

## Measuring Quality of Life: A Case Study of Agritourism in the Northeast

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**Abstract:** *Evaluation of Extension programs is critical for accountability and improved program effectiveness. However, measuring outcomes remains a challenge for many types of programs, especially those that aim to improve the quality of life of participants. The study reported here examined changes in quality of life indicators as part of a measure of farm viability. Farmers participated in agritourism trainings in the Northeast, and impacts of the trainings were evaluated through an Internet survey 1 year later. The index developed to measure quality of life for the agritourism program may be adapted for evaluation of a wide variety of Extension programs.*

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## Introduction

Evaluation of Extension programs has become increasingly sophisticated during the past two decades, as expectations to report measurable outcomes have become the norm in many Extension systems. The need for evaluation of Extension programs has been emphasized in the literature (Radhakrishna & Martin, 1999), and efforts to improve evaluations of Extension programs have yielded several studies measuring the effectiveness of programs (e.g., Guion, Turner, & Wise, 2004; Scott, Reed, Kubena, & McIntosh, 2007). Different types of measurable outcomes can be evaluated, ranging from short-term increases in knowledge to medium-term changes in behavior to long-term achievement of desired conditions (Chase & Kuehn, 2010). Long-term changes in conditions may include improved profitability, environmental standards, and quality of life.

Quality of life (QOL) is a central concern for individuals and communities (Chase, Boumans, & Morse, 2010), which makes it an especially important outcome to measure. However, QOL is a particularly difficult concept to measure as it has multiple definitions and meanings, and can be examined at several scales, ranging from an individual to a community to a country (Chase, Amsden, & Phillips, 2012). Costanza et al. (2007) describe QOL as "a multi-scale, multi-dimensional concept that contains interacting objective and subjective elements." To measure QOL, indicators are used that can be divided into subjective and objective categories. Subjective indicators reflect an individual's perceptions of satisfaction in several life domains, including work life, family life, social life, and leisure life. Objective indicators include external evaluations of income levels, family life, social life, and health (Sirgy, Rahtz, Cicic, & Underwood, 2000).

The goal of the study reported here was to evaluate the impacts of Extension programs on changes in quality of life. As such, the focus

was on subjective quality of life indicators that reflect an individual's perceptions of satisfaction in work and leisure. This article begins with background on the case study, an Extension program to support agritourism in the Northeast. Methods for evaluating outcomes are presented, followed by results focused on QOL indicators. Discussion and conclusions assess the contributions of the QOL indicators and the need for further research and outreach to improve our ability to measure the impacts of Extension programs on quality of life of participants.

## Background

Agritourism is defined as a commercial enterprise on a working farm conducted for the enjoyment, education, and/or active involvement of the visitor, generating supplemental income for the farm (Chase, 2008). Agritourism is important to quality of life for economic and cultural reasons, promoting experiential education, preserving traditional land use, and contributing to a rural sense of place. In many cases, agritourism allows farmers to diversify their core operations and keep farmland in production while preserving scenic vistas and maintaining farming traditions. Although agritourism is growing rapidly in the Northeast region, the industry remains underdeveloped in many states, lacking technical assistance support, infrastructure, and networking opportunities to ensure best practices (Kuehn & Hilchey, 2001).

To address these concerns, Extension educators and farmers in Northeastern states collaboratively developed a program of agritourism training modules consisting of workshops and follow-up technical support. With funding from a USDA Sustainable Agriculture Research and Education grant and additional resources, 19 workshops were held in 10 states (ME, MD, DE, VT, NH, NY, MA, CT, WV, RI) between January 2009 and March 2010. Evaluations were conducted on-site immediately following the workshops to assess short-term outcomes. An Internet survey was conducted 1 year later to assess medium- and long-term outcomes. Both the on-site and Internet evaluations included questions about improvements in farm viability, which was defined as increases in profitability and/or increases in quality of life indicators, including personal time and personal satisfaction.

To measure changes in QOL, an index of indicators was needed for the Internet survey. Researchers typically use indicators as a way to quantify quality of life concerns and considerations, rather than directly attempting to measure these abstract concepts (Wong, 2006). A literature review on quality of life revealed extensive works examining both subjective and objective aspects of quality of life, ranging from individual to county to national data (Sirgy, Rahtz, Cicic, & Underwood, 2000).

However, indicators measuring changes in quality of life as a result of an intervention (e.g., an Extension program) were not found through the extensive literature review. The most relevant study was the Iowa Farm and Rural Life Poll, which directly asked farmers about their perceptions of "quality of life" during the past five years (Arbuckle, Korsching, Lasley, & Kast, 2008). In this example, indicators were not used, and the meaning of quality of life was subject to interpretation by the respondent. This was effective for Iowa Farm and Rural Life Poll's objective because the same farmers were surveyed annually since 1982.

However, for the purpose of measuring impacts of a one-time Extension program on quality of life, an index of indicators with straightforward questions is needed. Our study addressed this need by developing such an index and applying it to an Extension program on agritourism in the Northeast.

## Methods

A total number of 763 farmers, service providers, and others participated in the 19 workshops. A questionnaire was handed out at the end of each workshop (conducted between January 2009 and March 2010) to collect baseline data on farm operations and to assess the knowledge gained from the workshop and the likelihood of adopting new practices. One-hundred-forty-three completed questionnaires were received from farm operators, 129 of which included contact information for farmers willing to complete an on-line follow-up survey, which was administered in January 2010. Five follow-up e-mail reminders were sent every 2 weeks after the initial mailing, following recommendations from the Tailored Design Method (Dillman, 2007).

The on-line survey included questions on demographics (gender, year of birth, number of people in household, years of education); involvement of household members in the business; perceived impact of the farmer's business on local networking and the community; and impact of the economy, weather, workshop, and family life on the business. Farmers were asked to describe any business income and expenses during the previous 12 months that resulted from the workshop or technical assistance received. Questions regarding how the respondent's business has impacted the local community and business networking used a five-point scale ranging from highly negative impact to highly positive impact. An identical scale was used to identify the impact of the economy, weather, workshop, and changes in family life on the business during the previous year. Respondents were asked to identify changes in seven variables related to personal time and personal satisfaction over the past year, using a five-point scale ranging from greatly decreased to greatly increased. To measure quality of life, a new set of indicators was developed based on related literature and our direct experience working with numerous agritourism stakeholders, including farmers, consumers, visitors, community members, and Extension educators.

A principal components factor analysis with Varimax rotation was used to identify factor composition for "changes in personal time" and "changes in personal satisfaction." The mean value for each factor was obtained by averaging the variables included in each factor

(averaging was used to maintain the five-point scale and enable interpretation of results). Cronbach's alpha was used to identify the reliability of the two factors; an alpha of 0.7 or higher indicates adequate internal consistency of factors (Hair, Anderson, Tatham, & Black, 1998).

## Results

### Response and Demographics

Of the 129 surveys distributed to farmer participants at the workshops, 62 responded, for a response rate of 48%. Most of those owned a farmstand (32% of respondents;  $n = 62$ ), u-pick operation (29%), farm-stay bed and breakfast (14%), greenhouse/plant nursery (11%), or Christmas tree farm (11%) or operated farm tours (10%). Smaller percentages (less than 8%) of respondents owned a winery, retail store, or corn maze; functioned as Community Supported Agriculture (CSA); or sold maple products. Seventy-two percent of the respondents were female, 79% were married, and the average age was 55. The average respondent had 16 years of education, with 69% having 4 years or more of college education. The average household size of respondents was 2.5 people, ranging from one to six household members. Respondents indicated that household members were moderately involved in their agritourism business (i.e., most household members sometimes assisted with farm operations).

### Impact Variables

Results indicated that 64% of farms had implemented agritourism improvements or new ventures. Examples included involvement in local schools, social media marketing, maple tours for the off-season, pairing and tasting events, and educational nature trails. Farm owners were asked how certain external elements (e.g., the economy, the workshop) affected their business and how their business affected others (e.g., networking opportunities among local businesses). The economy and the weather were identified as having a negative impact on the farm business during the previous year, both having a mean value of -0.61 (Table 1). In contrast, the workshop was identified as having a positive impact on the farm business (mean = 0.66); changes in family life had a slightly positive impact (0.21). Respondents indicated that their business had a positive impact on networking opportunities, marketing, the economy, job availability, and residents (Table 1).

**Table 1.**  
Means for Independent Variables Related to Impacts On and From Respondents' Businesses

Question Type	Variable	n	Mean	Standard Error
Impact of variable on business <sup>a</sup>	The economy	61	-0.61	0.118
	The weather	62	-0.61	0.109
	The workshop	61	0.66	0.061
	Changes in family life	62	0.21	0.083
Impact of business on variable <sup>a</sup>	Networking opportunities among local businesses	52	0.73	0.073
	Marketing and packaging opportunities among local businesses	52	0.44	0.080
	The local economy	52	0.52	0.101
	The number of jobs available in your community	52	0.33	0.094
	Your neighbors	49	0.59	0.105
	Other people in your community or area	51	0.84	0.076

<sup>a</sup>The following scale was used for these variables: -2= highly negative impact, -1 = negative impact, 0 = no impact, 1= positive impact, 2 = highly positive impact.

### Time and Satisfaction Factors

QOL indicators included a series of questions about personal time and satisfaction (Table 2). Over two-thirds of respondents reported increased enjoyment from sharing farm life and/or heritage with visitors, and 71% reported increased enjoyment from meeting new people through their business. Over half reported increased personal satisfaction from their business, while 45% reported no change, and 2% reported a decrease. However, the increases in QOL indicators were tempered by 29% reporting a decrease in the amount of free time they have, and only 9% reporting an increase in their free time after diversifying to include or expand agritourism on their farm. The majority of respondents (62%) reported no change in free time. Regarding the amount of time respondents spent with family during both work and free time, 72% reported no change, 16% reported an increase and 12% reported a decrease.

Principal components factor analysis revealed two factors: "changes in personal time" and "changes in personal satisfaction" (Table 2). Changes in personal time included the variables of "changes in the amount of time I spend with my family (during both work and

freetime)" and "changes in the amount of free time I have." The factor mean was -0.08, a neutral value indicating that the average respondent had neither increases nor decreases in their amount of family time or free time. The 29% reporting a decrease in the amount of free time was offset by those reporting increases or no change in the amount of free time combined with those reporting no change or increases in the amount of time spent with family during both work and free time. The reliability of this factor was moderately high at  $\alpha = 0.722$ .

The "changes in personal satisfaction" factor included the variables "changes in the amount of personal satisfaction I receive from my business," "changes in my enjoyment in sharing farm life and/or heritage with visitors," "changes in my satisfaction with preserving the agricultural landscapes of my farm," "changes in the wages I receive from my business," and "changes in my enjoyment with meeting new people through my business." The factor mean was 0.64, a positive value that indicates that the average respondent had an increase in the satisfaction they received from their business. The reliability of this factor was high ( $\alpha = 0.876$ ).

**Table 2.**

Factor and Variable Means Related to Personal Time and Personal Satisfaction

Factor	Variable	n	Variable		Cronbach's Alpha
			Mean	Factor Mean	
Changes in personal time <sup>a</sup>	Changes in the amount of time I spend with my family (during both work and freetime)	42	0.07	-0.08	0.722
	Changes in the amount of free time I have	42	-0.24		
Changes in personal satisfaction <sup>a</sup>	Changes in the amount of personal satisfaction I receive from my business	41	0.59	0.64	0.876
	Changes in my enjoyment in sharing farm life and/or heritage with visitors	41	0.80		
	Changes in my satisfaction with preserving the agricultural landscapes of my farm	41	0.88		
	Changes in the wages I receive from my business	41	0.05		
	Changes in my enjoyment with meeting new people through my business	41	0.90		

<sup>a</sup>Based on the following scale: -2 = greatly decreased, -1 = decreased, 0 = no change, 1 = increased, 2 = greatly increased.

## Discussion and Conclusions

Improving quality of life is a central component of Extension's mission in many states. For example, the mission of University of Vermont Extension is "to improve the quality of life of Vermonters by providing research-based educational programs and practical information concerning Vermont communities, families and homes, farms, businesses, and the natural environment." ("UVM Extension", n.d., para.1). As the Cooperative Extension System celebrates its centennial anniversary, the impacts of Extension programs on quality of life through improvements to working landscapes, rural communities, and productive farms are evident to those of us working in Extension. However, Extension personnel are increasingly required to quantify these impacts in response to calls for accountability from the public and from the legislature. It is critical to develop ways to measure and quantify the long-term impacts of our programs and provide measurable results, especially for nebulous but important concepts like quality of life and community well-being.

A need exists, therefore, for the development of indices and indicators focusing on changes in quality of life as perceived by participants in a specific intervention, such as an Extension program. In addition, these impacts should be measured over the long-term and incorporate external variables (such as the economy and the weather) that are beyond the participant's control. To address this need, our study developed two primary indicators of quality of life, (changes in personal time and personal satisfaction) to measure the impacts of Extension programs on participants. Testing these indicators using an Extension program designed to support agritourism in the Northeast revealed high measures of reliability for both factors.

Another challenge for evaluation is to clearly attribute positive long-term impacts to Extension programs. By definition, long-term impacts happen over time, usually 12 months at least. Measuring these long-term impacts from Extension efforts can be difficult, especially while uncontrollable variables (e.g., the economy) continue to influence quality of life. Our study revealed that while the economy and weather did have a negative impact on quality of life for our survey respondents, the Extension workshops had a positive impact during the 12 months following the workshops. Respondents also revealed that their farm businesses had a positive impact on local networking opportunities, marketing, the economy, job availability, and residents during these 12 months, likely increasing the quality of life for others in their community. Although our study focused on the direct relationship between Extension programs and quality of life of participants, Extension efforts may have a broader impact on quality of life than originally considered as Extension clientele influence the quality of life

of others in their communities.

In conclusion, the QOL indicators identified in our study proved useful for evaluation of the Northeast agritourism program as a case study; however, further examination of the index is needed as well as adaptation of the index to other types of Extension programs. The relative importance of QOL indicators should be measured, and methods for doing so have been developed (Andereck & Nyaupane, 2011). By including the relative importance, QOL indicators can be weighted and combined to create aggregate measures of quality of life for each individual. To examine transferability and further assess reliability, the QOL indicators must be adapted and applied to a variety of Extension programs. Comparison across Extension programs will not only improve the tools available for measuring QOL, it will also help us understand and document the far-reaching impacts of Extension programming on the quality of life of participants and their communities.

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