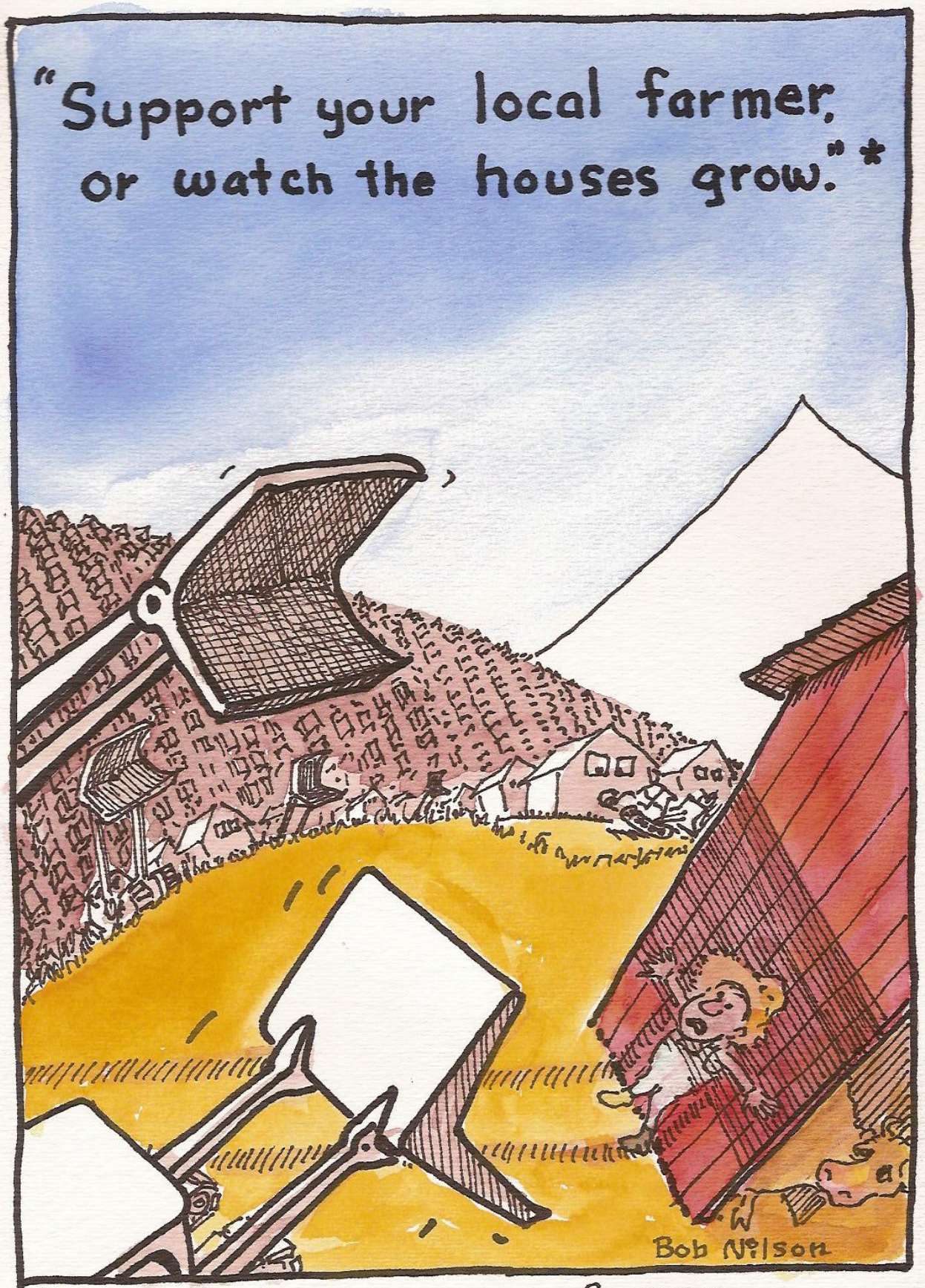

* Harry Lewis, NH produce farmer.