

# Marketplace Perception of the Economic Potential Presented by Urban Gardening in Southeast Michigan



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## ABSTRACT

*While the social and health benefits of urban gardening have been increasingly examined in recent years, the economic potential related to urban gardening has yet to be fully explored. This study surveyed three marketplace sectors – farmers (n=13), grocers (n=11), and garden centers (n=8) – and looked at their perceptions of the economic potential related to urban gardening. In addition, 78 urban gardeners were surveyed about their perceptions and experiences with urban gardening. All respondents were from southeast Michigan. Results from urban gardener respondents indicate that the majority of crops from urban gardens are used for personal consumption rather than being sold in the marketplace. When harvested products are sold, they most frequently are sold to neighbors and friends. Half of the urban gardener respondents indicated that they are prevented from raising other crops by space limitations, and to a lesser extent by lack of skills and being satisfied with the current status of their garden. Further, many urban gardeners perceive that gardening decreases the cost of fresh produce in their household while increasing the amount of fresh produce they consume, and are neutral on whether gardening affects their household income, the amount of time they spent visiting with friends and neighbors, and crime rates in their neighborhood. Results from the three marketplace sectors surveyed reveal that in many instances, farmers, grocers, and garden centers do not perceive a high income potential related to urban gardening, with the exception that garden centers see a high potential of providing consulting services to gardeners. Marketplace sector respondents reported being more willing to carry fruit, vegetables, and flowers than to carry grain or livestock from small-scale agricultural producers. No farmers and few grocers and garden centers reported that they offer products or services that help gardeners sell harvested products. The results suggest that there is a wide-open space in the marketplace for entrepreneurs to start businesses providing consulting services to gardeners or for broker or middle person distributors to facilitate connecting producers with the marketplace.*

## INTRODUCTION

Michigan's economy is currently noted for its loss of manufacturing jobs, out-migration, and declining property values. In contrast, community gardening is one of the expanding positive trends in the region. Urban gardening projects in southeast Michigan are increasing in size and scope, such as The Greening of Detroit's Garden Resource Program, which has grown 20% annually over the last several years (Detroit, 2008). Within the city limits of Detroit alone there are over 350 food-producing gardens and farms.

Research suggests a link between community gardening and increased social, public and even ecosystem health in urban areas. However, little research has been done that links urban gardening with economic development indicators such as neighborhood improvement, job

creation, and economic growth. This study examines perception of the economic potential presented by urban gardening in three marketplace sectors.

### *Urban Gardening and Public Health*

The impact to public health from lack of access to fresh food has received increasing attention in recent years. For example, as observed in a recent study, lack of access to fresh produce resulted in substantial “life lost” for Detroit residents (Gallagher, 2007). Further, “over half a million Detroit residents live in areas that have an imbalance of healthy food options. They are statistically more likely to suffer or die prematurely from a diet-related disease, holding other key factors constant.”

While the health impacts of lack of access to fresh produce has been documented, so have the health benefits of community gardening. One study documented the health benefits to residents in Ypsilanti, Michigan from increased proximity to grocery stores and venues that sell fresh produce (Bacolor, 2007). In addition, a study of Flint residents observed that participation in community gardening was linked with increased fruit and vegetable consumption (Alaimo, 2008).

### *The Economic Potential of Urban Gardening*

Beyond the health implications, does community gardening have the potential to improve the economic standing of southeast Michigan residents? One approach is to consider the economic impact of locally spent food dollars. Purchasing locally produced products increases economic output to a given community by what is known as the “multiplier effect” which keeps local dollars in the state and local economy, while reducing costs from shipping and distribution. One study suggests that a small increase in consumption of Michigan grown fruits and vegetables during the growing season could result in 1,889 new jobs while another study found that a similar increase would result in 1,800 new jobs and \$200 million in additional income at the state, regional, and community level (Cantrell, 2006; Connor, 2008). Another analysis predicts that a twenty percent shift in food spending in the five counties surrounding Detroit – Oakland, Macomb, Monroe, Washtenaw, and Wayne – would result in an annual increase in economic output by roughly \$3.5 billion, creating an estimated 36,000 jobs, and an additional \$155 million in tax revenues available for government entities (Shuman, 2007).

In discussions about agriculture as a form of economic development, however, it is easy to skew attention toward larger scale agricultural business development activities. On a smaller scale, neighborhoods and families may economically benefit from community gardens. Much attention of late has been paid in the media to the household cost savings from gardening.

Impacts of community gardens on surrounding property values are relatively unknown, but research suggests that property values increase with increasing proximity to urban and

community gardens. A study completed by the New York University School of Law documents positive impacts on property values within 1,000 feet of a garden site. The study established a correlation between new gardens and home ownership and found that community gardens have the greatest positive impact in the most disadvantaged neighborhoods (Been, 2006). Such studies are particularly relevant in southeast Michigan, where a large amount of vacant land in urban areas presents an opportunity for urban gardening. From a community development perspective, establishment of a public garden space requires a series of land use choices. Community gardens are one of many possible uses for vacant infill lots. Other possibilities include business or residential property development and creation of parks. Green space projects like parks and gardens have economic, social, and environmental effects on nearby neighborhoods. While the social, economic, and environmental impacts of community gardening programs and green space projects are acknowledged by community leaders, gardening programs are not explicitly recognized within government agency development plans.

### *Barriers to Entry in the Marketplace*

Recent studies have begun to identify the challenges that urban gardeners face when bringing their products into the marketplace. A study by Rehmann identifies a number of obstacles that restaurants face in buying locally, including: (1) lack of knowledge about product availability, (2) not knowing how to find farmers, (3) inconsistent pricing, (4) not enough product to meet demand, (5) delivery difficulties, and (6) lack of consumer education (Rehmann, 2006). Another study by Growing Hope, a southeast Michigan based community gardening organization, evaluated the feasibility of producing herbs in community gardens as a form of social enterprise (Growing Hope, 2007). Despite the challenges, both the Rehmann study and the Growing Hope report an interest among retailers to include locally grown produce in their products.

Several organizations in southeast Michigan have already created structures to support community gardening, assist community members in completing inventories of local food systems, and facilitate the entry of their products into the marketplace. Among these are educational support services such as the C.S. Mott Group for Sustainable Agriculture at Michigan State University, which has developed a guide for creating a community food profile (C.S. Mott Group, 2008), and the Food Security Learning Center (FSLC) which provides guidelines for completing a community food assessment (Food Security Learning Center, 2008). These educational services offer self-assessment tools to equip community residents for simple market analysis and the development of consumer profiles in business planning documents. These inventory tools assist community members in organizing economic data on resources in a way that illustrates the costs and benefits of alternative land uses.

The food system has yet to be fully considered for its potential in discussions of economic development. Further, a review of the literature revealed an existing gap in current research as it pertains to the economic potential of urban gardening. The objective of this research was to

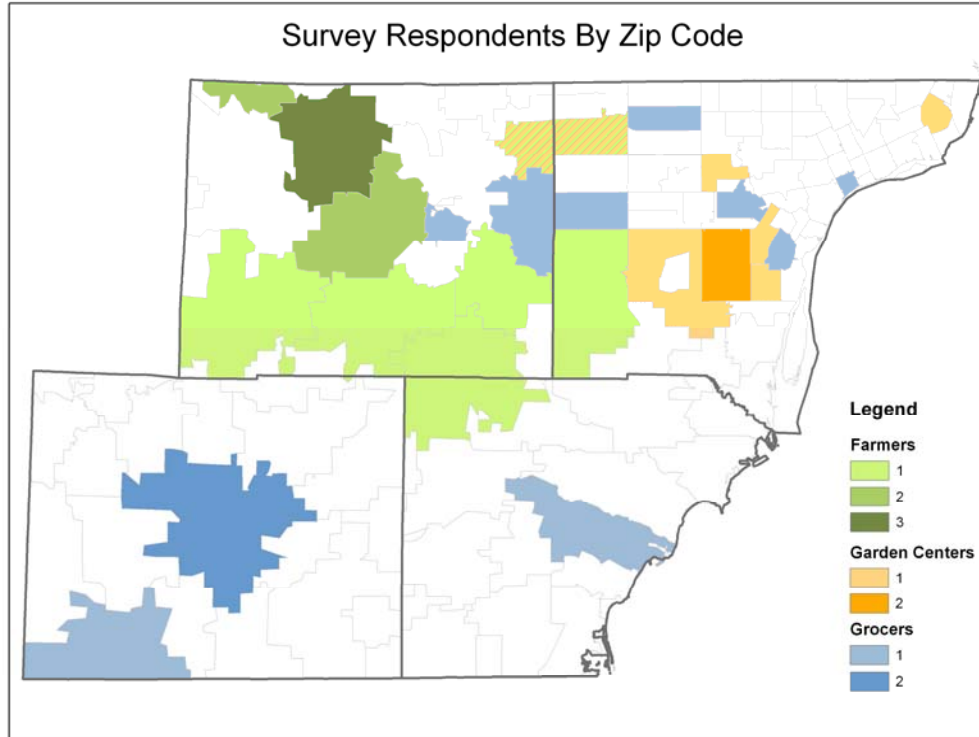
identify opportunities for economic development of small-scale urban and community gardens. Economic sectors that show high potential for new business activity – farmers, grocers, and garden centers – were studied through use of a survey instrument that generated information needed by entrepreneurs to justify business expansion or the launch of a new venture. The focus of the research was on horticultural crops produced in urban community gardens. This was an exploratory study with a small sample size, and is intended to provide recommendations for future research on the subject.

## METHODS

### *Study Participants*

This study collected and analyzed data from two sets of individuals related to urban gardening and small-scale agricultural production. One set consisted of three economic sectors that have potential for new or expanded business activities related to urban gardening (N=150), the other set consisted of urban gardeners (N=78). A survey of farmers, grocers, and garden centers allowed us to get a sense of the marketplace perspective of urban gardening, while a survey of urban gardeners permitted us to assess gardener perspectives of how urban gardening relates to the marketplace. Urban gardener respondents were asked about limitations to their gardening, how they use harvest products from their garden, and what effect gardening has on their lifestyle. The surveys were passed out with the assistance of a local community gardening organization, the Greening of Detroit. In total, 78 surveys were passed out and collected from urban gardeners who chose to participate in the study (n=78). Marketplace sector respondents included farmers, grocers and garden centers, who were surveyed about their current product lines and services offered to urban gardeners and how they perceive the economic potential related to urban gardening (n=32, overall response rate=21%). Each marketplace sector was mailed 50 surveys. The number of responses per sector was: farmers (n=13, response rate=26%), grocers (n=11, response rate=22%), and garden centers (n=8, response rate=16%).

Respondents came from the market place sectors of four counties in Southeast Michigan: Lenawee, Monroe, Washtenaw, and Wayne counties. A map of the distribution of respondents is displayed in Figure 1.



**Figure 1. Survey Respondents by Zip Code**

All of the garden center respondents were from Wayne County, while the majority of farmer respondents were from Washtenaw County, and grocer respondents were relatively evenly distributed throughout the four counties.

Of the urban gardeners surveyed, the average length of time engaged in gardening was 7.3 years, with a range of 1 to 40 years. Gardeners reported raising the following crops: vegetables (77 of 78 for 99%), flowers (60 of 78 for 77%), fruit (34 of 78 for 44%), and 21% (16 of 78) of respondents wrote that they raised herbs under “Other”.

### *Survey Instrument*

Three economic sectors that have potential for new or expanded business activities were surveyed about their perceptions of the economic potential presented by urban gardening. Respondents from each of the three economic sectors – farmers, grocers, and garden centers – were asked three identical questions related to the perceived income potential of urban gardening. In addition, they were asked questions that corresponded to similar questions asked of the other economic sectors. All survey questions involved structured answers, and included yes or no questions and questions with a 5-point rating scale. These questions focused on the following constructs:

- *Perceptions of income potential related to urban gardening.* All three economic sectors surveyed were asked identical questions about the income potential of the following services: (1) consulting services related to basic gardening skills, (2) helping gardeners find sources for seed, fertilizer, or other gardening inputs, and (3) helping gardeners find markets for harvested produce. For these items the rating scale categories were 1 = a low level of potential, to 5 = a high level of potential.
- *Product lines related to urban gardening.* Respondents were asked to indicate whether they carried or would be willing to carry the following product lines: (1) grain, (2) livestock, (3) vegetables, (4) fruit, and (5) flowers. Farmers were asked which product lines they produced, gardens centers were asked which product lines they carried, and grocers were asked which product lines they would be willing to carry.
- *Products or services that help gardeners sell harvested crops.* Respondents were asked to indicate whether they sell products or services that help gardeners harvest crops from their gardens.
- *Products or services that help gardeners raise garden crops.* For this question, only farmers were surveyed about whether they sell products or services that help gardeners raise garden crops.

Urban gardeners were asked a different set of questions, which focused on the following constructs:

- *How urban gardeners use harvested products.* Urban gardener respondents indicated whether they sold, donated, or used products harvested from their garden for personal use.
- *Where harvested products are sold.* Respondents indicated where they sold harvested products: (1) neighbors, (2) friends, (3) local stores, and (4) farm markets.
- *Effect of urban gardening on lifestyle.* Respondents indicated whether urban gardening was perceived to increase, decrease, or have no effect on the following lifestyle measures: (1) the cost of fresh produce in the household, (2) the amount of fresh produce consumed during the growing season, (3) household income, (4) the amount of time spent visiting with friends and neighbors, and (5) crime rates in the neighborhood.
- *Limitations to urban gardens.* Respondents were asked whether the following limitations prevent them from raising other crops in their garden: (1) limited space, (2) cost, (3) inability to get other inputs, (4) skills, and (5) satisfaction with current status of garden.

### *Data Analysis*

Differences in responses between marketplace sectors were assessed using the Fishers Exact Test and One-Way ANOVA. Urban gardener responses were analyzed using descriptive statistics. Differences in response based on respondent location (for marketplace sectors) and number of years gardening (for urban gardeners) were also tested using the Fishers Exact Test and One-way ANOVA.

## RESULTS and DISCUSSION

### **Farmers, Grocers, and Garden Centers**

#### *What Product Lines Related to Urban Gardening are Farmers, Grocers, and Garden Centers Willing to Carry?*

One of the objectives of this study was to determine what product lines farmers and garden centers currently produce or carry, and what product lines grocers are willing to carry to meet the needs of urban gardeners and small-scale agricultural producers. Before answering the question, we first looked at whether survey responses of marketplace sectors differed based on respondent location. Significant difference test results suggest that there was one significant difference in the willingness to carry one of the different product lines to meet the needs of small scale agricultural producers based on respondent location in the four county region. Respondents from Monroe (2 of 2 for 100%) and Wayne (12 of 15 for 80%) counties were significantly more willing to purchase flowers from urban gardeners than were respondents from other counties (Washtenaw: 6 of 12 for 50%, Lenawee: 0 of 3 for 0%) ( $p=.023$ ).

There was one significant difference in the way farmers, grocers, and garden centers responded with respect to willingness to carry grain to meet the needs of small scale agricultural producers. While 54% of farmers produce grain, only 18% of grocers reported a willingness to purchase grain, and none of the garden centers reported that they currently carry grain products to meet the needs of urban gardeners and small scale agricultural producers ( $p=0.018$ ) (Table 1). No difference between farmers, grocers, or garden centers was observed as to whether or not these businesses carry or would be willing to carry livestock, vegetable, fruit, or flowers from urban gardeners. The frequency of willingness to carry products and current production of product lines related to urban gardening is outlined in Table 1.

**Table 1. Product lines related to gardeners and small scale agricultural production.**

Farmers: What type of products do you produce in your farm business?

Grocers: Which of the following product lines would you be willing to purchase from gardeners and small scale agricultural producers?

Garden Centers: Which of the following product lines do you carry to meet the needs of gardeners and small scale agricultural producers?

	Frequency of "Yes"			Significant Difference (df=2)
	Farmers	Grocers	Garden Centers	
Grain	54%	18%	0%	p=.018
Livestock	15%	18%	0%	ns*
Vegetable	92%	91%	88%	ns
Fruit	62%	55%	63%	ns
Flowers	54%	55%	88%	ns

\*ns=not significant

The results show that while grocers and garden centers have an interest in purchasing fresh produce, their interest level in buying grain and livestock is modest. Low interest levels in purchasing grain or livestock from urban gardeners may be related to a limited understanding of how common grain products are used by urban consumers, or how simple processing of grain can convert relatively inexpensive commodity grain into higher-value consumer goods. For example, many urban businesses sell sunflower seed, thistle seed, and field corn for bird and wildlife feed. Grinding of grains into meal can be done with a small investment in equipment and very little labor. Resulting flour products can be used for baking and production of breeding products used in home cooking. Grains from urban gardens can also be used as feeds in small-scale urban livestock businesses. USDA meat inspection standards are structured in ways which allow small businesses to purchase poultry products directly from small scale producers. In addition to the economic benefits of such business activities, these developments may produce public health benefits by addressing access to protein in underdeveloped urban communities.

The results further suggest that the willingness to participate in economic activity related to urban gardening is mostly associated with the production of fruit, vegetables, and flowers. The majority of grocers (91%) said that they would be willing to purchase vegetables and most garden centers (88%) said that they carry products to meet the needs of small-scale vegetable producers. Over half of grocers (55%) and garden centers (63%) said that they would be willing to purchase fruit or currently carry inputs to meet the needs of small-scale agricultural producers who raise fruit crops. Last, 55% of grocers said that they would be willing to purchase flowers, and 88% of garden centers said that they carry flowers to meet the needs of gardeners and small-scale agricultural producers.

*How does the Marketplace Perceive the Income Potential Related to Urban Gardening?*

We were also interested in how the marketplace perceives the income potential related to urban gardening. To assess this, all three sectors were asked to what degree (with 1=low level of potential, to 5=high level of potential) three different services could provide income to existing businesses. The services that they were asked to rate included: (1) consulting services related to basic gardening skills, (2) helping gardeners find sources for seed, fertilizer, or other gardening inputs, and (3) helping gardeners find markets for harvested produce.

We first looked at whether there were any differences among respondents based on location in the four county region. Significant difference test results suggest that there was one significant difference in the perception of the income potential of urban gardening based on respondent location. Respondents from Wayne County (mean=3.60) perceived the income potential related to providing consulting services to gardeners as being significantly higher than did respondents from Lenawee (mean=1.00), Monroe (mean=2.00), and Washtenaw counties (mean=2.50), (p=0.023).

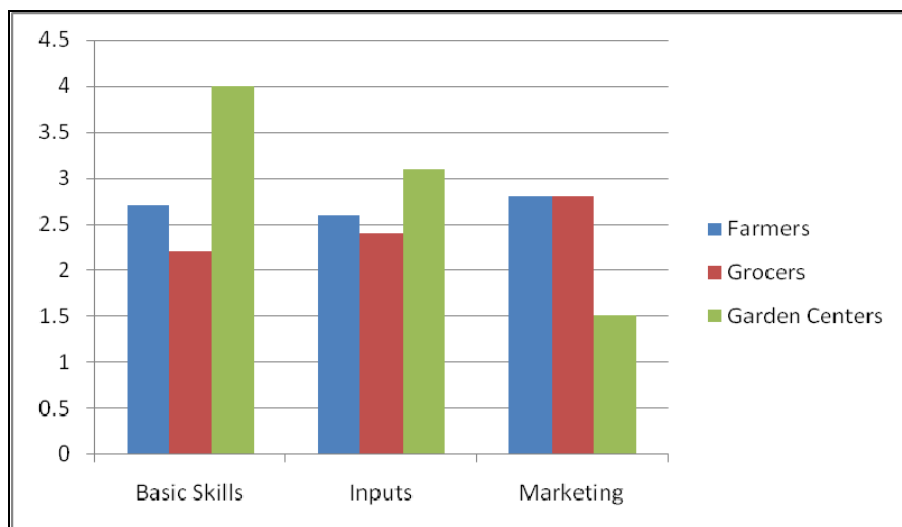
Test results indicate that there was only one difference in perception of the income potential of one of the services between marketplace respondents (Table 2). Garden Centers (mean=4.00) perceived the income potential of providing consulting services related to basic gardening skills as being higher than did farmers (mean=2.69) and grocers (mean=2.18)(p=0.034).

**Table 2. Marketplace sector perception of the income potential from providing services to urban gardeners.**

On a scale of 1 to 5, with 1 being a low level of potential and 5 being a high level of potential, to what degree can the following services provide income to existing businesses?

	Means			Significant Difference (df=2)
	Farmers	Grocers	Garden Centers	
Consulting services related to basic gardening	2.69	2.18	4.00	p=0.034
Helping gardeners find sources for seed, fertilizer, or other gardening inputs	2.62	2.36	3.13	Ns
Helping gardeners find markets for harvested produce	2.77	2.82	1.50	Ns

A summary of the perceptions of the income potential of different services among the three sectors is displayed in Figure 2.



**Figure 2. Marketplace Perception of Income Potential Related to Providing Services to Urban Gardeners**

The second service assessed was related to helping gardeners find sources for seed, fertilizer, or other gardening inputs. Although not significantly so, of the three groups, garden centers (mean=3.13) perceived the economic potential of providing seed, fertilizer or other gardening inputs to gardeners higher than farmers (mean=2.62) or grocers (mean=2.36). In comparison, only 9% of gardeners (Appendix, Table 1) reported that they were limited from raising other crops due to not having sufficient inputs. The results suggest that the marketplace may see a higher economic potential for providing inputs to gardeners than actually exists.

Third, the perceived income potential of helping gardeners find markets for harvested produce was examined. Farmers, grocers, and garden centers did not differ in their perceptions of the economic potential related to helping gardeners find markets for their products, however, of the three groups, farmers (mean=2.77) and grocers (mean=2.82) see slightly more potential for business growth through this type of activity than do garden centers (mean=1.50).

*Do Farmers Offer Products or Services that Help Urban Gardeners Raise Crops?*

A comparison of the products that farmer respondents produce versus the products that urban gardeners produce is outlined in Table 3. Urban gardener respondents were not asked whether they produce grain or livestock.

**Table 3. Crops raised by farmers and urban gardeners.**

	Farmers	Urban Gardeners
Grain	54%	Not specified
Livestock	15%	Not specified
Vegetable	92%	99%
Fruit	62%	44%
Flowers	54%	77%

Given that many farmers and urban gardeners raise similar types of crops, there is a potential for farmers to offer products or consulting services that help urban gardeners raise crops. In contrast to the potential, only 23% (3 of 13) of farmers indicated that they currently provide products or services in this area.

*Do Farmers, Grocers, or Garden Centers Offer Products or Services that Help Gardeners Sell Harvested Products?*

No farmers, only 9% of grocers (1 of 11), and 25% (2 of 8) of garden centers reported that they offer products or services that help gardeners sell harvested products. The results suggest that there is a wide-open space in the market place for an entrepreneur to start a business providing consulting services to gardeners for finding markets for their products.

**Urban Gardeners**

*How do Urban Gardeners Use Harvested Products?*

We asked gardeners how they use the products they harvest from their garden. Respondents reported that garden crops are raised and harvested for variety of purposes, including personal use (94%), for donation to charitable organizations (41%), and to be sold (24%).

*Where are Harvested Products Sold?*

Respondents reported that they sell their garden products to neighbors (17%), friends (15%), farmer's markets (8%), and local stores (1%).

*What Limits Urban Gardeners from Raising Other Crops?*

We asked urban gardeners what prevents them from raising other crops in their gardens. Respondents indicated that they don't raise other crops due to the following: limited space (50%), lack of skills (23%), availability of other inputs (9%), and the cost of production (8%). Additionally, 22% of gardeners report being satisfied with their garden, and wouldn't raise other crops even if they had more space, money, or skills.

Significant difference test results suggest that there was a difference (at ALPHA=.10) in gardener satisfaction with their garden based on the number of years gardening. Respondents who had gardened longer than four years were less likely to agree that "Even if I had more space, money, and skills I wouldn't raise other crops because I like my garden the way it is", than were respondents who had gardened four years or less (13% vs. 31% satisfied) (p=.055).

Some respondents wrote-in additional reasons for not raising other crops. Their responses are listed in the Appendix (Table 1) and include limited time and needing to improve skills before expanding.

*What is the Effect of Gardening on Urban Gardeners' Lifestyle?*

Last, one objective of the research was to determine what effect gardening has on urban gardeners' lifestyle. Respondents were asked to indicate whether gardening increases, decreases, or does not affect various aspects of their lifestyle (Table 4).

**Table 4: Impact of gardening on urban gardener lifestyle**

	<b>Increase</b>	<b>Neutral</b>	<b>Decrease</b>
Cost of fresh produce in household	17%	22%	62%
Fresh produce consumption	73%	26%	1%
Household income	22%	73%	51%
Visiting with friends and neighbors	44%	45%	12%
Neighborhood Crime	1%	77%	22%

The results indicate that many gardeners perceive that gardening decreases the cost of fresh produce in their household (62%) and increases the amount of fresh produce they consume during the gardening season (73%). Most gardeners (73%) were neutral on whether gardening affects their household income. Approximately the same number of gardeners felt that gardening increased the amount of time they spent visiting with friends and neighbors (44%) as did those that were neutral on the subject (45%). The majority of respondents (77%) felt that gardening does not affect crime rates in their neighborhood.

**CONCLUSIONS: IMPLICATIONS FOR URBAN GARDENING IN SOUTHEAST MICHIGAN**

The results suggest several implications for urban gardening in SE Michigan and in other regions of the country where the results may be applicable. Among these implications is a hidden potential related to meeting the needs of urban gardeners, expanding gardener expertise, and improving movement of urban garden products into the marketplace. Despite these implications, many small-scale fruit and vegetable producers report difficulty in finding markets for their products in local grocery stores. The additional time and financial burdens placed on grocers to purchase from urban gardeners and small-scale farmers may prevent their



inclusion in grocery store product. These results also highlight an entrepreneurial opportunity for a broker or middle person distributor who facilitates connecting producers with the marketplace.

Another concept that could be explored by marketplace participants is the reformulation of business models to begin integrating the interests of farmers, gardeners, and retailers. For example, grocery stores which sell gardening inputs could partner with Master Gardeners and other gardening organizations to provide neighborhood workshops on gardening skills. Grocers that then purchase products from neighborhood gardens could capture a larger percentage of neighborhood resident grocery dollars. While the profitability of such an integrated business model is not proven, if pilot projects of this type should prove successful the region could gain a new entrepreneurship training model, address chronic nutrition issues in under-developed urban centers, and strengthen relationships between farmers, city businesses, and urban residents.

## ACKNOWLEDGEMENTS

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## APPENDIX

**Table 1. Limitations to raising other crops.**

<b>Limitation</b>	<b>Frequency</b>
Limited space	50%
Lack of skills	23%
Availability of other inputs	9%
Cost of production	8%
Satisfied with current status of garden	22%

**Table 2. Other responses to limitations to raising other crops.**

I'm in my first year.
I am just starting and need to improve skills before expanding
I simply enjoy flowers and developing a pretty yard
I need more sun
I work full time and don't have enough time to expand my garden
Need help
Time to take care of it – need more volunteers
Time limitations

## REFERENCES

- Alaimo, K., Packnett, E., Miles, R., Kruger, D. (2008). Fruit and Vegetable Intake among Urban Community Gardeners. *Journal of Nutrition Education*, 40(2), 94-101.
- Bacolor, J., Guzman, L., Waller, A. (2007). *Availability and Accessibility of Healthy Food in Ypsilanti, MI*. Washtenaw County Public Health Department.
- Been, V., and Voicu, I. (2006). The Effect of Community Gardens on Neighboring Property Values. *New York University School of Law and Economics Working Papers* (46).
- Cantrell, P., Conner, D., Erickcek, G., Hamm, M. (2006). *Eat Fresh and Grow Jobs, Michigan*. Retrieved July 6, 2008, from <http://www.mottgroup.msu.edu/Portals/mottgroup/downloads/EatFresh.pdf>
- Food Security Learning Center. (2008). Community Food Assessment. Retrieved April 1, 2008, from [http://worldhungeryear.org/fslc/faqs/ria\\_080.asp](http://worldhungeryear.org/fslc/faqs/ria_080.asp)
- Connor, D., Knundson, W., Hamm, M., Peterson, H. (2008). The Food System as an Economic Driver: Strategies and Applications for Michigan. *In Press - Journal of Hunger and Environmental Nutrition*.
- Greening of Detroit. (2008). Urban Agriculture. Retrieved April 27, 2008, from [http://www.greeningofdetroit.com/5\\_2\\_urban\\_agriculture.php](http://www.greeningofdetroit.com/5_2_urban_agriculture.php)
- Gallagher, M. (2007). Examining the Impact of Food Deserts on Public Health in Detroit. Retrieved July 6, 2008, from [http://www.marigallagher.com/site\\_media/dynamic/project\\_files/2\\_Det-FullExecBriefing.pdf](http://www.marigallagher.com/site_media/dynamic/project_files/2_Det-FullExecBriefing.pdf)
- Growing Hope. (2007). A Feasibility Study for a Culinary Herbs Social Enterprise. Ypsilanti, MI.
- C.S. Mott Group for Sustainable Food Systems. A Community Food Profile. Retrieved April 1, 2008, from <http://www.mottgroup.msu.edu/ProgramsActivities/CommunityFoodProfiles/tabid/888/Default.aspx>
- Rehmann, M. (2006). Marketing Potential for Local Producer to Restaurants in Jackson, Lenawee, Monroe, Washtenaw and Wayne Counties. Ann Arbor, MI: Michigan State University Extension.
- Shuman, M. (2007). Economic Impact of Localizing Detroit's Food System. Retrieved July 6, 2008, from <http://www.fairfoodfoundation.org/pdf/handout070617.pdf>