

DEVELOPING A RESEARCH INSTRUMENT FOR UNCOVERING BARRIERS AND BENEFITS TO RESIDENTIAL PERENNIAL FOOD PRODUCTION IN URBAN AND SUBURBAN LANDSCAPES.

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ABSTRACT: Determining the barriers and benefits of perennial residential food production in urban and suburban landscapes is necessary to implement sustainable community food systems. Community-Based Social Marketing (CBSM) provides the framework for developing a survey that can be used among a palate of tools for this purpose. CBSM relies upon social science research relating to community level initiatives that remove barriers of a behavior while at the same time enhancing benefits. A draft of survey items was written based on a literature review, professional experience, and CBSM guiding principles. The draft was then submitted to local community leaders and stakeholders for review of the local community suitability of survey items. A second draft was submitted to a panel of three experts from the fields of landscape design, Permaculture, and community development for survey validity and reliability. The panelists determined that the survey items appropriately addressed the survey objectives. The finished survey is available for use by practitioners of landscaping, community development and food system planning, among others. It can also be referenced as a resource towards developing a further instrument for unique locales. The survey also contributes to CBSM research that has been primarily concerned with energy efficiency and waste reduction. Results obtained from this survey could help develop programs used to manage lawn footprints relating to stormwater management, benefit local farmers and agrarian culture oriented businesses, and improve local food security. This survey can be used to implement programs based on existing renovated landscape design philosophies such as edible landscaping, Permaculture, and forest gardening.

Introduction

No one will argue that food is of vital importance in our everyday lives. The growing, processing, and eating of food occupy much of humankind's time and energy. However, as in every endeavor, the study of food systems can be approached from many different perspectives. Therefore, it may be vitally important to determine the prevalent attitudes within a population if one is to attempt a conversion of a food system towards a more desirable model. For this study, the perspective desired is that food systems are an integral part of residential landscapes leading to sustainable communities. Hence, the development of an "ad hoc" survey as presented in this paper is geared toward finding which barriers and benefits may affect any particular population.

Additionally, this investigation seeks to verify whether the proposed constructs are significant in perspectives with a corresponding, local food system.

In order to avoid any type of semantic confusion, a multi-disciplinary definition of a sustainable food system is used in this context. This definition was developed by the Michael Fields Agricultural Institute urban-rural conference held in 1998, titled “Bucking the Trend: Local Food Systems in a Global Market”. At this conference, 125 participants who represented a broad cross section of the alternative farming and food community developed a list of characteristics for a sustainable food system. These features are of prime importance in relation to increasing residential food production in a community. They include: “rational, proximate, diverse, ecologically sustainable, economically sustaining, just/ethical, sacred, knowledgeable/communicative, seasonal/temporal, healthful, participatory, culturally nourishing, and sustainably regulated.” (Kloppenburger Jr, Lezberg, De Master, Stevenson, and Hendrickson, 2000, p. 177).

The multi-disciplinary definition of a sustainable food system that these terms comprise is reflective of an increasing multi-disciplinary approach to environmentalism. The Fall 2000 volume of the *Journal of Social Issues*, which was completely dedicated to the promotion of environmentalism, brought together articles that showcased the importance of a multidisciplinary approach to succeeding in developing viable food systems in urban contexts. In this case, Zelezny and Schultz (2000) featured the promotion of environmentally positive behavior through the fields of psychology, sociology and public policy. Zelezny and Schultz also stated that the multidisciplinary approach: “represents an approach that we believe will be required to achieve significant environmental progress, that is, collective efforts across disciplines to effectively foster sustainable living using a broad knowledge base, the most creative ideas, and the most promising strategies.” (2000, p.365).

However, society is still facing many barriers to achieving sustainable food systems in the practical world. The struggle for ecological literacy, the prevalence of lawns in urban and suburban landscapes, the loss of rural and farming heritage connections, and a false sense of community and household food security can be identified as major stumbling blocks upon this quest. Individual connections to the natural world are weakening as interactions and understanding of the everyday ecology lose their importance, according to the Center for Eco-Literacy (Capra, n.d.).

A plausible root of the problem may be linked also to the fact that consumers have lost contact with local food production and seasons, local farmers and farming heritage, and the ability and knowledge to grow their own food. Consumers buy most of their food products prepackaged at the local grocery store but this approach is inimical to a philosophy of sustainability. On the other hand, gardening and producing food locally may help to regain connections with nature and agrarian cultures (City Farmer, 2001b). Fruits and vegetables that once came from our own yards and community scale gardens are now being obtained from other sources. The proliferation of grassy lawns is another factor that has led to a decrease in food production, as the history of America’s obsession with the lawn as landscape is well documented and researched (Bormann, Balmari, and Geballe, 1993; Jenkins, 1994). From the development of mechanical devices and chemical products (lawn mowers and pesticides), to the proliferation of marketing and social pressures after World War

I, lawns have come to dominate the American yard. (Bormann, Balmari, and Geballe, 1993; Jenkins, 1994)

America's farming culture and heritage, along with local community connections and development opportunities, is rapidly becoming a relic in today's fast paced urban society. Growing one's own food helps people to understand farming and food systems. This "greater connection and understanding of local agriculture on the part of urban residents can facilitate regional and state policies that protect and promote local agriculture (such as farmland preservation)" (Kloppenburger Jr. et al, 2000, p.177). Food security refers to "the ability of a household to acquire enough food for an active, healthy life...[and] focuses on the underlying social, economic, and institutional factors within a community that affect the quantity, quality, and affordability of food" (Kantor, 2001, p.20). This security is coming under attack however, as communities are becoming ever more reliant on outside, less nutritious, and chemically or genetically suspect food sources. Therefore, advertising and marketing, homogenous corporate food products, and disinterest are leading Americans down a suspect path in regards to food security.

Determining Barriers and Benefits of a Behavior

It may be easy to speculate about barriers to local and sustainable food systems, but for true success in future promotional and educational endeavors, one should examine the extent of specific barriers and benefits of any community population under study. This research may be achieved through the use of Community-Based Social Marketing.

Community-Based Social Marketing is an alternative to information-intensive campaigns; it brings a wealth of academic psychological research into the practical field of planners and program designers (McKenzie-Mohr, 2000a). CBSM is "based upon research in the social sciences that demonstrates that behavior change is most effectively achieved through initiatives delivered at the community level which focus on removing barriers to an activity while simultaneously enhancing the activities benefits" (McKenzie-Mohr, 2000b, p.1).

Although personal experience and instinct may be needed in identifying barriers and benefits, their importance should be viewed in relation to actual scientific data uncovered through survey studies. This approach is one of four reasons given by McKenzie-Mohr and Smith (1999) as to why barriers and benefits often go unidentified before designing a strategy; the others include time pressures, financial constraints, and unsupportive managerial staff. Another important contention about the issue suggests that every form of sustainable behavior has its own significant set of barriers and benefits (McKenzie-Mohr, 2000b). It then becomes important to identify barriers and benefits to increased residential food production through the administration of a survey, before a strategy or program can be developed to promote the behavior.

The field of Community-Based Social Marketing is helping to increase an understanding of environmental behavior including perceptions and attitudes toward food systems. A database of nearly 1000 academic articles and 60 case studies is continuously updated at a website dedicated to Community-Based Social Marketing (www.cbsm.com).

A major limitation of this research consists in having been primarily “confined to energy efficiency and waste reduction [although] we quickly need to develop knowledge regarding the barriers to a much broader set of activities” (McKenzie-Mohr, 2000a, p.546). The survey here proposed wants to contribute to increased knowledge concerning barriers and benefits of residential food production in the ever-growing literature of psychological research, while promoting environmental behavior in tune with a philosophy of sustainability.

Constructing the Survey

In developing this research instrument, an objective statement was first written. McKenzie-Mohr and Smith (1999) contend that this statement serves to clarify the purpose of the survey to respondents while providing information on the scope of the research. The objective statement of this survey is as follows:

This survey is designed to determine the barriers and benefits affecting perennial food production in urban and suburban landscapes.

The next step involves determining a list of items to be included in the survey. These items, which included survey questions and topics as well as demographic questions, were based on a literature review, and personal and professional experience (Blair, Giesecke, and Sherman, 1991; City Farmer, 2000a; City Farmer, 2000b; City Farmer 2001b; Armstrong, 2000).

A first draft was written using the items determined for inclusion in the survey. Considerations for the survey format included using closed-ended questions as much as possible to facilitate future analysis and to keep the survey length manageable and within 10 minutes or less for completion time. Using only a few types of scales in order to ask as many questions as possible in a short amount of time consisted in another peculiarity of the research instrument. A six-point survey scale was used to provide a broader range of answers in order to lessen clustering at either end of the scale. In addition, a six-point scale removes a midpoint selection as a possible answer. Only the endpoints of the scale are described (e.g.: Strongly Agree and Strongly Disagree) in order to lessen the amount of time required to read the survey. Scale midpoints are not labeled in order to prevent misunderstandings of equivalence between points that may arise from qualitative labeling (McKenzie-Mohr and Smith, 1999).

In addition, Community Based Social Marketing has developed a set of six guiding questions upon which the specific questions of this survey are based. The questions are “grounded in theory and research in the social sciences...and can be adapted to a variety of behaviors to identify key determinants, or influences upon behavior” (McKenzie-Mohr and Smith, 1999, p. 35). The questions as presented here contain one variable (variable X) to stand for the specific behavior that will be surveyed for. The questions are as follows:

Barriers

- 1) What makes it difficult to do X?
- 2) What makes it easy to do X?

Benefits

- 3) What positives are associated with doing X?
- 4) What negatives are associated with doing X?

Social Norms

- 5) Who wants you to do X, and how much do you care about their opinion?
 - 6) Who doesn't want, or care if you do X, and how much do you care about their opinion?
- (McKenzie-Mohr and Smith, 1999, p. 35)

Reliability and Validity

In order to evaluate the reliability of the instrument and make sure that the survey was accurate, the first draft was submitted to a group of local community leaders and stakeholders for initial review. Recipients included nine Slippery Rock Borough Council members, the Slippery Rock Development Inc. committee chairperson, the Director of the Robert A Macoskey Center for Sustainable Systems Education and Research, and the president of A.L.T.E.R. (Alternative Living Technologies Energy and Research). Upon completion of this initial review, a second draft of the survey was prepared and submitted to a panel of three experts for a more detailed analysis of the instrument. The panel consisted of professionals in the field of landscape design, permaculture, and community development. The feedback obtained from the panel members was intended to address validity and reliability issues.

Panel members were asked to comment on survey design and layout, survey topics, written style of survey questions, and overall survey concept. The investigator communicated with the panelists to determine their consensus for the survey's final edited form ready for dissemination and use (Appendix A). Panelists all determined that the survey items written by the researcher appropriately addressed the purpose of the survey's objective.

Conclusion

The availability of this survey will be beneficial in many future investigations exploring attitudes, feelings, and perceptions of human subjects, related to food systems and landscapes. Professionals and students in the fields of landscaping, community development, and food systems may readily use the survey as a tool. They may also reference it as a resource when designing an original survey tool appropriate for their individual circumstances.

The primary use for this research instrument will be for sustainable community planners and managers who wish to develop programs for improving local food systems and sustainable landscaping. The results obtained from its use could help develop programs for reducing residential lawn footprints that would lead to better storm water management and pollution control of non-point fertilizer and soil runoff. Programs geared towards marketing behaviors such as gardening, outdoor recreation, and seasonal eating would benefit local farmers and agrarian culturally oriented businesses. Finally, decreased dependence on imported and out of season food sources that are often

lower quality, higher priced, and processed with additives for long distance transport would benefit the health, food security, and economic stability of communities.

Although not undertaken within the scope of this research paper, implementing and analyzing the results of this survey would complete the process of determining barriers and benefits. This information is needed to carry out programs with goals aimed at supporting successful, local food systems and increasing perennial food production at urban and suburban residential sites. Appropriate models and paradigms currently exist for design and program development goals. Permaculture's central theme is the design of ecological landscapes that produce food (Permaculture Activist, 2002); while edible landscaping espouses the personal satisfaction gained from landscapes that are aesthetically pleasing while providing healthy food (Creasy, 1982). It is the hope that this survey can help implement programs based upon renovated landscape design philosophies, while furthering the use of Community Based Social Marketing techniques.

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Appendix A

Resident,

(Name of Community) has begun moving towards a more successful **local food system** with (community program success examples). Many more opportunities exist as the (name of community organization) works to rejuvenate (name of community) as a whole. Your participation in the following survey has been randomly determined from resident address utility listings. The survey is designed to:

Determine the barriers and benefits affecting perennial* food production in (name of community) resident landscapes.

* Perennial refers to plants living continuously for more than two years and

requiring permanent placement such as fruit trees, grape arbors, and asparagus or strawberry patches.

The survey results will be distributed to (community officials and stakeholders) as well as be made available to borough residents and community organizations interested in helping continue develop a successful local food system.

Remember, the identity of all survey participants will remain anonymous, and all question responses are optional. Thank You.

AGE: _____

GENDER: Male Female

RESIDENCE: Rent Own

TYPE: Permanent Resident Student

SIZE OF PROPERTY (in square feet): _____

SIZE OF YARD (as percentage of total property size): _____

SIZE OF LAWN (as percentage of total property size): _____

Do you currently produce any of your own food at your residence? Yes No
If Yes, What do you produce?

Vegetables Fruit Herbs Nuts Berries
Honey Grains Meat Fish Dairy Eggs

Rate each statement to the extent you agree it is a **BENEFIT** of producing your own food on your residential site through perennial landscaping.

	Strongly Agree				Strongly Disagree	
Less Expensive	1	2	3	4	5	6
Better Flavor	1	2	3	4	5	6
Better for the Environment	1	2	3	4	5	6

Healthier and Safer to Eat	1	2	3	4	5	6
Allows Self Expression	1	2	3	4	5	6
Contact with Nature	1	2	3	4	5	6
Alleviates National Security Concerns	1	2	3	4	5	6
Enjoyable and Fun	1	2	3	4	5	6
Provides Exercise	1	2	3	4	5	6
Beautifies Landscape	1	2	3	4	5	6

Rate each statement to the extent you agree it is a **BARRIER** to producing your own food on your residential site through perennial landscaping.

	Strongly Agree			Strongly Disagree		
No Time	1	2	3	4	5	6
No Space	1	2	3	4	5	6
Prefer Lawn to Cultivated Plots	1	2	3	4	5	6
Don't Know How	1	2	3	4	5	6
No Money / Resources	1	2	3	4	5	6
Not Interested	1	2	3	4	5	6
Landlord Won't Allow	1	2	3	4	5	6
Neighbors Won't Allow	1	2	3	4	5	6
Unfavorable Weed Ordinances	1	2	3	4	5	6

Rate each statement to the extent you agree it would be an **INFLUENCE IN FAVOR** of producing your own food on your residential site through perennial landscaping.

	Strongly Agree			Strongly Disagree		
Volunteer Help	1	2	3	4	5	6
Free or Low-cost Compost / Supplies	1	2	3	4	5	6
Free or Low-cost Seeds / Transplants	1	2	3	4	5	6
Free or Low-cost Gardening Education	1	2	3	4	5	6
Presence of Farmer's Market to Sell Excess	1	2	3	4	5	6
Borough / Neighbors Participate in Practice	1	2	3	4	5	6