



## **The Rural Sustainability Plan**

**A comprehensive regional plan to sustain and expand food, fiber and forest production and related agricultural economies in The Last Green Valley**

**Supported, in part, by a generous grant from The 1772 Foundation**

The Last Green Valley, Inc. P.O. Box 29, 111 Main St., Danielson, CT 06239-0029 860-774-3300  
[www.thelastgreenvalley.org](http://www.thelastgreenvalley.org)

Partners include representatives from:

Eastern CT Resource Conservation and Development Area, Inc.  
The Green Valley Institute  
Northeast District Department of Health  
Northeast Sustainable Agriculture Working Group  
University of Connecticut College of Agriculture and Natural Resources  
University of Connecticut Cooperative Extension Service  
University of Massachusetts Cooperative Extension Service  
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More than 550 agricultural businesses in The Last Green Valley.

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Steve Broderick	Jennifer Kaufman	Eric Thomas
Annie Cheatham	Robert Levite	Lynn Weaver
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## Preface

“The Last Green Valley” really says it all. Ours is a region of rural traditions - our culture, our economy, our built environment, our landscape. Agriculture and its related businesses have tremendous potential in our region because all of the land and water resources that remain. But agriculture has been declining here as it has throughout the northeast United States over the past decade. While The Last Green Valley is the last large tract of predominantly undeveloped land in the coastal sprawl of the eastern seaboard, it is also predicted to be an area of high growth over the next decade. We need a strategy to reverse the loss of agriculture and rural traditions while enhancing the economic impact of our land. **There is a real consequence to not doing something: the window of opportunity will close and we will lose our precious land. There will no longer be The Last Green Valley.**

We need a comprehensive and useful regional strategy that will increase the value of our agricultural lands, increase regional food, fiber and forest production, stabilize agricultural businesses, and maximize scarce resources through partnerships with governments, universities, nonprofits and farmers. We need a plan that includes all of the 800-pound gorillas in the room of rural sustainability and convince them to synchronize their activities to serve the greater good. We need to *do* something, not just talk about it, and we need to keep doing it until we have achieved significant success.

Over the past months we have read tens of thousands of pages, talked with hundreds of people. We have attended workshops, conferences, meetings. Yet, new insights, research and opportunities come forward each week, continually focusing attention on rural sustainability. There could not be a better time to develop a Rural Sustainability Plan with the understanding that the context is perpetually changing.

We are very grateful for a grant from the 1772 Foundation, an organization that realizes how necessary it is to retain rural traditions and economies. Their support has been gratifying and allows us to ensure wider distribution and consideration of the TLGV Rural Sustainability Plan.

We have developed this plan for a wide audience, not just professionals. Each chapter of the TLGV Rural Sustainability Plan ends with “Joint Efforts Needed to Achieve the Vision.” We know that to be successful we need the expertise of all our partners. It is not the work of one but of many that will make The Last Green Valley Rural Sustainability Plan successful.

Charlene Perkins Cutler and Lois J. Bruinooge

## Mission of TLGV

The Last Green Valley, Inc., works to enhance the region's significant natural resources in the context of a vital economy and regional cultural identity.



## Introduction to The Last Green Valley

The Last Green Valley is two things: it is the popular name given to the Quinebaug and Shetucket Rivers Valley National Heritage Corridor (designated by Congress in 1994) and it is the name of the non-profit organization, The Last Green Valley, Inc. (TLGV), which manages the National Heritage Corridor.

The region known as The Last Green Valley remains 78% forest and farmland in the midst of the most densely developed area of the East Coast. This is both a blessing and a curse. An abundance of land, the relatively low price of land, the lowest mortgage rates in decades, and the location of The Last Green Valley within a one-hour commute to three of the four largest urban centers in New England has created tremendous development pressure. Even in an historic recession, the present lull in development is only a temporary halt of an inevitable explosion of building unless the economic value of land changes based on its potential to produce food, fiber and forest products.

The Last Green Valley was named a National Heritage Corridor because of its abundant land and water resources, resources necessary for agricultural production. Within the southern New England region there are 11 million people who need a safe, adequate, and local farm-to-table continuum; within The Last Green Valley there are 300,000 people, many of low income. The Last Green Valley has the significant resources necessary to meet their needs. Furthermore, increasing the economic value of open space through the use of agriculture significantly advances the goals of most of The Last Green Valley communities: to retain their rural character, to preserve natural resources, to encourage economic development, and to ensure a healthy quality of life. Perhaps most importantly, increasing the economic value of working land may be the best way of preserving the land.

Therefore, The Last Green Valley, Inc. has developed a comprehensive TLGV Rural Sustainability Plan to optimize the successful expansion of the agricultural economy of

the region and to provide a reliable local/regional food system for residents of southern New England. The rural economy of The Last Green Valley is important to each resident and consumers in the surrounding areas. Every effort has been made to provide supportive information and additional explanations to serve this general audience that is composed of multi-generational, diversified people from all socio-economic backgrounds in southern New England. Partners required to achieve the joint efforts developed in the Rural Sustainability Plan include local, regional, state and national entities, nonprofits, businesses, media and all levels of government.

*For more information about The Last Green Valley, Inc., visit the website:*

[www.thelastgreenvalley.org](http://www.thelastgreenvalley.org).

### **TLGV's Vision 2020: The Next Ten Years**

TLGV spent the last year and a half evaluating its work and soliciting input from its partners regarding fulfillment of its mission over the next ten years. Hundreds of individuals, businesses, nonprofits, towns and agencies were involved in this grassroots undertaking. The final document was approved by the TLGV Board of Directors on June 17, 2010. Included in that document were the following vision and strategies for agriculture.

#### ***Vision 2020:***

*Sustainable agriculture is thriving in The Last Green Valley and continues to expand. Farming is an economically viable business. Our farms are critical to supplying food to southern New England. Residents of The Last Green Valley and surrounding regions value and benefit from the fresh foods, fiber and horticulture products grown in the region. Forestry continues to be an important agricultural activity in The Last Green Valley. The wide variety of growers and farmers are in harmony with the environment and provide important ecological services. High quality agritourism experiences attract visitors and additional revenue to the region.*





*“We can make a difference for the future right here at home in our local communities. What we do now can have a profound effect on the world we live in. Town governments need to provide good leadership that works to enhance the growth of agriculture. ”*

*Robin Chesmer  
The Farmer’s Cow*

#### *Strategies to Achieve the Vision:*

- *Protect land that is currently farmed or identified as valuable for farming, because of its soils or other characteristics and maximize its use for agricultural purposes.*
- *Protect large blocks of unfragmented forest land and implement appropriate forest management.*
- *Ensure that farmers have sufficient knowledge, tools, infrastructure and workforce to succeed.*
- *Expand the markets, products and processing available to farmers and end-users.*
- *Advocate the use of local foods by local restaurants, grocery stores and institutions, including schools and hospitals.*
- *Educate residents of TLGV and the surrounding region about the significant value of local foods and their production. Facilitate easy access to those foods.*
- *Encourage the adoption and enforcement of state and regional food safety policies.*
- *Educate municipal officials about the value of working lands and encourage support of agricultural operations through their fiscal and land use policies.*
- *Promote scientifically-based green and renewable energy sources and energy conservation as an integral part of agricultural operations.*
- *Assist growers with the implementation of practices that are compatible with the environment.*
- *Encourage the start of new agriculture operations and the continuation of existing farms by new generations.*
- *Promote agritourism and agritainment.*
- *Coordinate the implementation of the Connecticut and Massachusetts Heritage Areas Legislation, as defined by PA 09-221 and MA Chapter 272 of 2010, with all state agencies, boards, committees and commissions for planning and projects.*

Regarding rural economics: There has been disappointing progress in sustaining and improving the performance of rural economies globally. “Current policies to improve the disappointing economic performance of rural regions are, by and large, not working...Not only is the performance of rural regions lagging, but the gap in performance levels between rural and urban areas seems to be widening...Rural regions have been treated as different from other regions. But the reality is that they are the same as any other region – an economic unit with its own distinct economic composition, business environment, and relationships to neighboring regions. The fundamental difference between rural and other regions is that they have lower population densities. (Porter, 5).

## THE RURAL SUSTAINABILITY PLAN

There has been a huge growth in awareness and appreciation of local agriculture in recent years. Both the Massachusetts and Connecticut legislatures have been extremely supportive of agriculture issues and farmland preservation has been decently funded. There has been significant growth in farmers markets and Farm-to-Chef programs. Rural communities are recognizing how important agriculture is to their towns. Numerous nonprofits and agencies have been responsible for many of these positive things. This is the positive wave that gives encouragement to the TLGV Rural Sustainability Plan.

### Goals of the Rural Sustainability Plan:

1. **Achieve rural prosperity and sustainability** through responsible use of environmental assets, increased knowledge and creative support for food, fiber, forest production and related agricultural economics.
2. Enhance the rural economy by using the economic development approach of clusters and **create The Last Green Valley Rural Sustainability Cluster**, building on work that has already begun. The update of the Northeast Connecticut Economic Partnership’s Comprehensive Economic Development Strategy (2010) reiterates TLGV’s agriculture strategies of *Vision 2020*. Also, TLGV is one of 27 partners in the approved HUD Sustainable Communities Grant for eastern Connecticut to integrate multi-regional plans which address workforce development, transportation, housing, economic development, infrastructure and land use into a multifaceted regional plan.

*Clusters are geographically concentrated groups of interconnected businesses and associated institutions in a particular field. Our field is farming, forestry and any other business or institution that sustains and adds prosperity to rural life, its economy and traditions. Clusters do two important things: they cut across*

*traditional industry patterns and integrate successful efforts; and they promote competitiveness needed for success by improving productivity. When businesses needing similar support locate together creating critical mass for the success of support businesses, this fosters innovation by increasing the ability of business to perceive new opportunities, and facilitate the commercialization of that innovation. (Porter 44-45).*

3. **Advocate for rural economic innovation** and make innovation in agriculture a programming priority for TLGV. **AGnovation** (innovation in the agriculture field) will be a partnership among TLGV, financial institutions, communities, agricultural businesses and support businesses.



*What does it take for innovation? (Guidelines for Regional Investment)*

- *Brainpower – people with the necessary skills to support competitive business*
- *Innovation and Entrepreneurship Networks – groups of cluster organizations and mentoring networks*
- *Quality and connected places – regions need to have high quality of life connected to the rest of the world because skilled people and innovative businesses are mobile and seek such characteristics.*
- *Branding Experiences – definition of the region’s most distinctive attributes and the communication of them*
- *Civic Collaboration – leaders must be skilled at collaboration and partnerships building to make successful use of resources to increase competitiveness.*

4. **Facilitate communication and sharing of knowledge** regarding research, innovation and progress on implementing the joint efforts contained in the Rural Sustainability Plan. It is imperative that all partners remain well-connected to maximize our collective efforts.

5. **Achieve the agriculture vision through the strategies** enumerated in TLGV's *Vision 2020, The Next Ten Years* and the Rural Sustainability Plan.

The following sections of this document examine the elements of rural prosperity – environment, knowledge and support – and their strengths, challenges and the joint efforts needed to achieve the expanded visions as stated. Implementing the recommendations will not be easy but must be attacked with vigor. Achievement in one area will not yield overall success. “The rising tide floats all boats” but to date we have barely rippled the water. It is time for a new approach by implementing the recommendations simultaneously to effect the maximum impact.

### **Implementation Process**

It is the role of TLGV to accomplish its mission and maximize limited resources by:

- acting as a catalyst to promote partnerships at the local, regional, state and federal levels;
- acting as an educator/facilitator to motivate independent actions; and
- taking action through specific projects or programs which TLGV is the only or most appropriate entity to bring about initiation or successful completion of critical work.

Through a **facilitated symposium** and subsequent annual gatherings, TLGV will work with its partners to **divide the tasks** identified in the “Joint Efforts Needed to Achieve the Vision.” A **work plan, timeline, and resources needed** will be established for each task, as well as methodology for accessing progress and measuring impacts. A **biennial report** will be made on progress.

It is TLGV's intention to identify those tasks that are falling through the cracks and develop its organization's work plan and resources to support those projects and programs.



## GEOGRAPHY & DEMOGRAPHICS

### Geography

The Last Green Valley is the only remaining undeveloped region in the coastal sprawl between Boston and Washington, D.C., and has the significant land and water resources needed for food, fiber and forest production. It is a special bioregion. The Last Green Valley is located in southern New England, within 1 hour of seven metropolitan areas: Hartford, New Haven and New London, CT, Boston, Springfield and Worcester, MA, and Providence, RI.



The Last Green Valley is composed of 35 towns, 26 in Connecticut (Ashford, Brooklyn, Canterbury, Chaplin, Coventry, Eastford, Franklin, Griswold, Hampton, Killingly, Lebanon, Lisbon, Mansfield, Norwich, Plainfield, Pomfret, Preston, Putnam, Scotland, Sprague, Sterling, Thompson, Union, Voluntown, Windham, Woodstock) and 9 towns in Massachusetts (Brimfield, Charlton, Dudley, East Brookfield, Holland, Oxford, Southbridge, Sturbridge, Webster), or the greater portion of the Quinebaug and Shetucket Rivers Watershed.

The Last Green Valley is a 1,086 square-mile region with:

- a. 78% forest and farm lands or 549,000 acres of working land based on satellite land cover data for agriculture, coniferous forests, deciduous forests and forested wetlands. (See land coverage data in Appendix)
- b. exceptional sources of surficial and subterranean water, including the largest aquifer in Connecticut (map with hydrological features follows).
- c. The Last Green Valley is a geographic designation unto itself, including all or parts of two states, five counties, 35 towns, two regional tourism districts, and many other subsets. Therefore, it is sometimes not possible to locate state data that is parallel, state departments that align in mission, or even other nonprofit partners that represent the entire region.

“Connecticut residents spend an estimated \$13.75 billion on fresh, prepared and processed food from supermarkets, restaurants, and other sources, less than 1% of which is spent on locally grown food.” (Ben Bowell, American Farmland Trust)

## Demographics

### Population

There are approximately 300,000 people living in 35 towns of The Last Green Valley. Averaging the statistics for those communities, 11% +/- exist below the poverty line. The average American eats 1,500 pounds of food each year including 585 pounds of vegetables, 22 pounds of cheese and butter, 176 pounds of meat/poultry, and 124 quarts of milk products (University of Buffalo). All these varieties of foods can be produced in The Last Green Valley. For the 300,000 people living in the region, 450 million pounds of food is needed each year – 175 million pounds of vegetables alone.

Eleven million people live within two hours of The Last Green Valley in southern New England (Connecticut, Massachusetts, and Rhode Island). Three-quarters (3/4) million people live in the six target cities of Springfield, Worcester, Providence, Hartford, New Haven and New London, each located between 30-60 minutes of The Last Green Valley. Of those 750,000 people, many are at risk according to the U.S. Census (2006 estimates):

- 51% of families are on assisted income
- Of those on assisted income, 64% are single Moms
- 24% of individuals are below the poverty line (which is \$11,201 for those under 65, \$10,326 for those over 65)
- 20% of families are below the poverty line (which is \$16,841 for a family of 3, \$22,207 for a family of 4)
- 28% of all families below the poverty line have children under 18
- 39% of single Moms live below the poverty line
- 56% of single Moms with children under 18 live below the poverty line.

[Note: these figures do not take into consideration the dramatic economic downturns of the past two years and the additional risks to an already distressed population.]



The University of Connecticut's recent economic impact analysis of agriculture in the state reports the following statistics regarding the industry sector:

- Agriculture has an economic impact of \$3.5 billion;
- It produces \$1.7 billion in value-added;
- The impact of agricultural output to each resident of the state is \$1,000;
- Every dollar in agriculture sales generates up to an additional dollar in the state economy;
- Connecticut agriculture generates 20,000 jobs statewide; and
- Agriculture also provides significant social and ecosystem benefits.

## Farms

The Last Green Valley has a tradition of land-based economic activities including managed forests, forest products, dairy farms, orchards, vegetable farms, nurseries and greenhouses, herds of beef, bison, alpaca, goats and sheep, and flocks of poultry. Among these are the largest bison, alpaca and free-range turkey farms in Connecticut.

Most of the farms in The Last Green Valley are small or mid-size. According to the USDA National Committee on Small Farms, a small farm has less than \$250,000 gross annual receipts and the daily management and labor for that farm is provided by the farm family that owns or leases the production assets. "Study after study has demonstrated that measured in terms of the amount of food produced per acre, small farms are actually more productive than big farms." (Pollan, 161). For example, the Holcomb Farm Community Supported Agriculture project in Granby, CT, produced 32,000 pounds of vegetables on five acres in its first year ([holcombfarmcsa.org](http://holcombfarmcsa.org)).

In 2009, TLGV surveyed the more than 550 agricultural businesses in The Last Green Valley to determine farmers' needs; 331 or 60% responded. The general results of the 2009 Farm Survey are reported below.

- Number of food producers: 228 or 69% of respondents
- Number of other agricultural producers: 103 or 31% of respondents
- Expansion: 47% of respondents indicated yes
- Diversification: 47.5% of respondents indicated yes
- Three greatest business challenges: economy, weather and labor
- What new services are needed to help with success? Green technology, cooperatives, processing, networking opportunities
- Number willing to participate in region-wide farmer's organization: 56%

# Farmer's Share of Retail Food Dollar

Did you know that farmers and ranchers receive only 20 cents of every food dollar that consumers spend on food at home and away from home?

According to USDA, off farm costs including marketing, processing, wholesaling, distribution and retailing account for 80 cents of every food dollar spent in the United States.

<p><b>Bacon</b> 1 Pound</p>  <p>Retail: \$4.99 Farmer: \$0.63</p>	<p><b>Top Sirloin Steak</b> 1 Pound</p>  <p>Retail: \$8.49 Farmer: \$1.06</p>	<p><b>Bread</b> 1 Pound</p>  <p>Retail: \$3.49 Farmer: \$0.18</p>	<p><b>Fresh Carrots</b> 3 Pounds</p>  <p>Retail: \$2.63 Farmer: \$1.15</p>	<p><b>Beer</b> 6-Pack Cans</p>  <p>Retail: \$6.29 Farmer: \$0.10</p>
<p><b>Cereal</b> 18 Ounce Box</p>  <p>Retail: \$3.99 Farmer: \$0.08</p>	<p><b>Cheddar Cheese</b> 1 Pound</p>  <p>Retail: \$4.69 Farmer: \$1.12*</p>	<p><b>Eggs</b> 1 Dozen</p>  <p>Retail: \$2.59 Farmer: \$0.90</p>	<p><b>Flour</b> 5 Pounds</p>  <p>Retail: \$2.59 Farmer: \$0.89</p>	<p><b>Boneless Ham</b> Price per Pound</p>  <p>Retail: \$3.99 Farmer: \$0.63</p>
<p><b>Lettuce</b> 1 Head (2 Pounds)</p>  <p>Retail: \$2.79 Farmer: \$0.90</p>	<p><b>Milk</b> 1 Gallon, Fat Free</p>  <p>Retail: \$4.39 Farmer: \$1.50</p>	<p><b>Potato Chips</b> Lays Classic, 11oz</p>  <p>Retail: \$3.99 Farmer: \$0.18*</p>	<p><b>Fresh Potatoes</b> Russet, 10 Pounds</p>  <p>Retail: \$4.99 Farmer: \$0.47*</p>	<p><b>Soda</b> Two Liter Bottle</p>  <p>Retail: \$1.09 Farmer: \$0.09</p>

Farmer's share derived from USDA, NASS "Agricultural Prices," 2011.  
Retail based on Safeway (SE) brand except where noted.  
\*Reflects January 2011 prices.



Feb. 28, 2011

COURTESY OF THE FARMERS UNION

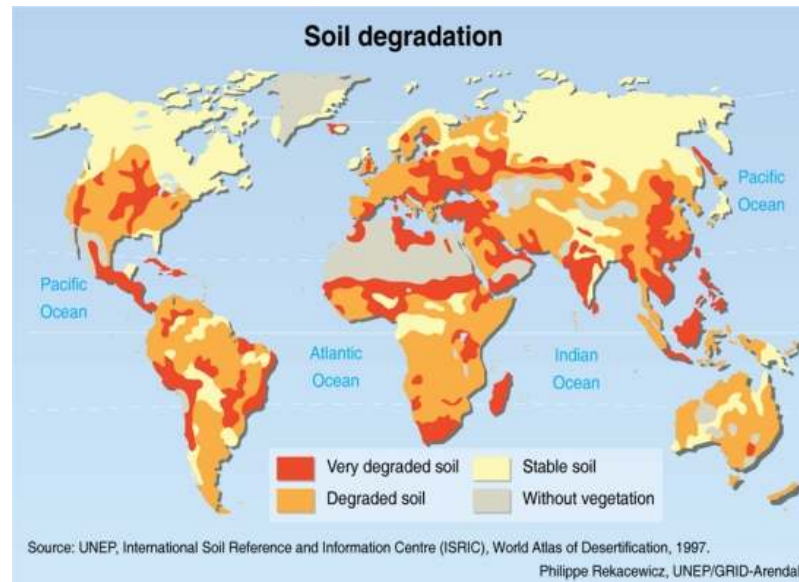


## LAND RESOURCES

**Expanded Vision:** All Last Green Valley towns have identified locally significant farmland soils, and land that is currently farmed or identified as valuable for farming because its soils or other characteristics are maximized for agricultural purposes. Large blocks of agricultural lands are preserved. Financial incentives are available to landowners that compensate them for the many public benefits of agricultural land and make it attractive to place land in agricultural use. Municipal land use regulations support agricultural businesses and associated businesses, steer development away from agricultural lands and minimize conflicts with neighboring uses.

### Strengths

1. The Last Green Valley remains 78% forested and farmed, with almost 549,000 acres of working land. The total land area of The Last Green Valley is approximately 707,103 acres (see CLEAR land coverage data in Appendix).
2. Forest is the single largest land cover category in The Last Green Valley. Approximately 474,768 acres, or 67 %, is forested (CLEAR). This estimate includes deciduous and coniferous forests as well as forested wetland.
3. Approximately 74,153 acres, or 10.5% of the land base, is classified as agricultural lands based upon satellite imagery (CLEAR).
4. The USDA Natural Resources Conservation Service has mapped all of the prime and statewide important agricultural soils in The Last Green Valley communities. Ashford, Canterbury, Chaplin, Eastford, and Lebanon have identified their locally important agricultural soils.
5. The five Last Green Valley towns with the highest total agricultural acreage are: Lebanon (8,123), Woodstock (6,820 acres), Pomfret (4,491), Preston (3,437), and Plainfield (3,432). ( CLEAR)



The Last Green Valley is one of only three regions in the U.S. with stable soils.

6. The five Last Green Valley towns with the highest percentage of land in agricultural use are: Lebanon (23%), Franklin (20.9%), Dudley (18.6%), Pomfret (17.3%) and Woodstock (17.3%). (CLEAR) Corridor-wide and town-by-town data can be found in the appendix.

7. Farmland is also valuable for the public environmental benefits it provides:

- maintaining or increasing biodiversity;
- providing fish and wildlife habitat;
- improving surface and groundwater quality by filtering water;
- reducing flooding by slowing runoff and providing recharge areas;
- improving air quality by filtering and producing oxygen;
- reducing carbon emissions by reducing reliance on foods, feeds, and horticultural products that need to be shipped long distances;

- retaining soil for plant growth; and absorbing and sequestering carbon. (Planning for Agriculture).

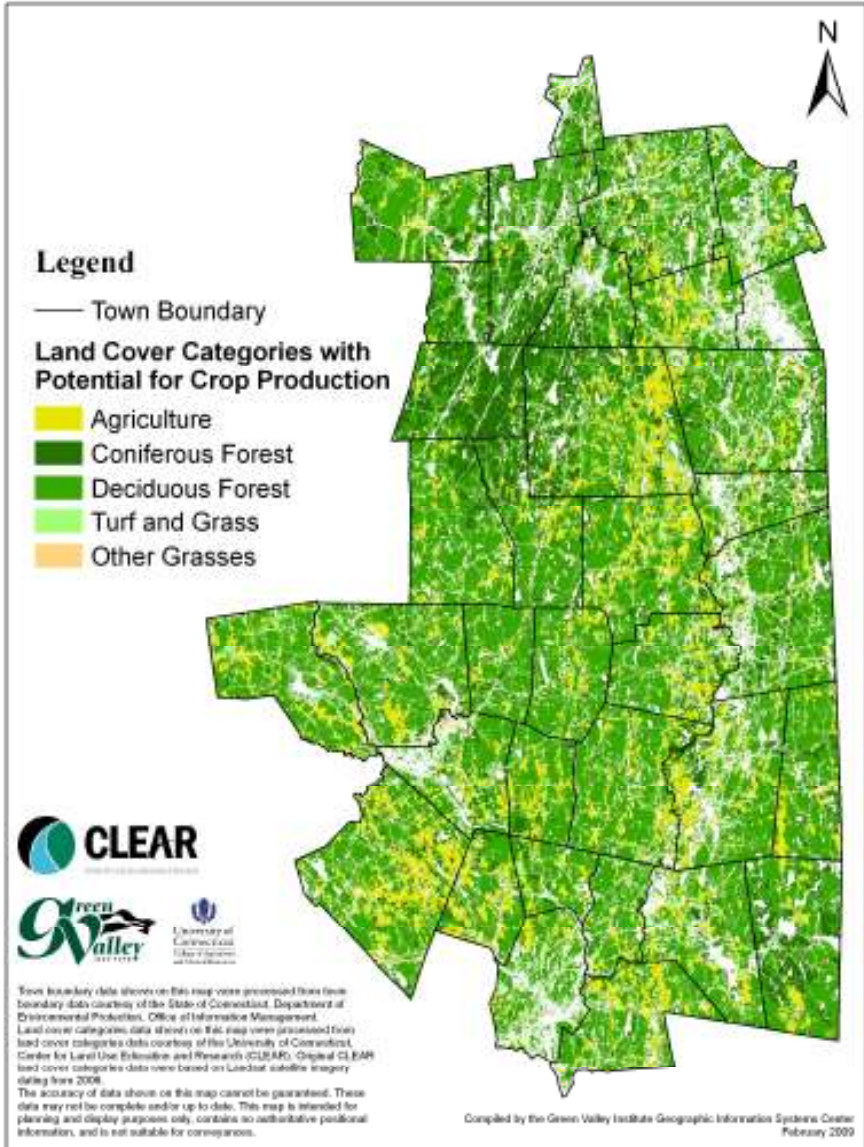
8. In 2003, the Massachusetts Audubon Society placed a value of \$1,381 per acre on the non-market environmental services of farmland. Forestland services were valued at \$984 per acre. (Working Lands Alliance, *Plowing Ahead*).

9. Farmland is valuable because it provides community identity, rural character, and is an important link to the region's history and culture. These same attributes make farmland valuable as a tourist attraction. (Planning for Agriculture).

10. While not all farms allow public access, farmland can provide valuable recreational opportunities for walking, hunting, fishing, snowmobiling and horseback riding. (American Farmland Trust, *Planning for Agriculture*).

11. In the early 1980's Connecticut established the goal of permanently preserving 130,000 acres of farmland across the state.

12. Approximately 61% of the farmland protected by the State of Connecticut's Purchase of Development Rights Program is located in Windham (7,686 acres), Tolland (3,691) and New London (10,409) counties.



## Challenges

1. The topography of The Last Green Valley includes slopes, stones and wetlands.
2. Farmland will face increasing development pressures as the population of The Last Green Valley continues to grow. If agriculture businesses falter, the loss of farmland is inevitable. According to the Connecticut State Data Center, Windham County (all of which is included in The Last Green Valley) is expected to grow its population by 49% compared to the state projection of 22% between 2010 and 2015. This will increase the numbers of consumers needing food but also increase development pressure on working land.
3. Approximately 85% of Connecticut's farmland remains unprotected. (WLA, *Plowing Ahead*).
4. Between 1985 and 2006, Connecticut lost 14.5% of its agricultural fields. (WLA, *Plowing Ahead*). The rate of farmland loss in Connecticut has consistently outpaced the rate of protection through the state's purchase of development rights program (WLA, *Plowing Ahead*). Farmland has been disappearing throughout the country and has become very expensive in the northeastern states.
  - "The average dollar value of farmland in most Northeast states is among the highest in the U.S." From 1970 to 2000, agriculture land values in Connecticut rose by 268%, in Massachusetts by 1044%. (Ruhf, 6).
  - On average Connecticut lost agricultural fields at the rate of 1883 acres per year between 1985 and 2000 (CT Food Systems Alliance Summit).
  - By 2008, the State was losing of 9000 acres per year (*Norwich Bulletin*, May 4, 2008).
  - "Seventy-five percent of locally-grown fruit, vegetables and milk are grown around urban areas and those lands are most vulnerable to loss (Coffin)."
5. Historic and cultural conventions have traditionally valued dense developments with the most short-term profitability as the "highest and best" use of land. *Highest and best*

*use of a property would be that use which results in the most efficient and/or profitable use...An example would be an agricultural land parcel in the path of development. Its highest and best use might be for a shopping center rather than an onion field.*  
(About.com)

6. Land use regulations promote sprawling development patterns that unnecessarily infringe on agricultural operations and create conflicts with neighboring uses.

7. Many municipalities do not have farm-friendly land use regulations or agriculture commissions to support farmers.

8. Farming produces some amount of waste resulting in air, soil, and water pollution, and can deplete nutrients from soil and change soil composition. (See Infrastructure, Best Management Practices).

#### **Joint Efforts Required to Achieve the Vision**

1. Work towards a no net loss of farmland goal in The Last Green Valley by:

- Reducing the loss of farmland to development by 50%
- Doubling the current rate of farmland preservation
- Permanently protecting 25% of the agricultural lands in The Last Green Valley by 2030 (WLA, *Plowing Ahead*).

2. Protect enough agricultural land in order to meet 30% of caloric and 30% of energy needs for future demand in 2050.

3. Advocate for increased federal and state investments in farmland protection programs.

4. Assist each Last Green Valley municipality to meet a no net loss of farmland goal by:



- Providing technical assistance to map agricultural resources like locally significant agricultural soils.
- Designating locally important agricultural soils.
- Developing a detailed section regarding agriculture in its Plan of Conservation and Development.
- Implementing farm-friendly zoning regulations that support farm-stands and farm retail operations, effective signage, off-farm sales, on-farm processing, compatible businesses (i.e. processing facilities), etc.
- Developing strategies to protect farmland through purchase of development rights and other conservation and preservation programs.
- Encouraging the use of town-owned farmland by local farmers.
- Providing an inventory of farmland that is not in production that can be leased or used by local farmers.
- Assisting municipalities in implementing land use policies (i.e. buffers) that limit land use conflicts between farm and non-farm neighbors.
- Limiting fragmentation of farms especially where clusters exist.
- Promoting community development in existing growth centers or other areas identified for community growth to reduce fragmentation of agricultural lands and forests, and maintain viable agricultural operations.
- Implementing Transfer of Development Rights to protect agricultural lands and focus growth in pilot communities, and eventually implementing an inter-municipal Transfer of Development Rights Program designed to preserve the region's agricultural lands so they are available to feed generations to come throughout the northeast.
- Implement legislation to provide towns right of first refusal to purchase farmlands being taken out of farming.

5. Develop new programs to compensate farmers for the public environmental benefits that farmland provides. Manage farmland to maximize the public benefits that can be obtained (e.g. carbon sequestration and nutrient reductions.)

“Virtual water is the amount of water needed to create a product.”  
Did you know how much water is takes to make these food products?

1,857 gal. for 1 pound of beef  
469 gal. per chicken  
and for unspecified quantities:  
400 gal. per eggs  
371 gal. for fresh cheese  
589 gal. for processed cheese  
138 gal. for yogurt  
185 gal. for cherries  
109 gal. for corn  
84 gal. for apples  
78 gal. for grapes  
43 gal. for beans  
33 gal. for strawberries  
31 gal. for potatoes  
(Johns)

## WATER RESOURCES

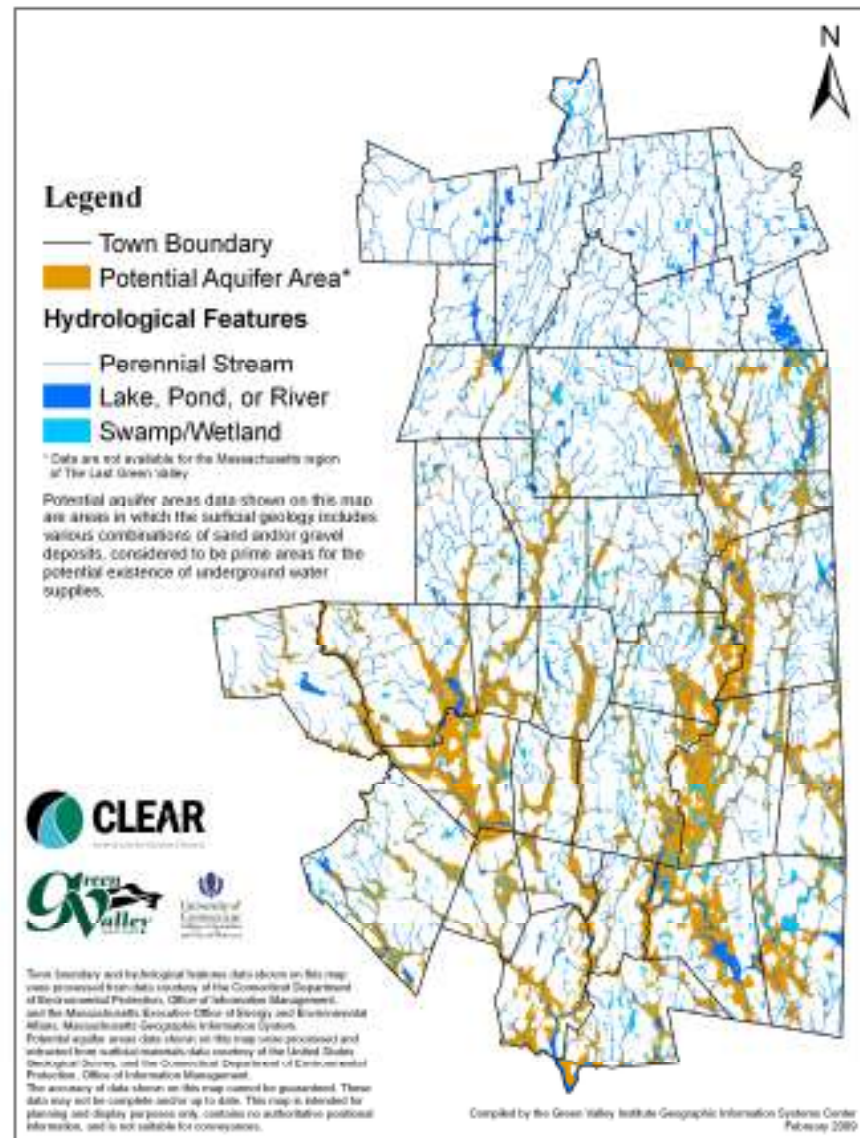
**Expanded Vision:** There is an adequate and sustainable supply of water in The Last Green Valley to meet the needs of people, nature, agriculture and industry. High water quality is maintained with vigilance. Best management practices are fully incorporated into all activities to protect the quality and sufficiency of water.

### Strengths

1. Compared to other parts of the country, The Last Green Valley is relatively water-rich as it receives approximately 51 inches of precipitation each year (Northeast Regional Climate Center).
2. Therefore, an annual rate of 962 billion gallons of water is deposited annually in the watershed.
3. Much of this water recharges underground aquifers. The Last Green Valley contains rich underground stores of water, including the largest aquifer in Connecticut.
4. Water quality is high in many of The Last Green Valley rivers, streams, lakes and ponds.
5. In other water courses, water quality has been significantly improved due to reductions in point source pollution.
6. Drinking water supply is adequate throughout The Last Green Valley, including surface and ground water sources.
7. The TLGV Water Quality Monitoring Program has successfully focused attention on the concerns of water quality in the region and has expanded each year.

There is a significant amount of virtual water used in making processed foods and goods.

- 53 gal. per glass of milk
  - 37 gal. per cup of coffee
  - 32 gal. per glass of wine
  - 20 gal. per glass of beer
  - 9 gal. per cup of tea
  - 634 gal. per hamburger
  - 766 gal. per 1 cotton T-shirt
  - 2,800 gal. per 1 cotton bed sheet
  - 2,900 gal. per 1 pair blue jeans
- (Johns)



“Most of the planet’s liquid fresh water is groundwater, precipitation that seeps down to fill the spaces in layers of sand, gravel, and permeable rock called aquifers. Since the mid-20<sup>th</sup> century, its extraction for human use has accelerated, often at unsustainable rates.” (Johns)



## Challenges

1. The greatest threat to surface water quality in the region is nonpoint source pollution from a wide array of sources, including commercial, residential, and agricultural sources.
2. Storm water runoff from agricultural nonpoint sources such as manure storage and tilled and fertilized fields, transports nutrients, bacteria and sediment to streams and ponds.
3. Excess nutrients in streams, ponds and estuaries like the Thames River cause algal blooms and low dissolved oxygen making them uninhabitable for fish and other organisms.
4. Increased demand for surface and groundwater as well as changes in climate may impact the supply of water because of changes in precipitation and drought.
5. Increased development (impervious surfaces such as roofs and parking lots) leads to increased rainwater runoff, increased frequency and more severe flooding events, and less groundwater recharge.
6. Both Connecticut and Massachusetts are struggling to develop regulatory programs that will provide a balance among competing water users such as agriculture, drinking water, and industry, while meeting minimum fish and wildlife habitat needs.

### **Joint Efforts Required to Achieve the Vision**

1. Develop outreach efforts to ensure that farmers have knowledge of Best Management Practices (BMPs) for water quality, quantity, and stormwater management.
2. Encourage sound nutrient management practices that take into consideration time of year, timing of precipitation, potential for stormwater runoff and location of surface water bodies.
3. Encourage sustainable irrigation practices which consider timing, water availability, interactions between surface and ground water resources, demands from other users and fish and wildlife habitat requirements.
4. Identify crops best suited for water availability in The Last Green Valley given potential climate change.
5. Assist producers with implementation of BMPs for protection of water quality and supply throughout TLGV.
6. Expand the successful TLGV Water Quality Monitoring Program so that the entire region is included in the data.



## INCREASE KNOWLEDGE

### Health

**Expanded Vision:** Residents of The Last Green Valley and surrounding regions value and benefit from easily accessible fresh foods. Nutrition education is formalized in regional school systems. The health of the general population has improved from eating fresh local and regional foods.

#### Strengths:

1. The Last Green Valley has the capacity for increased food production based on land and water resources. Three hundred thousand residents and a population of 11 million living within an hour or two of The Last Green Valley foodshed needs access to the local and regional agricultural products that can be produced here.
2. The Last Green Valley remains 78% forest and farmland. Its forests produce enough oxygen annually for 8.3 million people. They filter and store 1.2 million tons of carbon that would otherwise remain airborne and degrade air quality.
3. Increased public relations and publications are more frequently emphasizing the relationship between good health and fresh food.
4. Many chronic diseases are dramatically improved by changes in diet, e.g. high cholesterol, obesity, high blood pressure, diabetes and asthma.
5. The recent interest in the relationship of nutrition to overall health has increased an emphasis on nutrition education in schools.
6. The Northeast District Department of Health has launched *HealthQuest*, a private and public partnership of “policy, environment and system changes to encourage all

In 1987, grocers carried 173 produce items; in 2010 they carry 558 on average. (USDA Economic Research Service)



residents to adopt personal wellness behavior and provide opportunities to achieve healthy lifestyles.”

### Challenges:

1. Consumption patterns have changed over the years. Consumers expect a wide variety of fruits and vegetables to be available year round. (FDA)
2. The average person needs 1,500 pounds of fresh food per year (Michael Hamm). The population of The Last Green Valley is approximately 300,000 and requires 450 million pounds per year.
3. Traceability (ability to follow the movement of a food product through the stages of production, processing, and distribution US HHS) is a problem in the present complex food system. Contamination, spoilage in transit, and uninspected imports are among the factors that have increased food-borne contaminants in the last decade. One need only think about the issues with spinach, peanuts and ground beef over the past couple of years to recall the potential health issues associated with foods grown/processed far away from the consumer and transported great distances. While there is a great risk to the young from food-borne viruses, older Americans represent the group with the highest risk (FDA).
5. There has been an alarming increase of food borne pathogens over the past 10 years (USFDA, 9):
  - Since 1970, there have been 14 pathogens newly associated with food borne illnesses.
  - *Vibrio vulnificus* is a bacterium in the same family that causes cholera; one type of *vibrio* requires sea water to live and therefore, is associated with contaminated sea food.
  - The instances of *vibrio* have increased dramatically.
  - Illness from contaminated foods is most severe in the very young, very

“It is projected that health care spending will comprise 43.7% of GNP by 2030. (Find Articles). “By 2080, 50% of the U.S. GNP will be needed to pay for health care.” (Michael Conrad).

old and those with compromised immune systems, roughly 20-25% of the population.

6. The twelve towns in the Northeast District Department of Health (CT) have 21% higher (Age Adjusted Mortality Rates AAMR) for cardiovascular disease and diabetes than the Connecticut statewide average. Windham County, CT, is second in the state for asthma hospitalizations. (Connecticut Department of Public Health)

7. Residents of northeast Connecticut have the lowest family incomes in the state and it is a region that includes food deserts.

- According to Pat Beckenhaupt, former executive director of the Northeast District Department of Health, “Lower income families traditionally have been at greater risk for malnourishment despite a high risk for obesity.”
- When it comes to “food security, the access low-income households have to healthy nutritious foods, towns in the Quiet Corner (NE CT) rank lowest in the State.” (*Norwich Bulletin*, Nov. 15, 2010).
- Of the 300,000 people living in The Last Green Valley, 11.7% +/- or 35,100 live below the poverty level.

8. There are six major cities surrounding The Last Green Valley within a 30-60 minute drive creating a natural market for agricultural products. A significant percentage of that population live below the poverty level in urban food deserts.

9. Lower income households pay higher food prices (USDA, 1; Kaufman, 19):

- The poor spend less dollars in large supermarkets that generally offer the lowest prices because access to supermarkets in urban neighborhoods is limited.
- Poor families are less likely to live in suburbs where supermarkets are easily available. That includes rural poor families, as well as urban.
- Neighborhood markets in urban areas generally have higher per item prices.

“The majority of Hartford’s school children are at risk of hunger, and for many, the school lunch program provides their only complete meal for the day. Fully 45% of Hartford’s children live in poverty...Low income children are especially vulnerable to poor nutrition and lack of access to fresh fruits and vegetables.”  
(Context Institute, 4)

“Nearly one in three children in the United States is overweight or obese - - we are confronting a public health crisis. If we teach people at an early age that eating healthy and moving more is important, an entire generation of Americans will live healthier and longer lives.” (former President Bill Clinton)

10. Lower income families make food choices that are not linked to nutrition, but rather to economics:

- They buy more economical foods, such as store brands, larger size and lower quality foods, poorer cuts of meats, and less expensive fruits and vegetables (Leibtag, 2).
- They have less access to sources of economical but high-quality food (Leibtag, 7).
- They spend less on food but pay higher prices for their food (Liebtag, 7).
- From 2008 to 2010 food prices overall are expected to rise faster than inflation, an additional 5% for each year (*USA Today*).
- The poor regard fresh fruits and vegetables as too expensive and therefore, do not consume as much of these products as other consumers (Liebtag, 6).
- When fresh fruit and vegetable prices increase, meats, soft drinks and fat/oils remain stable which has increased obesity in poor populations (Schoonover, 4).
- Per calorie, high calorie–low nutritious foods tend to be cheaper than healthier foods (Schoonover, 4).

11. Poor people have health risks related to insufficient and low-quality food.

- Children enrolled in WIC have greater obesity rates. Hungry children experience weight loss, fatigue, dizziness, headaches, ear infections and frequent colds; have impaired growth and cognitive development; and tend to be obese due to poor quality food and inconsistent availability (Chamberlin, et al, 2-3).
- Low income communities have more obesity, malnutrition, diabetes, and other diet-related disease (Schoonover, 4).
- Health risks increase for older Americans and by 2015 25% of the population will be over 60 years of age (US FDA, 6):
- Obesity has increased because low cost commodities like corn and soybeans are used by the food industry to make products profitable and there is a prevalence of high fructose corn syrup and hydrogenated vegetable oils in foods that were not available a generation ago.

“In 2010, we still rank as the world’s fattest developed nation, with an obesity rate more than double that of many European nations.” (Ambinder).

12. Obesity in children is increasing due to poor nutrition (high consumption of processed and “fast” food, see Challenge #4) and insufficient exercise. The percentage of school children ages 6-11 who are overweight doubled from 1970 to 2000; the rate for teenagers 12-19 tripled. (National Center for Health Statistics.)

13. Scientist have proven that the combination of fat, salt and sugar alter brain chemistry and compels people to over eat and/or choose unhealthy foods. The former FDA chief, David Kessler, maintains that “Instead of satisfying hunger, the salt-fat-sugar combination will stimulate the diner’s brain to crave more...and the food industry manipulates this neurological response, designing foods to induce people to eat more than they should or even want.” (Lyndsey Layton) Whole foods do not present these combinations of elements.

14. School lunches have marginal nutrition and focus on processed and high-fat components. The National School Lunch Program was started in 1946 after World War II. The U.S. Department of Agriculture gives public schools cash for every meal served. According to an op-ed piece in the *New York Times* entitled “No Lunch Left Behind,” Alice Waters (renowned chef) and Katrina Heron state “the program costs round \$9 billion, a figure widely acknowledged as inadequate to cover food costs...very little of this money even goes toward food. Schools have to use it to pay for everything from custodial services to heating in the cafeterias...school are entitled to receive commodity foods that are valued at a little over 20 cents per meal. The long list of options includes high-fat, low-grade meats and cheeses and processed food like chicken nuggets and pizza.” The program needs to be reevaluated.

15. There is a need to break commercial, social and generational barriers to good nutrition. There is transference of poor nutritional habits from parent to child, e.g. the chubby 1950’s baby was considered the picture of health, a reactive hold-over from the trauma of the Depression.

16. Nutritional education has been marginal in school curricula, primarily taught as part of health classes in middle and high schools.

**Joint Efforts Required to Achieve the Vision:**

1. Motivate consumers to vary their eating habits based on seasonal availability of foods rather than sustaining the demand for imported out-of-season products.
2. Support the production of more food in The Last Green Valley.
3. Support the recommendations of the FDA's "Food Protection Plan," November, 2007.
4. Encourage the rapid adoption and implementation of state and regional food safety policies.
5. Support programs that identify and promote locally-grown/raised foods in order to increase access to fresher food supplies and increase rapid traceability of contamination and spoilage.
6. Advocate the use of local foods by local restaurants, grocery stores and institutions, including schools and hospitals.
7. Encourage processing and preserving activities to capture the local harvest for use throughout the year.
8. Support nutritional education programs between health professionals and parents that emphasize the link between poor eating and poor health. Communicate/reinforce nutritional requirements for geriatrics through health resources and community senior programs.



9. Make nutritional education and proper food preparation mandatory in all grade levels of school.

10. Support the reevaluation of the National School Lunch Program; specifically advocate that funds should be used only for food and preferably for whole foods.

11. Advocate for truth in food labeling, including packaging claims not supported by nutrition labeling, e.g. front of package labeled “97% fat free” when fat constitutes more than 3% on the nutrition label.



## Education

**Expanded Vision:** All people living in and around The Last Green Valley value and understand agriculture, from food and fiber production, to processing, distribution and marketing. Ample opportunities exist for farmers to increase knowledge through formal and strategically-specific programs. New agricultural workers are inspired, recruited and educated in all areas of agriculture and related skills including nutrition, culinary arts, processing and biotechnology. All agricultural workers earn a good wage and have adequate benefits.

### Strengths:

1. There are many educational institutions in and near The Last Green Valley that provide agriculture education and/or related courses. These include the University of Connecticut, College of Agriculture and Natural Resources and the University of Massachusetts at Amherst. Within 40 miles, Brown University, Johnson & Wales, Providence College and the University of Rhode Island offer courses to the east. Additionally, Becker Junior College and Clark University in Worcester, MA, offers agriculture related courses. Quinebaug Valley Community College and Three Rivers Community Technical College, Eastern Connecticut University and Nichols College are also resources within the region and there is potential for expansion and integration of agriculture education programs.
2. The Cooperative Extension System has always had a strong presence in the communities of The Last Green Valley. While funding has been decreased over the past few years, the connection between Extension and communities remains strong.
3. Woodstock Fair, Brooklyn Fair, Lebanon Fair and Celebrating Agriculture are long-standing agricultural events that expose people to farm products, processes and the people who run them.

Killingly Agriculture Education Program was awarded the 2006 Outstanding Secondary/Middle School Program in Region VI (extending from Maine to West Virginia) by the National Association of Agriculture Educators. (Killingly Schools)

4. There is always a need for food growers and processors, particularly as population centers grow and demand rises.

5. Traditional vocational agriculture programs have expanded into Vocational Agriculture Centers with increased investment. While the emphasis used to be on animal and plant care, new focus is placed on food science, forest management, nutrition, landscape, agriculture mechanics, agriculture business, biotechnology, environment and aquaculture. (*Connecticut Business News Journal*). In The Last Green Valley, there are three vocational agriculture centers at E.O. Smith HS, Lyman HS and Killingly HS (each in Connecticut) and three culinary training programs at Windham Tech in Windham, Tastasqua Regional HS in Sturbridge and Bay Path Regional Vocational School in Charlton (Massachusetts). For those graduating from vocational agriculture programs, 68% attend post-secondary schools and 63% work in the agriculture field after graduation.

6. Future Farmers of America is a leadership organization for agriculture education students and is active in the three vocational agriculture centers in The Last Green Valley.

7. Across the nation there is a surge in education regarding the food system. While consumers are more aware than ever of the origin of their foods, the complexity of food processing and the distance that food travels from farm to table, continued education is necessary.

8. The importance of good nutrition is strongly emphasized by health care professionals and the relationship between poor nutrition and chronic health problems is well-documented.

**Living wage** is the hourly wage a person must earn to support their family if they are the sole provider and are working full-time. The state **minimum wage** is the same for all individuals, regardless of how many dependents they have. The **poverty rate** is the rate at which a person is considered in poverty.

For a family consisting of two parents and two children with one parent being the sole provider, the rates compare as follows:

Living wage, Windham Cty.	\$27.85/hr.
Poverty Wage	9.83/hr.
Minimum wage, federal	7.65/hr.
Minimum wage, CT	8.25/hr.

### Challenges:

1. The greatest challenge to recruiting, training and retaining workers in the vocational agriculture field is wages. Farm labor and processing workers are poorly paid and have few or no benefits, making them hard to recruit and retain. According to US Health and Human Services, the average processing worker earns \$25,500 annually or \$12.26 per hour for a 40 hr. week. This is little more than the poverty level for a family of four (\$22,050) and much less than the living wage for Windham County, CT (\$57,928).
2. There is a perception by community leaders that agriculture is not a viable economic enterprise because many large, land-intensive dairy farms have gone out of business in the past 20 years.
3. Despite recent publicity regarding food and its safety, people still do not understand the food system and how it affects them.
4. Universities serving the region have concentrated on research more than farmer and community education in recent years.
5. There are no meat science courses to prepare meat processors offered anywhere in New England. The one existing program at SUNY Coleskill, NY, is a four-week course with a long waiting list.
6. Although there are three (out of 19 statewide in CT) vocational agriculture centers in The Last Green Valley, that number represents a decrease over the past couple of decades.
7. A decrease in Cooperative Extension funding has minimized its impact in the communities of The Last Green Valley. UConn and UMass Extension Services are an essential link between the academic community and the farm community.

“Sadly, the Land Grant universities charged with providing research and education in agriculture do a better job of creating ag scientists than they do of creating skilled farmers. (Even more unfortunate is that the research agenda is often set by the interests of large agribusiness conglomerates.) It is only in recent years that some of the Land Grants even have begun to approach sustainable/organize production techniques in their curriculum and research.”  
(LaBrake)

**Come Farm With Us** is a joint marketing project among Lewis, Oneida, St. Lawrence and Jefferson counties in New York. Between 2002 and 2004, the program was successful in recruiting 53 families to begin new farms within the geographic region. (Farm and Dairy Auction Guide and Rural Marketplace)

8. There has been a decrease in the number and activity of agriculture-related social organizations like the Grange over the past couple of decades.

9. Students point of view regarding agriculture and academic counseling away from careers in agriculture create negative effects on vocational agriculture programs (*Journal of Agriculture Education*, and Reisenberg & Lierman).

- Agriculture is for farm kids
- Agriculture is for boys
- Students have to take college courses to get into colleges and universities
- Vocational agriculture requires a lot of student time
- Students loose interest over time
- Academically gifted students are guided away from agriculture
- Vocational agriculture is used as a “dumping ground” for low achieving students
- Potential students are poorly informed and do not understand agriculture
- Students see poor investment in the tools and equipment for vocational agriculture courses by the school system
- Students lack exposure to basic skills needed for vocational agriculture, like fundamentally handling of tools
- Student live more and more in developed neighborhoods with little day-to-day contact with farms
- Agriculture doesn’t pay

### **Joint efforts required to achieve the vision:**

#### ***To reach a general audience:***

1. Bring a fun educational component to all fairs and festivals emphasizing the importance of local agriculture and the need to be knowledgeable about the food system.

A small group of farmers in Massachusetts had the “idea to improve the quality and viability of farm internships by sharing educational programming across a group of farms. Their work initiated a program now popularly known as CRAFT, and it provided the benchmark for similar collaborative efforts around the country...labor for learning arrangement...50% of participants go on to establish their own farms.” (Shafer)

2. Use the internet and social media as important tools for educating consumers about their food system and the importance of local agriculture. Educate that “sustainable consumption” is not cheap food but it is healthier food.
3. Make education about the importance of local agriculture and the food system part of the school curriculum in all grades and tie it to the school lunch program
4. Provide research, curricula and activities to school to facilitate the education of students regarding agriculture.
5. Increase funding to the Cooperative Extension Programs to provide new and continuing education to agricultural businesses.

***To recruit and prepare new farmers and encourage existing farmers to expand or diversify their operations:***

1. Provide access to truly useful information on:
  - land/farms for lease or sale
  - business planning assistance
  - financing operations
  - basic knowledge of operations
  - continuing education in all areas of agricultural business
2. Provide an emerging farmer forum through website and capacity-building programs.
3. Encourage existing farmers to mentor a new generation of farmers.
4. Encourage schools to partner with existing farmers to develop internships and apprenticeships in agricultural business experiences, and to offer on-line courses for non-traditional students.



5. Establish the AgInfo Website specifically for agricultural businesses that will provide information, resources, job opportunities, classifieds and networking (currently under development by TLGV).

6. Develop specialty education short-courses (like fruit tree pruning) that award a certificate upon completion so that a “ready-to-work” laborer has credentials to present to a prospective employer.

***To recruit and train other workers in agricultural fields, e.g. processing, culinary arts, nutrition, biotechnology, etc.:***

1. Provide access to truly useful information on:

- opportunities in the field
- job listings
- training and education
- apprentice opportunities or internships
- business planning
- financing

***To improve agriculture education and recruit students:***

1. Advocate for better wages and benefits for agricultural workers (see also Infrastructure).

2. Define agriculture education to consist of the broadest categories of employment, including but not limited to farming, processing, nutrition, culinary arts, and biotechnology.

3. Increase the number of secondary vocational agriculture programs in the region to serve the needs of students.

4. Encourage the location of an agriculture charter school within The Last Green Valley that would prepare not only new farmers but also culinary workers, processors, nutritionists, and biotechnologists.
5. Address the pressing need for meat science courses in New England.
6. Offer excellent agriculture education by (National Council for Agriculture Education):
  - recruiting, preparing, placing and retaining high quality teachers
  - providing adequate funding for agriculture education programs
  - expecting accountability for student achievement.
7. Locate learning and training education programs in nontraditional settings, e.g. summer camps, sports programs, 4-H clubs.
8. Develop an inspiring and effective marketing campaign for agriculture education that emphasizes the varieties of career paths in and associated with the field.
9. Recruit students through outreach by the agricultural communities, parents, community leaders, schools, colleges and policy makers.



## SUPPORT FOR RURAL SUSTAINABILITY

### Economic Development

**Expanded Vision:** Residents of The Last Green Valley understand the value of agriculture and related businesses to their communities. Agriculture is considered an important component of federal, state, regional and municipal economic development efforts. Regional marketing efforts successfully connect producers to consumers.

#### Strengths:

1. Farmland provides the foundation for a strong agricultural business sector that generated \$551,553,000 in receipts for agricultural products sold in Connecticut and \$489,820,000 for agricultural products sold in Massachusetts in 2007. (2007 Census of Agriculture).
2. Farmland is also valuable for the public environmental benefits it provides (*Planning for Agriculture*):
  - maintaining or increasing biodiversity;
  - providing fish and wildlife habitat;
  - improving surface and groundwater quality by filtering water;
  - reducing flooding by slowing runoff and providing recharge areas;
  - improving air quality by filtering and producing oxygen;
  - reducing carbon emission by reducing reliance on foods, feeds and horticultural products that need to be shipped long distances;
  - retaining soil for plant growth; and
  - absorbing and sequestering carbon.
3. In 2003, the Massachusetts Audubon Society placed a value of \$1,381 per acre on the non-market environmental services of farmland (*Plowing Ahead*).

“Each dairy cow is worth \$13,737 to the local economy annually.”  
(PA Center for Dairy Excellence)



4. Clusters of active farm communities and productive agricultural land provide a supply of food and fiber for The Last Green Valley and communities in the surrounding foodshed. Agricultural clusters also maintain the support structure necessary for successful agricultural operations.
5. Both Connecticut and Massachusetts run high profile campaigns promoting products grown in each state (see also Government).
6. Many communities have weekly farmers markets that bring the grower and the community together and increase the “buy Local” opportunity while celebrating agriculture at the community level.

#### **Challenges:**

1. Most municipal economic development activities focus on the development of vacant land and do not value land preservation as a positive fiscal benefit.
2. Decrease in farming activities has reduced the number of support service providers that farmers had relied upon, e.g. meat processors, equipment sales and service, cooperative storage facilities.
3. In Connecticut, the Farm-to-School Program involves only 13 of the 26 towns in The Last Green Valley. All towns should be participating.
4. State marketing efforts are not sufficient to provide consumers the ability to distinguish foods grown in The Last Green Valley.

#### **Joint Efforts Required to Achieve the Vision:**

1. Market The Last Green Valley Rural Sustainability cluster as an area rich in agricultural businesses; encourage economic development focusing on farming and farm support

service providers such as feed and grain suppliers, equipment sales and repair, meat and produce processors and distributors. Attracting more agricultural businesses creates a critical mass that leads to increased investment in support and related business, all equaling greater regional productivity (Porter).

2. Continue education to all municipal leaders, elected and volunteer, on the fiscal value of agriculture and the benefits of marketing on a regional basis, with special consideration to the high turnover rate in municipal service.
3. Quantify the cost of the loss of agricultural lands, develop a matrix to demonstrate the value of preserving open space and agriculture lands, and publish the data.
4. Research and publish the statistics on agriculture as percent of total economy in The Last green Valley to continue the emphasis on agriculture as an industry.
5. Develop a TLGV AGBusiness Group in response to the 56% of survey responders who said they would find it valuable, with the general purpose being one of promotion and enhancement of agricultural business based on specific needs of those served.
6. Market the region as a place rich in land and water resources, agricultural and related businesses and looking to expand that type of economy.
7. Encourage economic development focusing on farming and farm support service providers such as feed and grain suppliers, equipment sales and repair, meat and produce processors and distributors.
8. Develop new programs to compensate farmers for the public environmental benefits that farmland provides. Manage farmland to maximize the public benefits that can be obtained, e.g. carbon sequestration and nutrient reductions.

Rural tourism is one of the fastest growth sectors in the tourism industry at nearly 6% of the world's GDP (World Tourism Organization).

Connecticut agritourism increased by 237% between 2002 and 2007 (Connecticut Food System Alliance Summit). In Massachusetts, the value of agritourism rose from \$665,000 in 2002 to \$5.3 million in 2007, or nearly 800% (MA DCR).



9. Economic development efforts could also focus on the use of impervious surfaces for food production, e.g. greenhouses set up on paved surfaces, greenhouse or aquaculture operation set up inside of old industrial structures.

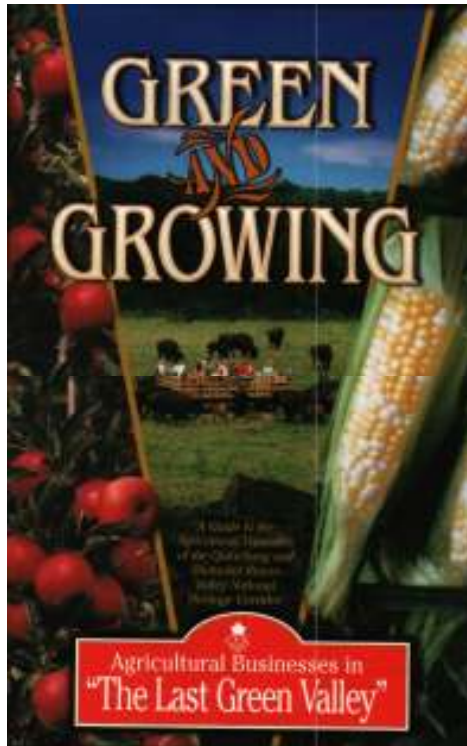
## Agritourism

**Expanded Vision:** Tourism is focused on agriculture, related nature-based recreation, and rural traditions to generate both revenue and advocates for the necessity of sustaining and enhancing agriculture. Visitors experience how agriculture works and develop a keener sense of where their food comes from. Tourism is quantified and reported as an economic driver and encourages diversification of farm activities.

### Strengths:

1. The Last Green Valley is located within two-three hours of a tourism market of 25 million people.
2. The region retains an abundance of land and water resources necessary for successful agricultural businesses and nature-based recreation. A plethora of authentic rural culture is extant in artifacts, architecture and traditions.
3. There are currently over 500 agricultural businesses in The Last Green Valley.
4. TLGV allocates in excess of \$150,000 annual to support tourism, focusing on agritourism and nature-based recreation. TLGV *Visitor's Guide* and website promote farms open to the public, as well as targeted seasonal promotions like Walktober, Winter Wandering and Summer Sunsatons that promote agriculture-related activities like fairs, farm tours and festivals, and other annual events.
5. Major museums in the region present the history of rural life, e.g. Old Sturbridge Village, the Blue Slope Country Museum.

Tourism is a \$1.3 trillion business with 118 million domestic travelers, two-thirds of whom have visited a rural area in the last three years. (Travel Industry of America)



6. Visitor attractions include unique farming experiences, e.g. the Quinebaug Valley Trout Hatchery aqua culture facility that produces more than 600,000 trout per year and offers tours and pond fishing.

**Challenges:**

1. Tourism promotion by the State of Connecticut under serves The Last Green Valley. The state's regional tourism district has been realigned into an incongruous entity that struggles to market the rural assets of the northeast with the shoreline and casinos of the southeast short changing both. The state's budget has been \$1 for the past two years to promote the state as a visitor destination.
2. Farmers often employ workers on a seasonal basis. These workers are hard to retain without competitive year-round salaries. However, sufficient and knowledgeable employees are important in a high-functioning agri-tourism business.
3. Generally, agricultural businesses do not have sufficient marketing plans to attract tourists.
4. Infrastructure to support tourist activities needs to be put in place at the farm, such as sufficient parking, restrooms, and signs.
5. Tourism requires financial investment. It is important that financial institutions, investors and government understand the potential impacts of increased tourism so that agri-tourism can be supported.
6. Liability issues present the greatest obstacles to enhancing existing and developing new agri-tourism businesses.

It is estimated that 2.5% or 52,000 U.S. farms earned income from agritourism in 2004. (USDA Agricultural Marketing Resource Center)

### **Joint Efforts Required to Achieve the Vision:**

1. Provide agritourism entities protection from liability and require sites to post appropriate warning notices, or create a tax credit for a portion of the additional liability insurance required through state government. Insurance pools or cooperatives can benefit the agritourism business.
2. Communicate that with agri-tourism both agriculture and tourism with their separate and substantial impacts combine for a particularly efficient revenue-generating business worthy of appropriate promotional budgets at the state level.
3. Encourage regional and state tourism promotion efforts that maintain contact with agricultural businesses and encourage the development of tourist experiences and packages, e.g. educational experiences like cooking classes or wine tastings; packaging experiences at the farm with local accommodations and restaurants; developing links with museums interpreting the history of rural life.
4. Ensure there is sufficient signage to direct the tourist to the farm, a function of state and local government.
5. Encourage “Adopt a...” programs where tourists pay a fee to adopt an animal, tree, etc. as a personal expenditure or gift. This encourages repeat visits to see the progress of the adoptees, e.g. adopt an apple tree and visit the orchard again in spring to see it in bloom or in fall to pick the apples.
6. Develop “Farmer-for-the-Day” experiences, package and market.
7. Develop region-wide agriculture celebrations with unusual marketing appeal, e.g. Barn Scavenger Hunt, Progressive Farm Dinners.

8. Develop a central ordering, packaging and shipping system for farm products, perhaps an on-line regional market. Example: if a tourist enjoyed last fall's cider, perhaps they would like to order some to be shipped to their home for the holidays. It is a way to continue the experience, create an emotional connection to the farm and will impact future buying decisions.

9. Assist local communities and economic development commissions/committees that drive-by tourism increases patronage at restaurants, service stations, shops, etc. Rural amenities of open fields, farm structures, animals and products translate into economic impacts.

10. Provide assistance to farms open to the public on risk management, insurance and other practical steps needed for public access to the farm.



“ With an unheated greenhouse, I have crops for sale before others have even planted.” (John Pino, Mooarhill Farm, ME)

Michigan Cooperative Extension has experimented with double-plastic, unheated hoop houses in locations throughout the state, 30 x 90 feet, even in the Upper Peninsula. Twelve different crops were grown and the results prove that leaf and root vegetables may be grown year round and the season can be extended by 1 – 1 ½ months for greens and tomatoes. (Hamm)

## Business Profitability and Success

**Expanded Vision:** Agricultural businesses in The Last Green Valley have the knowledge, skills and resources needed to sustain a profitable business. Farms produce high quality and wide varieties of products, thereby enjoying strong consumer demand.

### General

#### **Strengths:**

1. There are a large number of active farms committed to their business; 331 of the 556 contacted agriculture businesses responded to a survey by The Last Green Valley, and the majority indicated they would consider participating in a TLGV organization for agricultural businesses, to expand or diversify their business.
2. The Farmer's Cow, a consortium of six dairy farms, processes and sells dairy products to 300+ retail outlets. Mountain Dairy processes dairy products on its farm and sells to local retail outlets. Wildowsky Dairy processes and sells milk on its farm.
3. Both Uconn and UMass Cooperative Extension Services have staff to assist farmers.
4. USDA Partners in Value Grants are offered through the USDA Rural Development offices to independent producers, farmer or ranch cooperatives, agricultural producer groups and majority-controlled produce-based business ventures. They can be used for planning activities (feasibility studies, business plans for processing and marketing) or for working capital (inventory, salaries, office supplies), and for processing and marketing.
5. Greenhouse technology in New England can support fresh vegetable production year-round, e.g. Backyard Farms in Maine runs two greenhouses covering 42 acres, Pete Johnson's Green in Vermont raises greenhouse crops yielding \$20-\$30,000/acre.
7. Commercial kitchens are being researched and planned in Putnam and Willimantic that will bridge the gap between the grower and the consumer with value-added products.

8. Willimantic Food Coop, one of only two cooperative food stores in Connecticut, has over 6,000 members and focuses on buying local.

**Challenges:**

1. Farmland will face increasing development pressures as The Last Green Valley continues to grow. If agriculture businesses falter, the loss of farmland is inevitable.

2. “In the northeastern states, farmers are twice more likely to live in poverty as the general public; a majority of farmers work at least some days off the farm (in other employment) (Ruhf, 9).” Dairy farms have been losing money on every gallon sold for years (Connecticut Dairy Association). Farm workers have traditionally been among the poorest paid wage earners.

3. Many do not consider farming a viable career path. Some older farmers are finding no one interested in acquiring their farm business and have no alternative but to sell.

4. Many farm owners are working in isolation without a network for communication or peer support.

5. Information on available grants, financing, and other help is scattered as there is no central clearing house of information.

6. With few exceptions, all marketing, purchasing and distribution are conducted by each individual farm.

7. There is no local education program geared to increasing farm owners’ profitability.

8. Nationally, the farmer’s share of retail food dollars averages only 20 cents on the dollar, according to USDA

9. Thriving local farmers markets, where farmers receive retail prices for their goods, makes them reluctant to increase production that would sell at wholesale.



### **Joint Efforts Required to Achieve the Vision:**

1. Market The Last Green Valley Rural Sustainability Cluster to support individual farm prosperity; encourage economic development focusing on farming and farm support service providers such as feed and grain suppliers, equipment sales and repair, meat and produce processors and distributors. Attracting more agricultural businesses creates a critical mass that leads to increased investment in support and related business, all equally greater regional productivity (Porter).

2. Develop an AgInfo website for agricultural business in The Last Green Valley that will (currently under development by TLGV):

- Provide a comprehensive, one-stop internet source for farmers;
- Provide an opportunity for networking farm to farm;
- Provide additional continuing education on topical issues as well as business development issues;
- Provide information on financing, grants and corporate support;
- Provide access to resources from a plethora of institutions and professionals;
- Provide a classified section for resale or trade of equipment and other items, land leasing or sales, apprenticeships, etc.;
- Provide consumers access to products, open-to-the-public farms and farmers markets through an interactive map; and
- Provide email and phone access to the website coordinator for farmers to request additional information.

3. Apply emerging technology to all aspects of agriculture, including the internet, social media, new technology for farm equipment, biotechnology, etc.

4. Form a TLGV AGBusiness Group to support the farm community in response to the 2009 Farm Survey data. Some of its activities might include:

There are only four CSAs in Windham County, CT.

Holcomb Farm Community Supported Agriculture project produced 32,000 pounds of vegetables on five acres in its first year. ([holcombfarmscsa.org](http://holcombfarmscsa.org))

- Host Ag-Roundtables to determine the resources needed at the regional level and to solicit potential partners to fill that void.
  - Attract new businesses, match farmer needs to available land across town boundaries; maintain web-based exchange database.
  - Increase farmer-to-farmer communication.
  - Assist with grant writing.
  - Promote buying local, and market The Last Green Valley agricultural businesses.
5. To increase gross sales for individual farms, explore diversification and/or expansion opportunities, including:
- Additional crops and alternative meat/fish production such as fish farms, hydroponics, organic foods, hoop houses, bison and elk.
  - Wholesale opportunities
  - Potential additional crops made possible by a warming climate
  - Non-food crops to increase production capabilities such as bio fuel, fiber, stove pellets and lumber
  - Value-added processing to increase market potential such as cereal, frozen foods, jam, and wine
  - Accessible meat and poultry processing
6. Encourage innovation in agriculture. Develop AGnovation, a partnership among TLGV, financial institutions, communities, agricultural businesses and support businesses.
7. To decrease farming costs, explore potential cost saving measures, including cooperatives. Share information with Last Green Valley farms on these findings; provide examples and lessons learned from other areas. Support the resulting efforts.

“**Purchasing Co-ops** use volume to obtain inputs such as seeds, fertilizer, fuel, feed, and so on for their members at a lower cost.

**Equipment Co-ops** allow members to invest as a group in specialized equipment and share its use.

**Facilities Co-ops** share facilities such as aging caves, storage, cellars, shared kitchens, etc. to allow small producers to achieve economies of scale. **Processing Co-ops** share fixed or mobile slaughter-houses and cut and wrap facilities for preparing meat, poultry and fish for market; (also share freezing and canning fixed or mobile units, refrigerator trucks and shaved ice units).

**Value-Added Co-ops** allow farmers to capture a larger portion of the retail market by processing products into cheeses, breads, packaged fruits and vegetables and prepared foods. **Marketing Co-ops** pool package, promote, sell and transport members’ products and assure quality and health standards.” (Cooperative Development Institute).

7. Research the market demand for less traditional agricultural products such as fiber, hemp, hydroponics, fish farms, bio fuel, stove pellets, etc. Encourage business that fills that demand.
8. Encourage farmers’ markets and Community Supported Agriculture farms (pre-purchased).
9. Expand CSAs as a way to guarantee sale of crops for annual planning purposes for the farmer as well as to serve the immediate consumers in The Last Green Valley.
0. Facilitate year-round production and winter CSAs using examples of products grown in Michigan, Vermont and Maine.
11. Market directly to schools, hospitals, nursing homes, restaurants, and grocery stores. Develop ordering and delivery system that benefits producer and consumer.
12. Develop a Mastering the Business of Agriculture (MBAg) program, a multi-session in-depth education program to provide farmers with the knowledge they need to increase the economic viability of their business, including budgeting, financing, marketing, and legal issues, and business planning for their own farm. Attendees will receive an MBAg certificate.
13. Develop a Farm Viability Pilot Program to help sustain active commercial farming on land protected by PDR or similar easement by delivering technical assistance and business planning to improve productivity and farm viability.
14. Provide succession planning and protecting family lands workshops as a resource for older farmers, and facilitate the entry of new farmers in the region.
15. Provide education on risk management opportunities including health and liability insurance and business financing.
16. Promote renewable energy sources as an integral part of agricultural operations.

## **Best Management Practices**

**Expanded Vision:** Pesticide and fertilizer best management practices (BMPs) are utilized in agricultural operations throughout TLGV. Nutrient waste management plans are adopted by independent producers and at the regional level, and lead to innovative projects that produce marketable products and energy.

### **Strengths**

1. Sustainable agriculture practices that encourage the wise use of natural resources are an integral part of an enduring, viable foodshed in New England.
2. Agricultural producers in the region are beginning to explore ways to use farm waste for energy.
3. Integrated Pest Management (IPM) practices and/or organic growing methods can minimize or eliminate the need for commercial pest control applications.

### **Challenges**

1. Farm waste management is a problem in The Last Green Valley. Not only are waste materials unhealthy, they load nutrients into the ground and surface water. The situation is compounded by terrain, seasonal freezes and proximity to non-farm lands and neighbors.
2. Commercial fertilizer usage in Connecticut and Massachusetts has remained relatively constant. They have detrimental effects on the environment and health over time. It is estimated that 50% of surface water pollution comes from agriculture nutrients. (Ruhf, 22).





3. Most farmers use commercial pest control products that degrade surface and ground water, damage habitats and adversely effect health. In Connecticut and Massachusetts lower amounts of herbicides and were used over the 1990s, but the level of fungicides was constant (Ruhf, 22).

4. Agricultural viability pressures increase the need for pesticides and fertilizers.

**Joint Efforts Required to Achieve the Vision:**

1. Promote use of nutrient management Best Management Practices for protection of natural resources.

2. Promote use of pesticide BMPs for protection of natural resources.

3. Assist producers with the development of marketable products to reduce excessive nutrient impacts to water quality.

4. Partner to develop a Regional Nutrient Management Facility to reduce impacts to water quality.

5. Expand the use of anaerobic digesters to breakdown the organic elements of manure and produce methane that can be used to fuel generators or heating systems and produce fertilizer. A “Woodstock Anaerobic Digester Business Center Plan” has been developed for a large dairy farm in The Last Green Valley and next steps are being explored. Two anaerobic digesters have been constructed at Connecticut dairy farms and the first two anaerobic digester systems at dairy farms in Massachusetts are currently under construction. (Energy BMP Guide, p. 58 and MDAR Feb/March Farm & Market Report). These systems can be studied for their suitability in The Last Green Valley.

6. Advocate for a regional composting facility.

“Biomass is a term used for any type of renewable, non-fossil fuel that comes from organic matter. Common biomass types include wood, paper, yard clippings, agricultural residues, switch grass, and animal waste... Biofuel is biomass that has been converted to liquid or gas. Ethanol and biodiesel are the most common biofuels in use throughout the U.S... For the farm, the most familiar example is a methane digester (a type of anaerobic digester) which solves the manure-disposal issue on dairy farms while also generating income for the farmer.” (Energy BMP Guide p. 57-58).

7. Convert agricultural and municipal wastes in to a combination of energy and carbon sequestration products like biochar, creating new business opportunities in The Last Green Valley. (See Energy).

### **Energy**

**Expanded Vision:** Renewable energy sources are used and produced by agricultural operations in order to maximize profits. Agricultural operations are as energy efficient as possible.

### **Strengths**

1. The Connecticut Farm Energy Program (CFEP), a collaboration between the USDA Rural Development program and the Eastern CT Resource Conservation and Development Area, Inc., has just published a new “Energy Best Management Practices Guide” tailored to agricultural practices in the region. Substantial savings in energy costs can be obtained following the recommendations in the Guide.
2. The CFEP website, [www.ctfarmenergy.org](http://www.ctfarmenergy.org), serves as a resource of information on energy, grant opportunities, audits and events for agricultural producers and small businesses. CFEP also provides grant writing assistance to agricultural producers and small businesses for USDA Rural Energy for America Program (REAP) grants.
3. A local/regional distribution system will consume less energy in transporting products from The Last Green Valley to consumers because the products are produced closer to the consumer.
4. Using renewable energy can reduce energy costs by offsetting payments for electricity, diesel, propane or natural gas. Wind, solar, geothermal energy and biomass technologies have fewer environmental impacts than energy generated from burning fossil fuels. (Energy BMP Guide, p. 51).

“Biochar is a charcoal produced from biomass. In some cases, the term is used specifically to mean biomass charcoal produced via pyrolysis (incineration to decompose organic matter in the absence of oxygen)...(and) having properties comparable to coke and is virtually sulphur free...has a higher heating value than many grades of coal...it is a ‘green’ fuel that is CO<sub>2</sub> neutral.” (Oilgae).

Biochar is “Charcoal that is used to nutritionally supplement soil.” (Wiktionary)

“...a highly porous charcoal made from organic waste.” (CNN).

Biochar may be used to fuel heaters, furnaces and boilers, as well as augment soil. U.S. Biochar Policy includes funding for biochar demonstration projects.

5. There is the potential to convert agricultural and municipal wastes in to a combination of energy and carbon sequestration products like biochar, creating new business opportunities in The Last Green Valley.

6. Connecticut has a goal of securing 27% of its electricity from renewable sources by 2020, and has a number of grants and financing programs. (Energy BMP Guide, p. 51). Massachusetts has a goal of achieving 250 MW of solar power installations by 2017, and 2000 megawatts of wind energy by 2020, and also offers financing and tax incentives. (Mass. EOEAA website).

### **Challenges**

1. The rising cost of energy has a negative impact on farm profitability.
2. Dairy farms have among the highest energy use of all types of agriculture. Poultry growers also generally use a lot of energy, second only to dairy. (Energy BMP Guide, p. 8 & 25).
3. Renewable energy technologies often require substantial up-front capital investments. An anaerobic digester can be a multi-million dollar investment. (Energy BMP Guide, p. 58).

### **Joint Efforts Required to Achieve the Vision:**

1. Assist agricultural producers and businesses in achieving maximum energy reductions and efficiency for their existing operations.
2. Promote renewable energy sources as an integral part of agricultural operations. Help producers develop renewable energy products to improve sustainability and

Farming use 12% of total U.S. petroleum supply, more than any other single industry.

More energy is now used to produce synthetic fertilizers than to till, cultivate and harvest all U.S. crops.

It takes 78 calories of fossil fuel to get one calorie of protein from beef; it takes two calories of fossil fuel to get one calorie of protein from soybeans.

The average American mouthful travels 1,300 miles from field to plate, mostly by truck. The average semi-tractor gets 5.6 mpg.

It takes 430 gallons of water, .44 gallons of gasoline, and 6.9 pounds of feed grain to produce one pound of factory pork.  
( Ruhf, 25)

reduce energy consumption through innovative partnerships that promote the latest technologies.

3. Encourage development of innovative waste management programs that can produce useable energy as a byproduct and create new business opportunities in The Last Green Valley. (See also Best Management Practices.)
4. Consider energy efficiency in all aspects of our food system. Green alternatives to production, processing, packaging, marketing, and distribution need to be developed, produced affordably, and used.
5. Advocate for efficient local and regional distribution systems to reduce the use of fossil fuels and reduce emissions.

### **Infrastructure**

**Expanded Vision:** Impediments to infrastructure development have been removed through successful and creative collaborations. Systems are maintain in an efficient manner to maximize resources, use time efficiently and deliver high quality product to consumers.

### **Strengths:**

#### Processing:

1. There is a considerable amount of building stock available in The Last Green Valley that could be converted to processing and other infrastructure needs. Most exist in the “river” towns, where highway access, public water and sewer already exist.
2. In May, 2010, Connecticut passed the “Pickle Bill” which recognized the USDA exemption for small poultry processors to “sell dressed poultry and other poultry



products directly to consumers, restaurants and hotels (*Hartford Business Journal*, July 14, 2010).

3. Commercial kitchens are being researched and planned in Putnam and Willimantic that will bridge the gap between the grower and the consumer with value-added products.

#### Labor

1. First Pioneer Farm Credit provides logistical support like bookkeeping and payroll, as well as financing for operations.

#### Distribution.

1. There are 11 million people residing in southern New England, all within 1-2 hours of The Last Green Valley. Within a 3-hour radius live 25 million. This population represents a huge market for products grown or raised in the region if the products can be efficiently distributed to them.

2. The Last Green Valley is positioned in the midst of the largest cities in southern New England, with major interstate routes allowing accessibility to markets.

3. Willimantic Food Coop, one of only two cooperative food stores in Connecticut, has over 6,000 members and focuses on buying local.

4. Large supermarket chains are getting involved in the “buy-local” campaign. Walmart Supercenters are competing with specialty food stores like Whole Foods offering similar prices but higher grades of products than most supermarkets (*Atlantic*, March 2010). “Heritage Agriculture” encourages farmers within a day’s drive of its Wal-Mart’s warehouse to grow crops. The goal is to sustain small and medium farms. While Walmart may pay more for local, it saves in transportation costs and can order in smaller quantities. Shelf life may also be extended by buying closer to the warehouse.

“Farm labor availability, or lack thereof, is an enormous challenge in the Northeast, despite our large population base. This problem is very difficult to solve, but at minimum, it involves forging alliance among the region’s farmers of all sizes and commodities, farm work and labor organizations, and employment and training programs. (Ruhf, 67).

Migrant farm workers are among the most economically disadvantaged and most medically vulnerable groups in the United States having little, if any, access to health care or medication. In addition to the barriers to access health care that many citizens meet like affordable health insurance, language barriers, and lack of transportation, migrant workers also experience additional barriers such as fear of deportation.” (University of Connecticut Center for Public Health and Health Policy).

5. There are on-line farmer’s markets that promote selling locally-grown to consumers, e.g. Shared Harvest Connecticut [www.sharedharvest.net/connecticut](http://www.sharedharvest.net/connecticut) and Connecticut Farm Fresh Express, <http://ctffe.com>. Other on-line resources include the Connecticut Buy Local Campaign.

### **Challenges:**

#### General

1. There is a lack of cooperatives across the board for agricultural business support.

#### Processing

1. Meat and poultry processing is not easily accessible and present facilities are over scheduled. This is a problem throughout all of the northeastern states from West Virginia to Maine. Regulations are complicated and vary from state to state.

#### Labor

1. Sufficient, high-quality farm labor is a perennial problem involving issues of wages, conditions, benefits, training/education, housing and energy, transportation, childcare, and sometimes immigration laws and their reform. There is competition from other employment sectors, including related ones in the food industry, food service, processing and distribution. (RUHF, 67).

2. Farm workers have traditionally been among the poorest paid wage earners.

#### Distribution

1. Food has to be accessible to consumers. There is a need to get local food to the market. Only 2-3% of consumers shop at Farmer’s Markets (*Courant*, April 8, 2010). Food deserts exist both within and surrounding The Last Green Valley.

“Next steps for healthy food system development in the Southwest region (Vermont) include building infrastructure, such as ‘food centers’ that serve as depots for farmer food aggregation. Food centers feature refrigerators/freezers/packing and processing equipment, value-added production kitchens, and community-owned grocery stores, providing access in the many rural food deserts...The food center theme is at the heart of innovation in the Northeast, as well. Massachusetts-based CISA (Community Involved in Sustaining Agriculture) connects farmers to institutions and schools, provides technical assistance, and collaboratively supports infrastructure development.” (DeLuca).

2. Geography plays a role in the freshness and health of food and the access consumers have to it. There are hundreds and often thousands of miles separating the consumer from the farm. (See also Food Safety and Security.)

- At any time, there is only 3-7 days supply of food on grocers’ shelves (Stop and Shop store manager).
- 95% of all good and 85% of all food is trucked into New England (John Filchak, NECCOG).
- “Conventional food systems use 4-17 times more fuel than local/regional food systems, depending on the system and truck type” (Ruhf, 25).
- “A national food system releases 5-10 times more CO<sub>2</sub> from burning fuel than a local/regional food system. Transportation costs equal 6-12% of the consumer dollar spent on food consumed at home.” (Ruhf, 50).
- Only 20% of the total energy used to feed us is consumed on the farm. The rest is spent processing the food and moving it around (Pollan, 183).

3. A large portion of the nation’s food system is controlled by a few mega corporations.

- Four companies control 89% of the cereal market.
- Four meatpacking companies control an estimated 79% of cattle slaughtered.
- Four companies control 49% of the broiler industry.
- An estimated 10 cents of every food dollar goes to Phillip Morris.
- Two companies control 50% of grain exports.
- Thirty-five percent of the fluid milk market is controlled by four companies.
- New York State orchards produce nine times the number of apples consumed in New York City yet they supply a mere 3.4% of the apples eaten in New York City.
- There are only 12 major food retailers in the entire world. Number one is Wal-Mart. (Ruhf, 37, 47)

4. Distribution and transportation systems are minimal within The Last Green Valley, although Agrimark transports milk. Most systems are serendipitous and arranged farmer to farmer.

**Consumer cooperatives**, usually a retail purchasing group where the members benefit from increased buying power, as well as shared earnings from profits.

A **worker cooperative** is an organization owned and operated by workers in which workers are empowered to better management structure, innovation and high levels of productivity. This is one of the fastest growing cooperatives around the world.

**Producer cooperatives** are owned and operated by producers working individually or representing a group. It offers members expanded marketing opportunities and more efficiency in production. After paying for operational expenses, expansions and reserve deposits, it operates on a cost basis for its members.

**Business Owned Cooperative** is owned by a group of businesses for their mutual benefit, such as to increase purchasing power at great savings, lower administrative costs, and guarantee levels of purchases to providers. It is run by an elected Board of Directors and is commonly used by telecommunications and utility industries. (Cooperative Development Institute).

5. While there may be an opportunity to sell to Walmart and other large stores who recognize the value of offering local products, farmers must be able to assure they can grow quantity and quality, be competitively priced even if they don't meet the price of the "mega farm," and be able to transport from farm to warehouse.

### **Joint Efforts Needed to Achieve the Vision:**

#### General

1. Market The Last Green Valley Rural Sustainability Cluster to support individual farm prosperity; encourage economic development focusing on farming and farm support service providers such as feed and grain suppliers, equipment sales and repair, meat and produced processors and distributors. Attracting more agricultural businesses creates a critical mass that leads to increased investment in support and related business, all equally greater regional productivity (Porter).
2. Encourage and facilitate the development of cooperatives to fill infrastructure needs.

#### Processing

1. Build a regional commercial kitchen to process, prepare and distribute to local markets and direct end-users such as restaurants, retailers, schools and other institutions.
2. Work with communities to research economic development data to focus on investment opportunities for processing and repurposing of building stock. Processing considerations should include:
  - What varieties can be processed into what end products
  - Ways to operate as much of the year as possible, seasonal adaptability
  - Investment in versatile equipment that can handle many types of fruits and vegetables.
  - Juicing, canning, freezing, dehydrating (very high value end product)
  - Keep it simple – lower costs and maximize versatility.
  - Location should be close to farms, close to markets, with adequate water
  - Consider using by products for energy alternatives or compost



- Hire expertise who will understand the chemical changes that are factors in processing foods and other raw materials
- Exercise pollution control; filter and reuse water, control noise and odors.

3. Establish multi-state processing regulations and inspectors for Connecticut, Massachusetts and Rhode Island. Expand and simplify interstate commerce regarding food products in Connecticut, Massachusetts and Rhode Island.

4. Encourage cooperatively owned and shared mobile units for processing, packing, icing, and trucking. For example, a quick freeze unit or shaved ice for fruit and vegetables on the farm, USDA mobile meat/poultry processing unit that travels from farm to farm.

5. Promote the reuse of previous processing units that have gone off line.

6. Encourage the development of multi-purpose processing units that can handle meat, poultry, vegetables and fruit, perhaps even fiber.

7. Encourage changes in zoning and the access to financing (USDA Rural Development Value-Added Producer Grants) to support commercial enterprises on farms like value-added.

#### Labor

1. Use cooperatives to address labor issues, including but not limited to training, placement, housing, transportation, benefits, insurance, legal assistance, immigration assistance, payroll record keeping, internships/apprenticeships. Develop a relationship between the labor cooperative and educational institutions to provide certificate programs for special work, e.g. fruit tree pruning and spraying.

2. Explore risk management opportunities including health and liability insurance.



### Distribution

1. Develop regional ordering and delivery systems that benefit producers and consumers and allow greater sales to local grocers, restaurants, and hospitals, schools, and other institutional buyers.
2. Expand and simplify interstate commerce regarding food products in Connecticut, Massachusetts and Rhode Island.
3. Develop an entity to create a “local food hub” to aggregate local products to reach critical mass for market delivery to larger outlets such as Stop and Shop or Walmart. Create wholesale farmer’s markets.

### **Government**

**Expanded Vision:** Farmers have a voice in governmental decision-making. There is a mutual understanding between decision makers at all levels of government and farmers resulting in the development of effective policies and legislation to support rural sustainability in The Last Green Valley.

### **Federal and State Government Strengths**

1. Expansion of The Last Green Valley’s food system is supported by recent shifts in federal law and policy that support local food production. The 2008 Farm Bill (Food, Conservation and Energy Act of 2008) contains new policies and programs including more support for farmers’ markets, community food projects, improved nutrition in schools and prioritized financing for farms that produce local food. (Success in the 2008 Farm Bill).
2. In response to the 2008 Farm bill, the United States Department of Agriculture (USDA) has launched an initiative to promote regional and local food systems entitled, *Know Your Farmer, Know Your Food*.

The New England Governor's Council, Inc. directed a Blue Ribbon Commission to develop a report on land conservation that resulted in the development of the New England Farm and Food Security Initiative (NEFFSI), whose purposes are to keep farmland in farming to protect the region's agricultural land base, determine the region's capacity and barriers to increased production, use and consumption of New England grown farm and food products, and identify barriers to and opportunities for expanding regional agricultural production and consumption.

*This is a USDA-wide effort to create new economic opportunities by better connecting consumers with local producers...USDA wants to foster the viability and growth of small and mid-size farms and ranches, and we want to create new opportunities for farmers and ranchers by promoting locally produced foods. We also want to build the infrastructure necessary to support a local food system, and we'll need local partners to do that. (USDA, Know Your Farmer, Know Your Food website).*

3. The 2008 Farm Bill and USDA's heightened emphasis on regional and local foods systems, if backed by substantive regulatory reforms and financial incentives, represents an important opportunity for The Last Green Valley's agricultural community.
4. The Last Green Valley's farmers in Connecticut have easy access to USDA offices within the region: Rural Development (Norwich), Farm Service Agency (Brooklyn, Norwich), Natural Resources Conservation Service (Brooklyn, Norwich). Farmers from TLGV towns in Massachusetts must travel further. These offices can provide assistance navigating the federal regulatory and grant programs.
5. USDA has compiled a list of funding resources that support its *Know Your Farmer, Know Your Food* initiative. This list, summarized in the Appendix, represents a mix of grant and loan programs that can be used to support agricultural expansion in The Last Green Valley.
6. Connecticut and Massachusetts congressional leaders have the ability to make a positive impact through committee and caucus assignments yet to be determined in the 112<sup>th</sup> Congress. Congressman Joseph Courtney is a member of the Congressional Dairy Farmers Caucus, which advocates on behalf of issues important to the future of our domestic dairy industry, and has recently been appointed to the House Agriculture Committee.

7. Both the Massachusetts Department of Agricultural Resources and the Connecticut Department of Agriculture have well-established buy local campaigns: Massachusetts Grown and Fresher; and Connecticut Grown – The Local Flavor.

8. Both states have statutorily-established promotional and policy-making boards and councils that could be used as vehicles to support agricultural expansion in The Last Green Valley.

Massachusetts has a Fruit & Vegetable Nutrition Council, Agricultural Land Preservation Committee; Board of Food and Agriculture; Dairy Promotion Board; Farm Technology Review Commission; Pesticide Board; and State Reclamation and Mosquito Control Board.

Connecticut's legislature has established one of the nation's only Food Policy Council. The Council's goals are to recommend and support legislation that promotes food security, educate the public and policy makers about our food system, and promote the preservation of farming and farmland. Membership is established by legislation.

Connecticut also has established the following boards and councils: Apple Marketing Board; Farm Wine Development Council; Marketing Authority; Milk Promotion Board; Seafood Advisory Council; Farmland Preservation Advisory Board and Milk Regulation Board. There is also a Governor's Council for Agricultural Development that is currently inactive.

9. In the last few years, Connecticut has introduced and expanded a number of new programs designed to promote local agriculture, including the Agriculture Viability Grants Program, Farm-Link, Farm-to-Chef, and Farm-to-School programs. (Plowing Ahead).

10. Massachusetts has been a leader in helping to establish municipal agriculture commissions. 140 communities have established agriculture commissions and a new



*Across America, communities are uniting to protect the places they love, and developing new approaches to enjoying and saving the outdoors...The federal government, the national's largest land manager, has a responsibility to engage with these partners to help develop a conservation agenda worthy of the 21<sup>st</sup> century. We must look to the private sector and nonprofit organizations, as well as towns, cities, and states, and the people who live and work in them, to identify the places that mean the most to Americans, and leverage the support of the federal government to help these community-driven efforts to succeed.*

*President Barack Obama  
April 16, 2010*

association of agriculture commissions was formed in spring 2010.

11. Both Connecticut and Massachusetts have enacted state statutes that allow for the assessment of farm and forest land at values below current market rate for the “highest and best use” of land. (Public Act 490 in Connecticut and G.L. Chapters 61 and 61A in Massachusetts).

12. Both Connecticut and Massachusetts have enacted legislation recognizing the federally-designated National Heritage Areas as State Heritage Areas. The legislation directs each state agency to consider the heritage areas in their planning and project. The Massachusetts legislation specifically authorizes appropriations for the heritage areas. (CT PA09-221, MA Chapter 272 of 2010).

### **Federal and State Government Challenges**

1. There are an overwhelming number of federal agencies involved in agriculture and food safety regulation. USDA alone encompasses 31 major agencies and offices that have a role in the promotion and regulation of agriculture.

The FDA Food Safety Modernization Act was passed in 2010 to improve capacity to present food safety problems, detect and respond to food safety problems and to improve the safety of imported foods. Despite the positive expansions of FDA authority and oversight contained in the legislation, “The United States food regulatory system has developed piecemeal over the last century, generating new rules and regulations in response to emerging food problems....a total of thirteen federal agencies play ancillary or supporting roles in the regulation of food safety...” (The National Agricultural Law Center, *Food Safety – An Overview*).

2. Additional federal agencies touch many aspects of the food system: the Environmental Protection Agency (EPA) is responsible for implementing the Clean Water Act (wetlands, wastewater discharge permits, nonpoint source pollution), Clean Air Act (emerging CO<sub>2</sub>

regulation), Federal Insecticide, Fungicide, and Rodenticide Act (pesticide registration), and Comprehensive Environmental Response, Compensation, and Liability Act (cleanup of contaminated sites and spills). (Springsteen). EPA also regulates solid and hazardous waste handling and disposal under the Resource Conservation and Recovery Act. The U.S. Army Corps of Engineers also has authority regarding wetlands alternation.

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are responsible for implementing the Endangered Species Act (prohibits the taking of listed species and protects habitat). (Springsteen). The U.S. Federal Trade Commission, the Bureau of Tobacco, Tax, and Trade within the Department of the Treasury (wineries, breweries) and the Department of State are also involved with food labeling (The National Agricultural Law Center, *Food Labeling – An Overview*).

3. Federal regulatory programs overlap with state regulatory programs to produce a confusing array of programs. Even though 13 federal agencies are responsible for food safety, state and local agencies must also be involved, as “State regulatory agencies are primarily responsible for food sanitation and safe food handling by food retailers, foodservice providers, and food-vending operations” (NALC, *Food Safety – An Overview*).

Meat and poultry processing provides a prime example of the intersection between federal, state, and local agencies. The intricacies of the process are explained in “Farmer’s Guide to Processing and Selling Meat or Poultry in Connecticut.” Yet in the short time the Guide has been available (since March 2008), the state’s poultry processing rules have changed and the Guide already needs to be updated.

4. There are an equally overwhelming number of federal statutes and regulations that must be navigated in order to expand agricultural businesses. Approximately 20 federal statutes and regulations have some bearing on food safety (NALC, *Food Safety – An Overview*).



Current federal farm and food policy has fostered industrialization, concentration, corporatization, and globalization at the cost of environmental stewardship, local economies, the family farm, and consumer control. And federal policy has continually shortchanged, if not ignored, Northeast farmers and consumers." (RUHF).

5. These laws and regulations are constantly changing. For example, the 2008 Farm Bill expires in 2012 and many organizations are already working on draft language for 2012. Some important programs without baseline funding that would expire in 2012 are USDA's Value-Added Producers Grants and many programs that benefit smaller farms.

6. Federal funding for agricultural programs in Connecticut and Massachusetts has taken a back seat for decades. "Historically, federal programs have failed to address the region's (northeastern US) unique agricultural needs. Despite the importance of farms, food and forestry... current federal farm and food policies provide just pennies for our region's producers." (Farmers Union, *A Northeast Farm Bill Agenda*, 2007).

7. Federal price controls and supports have not always benefitted New England farm operations, particularly the dairy industry. In 2009, "Historically low federally set wholesale milk prices were resulting in farmers losing nearly \$1 for every gallon of milk they were selling." (*CT Dairy Industry One Year Later*).

8. Federal and state programs have suffered from severe budget cuts, bonding restrictions, and staffing reductions. For example, after 30 years, the Connecticut program to purchase development rights on farms has only reached 27% of the state goal to permanently preserving 130,000 acres of farmland across the state. At this rate, the program will reach its goal around 2090, by which time continued farmland loss might have made the goal obsolete. (*Working Lands Alliance, Plowing Ahead*).

#### **Joint Efforts Required to Achieve the Vision:**

1. Disseminate information - Provide an easily-navigable, well-indexed website that provides a comprehensive, up-to-date summary of the federal and state agencies, resources, and regulatory programs impacting agriculture in The Last Green Valley. All materials need to be updated on a continual basis. Bring workshops and other educational opportunities to farmers in The Last Green Valley.

“State governments need to put its money where its mouth is, literally! They should purchase locally-grown foods, nursery stock and forest products for state projects and services. Every dollar spent on Connecticut or Massachusetts agriculture products has a multiplier that equals jobs and taxes. Therefore, state contracting restrictions should apply those factors to put local agriculture products on par with other bidders for state contracts and provide assistance with product aggregation and transportation.”

(discussion from the CT Governor’s Agricultural Policy Advisory Group, December, 2010.)

2. Give The Last Green Valley a Voice – Lobby - Maintain close ties to The Last Green Valley’s federal and state legislative delegations to ensure concerns from The Last Green Valley’s agricultural community are heard and addressed. Ensure that progress made in the 2008 Farm Bill to support local farms is not lost in 2012 by working with groups such as the New England Farmers Union. Partner with New England-wide and statewide trade associations to ensure commodity-specific concerns from The Last Green Valley are met. Partner with health-related organizations to address food safety and nutrition issues. Work with state tourism offices to appropriately market the agritourism experiences offered in The Last Green Valley and with the state departments of transportation to adequately sign the resources for tourism in the region.

3. Maintain cooperative relationships and use existing resources wisely. Maintain close ties with federal, state, regional and local partners operating in the Heritage Corridor. Take full advantage of all the existing programs offered to The Last Green Valley agricultural community. Promote the TLGV Rural Sustainability Cluster to partner with regional economic development resources.

4. Develop legal and technical expertise - Cultivate attorneys in The Last Green Valley that have the expertise necessary to handle all aspects of agricultural business and expansion, from land use and environmental law to product labeling, corporate law, tax planning, and landowner liability for agri-tourism operations. Cultivate technical consultants with broad experience in energy efficiency, waste management, land use and so forth. Develop low to no-cost means of delivering critical services.

### **Regional and Municipal Government**

#### **Regional Strengths**

1. In the Connecticut towns, there has been a recognition of the need to work together to achieve goals and stretch scarce resources. In October 2010, the Sustainable Communities Regional Planning Consortium (composed of WINCOG, NECCOG, SECCOG

<b>Regional Government Entity:</b>	<b>The Last Green Valley Towns Served:</b>
North East Connecticut Council of Gov'ts (NECCOG)	Ashford, Brooklyn, Canterbury, Eastford, Killingly, Plainfield, Pomfret, Putnam, Sterling, Thompson, Union, Woodstock.
South East Connecticut Council of Gov'ts. (SECCOG)	Franklin, Griswold, Lisbon, Norwich, Preston, Sprague, Voluntown.
Windham Regional Council of Gov'ts. (WINCOG)	Chaplin, Coventry, Hampton, Lebanon, Mansfield, Scotland, Windham.
Central Massachusetts Regional Planning Commission (CMRPC)	Charlton, Dudley, E. Brookfield, Oxford, Southbridge, Sturbridge, Webster.
Pioneer Valley Regional Planning Commission (PVRPC)	Brimfield and Holland.

and 27 partner organizations) was awarded a Sustainable Communities Regional Planning Grant for Eastern Connecticut from USHUD “to integrate multi-regional plans which address workforce development, transportation, housing, economic development (including agriculture), infrastructure, and land use into an integrated multi-faceted regional plan.”

2. The Northeast Connecticut Economic Partnership includes 20 towns in The Last Green Valley, substantially those of NECCOG and WINCOG. The Partnership completed an updated *Comprehensive Economic Development Strategy* in 2010, including the statement that “agriculture is an important part of the Partnership’s economic profile.” One of the goals of the plan is to “promote economic viability of agriculture in the region through programs which support youth interested in horticulture, creating co-ops, and establishing a value-added products center for year-round processing and selling of local agriculture products.”

3. In WINCOG’s *2010 Land Use Plan*, rural conservation areas are listed as the most important land use category. “Encourage environmentally sensitive farming and forestry activities in areas with productive farmland and forest soils” is one of the policies recommended for rural conservation areas.

4. SECCOG’s *Regional Plan of Conservation and Development 2007* “identifies six industry clusters that are important to the regional economy: Bioscience, Defense, Maritime, Tourism, Creative and Agriculture.”

5. NECCOG’s *Route 169 Scenic Byway Plan* emphasized the importance of agricultural lands and forests from both an aesthetic and economic development perspective. Agricultural uses along National Scenic Byway Route 169 “are encouraged by expanding existing tax abatement programs for dairy farms to other types of agriculture and forestry” and “through creative financing techniques.”

6. PVRPC included strategies in *Valley Vision* to preserve farmlands and support farm businesses by: “Creating programs to protect prime farmlands and incentives to encourage the growth and development of farm-related businesses. Establish local agricultural commissions to coordinate farm preservation efforts...Promote the economic viability of working farms, provide residents with fresh, locally grown produce, preserve prime agricultural lands and soils, maintain farming as a way of life and important component of the region’s economy.”

### **Municipal Strengths**

1. Municipalities value their rural character, of which farmland is a key component. All 35 towns in The Last Green Valley signed the Community Compact in 2002, pledging to protect the nationally significant resources of the Heritage Corridor to ensure the long-term social, economic, and environmental health and vitality of each community.
2. In 2009, 17 Last Green Valley communities expressed support in writing for the development of a locally grown food supply to sustain a safe, adequate and local farm-to-plate continuum for southern New England. Many other communities have expressed verbal support for the concept.
3. In two years, the Advocate Program has successfully helped ten Last Green Valley towns advance agriculture in their communities. The Advocate program is now well-established and with continued funding, the Advocate will be able to assist additional Last Green Valley communities in the future.
4. A number of Last Green Valley communities have formed Agriculture Commissions: Ashford, Brooklyn, Canterbury, Coventry, Mansfield, Southbridge, Sprague, Sterling, Sturbridge, and Thompson. Franklin has formed a joint Agriculture and Conservation Commission. At least four more towns are considering the formation of Agriculture Committees in spring 2011.



5. At least seven communities have enacted right-to-farm ordinances: Brooklyn, Canterbury, Eastford, Franklin, Sturbridge, Thompson, and Woodstock. Hampton will bring a draft ordinance to town meeting for approval in spring 2011.

6. At least twelve towns have agriculture sections in their Plans of Conservation and Development: Ashford, Brooklyn, Canterbury, Chaplin, Coventry, Eastford, Franklin, Griswold, Hampton, Lebanon, Mansfield, and Thompson. Sterling and Woodstock are working on updates that may include a greater emphasis on agriculture in their next revisions.

7. Farms are local businesses and contribute to a local tax base. Cost of Community Services studies have repeatedly shown that farmland and other open space generate more public revenue than they require in municipal services. (AFT). Even when farmland is assessed at its current agricultural use value, farmland generates a surplus to help offset the shortfall created by the demand for public services. (AFT). A review of eight Connecticut studies shows that for each dollar of property tax revenue generated by working lands, only 31 cents is required in municipal services. (AFT).

**Regional and Municipal Challenges:**

1. Marketing communities and businesses on a regional basis as The Last Green Valley will maximize their assets and opportunities.

2. The Massachusetts Last Green Valley towns and their respective planning commissions do not emphasize the importance of agriculture in their planning documents. CMRPC makes only one reference in its planning documents that E. Brookfield, MA, make “every effort...to preserve agricultural lands using tax incentives to keep farms in business. PVRPC has pertinence to only two Last Green Valley towns (Brimfield and Holland, MA) but offers more concrete strategies (see above).

Cost to Provide Community Services per Dollar of Revenue Raised			
Town (year of study)	Residential	Commercial & Industrial	Working & Open Land
Bolton (1998)	1.05	0.23	0.50
Brooklyn (2002)	1.09	0.17	0.30
Durham (1995)	1.07	0.27	0.23
Farmington (1995)	1.33	0.32	0.31
Lebanon (2007)	1.12	0.16	0.17
Litchfield (1995)	1.11	0.34	0.34
Pomfret (1995)	1.06	0.27	0.86
Windham (2002)	1.15	0.24	0.19
<b>Median</b>	<b>1.11</b>	<b>0.26</b>	<b>0.31</b>
<b>U.S. Median</b>	<b>1.19</b>	<b>0.29</b>	<b>0.37</b>
* indicate towns in The Last Green Valley			
(Compiled by American Farmland Trust, <i>Planning for Agriculture</i> )			

3. Most of The Last Green Valley communities value their “rural character.” However, there is no formal valuation of natural or rural amenities by towns. Investigation has shown that there are no working models to evaluate the presence of those amenities in a socioeconomic way. Work needs to be done to develop a framework for making such



valuations in order to support the further preservation and enhancement of working lands (Fleming, et al).

4. There are no regional or local food safety policies to ensure a safe and adequate food supply for residents. According to the 2005 *Community Food Security in Connecticut* report, nearly 23 of the 26 Last Green Valley towns in the state are at below or very below average food security. Factors used to evaluate the risk include transportation, socioeconomic changes and proximity/access to assistance programs. (Connecticut Food Policy Council, et al).

5. Most municipal boards and commissions are run by volunteers, without staff assistance to provide the necessary support to implement tools to promote agricultural viability.

6. The scenic, environmental, and economic benefits of agricultural and forest lands are often taken for granted until it is too late and they disappear.

7. Many Last Green Valley communities do not have agriculture commissions, right-to-farm ordinances, or stand-alone POCDs sections promoting agriculture. Many economic development commissions do not actively cultivate agricultural businesses.

#### **Joint Efforts Required to Achieve the Vision**

1. Promote awareness that The Last Green Valley is a specific bioregion (an area of resources defined by natural rather than artificial boundaries with specific flora, fauna and environmental conditions) and planning needs to consider a regional rather than municipal perspective when conserving land and water resources.

2. Advocate inclusion of the following in all regional planning processes: The American Planning Association adopted the following policies on Community and Regional Food Planning in 2007, requesting that APA, its chapters, divisions and planners support:

- a comprehensive food planning process at the community and regional levels;



- the development of plans for building local food reserves and related activities;
- strengthening the local and regional economy by promoting community and regional food systems;
- food systems that improve the health of the region's residents;
- food systems that are ecologically sustainable;
- food systems that are socially equitable and just;
- food systems that preserve and sustain diverse traditional food cultures of Native American and other ethnic minority communities; and
- the development of state and federal legislation that facilitates community and regional food planning, including addressing existing barriers.

3. Create programs to protect prime forest and farmlands and incentives to encourage the growth and development of farm-related businesses. Support research that quantifies how rural amenities impact quality of life and land values in towns.

4. Develop a region-wide agricultural council where leaders in government (all levels), businesses, emerging farmers, processors, distributors, etc. can work toward truly useful solutions to remove impediments to success and expand agriculture in The Last Green Valley.

5. Provide assistance to Last Green Valley municipalities to:

- Understand agriculture in their town by providing technical assistance to map agricultural resources and identify locally significant agricultural soils, complete agricultural inventories that include identifying the number and types of farms in town, the acres of farmland, the number of people employed by farm businesses, the property taxes paid to allow town officials to understand the value of agriculture in a municipality.
- Designate locally significant agricultural soils.
- Create a voice for local agriculture in municipal decision-making by establishing Agriculture Commissions.
- Recruit farmers to serve on local boards and commissions.

- Include agriculture in their economic development plan.
- Develop a detailed section regarding agriculture in their Plan of Conservation and Development.
- Educate the residents about the quality of life, environmental and economic benefits agriculture brings to a community.
- Implement farm-friendly zoning regulations that support farm-stands and farm retail operations, effective signage, off-farm sales, on-farm processing, compatible businesses (i.e. processing facilities), etc.
- Implement appropriate tax incentives to protect family farms.
- Pass local Right-to-Farm ordinances.
- Develop strategies to protect farmland through purchase of development rights and other conservation and preservation programs.
- Encourage the use of town-owned farmland by local farmers.
- Provide an inventory of farmland that is not in production that can be leased or used by local farmers.
- Implement land use policies (i.e. buffers) that limit land use conflicts between farm and non-farm neighbors.
- Limit fragmentation of farms especially where clusters exist.
- Promote community development in existing growth centers or other areas identified for community growth to reduce fragmentation of agricultural lands and forests, and maintain viable agricultural operations.
- Implement Transfer of Development Rights to protect agricultural lands and focus growth in pilot communities, and eventually implementing an inter-municipal Transfer of Development Rights Program designed to preserve the region's agricultural lands so they are available to feed generations to come throughout the northeast.
- Purchase locally-grown foods for consumption in schools and strive to serve locally-grown foods at events such as fairs and festivals.

## MITIGATE THREATS TO THE FOOD SYSTEM

**Expanded Vision:** Government, agencies, nonprofits and businesses integrate their efforts to maximize resources in mitigating threats to agriculture, including but not limited to climate change, terrorism, infestations, natural disasters, labor strikes, fuel shortages, transportation interruptions, and food access issues. Changes in the climate and impacts on agriculture are understood and incorporated into farming methodology. There is an increase in energy efficiency and independence.

### General

#### **Strengths:**

1. USDA has developed a Risk Mitigation Tool that addresses all aspects of food protection from intentional contamination, e.g. transportation, meat/poultry/egg production, processing, and general food defense.

#### **Challenges:**

1. One of the greatest threats to the food system is that there are no integrated state or regional plans to mitigate threats to agriculture and consumers.

#### **Joint Efforts Required to Achieve the Vision:**

1. Advocate for federal, state, regional and local disaster plans and food safety policies that protect agriculture and food consumers from the adverse effects of natural disasters, terrorism, labor strikes, fuel shortages, accidental or intentional contamination and transportation interruptions.

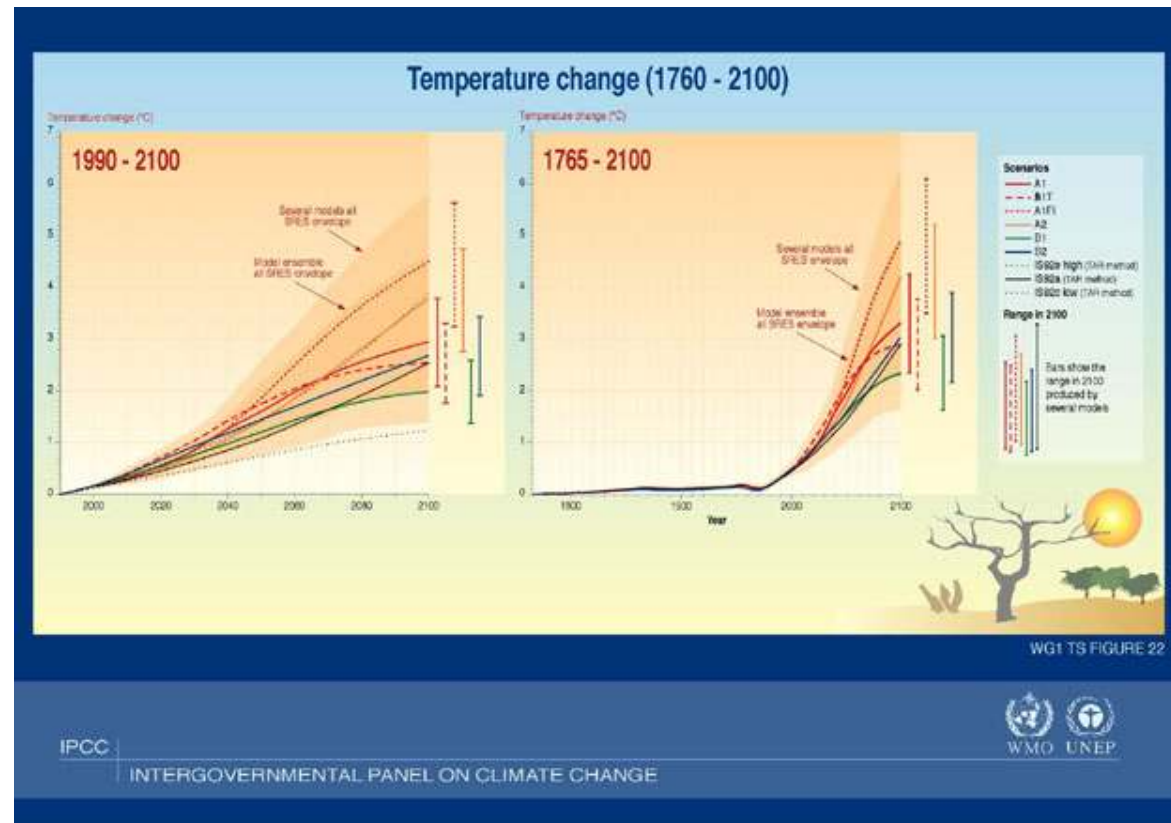
“The global warming observed over the past 50 years is due primarily to human-induced emissions of heat-trapping gases. These emissions come mainly from the burning of fossil fuels (coal, oil and gas), with important contributions from the clearing of forests, agricultural practices and other activities.” (*Myths and Facts Surrounding Climate Change Legislation*, American Farmland Trust)

## Climate Change

### **Climate Existing Conditions and Strengths:**

1. Precipitation in The Last Green Valley is generally distributed equally throughout the seasons, and prolonged droughts and widespread floods are infrequent (Connecticut State Climate Center – CSCC).
2. The Last Green Valley’s climate is also characterized by large ranges of temperature both daily and annually that dictate the types of agricultural products that will naturally thrive. The average daily temperature in 2009 was 48.5 degrees (Northeast Regional Climate Center).
3. Minimum temperatures of zero or below average about 10 days per year at higher elevations, and about five days per year in lower elevations. Summer temperatures are comparatively uniform; the average July minimum temperature is approximately 60 °F. (CSCC).
4. The percentage of possible sunshine averages 55 to 60 percent. About 140 cloudy days occur in an average year. Humidity tends to be lowest in the spring and highest in the late summer and early fall (CSCC).
5. Forestlands will have the greatest success in a warming climate because of the positive effects of higher temperatures and increased amounts of carbon dioxide, although the composition of the forests may change..
6. Forest and farm lands have the ability to sequester carbon from emissions. The Last Green Valley is 78% forest and farmlands.

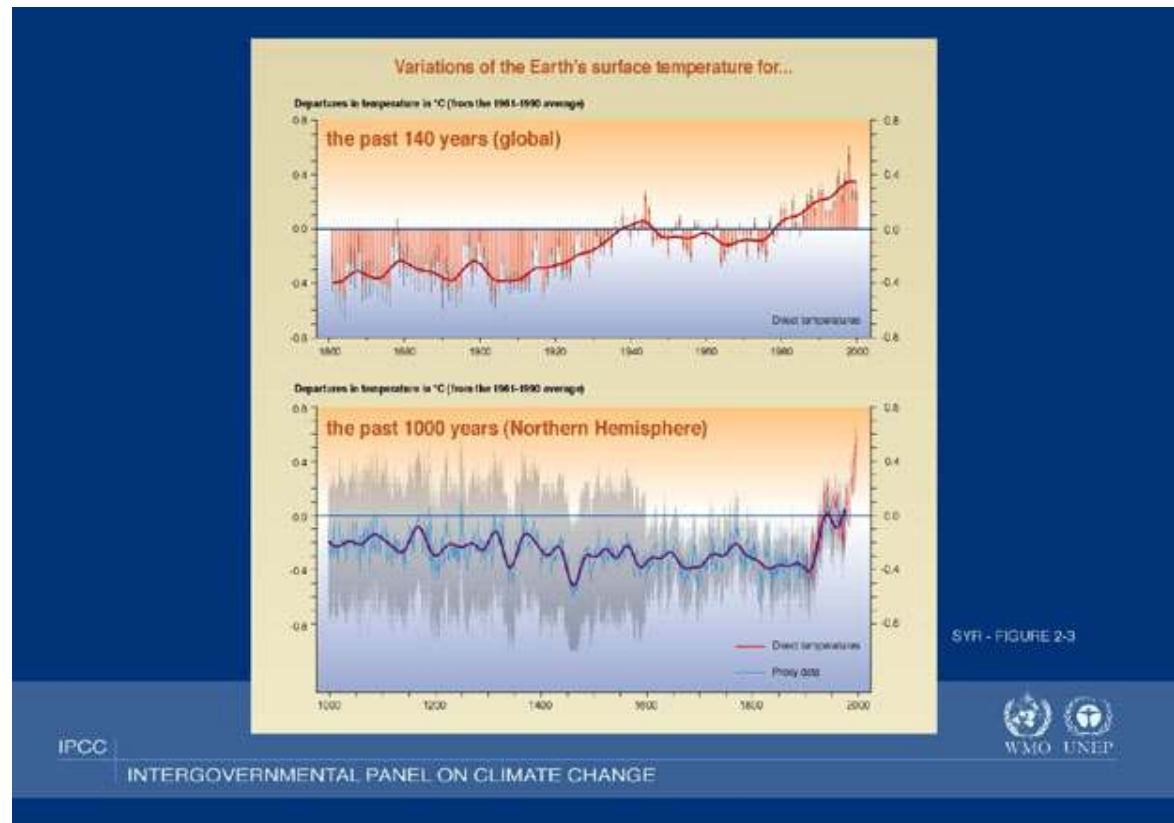
Carbon sequestration removes carbon from the air and deposits it in a reservoir, such as a peat bog, forest, cover crops or under plowed crops. The process of raising plants itself sequesters carbon from the air as carbon dioxide is absorbed by the plant; putting the unused portion of the plant crops back into the soil can store the carbon.



7. Climate changes anticipated include positive points (*Impact of Climate Change on Connecticut Agriculture, 2010*):

- Higher average annual temperature, especially in the summer, will lengthen the growing season, increase crop yields and allow for new crop varieties to thrive, and in the winter will mean less heat is required for greenhouse operations.
- Increase in the total annual precipitation will make more water available for agriculture

The Connecticut Agricultural Experimental Station has been testing specialty crops that might be produced in the state. Over 40 fruits and vegetables varieties have been studied, including okra, broccoli, cauliflower, baby carrots, Belgian endive, radicchio, specialty melons, winter squash, onions, leeks, Chinese cabbage, pak choi, daikon radish, vegetable amaranth, pumpkins, grape tomatoes and various culinary herbs. Crops that are chosen have a high market value and an existing or expanding market that would provide demand for the products.



### Climate Change Challenges

1. Even today, there can be great differences in precipitation in the same season or month of different years, and considerable diversity of weather over short periods of time. Variations in precipitation from month to month are sometimes extreme. Thunderstorms occur on an average of 20 to 30 days per year, the greatest frequency occurring in summer months and afternoon or evening hours. Coastal storms or “northeasters” are the most serious weather hazard in Connecticut. They generate strong winds, heavy rain and produce the greatest snowstorms in the winter (CSCC).



2. Climate changes anticipated to be negative to agriculture (*Impact of Climate Change on Connecticut Agriculture*):

- Increased average annual temperature will also cause more extreme degree days that will need additional heating or cooling.
- While there will be higher average precipitation, there will also be more frequent and longer drought. More available water will come at the cost of less predictability and require conservation measures for drought conditions.
- There will be more intense storms that will have the ability to damage agriculture infrastructure like barns and greenhouses. Increased precipitation in the form of snow would strain barn greenhouse roofs and interfere with transportation.
- Warmer temperatures will increase the season and make the winters warmer but will increase the quantity and type of pests, pathogens and diseases, bring about the decline of maple syrup that needs late winter days that are warm but have cold nights. Warmer summers increase the possibility of droughts and there will be greater evaporation requiring irrigation of crops and watering of livestock. Heat stress will adversely affect livestock, especially milk production, as well as other crops. Greenhouses and barns may require cooling like misters, fans and air conditioning. Heat will affect productivity of farm labor. Heat will foster more rapid food spoilage and require short shelf lives and increased refrigeration.
- Air quality, in particular chronic levels of ozone, will decrease photosynthesis and decrease crop yield, and affect the health of farm labor with respiratory ailments.

3. The products at most risk from climate change in Connecticut are maple syrup, dairy, warm weather produce, shellfish, and apples and pears. “Maple syrup production in Connecticut may be impossible by 2080.” (*Impact of Climate Change on Connecticut Agriculture*).

**Joint Efforts Required to Achieve the Vision:**

1. Research.

Biochar:

- “Charcoal that is used to nutritionally supplement soil.” (Wiktionary)
- “...a highly porous charcoal made from organic waste.” (CNN)
- “Biochar is a charcoal produced from biomass. In some cases, the term is used specifically to mean biomass charcoal produced via pyrolysis (incineration to decompose organic matter in the absence of oxygen)...(and) having properties comparable to coke and is virtually sulphur free...has a higher heating value than many grades of coal...it is a ‘green’ fuel that is CO<sub>2</sub> neutral.” (Oilgae)
- Biochar may be used to fuel heaters, furnaces and boilers, as well as augment soil.
- U.S. Biochar Policy includes funding for biochar demonstration projects.

2. Educate consumers about new varieties of crops and livestock. New varieties of crops and livestock possible in a warmer climate need to be creatively marketed and consumers need to be educated about using new varieties of food.

3. Promote farming practices that anticipate and adapt to climate changes, including organic methods, minimum tillage practices, better manure management and reuse, increasing drainage capacity, capture and storing runoff to use during droughts, and developing new pest control and soil management systems, investment in renewable energy technologies, and recycling.

4. Reduce emissions that contribute to climate change by:

- Advocating for the preservation of working lands for food production and carbon sequestration. Preserve forest lands to reduce air-borne carbon and sequester carbon.
- Supporting organic systems that reduce fertilizers and manage water, making soils more carbon absorbing.
- Expanding the market and demand for local agricultural products to significantly eliminate long-haul transportation costs and emissions.
- Promoting the elimination of greenhouse gases to maintain healthy soil fertility, watershed and pollination. Increase reliance on renewable energy sources and new technologies.
- Convert agricultural and municipal wastes in to a combination of energy and carbon sequestration products like biochar, creating new business opportunities in The Last Green Valley. (See Economic Development).

5. There is the potential to convert agricultural and municipal wastes in to a combination of energy and carbon sequestration products like biochar, creating new business opportunities in The Last Green Valley.

6. More education is required to help communities and farms understand the potential and practical applications of biochar.

60% of all fruits and vegetables consumed in the U.S. comes from foreign sources (8).

75% of all seafood consumed in the U.S. comes from foreign sources (8).

9% of all red meat consumed in the U.S. comes from foreign sources (Sustainable Table).

In previous years, the U.S. imported many more unprocessed food ingredients but now more imported foods arrive “ready to eat” (US FDA, 8).

“We must also consider food as a potential vehicle for intentional contamination (USFDA, 10).”

7. Educate businesses, residents and government leaders about biochar and the potential new endeavors that could process/reuse it, converting present solid waste to reusable energy.

### **Food Safety and Security:**

#### **Challenges**

1. The distant origins of our food create serious safety issues.
  - According to the U.S. Food and Drug Administration’s *Food Protection Plan*, 16 million imported food items come into the U.S. from 150 countries and territories to 300 ports. A very small percentage is inspected. The potential for intentional tampering with food supplies is significant (8).
  - Contamination is easier to control when a food is grown or processed closer to the consumer and distributed within a smaller range (US FDA, 7). One needs to only think about the widespread illness cause by the spinach, tomato/jalapeno, and peanut butter contaminations to see how difficult such contamination is to track and contain when food is distributed over a large area.
  - There has been an alarming increase of food borne pathogens over the past 10 years (see Health).
  - According to the USFDA, large spread contamination is more likely in our present food system because so much food is imported and not inspected (8); per capita consumption of fresh fruit and vegetables has increased by 35% in the last 20 years (7); stores now carry about 558 produce items; 20 years ago it was 178 (7); and there is increased consumption of exotic foods (7).
  - The FDA’s *Food Protection Plan*, is designed for the full life cycle of food – from production to consumption. If that life cycle is as short as possible, then greater food safety can be achieved.

95% of all goods and 85% of all food is trucked into New England, primarily through the metropolitan New York/New Jersey corridor (Filchak). That creates a number of risks to the food supply. Food is less fresh the longer it is transported. At any one time, there is only 3-7 days supply of food on store shelves; fresh foods are received twice per week, staple goods are received weekly (Meinert).

Any weather or homeland security emergency could isolate southern New England from food supplies (Meinert).

2. The present food distribution system has significant transportation concerns.
  - Gas prices reached an all time high in the summer of 2008, a record \$4.10 per gallon (US DOE). These increased transportation costs affected the cost of food. Instability of gas prices in the long-term adds to the potential instability of food prices.
  - Food travels on average 1,500 miles from producer to consumer (Sustainable Table) and this creates many opportunities for intentional contamination of food.
  - Cargo theft results in \$15-30 billion in losses each year, according to the FBI. The cost of insuring such theft is very high and adds to transportation costs (Stop Thief).
  - Global warming is increased by lengthy trucking trips. For example, the Natural Resources Defense Council reports that 270 million pounds of grapes travel from Chile to Los Angeles each year. The 5,900 mile journey releases 7000 tons of pollution that contributes to global warming. That figure does not include additional impacts when the grapes are transported from Los Angeles to local supermarkets across the country (2).
  - “One-fifth (1/5) of America’s petroleum consumption goes to producing and transporting our food” (Pollan, *Omnivore’s Dilemma*, 83).
  - “Only one-fifth (1/5) of the total energy used to feed us is consumed on the farm; the rest is spent processing the food and moving it around” (Pollan, *Omnivore’s Dilemma*, 183-4).
  - “In order to transport food long distances, much of it is picked while still unripe and then gassed to ‘ripen’ it after transport, or it is highly processed in factories using preservatives, irradiation, and other means to keep it stable for transport and sale” (Center for Urban Education about Sustainable Agriculture).

### **Joint Efforts Required to Achieve the Vision**

1. Expand the market and demand for local agricultural products to significantly eliminate long-haul transportation costs and emissions.

## CONSIDERING A SPECIAL CASE: FORESTRY

**Expanded Vision:** The Connecticut Statewide Forest Roundtable developed a set of vision statements in March, 2010 that are adaptable to The Last Green Valley's forest resources:

1. Forest and land use policies will be guided by the fact that all Last Green Valley forests provide important public benefits.
2. The amount of forest protected from development will increase significantly using priority criteria based on core forest areas, forest legacy potential, and vulnerability.
3. The Last Green Valley's forests will contain healthy and sustainable populations of native plants and animals.
4. Public agencies will manage The Last Green Valley's public forestlands to enhance public benefits.
5. Policies at all levels of government will fully support and encourage private forest owners that have environmentally, socially, and economically balanced stewardship goals.
6. Residents of The Last Green Valley will understand and value urban forests as essential parts of healthy urban ecosystems.
7. The Last Green Valley's forests will support a broad spectrum of appropriate recreational activities that attract users from within and from outside the region.
8. The Last Green Valley's forests will be used to stimulate learning about nature and ecology and to demonstrate various sustainable forest management strategies.
9. The Last Green Valley's forests will support a viable forest products industry that provides marketable products from renewable and diverse forest resources.
10. The Last Green Valley's forests will be managed using the best available scientific information and the best available data as the basis for sound conservation and management decisions.





## **Stats and Geography**

1. Forest is the single largest land cover category in The Last Green Valley. Based upon 2006 Landstat satellite imagery, The Last Green Valley contains 707,103 acres of land, of which approximately 474,768 acres, or 67 %, is forested. (CLEAR). This estimate includes deciduous and coniferous forests as well as forested wetland.
2. In The Last Green Valley, the dominant forest type group is oak/hickory (72%), but the single most prevalent species is red maple. (Broderick).
3. Due to historic land use factors, The Last Green Valley's forests are largely timber-sized, with 78% of the trees over 60 years old. The forests are overwhelmingly composed of the saw-timber size class (over 11" diameter at breast height). This trend has been steadily increasing since the early part of the last century, and is an increase of approximately 9% since 1998. (Hochholzer).

## **Strengths**

### **Economic Development**

1. Forests supply lumber and wood for homes, furniture, papermaking, and fuel. Other products include cones, boughs, herbs, medicines, and foods such as mushrooms and berries. (Hochholzer).
2. An overwhelming portion (98%) of Connecticut's forests is considered timberland, or forest land that is capable of producing commercial crops of timber. (Hochholzer). Timberland represents 84%, or 2.6 million acres, of the forest land and 52% of the total land base in Massachusetts (RE Consulting).
- 3 According to the 2008 Connecticut Forest Inventory and Analysis data, over 83% of Connecticut's forests are considered either fully or medium stocked. Connecticut's annual net growth of growing stock trees and annual removals of growing stock are at acceptable levels in relation to each other. (Hochholzer).



4. The average annual removal of growing-stock from Massachusetts' timberland between 1984 and 1997 was approximately 634,141 cords. (RE Consulting).
5. In 2007, 407 Christmas tree farms in Connecticut occupied 3,887 acres. There were 420 Christmas tree farms in Massachusetts on 3,164. (2007 Census of Agriculture).
6. In 2007, 173 maple sugar farms in Connecticut produced 11,732 gallons of syrup. In Massachusetts, 292 farms produced 41,249 gallons of maple syrup. (2007 Census of Agriculture).
7. In 2007 the total value of Connecticut's wood product manufacturing was almost \$244 million dollars. The total value of Connecticut's paper manufacturing was \$1.79 billion dollars. Together, they total over \$2 billion in value. (Hochholzer).
8. The highest harvesting intensity occurs on public lands (federal = 11.52 cords per acre; state water supply = 10.63 cords per acre; and state parks = 8.83 cords per acre) and the lowest on private land (6.81 cords per acre) (RE Consulting).
9. The average annual timber harvest in Connecticut resulting from commercial forest practices between 1997 and 2006 is 41,000 tons of round wood, broken down as 16,000 tons of softwood, and 25,000 tons of hardwood material. These numbers do not include land clearing operations. DEP Forestry estimates that nearly half of all timber harvesting conducted in CT annually is land clearing (Hochholzer).
10. The national rate of wood consumption per person is estimated to be 22.77 board feet annually. Based upon a population of 300,000, TLGV's total annual rate of consumption is estimated at 6,831,000 board feet (Hochholzer).
11. The most recent Connecticut estimates for sustainable woody biomass potentially available for renewable energy production are those from the forest, industrial facilities

(e.g. sawmills, pallet shops, and other primary producers) and urban sources. The amount of forest residues annually available ranges from 109,000 tons to 204,100 tons and the amount of mill residues available annually ranges from 40,000 tons to 91,000 tons. Urban residues range from 246,938 tons to 411,563 tons. Total range of forest residues annually available: 395,938 – 706,663. (Hochholzer).

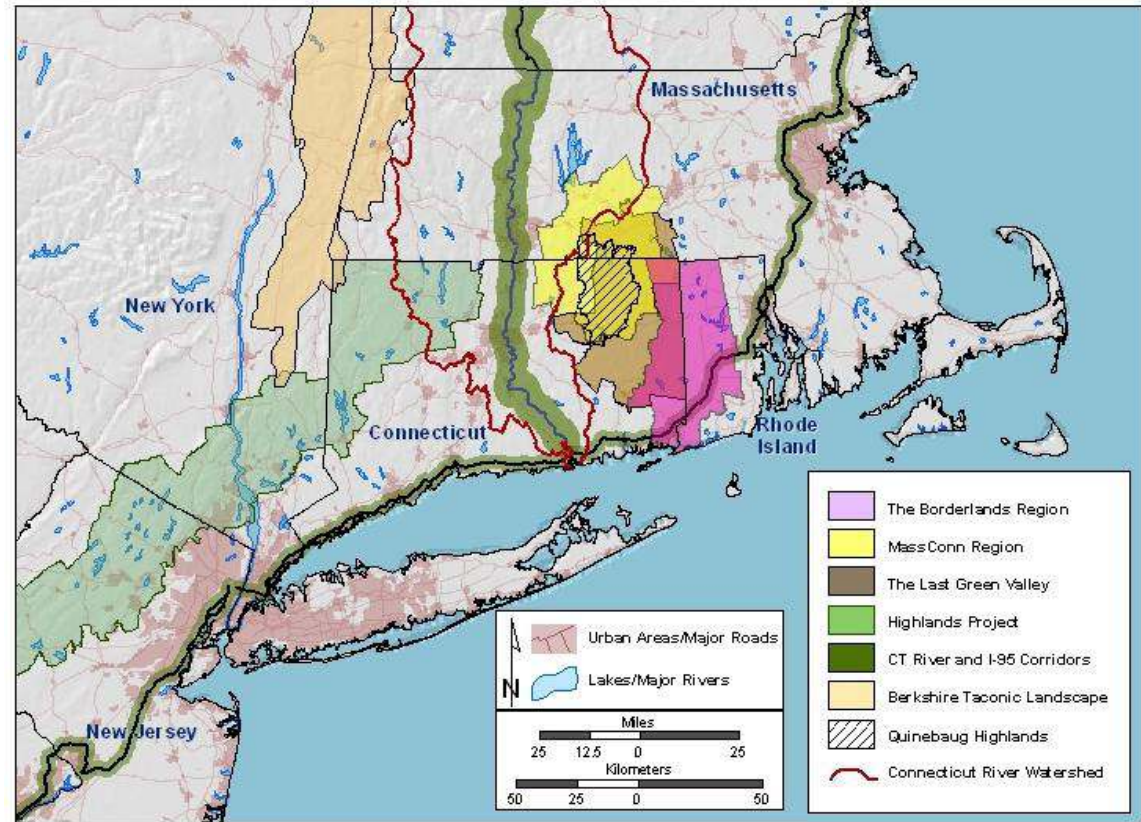
12. Two proposed biomass energy plants are currently going through the permitting process in Connecticut. One 37.5 megawatt project is located in eastern Connecticut (Plainfield) and the other, a 30 megawatt project, is located in western Connecticut (Watertown) (DECD). If these plants come on-line they will need an estimated 675,000 tons of woody residues per year. This may present an opportunity to conduct forestry stand improvement activities that were previously economically unfeasible, and to provide additional jobs to local communities. (Hochholzer).

13. There is at least one plant in the state (Berlin) that manufactures compressed sawdust bricks designed to burn as a substitute for firewood in a conventional wood stove. The plant utilizes waste wood from manufacturing, but is exploring the use of round wood and dryers (Hochholzer). In addition, pellet manufacturing companies outside of the state are entering Connecticut to facilitate collection of raw materials for their facilities. (Hochholzer).

### **Environmental and Public Benefits**

1. Productive forests supply important benefits in goods and services to society. They help create soil and prevent soil erosion, produce oxygen, filter pollutants, protect and enhance water quality, and offer a haven for recreation and spiritual renewal. (Hochholzer).

2. By breaking down bedrock from root growth and creating organic matter, forests can create soil and retain it, in contrast to row crop agriculture, which can deplete soil and cause soil erosion. (Broderick).



Because of extensive forest cover, all of Connecticut's watersheds ranked above average in their ability to produce clean water and provide surface drinking water supplies, and were among the highest in the Northeastern Area for high quality watersheds under development pressure. (Hochholzer).

4. A 2002 study conducted by the Trust for Public lands stated that water treatment costs decreased as forest cover within a watershed increased. The study sites that for every 10% increase in forest cover, up to 60% cover, water treatment and chemical costs decrease by approximately 20%. (Hochholzer).



5. Forests produce clean air and water at a fraction of the cost of manufactured infrastructure built to replace them, such as water treatment plants. (cite? )

6. Forests store carbon. As forests grow, trees and other plants store carbon in their wood, other tissues, and in the soil. In general, forest activities that encourage net tree growth increase the storage of carbon. Forest soils are also a large reservoir for carbon. The conversion of forest soils to non-forest uses tends to release large amounts of forest carbon back into the atmosphere. (Hochholzer).

7. Although 78% of the trees in Connecticut's forests are over 60 years old, from a carbon perspective, Connecticut's forests are considered young forests. The forest base is relatively high in its ability to sequester and store carbon but is still growing and has the capacity to continue to store even more carbon in the decades to come. (Hochholzer).

8. Forests provide recreational opportunities for hunters, fishermen, hikers, mountain bikers, winter sports enthusiasts, and the equestrian community.

9. Public benefits derived from forests (not including timber sales) have been valued at \$984 per acre. (Plowing Ahead, Losing Ground).

### **Government**

1. The Northeast State Foresters Association and the New England Governor's Conference have launched a *New England Forest Initiative to Keep Forests as Forests* that will constitute a new blueprint to protect the region's forest land base and ensure the sustainability of these lands, identify barriers to and opportunities for sustaining forestlands that are in private ownership and expanding forest product production and consumption.

2. The Last Green Valley is included within the Southern New England Heritage Forest designation by the North East Foresters Association and the New England Governor's

planning assistance with a variety of land conservation tools to protect the working heritage of the last remaining rural landscape in Southern New England. The pilot project in this demonstration landscape would require approximately \$22 million.

3. *Wildlands and Woodlands* is a vision for the New England Landscape that proposes to permanently protect 70% of the New England landscape in forests that will benefit current and future generations. Ninety percent of those forests (about 63% of the New England landscape) are proposed to be managed as working woodlands, and ten percent of the forests (7% of New England) are to be set aside as wild land reserves.

### **Challenges**

1. Forest land is being lost in Connecticut and Massachusetts at a steady and continuous rate. Timberland acreage has declined approximately 121,000 acres in Connecticut since 1972. Massachusetts' acreage has also declined.

2. The quality of remaining forest land is being diminished. The ability of Connecticut's forests to provide quality wildlife habitat, clean water, clean air, recreation, tranquility, and economically viable forest products is at least partially dependent upon the maintenance of sizeable tracts of unfragmented forest.

3. Forestland continues to be broken into smaller parcels of forests. In Connecticut, only approximately 46% is considered core forest, defined as being outside the "edge effect, or over 300 feet in all directions from non-forested areas . (CLEAR) Forest land in Massachusetts is heavily fragmented. In 1993, the average ownership size amongst non-industrial private forest owners was 10.6 acres. (RE Consulting).

4. As development starts to devour a continuous forest, only fragments of forest cover remain. Fragmentation results in more edge, more perforations in the canopy, more disruption of forest floor structure and less contiguous or core forest area. These

Conference. This area is proposed to receive focused land use



landscape changes affect forest health, biodiversity, forest benefits and services in a variety of ways. (Hochholzer).

5. Homogenous and fragmented forests are more susceptible to threats from invasive species, deer browse, native insects and diseases, natural disturbances, extreme weather, and erosion.

6. A large percentage of forests (88%) in Connecticut are privately owned. (Hochholzer). The majority of forest land in Massachusetts is privately owned (69%), with 56% of the forest land owned by families and individuals. (RE Consulting).

7. The continued loss of forestlands in Connecticut, due to conversions to other uses significantly impacts the amount of carbon that is being sequestered and stored.

8. Connecticut's (specifically TLGV's?) forests are not well-balanced in terms of either size or age of the forests; young forests and very old forests are under-represented. (Hochholzer).

9. Due to the age of Connecticut's forests, the forests are overwhelmingly composed of the saw-timber size class (over 11" diameter at breast height). This trend has been steadily increasing since the early part of the last century, and is an increase of approximately 9% since 1998. There are potential detrimental effects for forest product sustainability. (Hochholzer).

10. While we are currently at a healthy balance of production versus consumption, this delicate balance will be put under additional pressure with new wood related markets evolving in the state and the region. In the future, demands from various industries (biomass/renewable energy) could outstrip supply in Connecticut. (Hochholzer).

11. The oak/hickory group has historically been the predominant forest type species group in Connecticut. However recent FIA data indicates that red maple, a lower grade timber species, has assumed the lead role in total growing stock. Red maple and black birch are adapted to a broad range of growing conditions. Red maple increased by nearly 65 percent between 1972 and 1985, and 9 percent between 1985 and 1998.

12. The predominant type of harvest on private land (removing valuable timber without taking anything else) results in small forest openings. Small openings in the forest canopy can promote the establishment of valuable northern hardwood timber species





(sugar maple, yellow birch), but also can promote more vigorous red maple and black (sweet) birch. Black birch is also considered a lower grade timber because of canker problems. (Hochholzer).

13. Markets for low grade timber products are limited. Products made from low grade timber (pallet lumber, guard rail posts, timber bridges) can accommodate defects such as knots, but they result in low profit margins. Most forest operations have high overhead (equipment, insurance) and cannot sustain low profit margins. (Hochholzer).

14. Low grade saw logs can and are marketed for consumer firewood, but firewood does not produce the secondary jobs that wood products manufacturing does. Low-grade logs that can be processed will produce work in sawmills, marketing, manufacturing and secondary outlets. (Hochholzer).

15. Southern New England has never developed a local pulp market. While northern New England developed markets for chips, southern New England shipped chips for pulp, energy or oriented strand board. There are low grade markets that have potential, most notably the potential demand for wood chips in energy production. (Hochholzer).

16. For a decade or more, energy planners in the region have looked at woody biomass as a viable renewable energy source that could re-establish local markets for low-value material. Concerns voiced in opposition to these proposals include unsustainable harvesting, truck traffic and localized site concerns, large water demands, air pollution and questions whether biomass energy can be carbon-neutral or even low-carbon. (Hochholzer).

17. Economic issues include increasing prices of fuel, and insurance costs (liability, worker's compensation). Society has induced its own influences, with many young people raised in a rural setting opting for a college degree and higher-paying jobs. Traditionally these folks were more apt to follow their family heritage into the sawmill or logging business.

18. The industry has declined from an infrastructure standpoint. Fewer buyers mean fewer options in markets. Declining demand has also restricted market share. (Hochholzer).

19. As recreation pressures increase, multi-use concerns will become more prevalent.

### **Joint Efforts to Achieve the Vision:**

1. Permanently protect 70% of the Last Green Valley as forestland in accordance with the ratios proposed in *Wildlands and Woodlands*. Manage 90% of our forested acres as woodlands, and set aside 10% of our forested acres as wildland reserves. Develop strong public/private partnerships to leverage the funds necessary to achieve this goal.

2. Since most of our forests are privately owned, increase efforts to educate and engage landowners about good forest management practices and the public benefits forests provide. Increase the number of state foresters to assist private landowners.

3. Make forests an attractive investment to the private sector by creating additional tax incentives to retain forest land and by developing a system to compensate landowners for the ecological services and public benefits provided.

4. Minimize additional conversion of forest to conventional subdivisions.

5. Educate municipal decision makers about the public benefits forests provide, particularly in relation to water supply. Ensure municipal land use decisions support forest preservation.

6. Maintain or increase forest cover and stream and riverside buffers within the watersheds of The Last Green Valley to help to reduce treatment costs and maintain a source of affordable water in the future.



The Biomass Energy Resource Center (BERC) in Montpelier, VT is a resource to aid development of small scale biomass facilities, and to help promote fuels for schools program which has implemented biomass facilities at 40 schools in Vermont. In Connecticut, Rhode Island and Massachusetts, fewer than six such sites exist in total (Hochcolzer).

7. Promote forest management practices that will better maintain a diversity of forest types, tree sizes, and ages in order to create a more resilient ecosystem and forest product sustainability.
8. Develop and implement better and more comprehensive methods to measure and track the amount of forest land available for producing goods and services, the productivity of that forest land, and the amount, quality, and type of trees. Develop better methods to track other industries often associated with timber removals such as land clearing.
9. Apply forest management practices to increase the capacity of the forest to sequester carbon and store it both as live trees and in forest products. The best forest type in Connecticut for live tree carbon storage and sequestration is the White/Red/Jack Pine group. This forest type accounts for only 4% of Connecticut's forest type land cover. The Maple/Beech/Birch group also provides fairly significant carbon storage. This forest type occupies 5% of Connecticut's forests (Hochholzer).
10. Promote and support small-scale biomass conversion projects. Draw upon successful models from Vermont that have resulted in small-scale biomass energy facilities. The development of small biomass facilities could create well-distributed markets for low-value woody material (Hochholzer) . Increasing the market for low value woody materials would encourage more landowners to engage in good forest management practices that include the removal of low-grade trees. (Broderick).
11. Continue to research, respond, and control threats from invasive species, deer browse, native insects and diseases, natural disturbances, extreme weather, and erosion.
12. Promote and expand recreational opportunities in our forests. Manage user conflicts (ATVs, hunters, hikers, etc.).



13. Promote strong state leadership through adequate staffing and updated management plans for each forest unit. Connect landowners with appropriate cost share programs when applicable.

14. Encourage development of a Northeast Master Logger Certification?  
Create or adopt Biomass Harvesting Guidelines?

15. Explore the dedicated use of user fees to be returned to associated recreational facilities.

16. Disseminate a clear and consistent message to the public about the value of forest land (PSAs etc.).

17. Encourage programs that engage children with nature. Increase funding and opportunities for environmental education programs.

## APPENDICES

### Definitions

**Local or regional:** While the federal government has not defined what constitutes a “local” agricultural product, TLGV feels that it is necessary to do so for the purposes of this plan. Presently, anything grown in the United States may be considered “native.” Grocers within The Last Green Valley frequently carry packaged produce labeled “local” when it is, in fact, grown thousands of miles away in California or another state. In the interest of fair discussion, the following definitions are valid for the TLGV Rural Sustainability Plan. **Local** – refers to agricultural products grown or raised within 100 miles of the consumer. **Regional** – refers to agricultural products grown within 500 miles of the consumer.

**Bioregion:** also known as an **ecoregion**, an area of resources defined by natural rather than artificial boundaries with specific flora, fauna and environmental conditions.

**Food Desert:** “an area of the United States with limited access to affordable and nutritious foods particularly in a low income area (2008 Farm Bill).” A food desert can exist in both urban and rural areas.

**Foodshed:** The term was first used in the early 20<sup>th</sup> century by W.P. Hedden in *How Great Cities Are Fed* and revived in the early 21<sup>st</sup> century to refer to a flow of food from farm to table usually within an understood parameter. For the purposes of this plan, (1) A foodshed is the geographic region where food is produced, most notably the human, land and water resources required to produce food in a geographic region. (2) A foodshed is the flow of food from where it is produced, where it travels, and where it is marketed and sold to the consumer.

**Farmer:** the title is used in the broadest sense as a person engaged in agricultural business, including horticulture, forestry, fiber and food production. Admittedly, this is a handy abbreviation for “agricultural business owner or worker.”

**Rural:** “of or in or like the countryside” (*Oxford American Dictionary*). For the purposes of the USDA’s Rural Development Programs, rural is an area of between 10,000 and 50,000 in population; the distinction varies with specific programs.

## TLGV Land Coverage Tables

Note: all numeric representations on this table are approximations.

Numeric representations on this table were derived from Land Cover Category data generated based on 2006 Landsat satellite imagery  
 Land Cover Category data from which numeric representations on this table were calculated were generated by the Center for Land Use Education and Research  
 (CLEAR)

### Entire Corridor

	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b><i>Totals</i></b>	<b><i>Total Acreage</i></b>
<i>Acres</i>	74153	87039	353393	34336		<b>548921</b>	<b>707103</b>
<i>Percentage</i>	10.5%	12.3%	50.0%	4.9%		<b>77.6%</b>	

### Town by Town

<b>Ashford</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b><i>Totals</i></b>	<b><i>Total Town Acreage</i></b>
<i>Acres</i>	1848	2562	16301	981		<b>21692</b>	<b>25271</b>
<i>Percentage</i>	7.3%	10.1%	64.5%	3.9%		<b>85.8%</b>	

<b>Brimfield</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b><i>Totals</i></b>	<b><i>Total Town Acreage</i></b>
<i>Acres</i>	1516	3447	13057	1133		<b>19153</b>	<b>22609</b>
<i>Percentage</i>	6.7%	15.2%	57.8%	5.0%		<b>84.7%</b>	

<b>Brooklyn</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b><i>Totals</i></b>	<b><i>Total Town Acreage</i></b>
<i>Acres</i>	2675	1290	9560	1238		<b>14763</b>	<b>18656</b>
<i>Percentage</i>	14.3%	6.9%	51.2%	6.6%		<b>79.1%</b>	

<b>Canterbury</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	3304	843	16318	1565		<b>22030</b>	<b>25761</b>
<i>Percentage</i>	12.8%	3.3%	63.3%	6.1%		<b>85.5%</b>	

<b>Chaplin</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	692	508	9198	388		<b>10786</b>	<b>12570</b>
<i>Percentage</i>	5.5%	4.0%	73.2%	3.1%		<b>85.8%</b>	

<b>Charlton</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2190	4030	12619	1556		<b>20395</b>	<b>28034</b>
<i>Percentage</i>	7.8%	14.4%	45.0%	5.6%		<b>72.8%</b>	

<b>Coventry</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	3110	781	14811	455		<b>19157</b>	<b>24509</b>
<i>Percentage</i>	12.7%	3.2%	60.4%	1.9%		<b>78.2%</b>	

<b>Dudley</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2600	876	6154	509		<b>10139</b>	<b>14008</b>
<i>Percentage</i>	18.6%	6.3%	43.9%	3.6%		<b>72.4%</b>	

<b>E. Brookfield</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	210	1319	2368	474		<b>4371</b>	<b>6673</b>
<i>Percentage</i>	3.1%	19.8%	35.5%	7.1%		<b>65.5%</b>	

<b>Eastford</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1433	4096	9766	1020		<b>16315</b>	<b>18780</b>
<i>Percentage</i>	7.6%	21.8%	52.0%	5.4%		<b>86.9%</b>	

<b>Franklin</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2637	1115	6212	591		<b>10555</b>	<b>12591</b>
<i>Percentage</i>	20.9%	8.9%	49.3%	4.7%		<b>83.8%</b>	

<b>Griswold</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2509	1202	11740	1390		<b>16841</b>	<b>23655</b>
<i>Percentage</i>	10.6%	5.1%	49.6%	5.9%		<b>71.2%</b>	

<b>Hampton</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1655	493	11039	787		<b>13974</b>	<b>16278</b>
<i>Percentage</i>	10.2%	3.0%	67.8%	4.8%		<b>85.8%</b>	

<b>Holland</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	203	2561	3572	390		<b>6726</b>	<b>8381</b>
<i>Percentage</i>	2.4%	30.6%	42.6%	4.7%		<b>80.3%</b>	

<b>Killingly</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1585	3627	16257	1263		<b>22732</b>	<b>31969</b>
<i>Percentage</i>	5.0%	11.3%	50.9%	4.0%		<b>71.1%</b>	

<b>Lebanon</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	8123	2201	17303	1850		<b>29477</b>	<b>35305</b>
<i>Percentage</i>	23.0%	6.2%	49.0%	5.2%		<b>83.5%</b>	

<b>Lisbon</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	957	211	6612	369		<b>8149</b>	<b>10687</b>
<i>Percentage</i>	9.0%	2.0%	61.9%	3.5%		<b>76.3%</b>	

<b>Mansfield</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	3278	1378	16447	908		<b>22011</b>	<b>29180</b>
<i>Percentage</i>	11.2%	4.7%	56.4%	3.1%		<b>75.4%</b>	

<b>Norwich</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1299	458	7599	338		<b>9694</b>	<b>18781</b>
<i>Percentage</i>	6.9%	2.4%	40.5%	1.8%		<b>51.6%</b>	

<b>Oxford</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1181	1088	8283	1015		<b>11567</b>	<b>17556</b>
<i>Percentage</i>	6.7%	6.2%	47.2%	5.8%		<b>65.9%</b>	

<b>Plainfield</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	3432	1601	12995	1731		<b>19759</b>	<b>27564</b>
<i>Percentage</i>	12.5%	5.8%	47.1%	6.3%		<b>71.7%</b>	

<b>Pomfret</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	4491	1483	14872	1176		<b>22022</b>	<b>25971</b>
<i>Percentage</i>	17.3%	5.7%	57.3%	4.5%		<b>84.8%</b>	

<b>Preston</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	3437	971	10287	1585		<b>16280</b>	<b>20319</b>
<i>Percentage</i>	16.9%	4.8%	50.6%	7.8%		<b>80.1%</b>	

<b>Putnam</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1032	1530	5361	735		<b>8658</b>	<b>13046</b>
<i>Percentage</i>	7.9%	11.7%	41.1%	5.6%		<b>66.4%</b>	

<b>Scotland</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2037	630	7663	397		<b>10727</b>	<b>11999</b>
<i>Percentage</i>	17.0%	5.3%	63.9%	3.3%		<b>89.4%</b>	

<b>Southbridge</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	599	4432	4243	452		<b>9726</b>	<b>13368</b>
<i>Percentage</i>	4.5%	33.2%	31.7%	3.4%		<b>72.8%</b>	

<b>Sprague</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1039	506	5273	203		<b>7021</b>	<b>8842</b>
<i>Percentage</i>	11.8%	5.7%	59.6%	2.3%		<b>79.4%</b>	

<b>Sterling</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1802	1624	10763	676		<b>14865</b>	<b>17480</b>
<i>Percentage</i>	10.3%	9.3%	61.6%	3.9%		<b>85.0%</b>	

<b>Sturbridge</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	623	7188	9623	1350		<b>18784</b>	<b>24949</b>
<i>Percentage</i>	2.5%	28.8%	38.6%	5.4%		<b>75.3%</b>	

<b>Thompson</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	2567	4210	14827	2119		<b>23723</b>	<b>31163</b>
<i>Percentage</i>	8.2%	13.5%	47.6%	6.8%		<b>76.1%</b>	

<b>Union</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	489	11092	4541	464		<b>16586</b>	<b>19067</b>
<i>Percentage</i>	2.6%	58.2%	23.8%	2.4%		<b>87.0%</b>	

<b>Voluntown</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1366	5975	12573	2057		<b>21971</b>	<b>25459</b>
<i>Percentage</i>	5.4%	23.5%	49.4%	8.1%		<b>86.3%</b>	

<b>Webster</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	21	158	3783	316		<b>4278</b>	<b>9345</b>
<i>Percentage</i>	0.2%	1.7%	40.5%	3.4%		<b>45.8%</b>	

<b>Windham</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	1661	1327	7574	491		<b>11053</b>	<b>17775</b>
<i>Percentage</i>	9.3%	7.5%	42.6%	2.8%		<b>62.2%</b>	

<b>Woodstock</b>	<i>Agriculture</i>	<i>Coniferous Forest</i>	<i>Deciduous Forest</i>	<i>Forested Wetland</i>		<b>Totals</b>	<b>Total Town Acreage</b>
<i>Acres</i>	6820	10226	13797	2363		<b>33206</b>	<b>39499</b>
<i>Percentage</i>	17.3%	25.9%	34.9%	6.0%		<b>84.1%</b>	

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## Websites (see also Potential Partners list for additional websites)

*Agricultural and Nature Based Tourism*, the survey results from Georgia's Chamber of Commerce, University of Georgia, Department of Agriculture and Applied Economics. [www.agecon.ega.edu](http://www.agecon.ega.edu).

Agricultural Marketing Resource Center, national information resource of value-added agriculture, list of state agritourism associations and networks. [www.agmrc.org](http://www.agmrc.org).

Center for Agricultural and Rural Development (CARD) at Iowa State University, *Iowa Agricultural Review* online, variety of pertinent articles. [www.card.iastate.edu](http://www.card.iastate.edu).

Center for an Agricultural Economy, Vermont. [www.hardwickagriculture.org](http://www.hardwickagriculture.org).

Connecticut Department of Agriculture, [www.ct.gov/DOAG/site/default.asp](http://www.ct.gov/DOAG/site/default.asp).

Apple Marketing Board, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=431156>

Farm Wine Development Council, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423832>

Food Policy Council, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423834>

Marketing Authority, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423844>

Milk Promotion Board, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423836>

Seafood Advisory Council, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423838>  
Farmland Preservation Advisory Board, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423840>  
Milk Regulation Board, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423846>  
Governor's Council for Agricultural Development, <http://www.ct.gov/doag/cwp/view.asp?a=3595&q=423842>  
Connecticut State Climate Center, <http://www.canr.uconn.edu/nrme/csccl/>  
Cornell University, Community, Food and Agriculture Program, variety of agricultural tourism studies and links. [www.cfap.org](http://www.cfap.org).  
Crown O' Maine Organic Cooperative [www.crownofmainecoop.com](http://www.crownofmainecoop.com).  
Farm Fresh Connection [www.farmfreshconnection.org](http://www.farmfreshconnection.org)  
Farm Risk Management [www.ctfarmrisk.uconn.edu](http://www.ctfarmrisk.uconn.edu)  
Maine Food Trader. <http://www.mefoodtrader.org>.  
Massachusetts Department of Agricultural Resources at [www.Mass.gov](http://www.Mass.gov).  
Agricultural Commissions, [www.massagcom.org/index.html](http://www.massagcom.org/index.html)  
Agricultural Lands Preservation Committee, <http://www.mass.gov/agr/boards-commissions/alpc.htm>  
Board of Food and Agriculture, <http://www.mass.gov/agr/boards-commissions/agboard.htm>  
Dairy Promotion Board, <http://www.mass.gov/agr/boards-commissions/mdpb.htm>  
Farm Technology Review Commission, <http://www.mass.gov/agr/programs/ftrc/index.htm>  
Pesticide Board, <http://www.mass.gov/agr/boards-commissions/pesticide-board.htm>  
State Reclamation and Mosquito Control Board, <http://www.mass.gov/agr/mosquito/index.htm>  
Merrill, Lorraine *North County Farm Fresh Cooperative* [www.nh.nrcs.usda.gov](http://www.nh.nrcs.usda.gov).  
National Association for the Specialty Food Trade, Inc. [www.specialtyfood.com](http://www.specialtyfood.com)  
Northeast Regional Climate Center, [www.nrcc.cornell.edu/page\\_summaries.html](http://www.nrcc.cornell.edu/page_summaries.html).  
Schoharie Co-op Cannery. <http://www.schohariecannery.org>.  
Small Farms Center, University of California at Davis. [www.sfc.ucdavis.edu](http://www.sfc.ucdavis.edu).  
Wisconsin Country Adventures, marketing site for agricultural tourism. [www.visitdairyland.com](http://www.visitdairyland.com).  
University of Connecticut, Center for Land Use Education and Research (CLEAR), <http://clear.uconn.edu/>.  
USDA Natural Resources Conservation Service. Information About Soils [www.ct.nrcs.usda.gov/soils.html](http://www.ct.nrcs.usda.gov/soils.html) and [www.ma.nrcs.usda.gov/soils.html](http://www.ma.nrcs.usda.gov/soils.html).  
USDA, Rural Information Center. *Small Farm Funding Resources*, [http://www.nal.usda.gov/ric/ricpubs/small\\_farm\\_funding.htm](http://www.nal.usda.gov/ric/ricpubs/small_farm_funding.htm).  
Virginia Agribusiness Council. [www.va-agribusiness.org](http://www.va-agribusiness.org)

## Potential Partners

American Farmland Trust, <http://www.farmland.org/>  
Center for Rural Studies at the University of Vermont, <http://www.uvm.edu/crs/>  
Chambers of Commerce  
CitySeed, <http://www.cityseed.org/>  
Community Involved in Sustaining Agriculture (CISA), <http://buylocalfood.org/>

Connecticut Bee Keepers Association, <http://www.ctbees.com/>  
Connecticut Christmas Tree Growers Association, <http://www.ctchristmastree.org/>  
Connecticut Dairy Farms, <http://www.ctmilk.org/>  
Connecticut Economic Development Association, <http://www.cedas.org/>  
Connecticut Farm Bureau, <http://www.cfba.org/>  
Connecticut Farmland Trust, <http://www.ctfarmland.org/>  
Connecticut Food Association, <http://www.ctfoodassociation.org/>  
Connecticut Greenhouse Growers Association, [http://www.flowersplantsinct.com/cgga\\_index.htm](http://www.flowersplantsinct.com/cgga_index.htm)  
Connecticut Nursery & Landscape Association, [http://www.flowersplantsinct.com/cnla\\_index.htm](http://www.flowersplantsinct.com/cnla_index.htm)  
Connecticut Professional Timber Producers Assoc., Inc., <http://www.timproct.org/>  
Connecticut Specialty Food Association, <http://www.ctspecialtyfood.org/>  
Eastern Connecticut Conservation District, <http://conservect.org/Default.aspx?alias=conservect.org/eastern>  
Eastern Connecticut Resource Conservation & Development Council (RC&D), <http://easternrcd-ct.org/>  
Farm Credit East (formerly First Pioneer Farm Credit), <https://www.farmcrediteast.com/>  
Hartford Food System, <http://www.hartfordfood.org/>  
Hospitals and Healthcare Providers  
Massachusetts Farm Bureau Federation, <http://www.mfbf.net/>  
Massachusetts Maple Producers Association, <http://www.massmaple.org/>  
Massachusetts Farm-Winery and Growers Association, <http://masswinery.com/>  
National Association of State Departments of Agriculture, <http://www.nasda.org/cms/7192.aspx>  
New England Environmental Finance Center (University of Southern Maine and US Environmental Protection Agency),  
<http://efc.muskie.usm.maine.edu/>  
New England Farmers Union, <http://newenglandfarmersunion.org/>  
New England Society of American Foresters, <http://www.nesaf.org/>  
North East State Foresters Association, <http://www.nefainfo.org/>  
Northeast Organic Farmers Association (NOFA), <http://www.nofa.org/index.php>  
Northeastern Center for Food Entrepreneurship (Cornell and U. of VT partnership), <http://www.nysaes.cornell.edu/necfe/>  
University of Connecticut College of Agriculture and Natural Resources, <http://www.cag.uconn.edu/CANR/index.html>  
    Connecticut Cooperative Extension System, <http://www.extension.uconn.edu/>  
    Connecticut Women's Agricultural Network (WAgN), <http://www.ctfarmrisk.uconn.edu/wagn.php>  
    Storrs Agricultural Experiment Station, <http://www.canr.uconn.edu/CANR/SAES/StorrsAgriculturalExperimentStation.html>

University of Massachusetts College of Natural Sciences, Center for Agriculture, <http://www.ag.umass.edu/>  
UMass Extension, <http://www.umassextension.org/>  
Massachusetts Agricultural Experiment Station, <http://www.ag.umass.edu/index.php/research>  
Very Alive!, <http://www.veryalive.org/>  
Willimantic Food Co-op, <http://willimanticfood.coop/>  
Working Lands Alliance, <http://www.workinglandsalliance.org/>  
Youth Organizations such as Boys/Girls Clubs, Scouts, and YMCAs/YWCAs

### **Government**

Connecticut Department of Agriculture, <http://www.ct.gov/DOAG/site/default.asp>  
Connecticut Food Policy Council, <http://www.foodpc.state.ct.us/>  
Connecticut Farm to Chef Program, <http://www.ct.gov/doag/cwp/view.asp?a=2778&q=330830>  
Connecticut Grown Program, <http://www.ct.gov/doag/cwp/view.asp?a=3243&q=398984>  
Connecticut Department of Environmental Protection (forestry),  
[http://www.ct.gov/dep/cwp/view.asp?a=2697&q=322792&depNav\\_GID=1631&depNav=|](http://www.ct.gov/dep/cwp/view.asp?a=2697&q=322792&depNav_GID=1631&depNav=|)  
Connecticut Department of Public Health, <http://www.ct.gov/dph/site/default.asp>  
Massachusetts Executive Office of Energy and Environmental Affairs,  
<http://www.mass.gov/?pageID=eoeeahomepage&L=1&L0=Home&sid=Eoeea>  
Massachusetts Department of Agricultural Resources, <http://www.mass.gov/agr/>  
Massachusetts Department of Conservation and Recreation (forestry),  
<http://www.mass.gov/dcr/stewardship/forestry/index.htm>  
Massachusetts Executive Office of Health and Human Services,  
<http://www.mass.gov/?pageID=eohhs2homepage&L=1&L0=Home&sid=Eeohhs2>  
Massachusetts Department of Public Health,  
<http://www.mass.gov/?pageID=eohhs2agencylanding&L=4&L0=Home&L1=Government&L2=Departments+and+Divisions&L3=Department+of+Public+Health&sid=Eeohhs2>  
Municipal Governments  
Regional and Municipal Health Departments  
Regional and Municipal School Districts  
Regional Councils of Government  
Northeastern CT Council of Governments (NECCOG)

Southeastern CT Council of Governments (SECCOG), <http://www.seccog.org/>

Windham Region Council of Governments (WINCOG), <http://www.wincog.org/index.html>

#### Regional Planning Agencies

Central Massachusetts Regional Planning Commission (CMRPC), <http://www.cmrpc.org/>

Pioneer Valley Planning Commission (PVPC), <http://www.pvpc.org/>

U.S. Department of Agriculture, <http://www.usda.gov/wps/portal/usda/usdahome>

Farm Service Agency, <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=landing&topic=landing>

Natural Resources Conservation Service, <http://www.nrcs.usda.gov/>

Rural Development, <http://www.rurdev.usda.gov/Home.html>

## USDA Agencies

[Agricultural Marketing Service \(AMS\)](#) - facilitates the strategic marketing of agricultural products in domestic and international markets while ensuring fair trading practices and promoting a competitive and efficient marketplace.

[Agricultural Research Service \(ARS\)](#) - USDA's principal in-house research agency.

[Animal and Plant Health Inspection Service \(APHIS\)](#) - provides leadership in ensuring the health and care of animals and plants. The agency improves agricultural productivity and competitiveness and contributes to the national economy and the public health.

[Center for Nutrition Policy and Promotion \(CNPP\)](#) - works to improve the health and well-being of Americans by developing and promoting dietary guidance that links scientific research to the nutrition needs of consumers.

[Economic Research Service \(ERS\)](#) - USDA's principal social science research agency. Each year, ERS communicates research results and socioeconomic indicators via briefings, analyses for policymakers and their staffs, market analysis updates, and major reports.

[Farm Service Agency \(FSA\)](#) - implements agricultural policy, administers credit and loan programs, and manages conservation, commodity, disaster and farm marketing programs through a national network of offices.

[Food and Nutrition Service \(FNS\)](#) - increases food security and reduces hunger in partnership with cooperating organizations by providing children and low-income people access to food, a healthy diet, and nutrition education in a manner that supports American agriculture and inspires public confidence.

[Food Safety and Inspection Service \(FSIS\)](#) - enhances public health and well-being by protecting the public from foodborne illness and ensuring that the nation's meat, poultry and egg products are safe, wholesome, and correctly packaged.

[Foreign Agricultural Service \(FAS\)](#) - works to improve foreign market access for U.S. products, building new markets and improving the competitive position of U.S. agriculture in the global marketplace.

[Forest Service \(FS\)](#) - sustains the health, diversity and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

[Grain Inspection, Packers and Stockyards Administration \(GIPSA\)](#) - facilitates the marketing of livestock, poultry, meat, cereals, oilseeds, and related agricultural products. It also promotes fair and competitive trading practices and ensures open and competitive markets for livestock, poultry, and meat by investigating and monitoring industry trade practices.

[National Agricultural Library \(NAL\)](#) - ensures and enhances access to agricultural information for a better quality of life.

[National Agricultural Statistics Service \(NASS\)](#) - serves the basic agricultural and rural data needs of the country by providing objective, important and accurate statistical information and services to farmers, ranchers, agribusinesses and public officials.

[National Institute of Food and Agriculture \(NIFA\)](#) - In partnership with land-grant universities, and other public and private organizations, NIFA provides the focus to advance a global system of extramural research, extension, and higher education in the food and agricultural sciences.

[Natural Resources Conservation Service \(NRCS\)](#) - provides leadership in a partnership effort to help people conserve, maintain and improve our natural resources and environment.

[Risk Management Agency \(RMA\)](#) - helps ensure that farmers have the financial tools necessary to manage their agricultural risks. RMA provides coverage through the Federal Crop Insurance Corporation, which promotes national welfare by improving the economic stability of agriculture.

[Rural Development \(RD\)](#) - helps rural areas to develop and grow by offering Federal assistance that improves quality of life. RD targets communities in need and then empowers them with financial and technical resources.

(Source: USDA website:

[http://www.usda.gov/wps/portal/usda/lut/p/c5/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os\\_gAC9-wMJ8QY0MDpxBDA09nXw9DFxcXQ-cAA\\_1wkA5kFaGuQBXeASbmnu4uBgbe5hB5AxA0UDfzyM\\_N1W\\_IDS7zdFRUREAZXAypA!!/dl3/d3/L2dJQSEvUUt3QS9ZQnZ3LzZfUDhNVIZMVDmXMEJUMTBJQ01IMURERDFDUDA!/?navid=AGENCIES\\_OFFICES\\_C&parentnav=AGENCIES\\_OFFICES&navtype=RT](http://www.usda.gov/wps/portal/usda/lut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os_gAC9-wMJ8QY0MDpxBDA09nXw9DFxcXQ-cAA_1wkA5kFaGuQBXeASbmnu4uBgbe5hB5AxA0UDfzyM_N1W_IDS7zdFRUREAZXAypA!!/dl3/d3/L2dJQSEvUUt3QS9ZQnZ3LzZfUDhNVIZMVDmXMEJUMTBJQ01IMURERDFDUDA!/?navid=AGENCIES_OFFICES_C&parentnav=AGENCIES_OFFICES&navtype=RT)

## **USDA Grant Programs**

USDA grant programs can be used to support agricultural expansion in The Last Green Valley:

### Agricultural Marketing Service

Farmers Market Promotion Program - To help communities support local food systems through direct marketing. Direct marketing includes farmers markets, roadside stands, community-supported agriculture, and agri-tourism. Projects that focus on increasing access to local foods by low-income residents receive special priority.

Federal-State Marketing Improvement Program - Funds are used to explore barriers, challenges, and opportunities in marketing, transporting, and distributing food and forest products.

Specialty Crop Block Grants - States administer grant programs to enhance the competitiveness of specialty crops (fruits, vegetables, tree nuts, horticulture, flowers). As part of our "Growing Local Food Initiatives," many projects involve grant money to market locally-grown foods.

### Rural Development

Appropriate Technology Transfer for Rural Areas - Provides information to farmers and other rural users on a variety of sustainable agricultural practices that include both cropping and livestock operations. The program encourages agricultural producers to adopt

sustainable agricultural practices which allow them to maintain or improve profits, produce high quality food and reduce adverse impacts to the environment. The program is funded under a grant from the United States Department of Agriculture's Rural Business-Cooperative Service.

Business and Industry (B&I) Guaranteed Loan Program – Helps new and existing businesses based in rural areas gain access to affordable capital. By issuing a guarantee to a private lender, USDA essentially co-signs the loan to a business owner, promising to pay a portion of any loss that might result in case the business owner is unable to repay the loan. Having the guarantee lowers the lender's risk, allowing more favorable interest rates and terms to be offered.

Community Facilities Program - Supports the success of rural communities by providing loans and grants for the construction, acquisition, or renovation of community facilities or for the purchase of equipment for community projects.

Rural Business Enterprise Grants - Big Idea - Provides grants for rural projects that finance and facilitate development of small and emerging rural businesses help fund distance learning networks, and help fund employment related adult education programs. To assist with business development, RBEGs may fund a broad array of activities. Examples of eligible fund use include: Acquisition or development of land, construction, conversion, renovation, of buildings, plants, machinery, equipment, capitalization of revolving loan funds including funds that will make loans for start ups and working capital; training and technical assistance; and project planning. The project must benefit small and emerging private businesses in rural areas.

Rural Business Opportunity Grants - Promotes sustainable economic development in rural communities with exceptional needs through provision of training and technical assistance for business development, entrepreneurs, and economic development officials and to assist with economic development planning.

Rural Cooperative Development - Grants are made for establishing and operating centers for cooperative development for the primary purpose of improving the economic condition of rural areas through the development of new cooperatives and improving operations of existing cooperatives. The U.S. Department of Agriculture's goal is to encourage and stimulate the development of effective cooperative organizations in rural America as a part of its total package of rural development efforts.

Value-Added Producer Grants - Help farmers and ranchers receive a higher portion of the retail dollar. Grants support planning activities, such as developing a business plan, or as working capital (e.g. labor, inventory, advertising). There is 10% set-aside for

projects that focus on local and regional supply networks. 10% of funds are also available for beginning farmers and ranchers, socially disadvantaged farmers and ranchers, and small or medium-sized farms or ranches.

#### Food and Nutrition Service

Senior Farmers' Market Nutrition - Provides low-income seniors with coupons that can be exchanged for fresh, nutritious, unprepared fruits, vegetables, herbs and honey at farmers' markets, roadside stands and community supported agriculture programs.

Women, Infants and Children - Farmers' Market Nutrition Program - Provides fresh, nutritious, unprepared, locally grown fruits and vegetables through farmers' markets to women receiving nutrition assistance, and to expand the awareness and use of farmers' markets by women receiving nutrition assistance.

#### Farm Service Agency

Farm Loan Programs: Direct and Guaranteed Farm Ownership Loans, and Direct and Guaranteed Operating Loans, with targeted funding for Beginning and Socially Disadvantaged Farmers and Ranchers - Many farmers and ranchers and aspiring farmers and ranchers have not acquired sufficient assets or repayment capacity to qualify for commercial loans. FSA provides loan guarantees to farmers and ranchers working through eligible lending institutions and also makes direct loans to qualifying farmers and ranchers.

Farm Storage Facility Loans - On-farm storage may cost a lot to build, but it helps farmers to maximize profits. This is why the USDA has a program to finance purchase, construction, or refurbishment of farm storage facilities. Of critical importance to those growing fruits and vegetables for the fresh market, this program finances new cold storage buildings, including prefabricated buildings having a useful life of at least 15 years. Financing may also cover site preparation, and the cooling and electrical equipment (including labor and installation) integral to the proper operation of a cold storage facility.

#### Natural Resources Conservation Service

Environmental Quality Incentives Program - Provides a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical help to assist eligible participants install or implement structural and management practices on eligible agricultural land.

EQIP - Organic conversion cost share - Protects natural resources by providing direct financial support to farmers and ranchers who want to improve their environmental stewardship. There is a \$50 million set-aside reserved for farmers who would like to convert to organic production.

Farm and Ranch Lands Protection Program - Protects agricultural lands by limiting non-agricultural uses. Funding is available for up to 50% of the purchase price of a conservation easement. The program is administered through approved state, local, and non-profit entities that arrange for the purchase of development rights on private lands and then hold and manage these conservation easements in perpetuity.

#### National Institute of Food and Agriculture

Community Food Projects - Funds proactive approaches to making communities more self reliant at maintaining their food systems while addressing food, nutrition, and farm issues. Grants are intended to help eligible private nonprofit entities that need a one-time infusion of federal assistance to establish and carry out multipurpose community food projects.

Sustainable Agriculture Research and Education - Advances sustainable innovations to the whole of American agriculture. Since it began in 1988, SARE has funded more than 4,000 sustainable agriculture research, education and professional development projects across the country. Sharing project results is a cornerstone of the SARE program, with field days, workshops and conferences in every region and an Outreach office producing an ever-growing library of books, bulletins, online resources as well as a vast archive of know-your-farmer profiles of SARE grantees. SARE is uniquely grassroots, administered by four regional offices guided by administrative councils of local experts. While every region offers Research and Education, Professional Development, Farmer/Rancher Research grants, some regions also offer Graduate Student, Sustainable Community Innovation, and Planning grants.

#### Risk Management Agency

Community Outreach and Assistance Partnerships - RMA partnerships work with educational institutions and community based organizations to provide farmers and ranchers with information on new ways to manage risks to their businesses. Risk management strategies including production, marketing, legal and financial and crop insurance. To teach risk management strategies including production, marketing, legal and financial and crop insurance to minority, limited resource and traditionally underserved producers.

Risk Management Education Programs - RMA partnerships work with educational institutions and community based organizations to provide farmers and ranchers with information on new ways to manage risks to their businesses. Risk management strategies including production, marketing, legal and financial and crop insurance.

(Source: USDA Know Your Farm – Know Your Food website)