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A Life Case of Hardwick, Vermont – A Multifunctional Approach to Improve Long Term Sustainability for Small and Medium-Sized Farms and Rural Communities

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**Selected Paper prepared for presentation at the Agricultural & Applied Economics
Association's 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July
24-26, 2011**

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The Changing Face of the U.S. Farm Structures

The U.S. farm structure has been shifting to larger operations, while the number of small commercial farms and their share of farm sales seemed to decline slowly between 1978 and 2002 (Table 1). In 2007, the Agricultural Census showed an increase in the number of farms in the U.S. at the very lowest and highest ends of the size distribution (USDA Census of Agriculture, 2007). Even though there is a steadily increasing trend of continuing concentration of farm production on the largest farms, small farms are persistent and surviving strongly in this highly competitive industry (Hoope, 2010). Unfortunately, there is a stunning lack of systematic research on the linkages and interactions in the “new global economic order” between *People* (farmers, local residents in farming communities, and consumers), *Place* (farming communities, other communities directly or indirectly connect with farming communities), and *Prosperity* (farm income and profits, health of local farming communities, quality of life for farmers/farm families and consumers or local residents).

In 2008, there were about 2.1 million U.S. farms. Most (90%) were small or medium-sized, grossing under \$250,000, and accounting for 20% of the value of agricultural commodities (USDA, ERS 2010b). The Northeast and the South have a larger share of farms in the small and medium size groups, than the Midwest and West (Table 2). Given the economic scale of production, the larger farms have an advantage to reduce the cost of production per unit. The smaller farms might have lower profit margin or are not profitable at all, the operators of the small farms are willing to place a lower value on their labor, accept losses, and rely on off-farm income (Hoope, 2010; Hoppe, MacDonald, & Korb, 2010). The USDA’s Agricultural Resource Management Study (ARMS) asked farmers to weigh the importance of selected measures of “success”, and the farmers’ responses included (USDA ARMS 1999):

- Operation provides adequate income without having to work off farm.
- Operation provides a rural lifestyle.
- Operation would be able to survive adverse market or weather conditions.
- Gross sales are increasing.
- Equity or assets are increasing.
- Acres operated are increasing.
- Operation can be passed on to the next generation.

Top performers identified by ARMS (successful small farms in the top 25 percent of each selected categories based on either returns to assets or operating expenses ratios) are characterized by successful application of three critical management strategies: using production strategies that control costs, actively marketing products, and adopting effective financial strategies. Two of the most frequently applied successful production strategies for the top performers are (1) diversification into additional agricultural related enterprises, and (2) allocate some of their time to off-farm work (Perry & Johnson, 1999). It seems that the successful small farms are better integrated into the market and community, where they have identified a niche to provide products and services that meet local community’s needs.

Table 1. Farm Size versus Farm Income and Share of Production

Gross cash farm income class	Farms		Value of production		Negative operating profit ¹		Principal operator age 65 or older	
	1991	2007	1991	2007	1991	2007	1991	2007
	<i>Number</i>		<i>Billion 2007 dollars</i>		<i>Percent of farms</i>			
U.S. total	2,099,900	2,196,791	195.5	292.0	58.8	64.3	25.4	27.6
	<i>Percent of U.S. total</i>				<i>Percent of farms</i>			
Noncommercial farms (less than \$10,000)	41.7	54.2	1.4	1.2	66.6	74.9	30.2	26.5
Small commercial farms	51.2	36.5	40.7	22.2	56.9	59.3	23.6	32.1
\$10,000 to 49,999	27.4	20.7	7.7	3.4	62.7	69.3	30.2	36.7
\$50,000 to 99,999	11.0	7.6	10.2	5.1	55.5	52.9	21.6	31.7
\$100,000 to 249,999	12.8	8.1	22.8	13.7	45.5	39.7	11.2	20.7
Large farms	6.2	7.5	29.9	30.1	27.8	23.4	9.8	16.6
\$250,000 to \$499,999	4.5	4.5	16.8	14.4	30.0	25.8	8.1	18.0
\$500,000 to \$999,999	1.7	2.9	13.1	15.7	22.3	19.5	14.1	14.6
Very large farms (\$1,000,000 or more)	0.9	1.9	27.9	46.5	23.3	14.6	13.1	14.7

Note. Gross cash farm income classes and total value of production are expressed in 2007 constant dollars, using the Producer Price Index for Farm Products to adjust for price changes.

¹Operating profit = net farm income + interest paid - charges for operator and unpaid labor - a charge for management.

Source. USDA, Economic Research Service and National Agricultural Statistics Service, 1991 Farm Costs and Returns Survey and 2007 Agricultural Resource Management Survey, Phase III.

<http://www.ers.usda.gov/AmberWaves/September10/Features/USFarm.htm>

Table 2: Size distribution of family farms, by region, 2008

Item	Value of Sales			All
	<\$10,000	\$10,000- \$249,999	\$250,000 or more	
Percent of U.S. farms	59.5	30.6	9.8	100.0
Farm distribution, by region				
Northeast	64.1	28.6	7.3	100.0
Midwest	47.1	38.1	14.9	100.0
South	69.2	24.8	6.1	100.0
West	60.9	29.7	9.4	100.0

Source: 2008 USDA Agricultural Resource Management Survey.

Successful Small Farms Are Located Throughout the U.S.

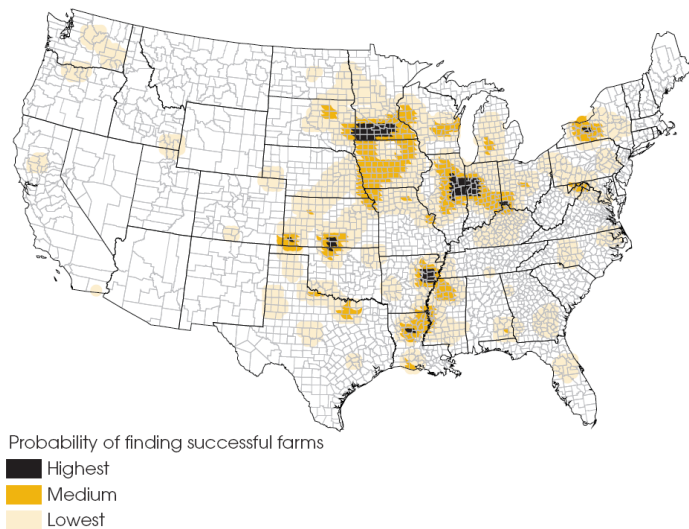


Figure 1. Distribution of Successful Small Farms in the U.S.

Includes only small farms where operator's primary occupation is farming, and areas with adequate sample size. Probability based on estimates from the ERS model of successful small farms using data from the Agricultural Resource Management Study.
 Economic Research Service, USDA
<http://www.ers.usda.gov/publications/agoutlook/nov1999/ao266c.pdf>

Multifunctional Farm Operation

In the U.S., multifunctionality has largely been addressed at the macroeconomic level to consider trade issues (Bohman, et al. 1999). In the EU, the multifunctional agriculture (MFA) concept has emerged as a key notion in scientific and policy debates on the future of agriculture and rural development among European countries (Renting, et al. 2009; Brouwer and van der Heide 2009). Broadly speaking, MFA refers to agricultural activities beyond the traditional role of producing food and fiber, such as renewable resource management, landscape and biodiversity conservation, and contribution to the socio-economic viability of rural communities (Renting, et al. 2009, Hajnalka and Alajos, 2009; Van Huylenbroeck and Durand, 2003).

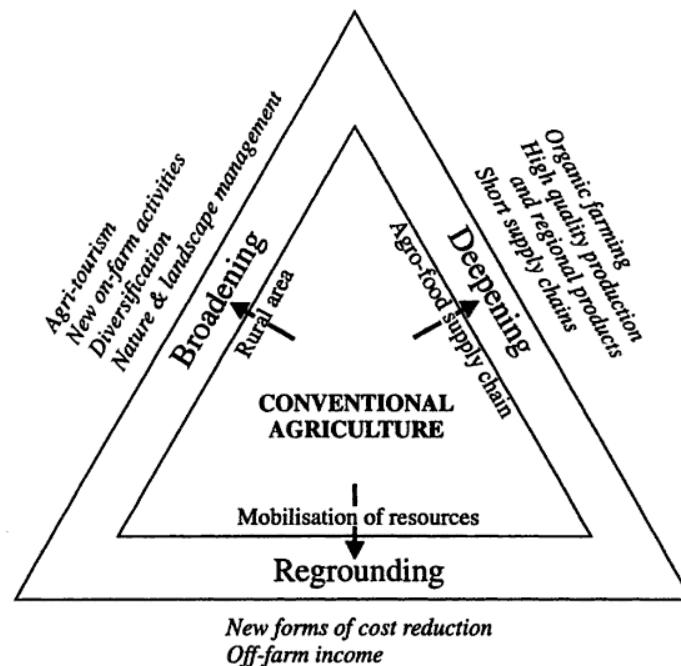


Figure 2. The Actual Situation in Europe with the Multifunctional Agriculture and Rural Development

Figure 2 describes the conceptual framework of multifunctional farm operations developed by Van der Ploeg and Roep (Van der Ploeg and Roep, 2003): *Broadening*, *Deepening*, and *Regrounding*. *Broadening* involves a farming operation diversifying its enterprises to include the production of new goods and services that encourage the linking of farm production, visitors to rural areas, and amenities of their local communities. Agritourism and specialty food sectors in the New England region are clear examples of broadening activities. *Deepening* involves refocusing agricultural production to better meet the demands of consumer and sometimes requires advancements in the agricultural supply chain. Direct local sales are examples of deepening activities. Finally, *Regrounding* activities involve the total refocusing of farm household resources, such as to activities outside of farming and off-farm work of farm household members. To the extent that these activities take place in the private market, decision

making is related to the new entrepreneurship model described by many researchers with respect to regional economic development (Walzer, 2007; Goetz, 2008; Goetz et al. 2010).

In the U.S., the multifunctional farm operation is more rooted in the development of goods and services that are beyond traditional farm production. Multifunctional farm operations generally create benefits that contribute to the vitality of rural communities through maintenance of family farms and rural employment, biological diversity, recreation and tourism, soil and water health, working landscape, food quality and safety, and animal welfare (DeVries, 2000). The structure of the multifunctional operations in the U.S., however, is quite different from the situation in Europe. Instead of a triangular relationship between broadening, deepening and regrouping, the American farmers often engage in different combinations of these 3 aspects at same time. A new framework of multifunctional agriculture for the U.S. farmers is derived from the European model, and the overlapping functions of the broadening, deepening and regrouping can be represented by the overlapping areas in a Van Diagram as shown on the top of Figure 3.

Multifunctional agriculture at the micro level directly links to the activities in the market and communities (Figure 3). We appear to be at the beginning of a growing cycle in the demand for both market and nonmarket goods and services produced by farms (e.g., Martinez, et al. 2010; Pollan, 2010). Farm operators connect with distributors, processors, other producers, and consumers (e.g. direct sales and supply to local restaurants). Farm operators who choose to diversify their agricultural operations through multifunctional strategies, often need to commit more time and effort in dealing with marketing issues, management issues, customer/visitor issues, and finance issues. These farmers provide more opportunities for others in the communities to interact with the source of food, which stimulates more interests and appreciation of agriculture among people. Given different attributes of each community, there are different opportunities, challenges, and barriers for farmers to be involved in the multifunctional operation.

With the growing support of the local foods movement and appreciation for the amenities of farm landscapes, small and medium sized farm households increasingly turn to multifunctional-generated sources of income (Table 3). However, it is far from clear how applicable and transferable this model is to rural communities. The extent of the linkages between farms and rural communities is hypothesized to vary with the structure of the local farming community, i.e., the size distribution of farms within the local region; how consumers directly or indirectly connect with local farmers; the population density of nearby metro areas; and whether farmers pursue traditional or multifunctional agricultural endeavors. The best way to unravel the impacts of multifunctional operation on people, place, and prosperity, is to introduce a successful case – Hardwick, Vermont.

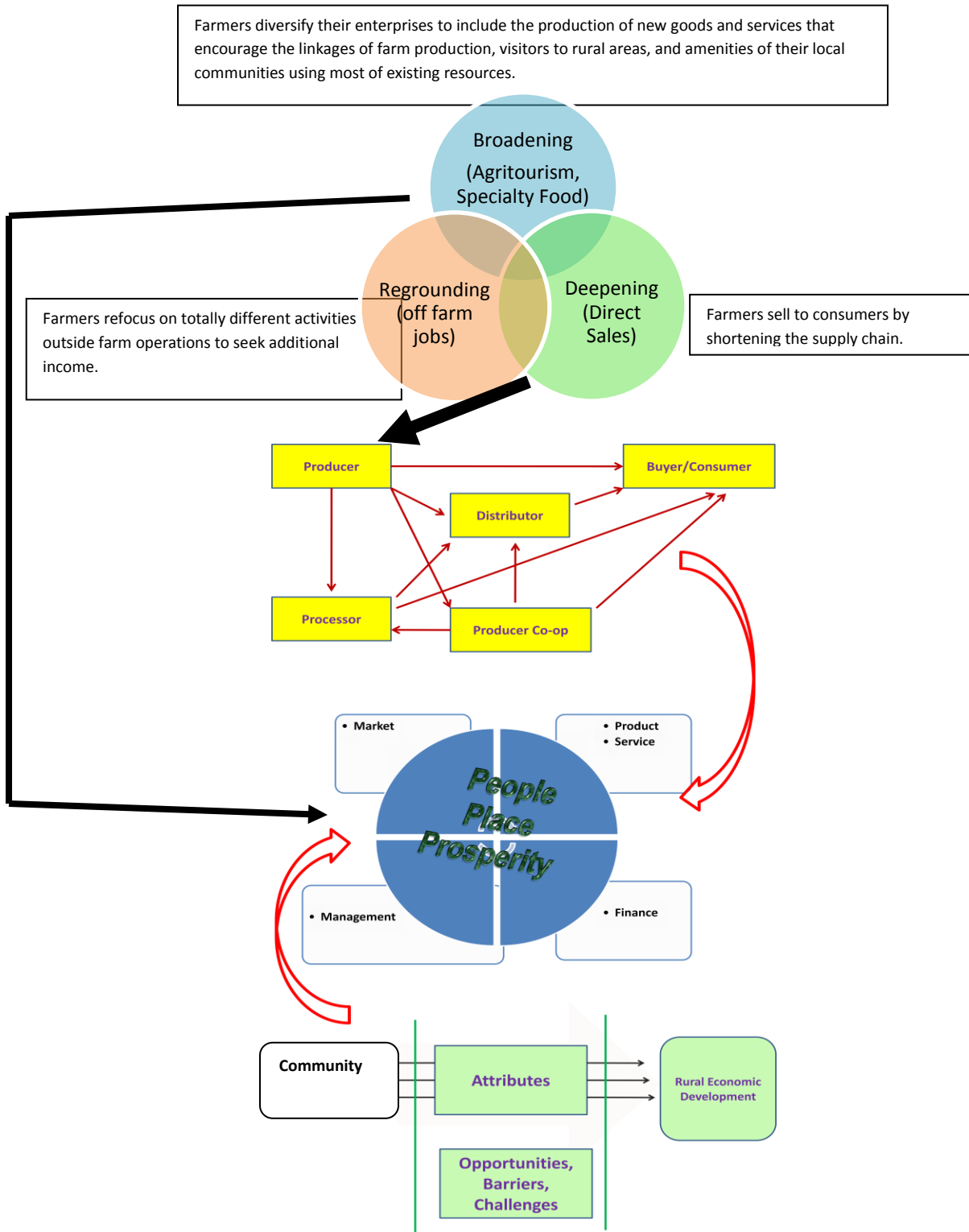


Figure 3. Three Aspects of Multifunctional Farm Operations and Their Linkages to People, Place and Prosperity for the U.S. Situation

Table 3. Multifunctionality of U.S. family farms by size, 2008

Item	Value of Sales			
	<\$10,000	\$10,000- \$249,999	\$250,000 or more	All
Number of family farms	1,284,506	651,553	211,993	2,148,052
Percent of family farms	60	30	10	100
	Percent			
BROADENING				
Agritourism	1	3	3	2
DEEPENING				
Direct sales to consumers and retail outlets	20	22	12	20
REGROUNDING				
Share with non-farm earnings	67	63	53	65
Source: 2008 USDA Agricultural Resource Management Survey, version 1				
1/ Includes value-added and direct sales.				

Hardwick, Vermont – An Innovative Food System in a Small Rural Town

Hardwick, Vermont is located at the junctions of Vermont routes 14, 15, and 16. Hardwick's history begins in the early days of saw and grist mills, carriage factory, granite quarries, and agriculture (<http://www.hardwickvt.org/>). The town is situated between Morrisville, Montpelier and St. Johnsbury. The population of Hardwick was estimated to be 3,182 in July 2009, with 48 percent male and 52 percent female. The estimated median household income of Hardwick in 2009 was \$40,010 (it was \$33,838 in 2000), compared with the median household income \$51,618 in Vermont.

In the past 5 years, Hardwick has taken the lead to embark on a quest to create the most vibrant, functional, and comprehensive local food system in the U.S (Hewitt, 2009). While most of the agricultural operations in the U.S. promote specializations in large scale, Hardwick might be one of the pioneer communities that promotes a decentralized food system. This unique approach focuses on building a healthy agricultural system which enhances community livelihood,

economic vitality, food security, and general resilience in economic uncertain times (Hewitt, 2009).

The success of Hardwick relies on many innovative strategies which truly show the joint efforts of people and place – entrepreneurial initiatives, effective leadership in joint ventures, explosive marketing and promotion, and strong linkages to local-based resources.

There has been a growing trend in creating food-based businesses and organizations around the community of Hardwick. These food-based ventures follow a new paradigm of entrepreneurship in maximizing satisfaction of venture creation to provide the benefits and value-added products/services for local communities. This mindset is very different from the conventional form theory where profit-maximization is the ultimate goal of business operations. A group of young entrepreneurs created innovative businesses based on the ideal to build a sustainable food system. Vermont Soy Company, High Mowing Organic Seeds, Jasper Hill Cheese, True Yogurt, Clair's Restaurant and Bar, Pete's Greens, are just a few examples of unconventional food ventures. These ventures utilize existing resources and infrastructure in the community, and create new opportunities to produce and sell new ideas, new concepts, and new products.

For example, Vermont Soy makes artisan tofu (organic and gluten free, made fresh without the use of preservatives) that is handcrafted using traditional Japanese kettle style techniques. The company also uses high quality certified organic oils to create a cooking spray in a refillable, non-flammable, and non-aerosol bottle. Jasper Hill farm is a small family farm located in Greensboro, Vermont (a few miles from Hardwick). After Greensboro lost 5 dairy farms, the Jasper Hill farm started in the summer of 1998 to support the working landscape of Vermont. By building an innovative underground aging facility (the cave) for artisan cheeses, the vision of Jasper Hill farm is to create a model to assist other small dairy farmers in Vermont to diversify their operations. Like many entrepreneurs, these young entrepreneurs identify new ideas using limited resources in the community, identify new opportunities in the market where there is a strong demand of healthy food, and are willing to share their success and challenges to assist others.

Effect leadership in joint ventures is not uncommon among profit-seeking firms. However it is difficult to pinpoint the leaders in a group of multifunctional operations. Individual entrepreneurs form the common understanding and support systems around the Hardwick area. Several organizations have provided technical assistance, business advice, venture planning guidance, and funding applications for food ventures in Hardwick. The University of Vermont (UVM) researchers and extension educators have worked very closely with these multifunctional agricultural ventures. For example, the Vermont Institute for Artisan Cheese at UVM is the nation's first and only comprehensive center devoted to artisan cheese (<http://nutrition.uvm.edu/viac/>). This institute provides education, research, technical services, and public promotion to increase knowledge and appreciation of artisan cheese. Many workshops, seminars, training programs and educational programs have been designed and delivered by this institute. The Center for an Agricultural Economy (CAE) is a 501c3 non-profit organization located in Hardwick (<http://www.hardwickagriculture.org/>). The mission of CAE is to “bring together community resources and programs needed to develop a locally based food system that supports the desire of rural communities to rebuild their economic and ecological health.” The CAE serves as a hub for agri-entrepreneurs to share information and

network with others. The Vermont Food Venture Center (VFVC) is another non-profit organization that provides technical support to food entrepreneurs. The VFVC is a shared kitchen incubator for value-added and specialty food producers to rent the kitchen on an hourly basis or arrange for co-packing at the facility. These community-based leading organizations provide strong support and assistance for all ag-entrepreneurs to pursue their dreams and ideas in multifunctional operations.

One thing unique about Hardwick multifunctional system is “local oriented”. When individual farmers explore ideas and creative concepts, they approach their neighbors first for advice and guidance. The neighbors of entrepreneurs also support each other by contributing to initial investment. These local ag-entrepreneurs did not contact venture capitalists at the start-up phase of the new ventures. Utilizing small start-up fund to secure initial success seems to be the best strategy to describe how these small farmers have survived economic uncertainty in the last few years.

The CAE has recently planned for establishing an Eco-Industrial Park, which will provide shared office space for Hardwick ag-based ventures, a year-round farmers’ market, farm and garden demonstration sites, a communal composting operation, and rental plots for budding farmers who are seeking multifunctional operation opportunities.

Buffalo Mountain Food Coop and Cafe, Claire’s Restaurant and Bar, and the Village Diner are a few examples of how local food is provided to customers. Buffalo Mountain Food Coop and Café is a non-profit owned by its members. The mission of the coop is to “provide to membership and greater community, whole foods and other products, which are grown or made with health and well-being of our planet and its inhabitants in mind.”

(<http://www.buffalomountaincoop.org/>) Claire’s promotes farm-to-table experience for customers emphasizing local and sustainable products, artisan products, and responsible business practices that support local community. These food distributors contribute directly in marketing and promoting local food with the joint effort of local farmers.

Conclusion

A new framework is developed in this paper to explain what previously has not been widely examined or discussed – how multifunctional farm operations can create unique linkages between farm families, farm organizations, and rural communities. The case study of Hardwick, Vermont, provides a unique example to demonstrate how multifunctional agriculture model can be utilized to revitalize rural economy. Many innovative strategies developed by entrepreneurs (including farmers and non-farmers) have generated a powerful network between farming communities, educational institutions, local and state government agencies, and consumers. Innovative production and consumption network development have been applied to explain how Hardwick becomes a successful role model for most of the rural communities in the United States. Most importantly, specific extension programs and their linkages with new initiatives such as Taste-of-Place, Food System, and Vermont Fresh Network form a strong support system that could be extended beyond individual communities and farmers.

References

Bohman, M., J. Cooper, D. Mullarkey, M.A. Normile, D. Skully, S. Vogel, and E. Young (1999). "The Use and Abuse of Multifunctionality." U.S. Department of Agriculture, Economic Research Service. Available at www.ers.usda.gov/briefing/WTO/PDF/multifunc1119.pdf

Brouwer, Floor and C. Martijn van der Heide, eds., (2009), *Multifunctional Rural Land Management: Economics and Policies*. Earthscan Publs., Sterling, VA, 360pp.

Devries, B. (2000). Multifunctional Agriculture in the International Context: A Review, The Land Stewardship Project, Retrieved on April 30, 2011 from <http://www.landstewardshipproject.org/mba/MFAReview.pdf>

Goetz, S.J. (2008) "Self-Employment: The New Rural Reality," *Rural Realities*, the Rural Sociological Society, vol. 2 no. 3, 13pp.

Goetz, S.J., M. Partridge, S.C. Deller and D. Fleming (2010), "Evaluating U.S. Rural Entrepreneurship Policy," *Journal of Regional Analysis and Policy*, in press.

Hajnalka, P. and Alajos, F. (2009). The multifunctionality of agriculture and risk management as seen by Hungarian farmers involved in diversified farming, *Studies in Agricultural Economics*, No. 109: 103-116.

Hewitt, B. (2009). *The Town that Food Saved – How One Community Found Vitality in Local Food*, Rodale Publishing, USA.

Hoope, R. A. (2010). U.S. Farm Structure: Declining – But Persistent – Small Commercial Farms, *Amber Waves*, U.S. Department of Agriculture, Retrieved on April 30, 2011 from <http://www.ers.usda.gov/AmberWaves/September10/Features/USFarm.htm>

Hoope, R. A.; MacDonald, J. M., & Korb, P. (2010). Small Farms in the United States – Persistence Under Pressure, U.S. Department of Agriculture, *Economic Information Bulletin*, Number 63, February, Retrieved on April 30, 2011 from <http://www.ers.usda.gov/publications/eib63/>

Martinez, Steve, Michael Hand, Michelle Da Pra, Susan Pollack, Katherine Ralston, Travis Smith, Stephen Vogel, Shellye Clark, Luanne Lohr, Sarah Low, and Constance Newman. (2010). *Local Food Systems: Concepts, Impacts, and Issues*. Economic Research, USDA, Report No. (ERR-97) 87 pp, May.

Perry, J. & Johnson, J. (1999). What Makes a Small Farm Successful? U.S. Department of Agriculture, Economic Research Service, *Agricultural Outlook*, November, Retrieved on April 30, 2011 from <http://www.ers.usda.gov/publications/agoutlook/nov1999/ao266c.pdf>

Pollan, Michael (2010). *Food Movement, Rising*. *New York Times Review of Books*, June 20.

Renting, H., W.A.H. Rossing, J.C.J. Groot, J.D. Van der Ploeg, C. Laurent, D. Perraud, D.J. Stobbelaar, and M.K. Van Ittersum (2009), "Exploring multifunctional agriculture: A review of conceptual approaches and prospects for an integrative transitional framework," *Journal of Environmental Management*, 90, S112-S123.

USDA, NASS. (2009). 2007 Census of Agriculture, United States Summary and State Data, Vol. 1, Geographic Area Series, Part 51, February.

Van der Poeg, Jan Douwe and Roep, Dirk. (2003). Multifunctionality and Rural Development: the Actual Situation in Europe, chapter 3 in Van Huylenboeck, Guido and Guy Durand, (eds.), *Multifunctional Agriculture: A New Paradigm for European Agriculture and Rural Development*. Hampshire: Ashgate.

Van Huylenboeck, Guido and Guy Durand, eds. (2003). *Multifunctional Agriculture: A New Paradigm for European Agriculture and Rural Development*. Hampshire: Ashgate.

Walzer, Norman (ed.). (2007). *Entrepreneurship and Local Economic Development*. Lanham: Lexington Books.