



**UW**  
**Extension**  
University of Wisconsin-Extension



Margaret Franchino  
Brown County  
UW-Extension  
210 Museum Place  
Green Bay, WI 54303

Drew J. Scheler  
St. Norbert College  
100 Grant Street  
354 Boyle Hall  
De Pere, WI 54115

Wednesday, December 6, 2017

Cheryl Williams  
Bethany Thier  
Co-Chairs, Friends of the Community Gardens (FCG)

Dear Cheryl and Bethany:

We write to provide a summary of our collected research on the benefits community gardening. This research stems from the partnership between Margaret Franchino, the coordinator of the Brown County UW-Extension Community Gardens Program (BCCG), and Drew Scheler, the Director of Writing Across the Curriculum at St. Norbert College (SNC).

The research presented here consolidates local data on community gardening from BCCG's 2017 Program Report. It also extends those data by gathering nationally-published information on community gardening. All of this research was summarized and reported in the following pages by two SNC students, Ginny Turner and Joel Krawczyk, who donated significant time and energy in gathering and organizing this research for presentation.

In the following pages, you will find research briefs that summarize information on how community gardening promotes and/or intersects with:

- Food Security.
- Economic Security.
- Psychological Health.
- Cultural Diversity.
- Neighborhood Improvement.
- Climate Change.

We hope that the FCG can use this information to knowledgeably protect, support, and grow community gardening in our area. As it does so, we want to stress that our information-gathering is far from complete. Because community gardening exists in so many different local contexts, the bodies of research surrounding it provide only partial glimpses at national trends. Further original research and literature reviews are needed for a fuller understanding of community gardening's benefits. **We therefore recommend using these materials as a starting point, or glimpse into what we know, rather than as gospel.** To that end, please don't hesitate to follow up with questions, concerns, or fact-checks. Please also send any requests for the original sources of information, as some may not be accessible without institutional subscriptions.

We are proud to grow better together with FCG,  
Drew and Margaret

P. S. Unless otherwise noted, all data regarding BCCG come from the aforementioned program report: Scheler, Drew J., Margaret Franchino, and Bethany M. Thier. 2017. *2017 Brown County UW-Extension Community Gardens Program Report.* UW-Extension Working Paper. <http://www.co.brown.wi.us/if/files/Compressed%20BCCG%20White%20Paper%20Fall%202017.pdf>.

## Food Security and Community Gardening

This brief explains how:

- The USDA Economic Research Service defines food security.
- The CDC points to community gardening to address food insecurity.
- BCCG represents a significant local effort to address food insecurity.

### National:

As a guide for research, the USDA defines food security as:

Access by all people at all times to enough food for an active, healthy life. Food security includes at a minimum: 1) the ready availability of nutritionally adequate and safe foods; and 2) an assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).

As such, food security is an issue directly related to economic status. Alternatively, community food security pertains to a geographical area and the physical and economic surroundings that enable residents to be food secure ("Food Security"). By being able to participate in community gardening, communities can grow foods and sustain themselves. These gardens aim to provide access to agricultural productivity in order to make food more available at a more reasonable price.

According to the Centers for Disease Control and Prevention, community gardens help promote collaborations and shape team work in ways that would not be experienced in everyday life. Engaging in community gardening has many psychological and health benefits such as more nutrient intake or decreasing violence in neighborhoods. The CDC lists that community gardens increase the amount of healthy fruits and vegetables that are eaten, members are more physically active, engage skill building, and creating green spaces, beautify vacant lots, revitalize communities in industrial areas, revive and beautify public parks, and decrease violence in some neighborhoods and improve social well-being through strengthening social connections. Community gardening not only helps individuals support themselves and their family, but it also provides beautification to the city where they reside. It gives gardeners a sense of pride in their garden and gives them something to look forward to maintaining everyday. ("Community Gardens").

### Local:

BCCG is our area's major community gardening program, and thus a major program addressing food security. According to the program's mission, BCCG "empowers all county residents to grow healthy food by providing resources and organizational capacity." In 2017, there were about 211 gardeners that used 314 total plots in the greater Green Bay area.

### References:

"Food Security in the U.S." 2017. USDA Economic Research Service. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/>

"Community Gardens." 2010. Centers for Disease Control and Prevention, Centers for Disease Control and Prevention. [www.cdc.gov/healthypplaces/healthtopics/healthyfood/community.htm](http://www.cdc.gov/healthypplaces/healthtopics/healthyfood/community.htm).

### Further Reading:

Coleman-Jensen, Alisha, M. P. Rabbitt, C. A. Gregory, and A. Singh. 2017. *Household Food Security in the United States in 2016*. USDA Economic Research Service. <https://www.ers.usda.gov/webdocs/publications/84973/err-237.pdf?v=42979>.

"Food Security." USDA. December 6, 2017. [www.usda.gov/topics/food-and-nutrition/food-security](http://www.usda.gov/topics/food-and-nutrition/food-security).

## The Economic Benefits of Community Gardening

This brief provides an overview explaining:

- The economic benefits of environmental conservation.
- The economic impacts of a San Jose community garden.
- The economic impacts of BCCG.

### National:

Scientists who specialize in environmentalism and conservation conducted a study on the relationship between ecological conservation and food security (Adams et al., 1146). The researchers examine the need for these two national concerns and tries to find a way to accomplish one without harming the other. They call upon conservationist organizations to recognize the food security needs that many poverty-stricken cities and communities require to live healthy lives. Conservationist organizations are tasked with creating strategies to not only maintain and increase biodiversity, but also to help improve the livelihood of families living in poverty. These researchers are urging environmentalists against looking at conservations only from a conservationist point of view, but rather looking at conservation as an economic as well as conservationist perspective. This narrow understanding can lead to increased poverty (Adams et al., 1148). Using conservation as a way to increase the health of both the land and humanity will in turn be more beneficial to economic environment. While this study does not discuss the overall benefits urban gardening has had on the economic community, it offers a look into a method of decreasing poverty while also helping the environment. The implications of this study mean that the Friends of the Community Garden should be taking a closer look at the mission and vision for their project. They should not only be looking at food security and economic needs, but also at conservation and biodiversity.

Other research illustrates the economic benefits of community gardening more directly. Research conducted on a San Jose, California community garden shows an increase in both health and monetary savings. This research paid particular close attention to the Latin American community utilizing the garden. The researchers wrote and administered a survey among the Latin American home gardeners asking them about the change in their financial situation after growing produce at home. They reported that 25% of the survey recipients saved over \$720 a year (Drevno et al., 195). The rest of the surveyed community did not save as much, but still saved a significant amount.

### Local:

BCCG decreases the overall amount of spending on groceries for lower-income families. They successfully generated an estimated \$291,358 for 211 families in 2017—or, on average, \$1,374 per family. This relief represents a strong return on the money invested in the program; BCCG has estimated that, for every \$1 spent, the community receives an average of \$4.75 in produce value.

In 2015 and 2016, furthermore, gardeners participated in an end-of-year survey that found:

- About 70% of the gardeners reported that it was easier to provide food for their family.
- About 75% of gardeners reported that they spent less money on food in 2015.
- About 85% of gardeners reported that they spent less money on food in 2016.
- About 68% of the gardeners come from low-moderate income families.

### References:

Adams, W. M., R. Aveling, D. Brockington, B. Dickson, J. Elliot, J. Hutton, D. Roe, B. Vira, and W. Wolmer. 2004. "Biodiversity Conservation and the Eradication of Poverty." *Science* 306: 1146-1149.

Drevno, A. G., K. M. Glowa, L. Gray, and P. Guzman. 2014. "Can home gardens scale up into movements for social change? The role of home gardens in providing food security and community change in San Jose, California." *Local Environment* 19.2, 187-203.

## Psychological Effects of Food Insecurity

This brief considers research explaining how:

- Food insecurity negatively affects psychological health in children and young adults.
- BCCG promotes psychological health in the local community.

National Studies:

Children who experience poverty have a higher tide of obtaining mental disorders than those who have never experienced food insecurity (Bradley). Due to the lack of adequate funding to support their families, many of these f resort to unhealthy foods with a lack of the proper nutrients that children and young adults need to develop fully. It was also found that with food insecurity came increased levels of anxiety, inappropriate behavioral actions, and substance abuse disorders (Olson). Importantly, these psychological risks of poverty are discernibly associated with food security specifically, rather than other factors associated with poverty:

Food insecurity was associated with adolescent mood, anxiety, behavior, and substance disorders after controlling for numerous other indicators of SES [socioeconomic status]... . Importantly, food insecurity was more strongly related to adolescent mental disorders than traditional SES measurements, including parental education and income. The associations between food insecurity and adolescent mental disorders were not attenuated even when extreme poverty was controlled, suggesting that this aspect of material deprivation reflects a form of economic strain that has more pernicious consequences for adolescent mental health than simply living in a family with a very low income. (McLaughlin et al., 1300)

Local:

In 2016, BCCG gardeners participated in an end-of-year survey that found:

- About 88% of gardens reported being more physically active as a result of the program
- About 66% of gardens reported less stress in their daily lives as a result of the program.

Furthermore, BCCG has partnered with the Green Bay Vet Center to create a garden for local veterans, in part to address PTSD. No significant data is available to report from this program.

References:

Bradley, R. H., & R. F. Corwyn. 2002. "Socioeconomic status and child development." *Annual Review of Psychology*, 53, 371-99.

McLaughlin, K. J. Green, M. Alegria, J. Costello, M. Gruber, N. Sampson, and R. Kessler. 2012. "Food Security and Mental Disorders in a National Sample of U.S. Adolescents." *Journal of the American Academy of Child & Adolescent Psychiatry*. 51.12, 1293-1303.

Olson, C. M., Bove, C. F., & Miller, E. O. 2007. "Growing up poor: Long-term implications for eating patterns and body weight." *Appetite*, 49.1, 198-207.

## Community Gardening and Cultural Diversity

This brief discusses how:

- Community gardening promotes community development.
- Community gardening facilitates cultural preservation.
- Diverse communities in the Green Bay area value community gardening.

### National:

Perhaps predictably, community gardening fosters community. A study of community gardening in Denver, Colorado explored these the benefits via survey responses. Respondents generally reported that they experienced more social interactions among community members. They experienced connections to individuals with diverse backgrounds and developed strong friendships from them. They also felt much more active in their communities, both politically and socially (Amuyla et al., 3). Their community outlook became much more positive. They enjoyed living in their neighborhood and had better relationships with the families living next door to them. The gardeners were able to place trust in each other and felt that they could get help whenever needed (4). Gardeners also were able to establish a robust and reliable gardening structure with rules and regulations.

Community gardening also promotes cultural preservation in diverse communities. A study conducted in Philadelphia, Pennsylvania looked at the benefits of urban gardening from a cultural diversity perspective. This study interviewed individuals from diverse backgrounds, specifically from eight different community gardens. The individuals conducting the study asked gardeners questions concerning their race, ethnicity, cultural background, etc. as well as questions about their reasons for gardening. Gardeners reported that their biggest reason behind gardening was cultural and food preservation. Gardeners focussed on preserving their cultural background altered the aesthetic of their neighborhoods. Their introductions of different cultural identities created a more diverse community while simultaneously increasing the overall awareness of other cultures. They also reported that their use of the community gardens kept the neighborhood looking nicer and cleaner (Gachuz et al., 491). While the gardeners did not report that their main goal was to increase biodiversity, by introducing culturally diverse food products, they are indirectly increasing the biodiversity of their local community and vegetative areas.

### References:

The following are summaries of statements created for the 2017 BCCG Program Report.

*The Hmong community's* cultural identity is heavily tied to farming and gardening. BCCG gives them a place to grow their cultural produce as well as practice their customs. In doing so, BCCG not only achieved a diverse community, but also gained diverse vegetation. The Hmong community expressed their gratitude at having a place to destress, especially after relocating to a completely new and foreign country, for the second time.

"BCCG has given us a space to live out our culture, passing down cultivation techniques and culinary tastes to a new generation." (Wa Yia Thao, FCG Board Member and BCCG Gardener)

*The Somali culture*, much like the Hmong culture, is deeply embedded in farming and the Western Avenue garden has been a place for economic and communal growth. For those who are unable to use the Western Avenue garden, the Somali gardeners share their produce with other families within their community, thereby strengthening community ties. Other economic benefits include the ability to grow their own food, alleviating some financial uncertainty to find the extra funds required to buy produce at the local grocery store.

"It is the only time we have an access to fresh, organic produce. We not only need this produce, but also we give it, and we share it with our neighbors." (Statement from the Somali Community at Western Ave.)

The Latinx gardeners at Imperial Pride give back to their community by providing guidance to the gardeners who have less experience. They create a strong social atmosphere and have expressed their willingness to share food with other members of their community. Especially for those who may not have access to the Imperial Pride garden. By doing this, they have cultivated a strong and close knit community.

"Although members of our community range from experienced farmers to first-time gardeners, we all value the ability to grow our own food in our own neighborhood. Gardening is not just a hobby for us, but a livelihood." (Statement from Latinx Gardeners at Imperial Pride)

References:

Gachuz, J., M. Gracia, H. Pearsall, B. Schmook, M. Sosa, and H. Van der Wal. 2017. "Urban Community Agrodiversity and Cultural Identity in Philadelphia, Pennsylvania, U.S." *Geographical Review* 107, no. 3: 476-495

Amuyala, J., L. Bardwell, Michael Buchenau, Jill S. Litt, Julie A. Marshall, and Ellen, Teig. 2009. "Collective Efficacy in Denver, Colorado: Strengthening neighborhoods and health through community gardens." *Health & Place*: 1-8

## Research Brief: Community Gardening and Neighborhood Improvement

This brief considers how community gardening can:

- Reduce crime.
- Beautify neighborhoods by creating culturally-diverse green spaces.
- Increase property values.

### National:

Dense vegetation has been considered a crime-magnet as far back as the 1200s (Kuo and Sullivan 344). However, recent studies have theorized that vegetation could prevent crime. Vegetation provides two ways in which to accomplish this. The first is through increased surveillance (346). Studies show that criminals tend to avoid areas with lots of people. Individuals are more likely to enjoy an area populated by vegetation, then an area with little to no vegetation. Thus, it can be concluded that an increase in vegetation, in turn increases surveillance, which then decreases criminal activity. The second way in which vegetation could prevent crime is through “mitigating psychological precursors to violence” (347). Psychologists discovered a link between mental fatigue and criminality. A way to prevent mental fatigue is through contact with vegetated areas. Having contact with nature and wilderness is linked with increased cognitive ability. Therefore, criminal activity can be prevented at the very root of the problem by exposing the mentally fatigued individual to vegetation.

Research done in Youngstown, OH also looked at the effect greenery had on crime levels. They reported that the act of taking an unused lot and turning it into a vegetated area, whether it be a garden or a park, deterred crime in the neighborhoods these vegetated lots were located (Asher et al. 2014, 3292). The only crime that they did not see a reduction in was car theft (Asher et al., 3292). The most significant crime reduction was in burglaries. The researchers concluded that establishing projects like that of the Youngstown lot reuse and lot greenery programs would help crime reduction in neighborhoods where it is most prevalent (3293). It was suggested that the greening of unused lots and their connection to the reduction of crime may be due in part to the active community engagement with the newly refurbished lot.

Reducing crime is one way to improve neighborhoods, and beautification is another. A study done on the design of community gardens suggest that neighborhood morale was boosted when the overall appearance of the urban parks and gardens were well kept and designed to be aesthetically pleasing. Beautifying the city is said to connect individuals more so to their community by making them interested in the urban greenery surrounding them. Landscape artists and architects can help improve the vegetation in urban neighborhoods and thus create a more welcoming and pleasant atmosphere in the community where they are located (Branas et al., 2).

Another study conducted in Philadelphia, Pennsylvania investigated the cultural diversity of community gardens and the benefits of them. One of the more important benefits highlighted in this article was the increased beautification of the neighborhoods where these community gardens were located. The increased use of these gardens by culturally diverse individuals created beautiful and agro-diverse gardens that appealed to the overall aesthetic of the community (Gachuz et al., 491).

Finally, an oft-cited study suggested that community gardens can actually increase neighboring property values, particularly in low-income neighborhoods. (Voicu and Been). These data were gathered in New York City—a substantially different urban environment than Green Bay.

### Local:

There have been no studies conducted on BCCG in this respect. Anecdotally, the Olde North garden has attracted vandalism, mostly of gardeners’ crops. However, without further research, it is not clear whether this vandalism represents an increase or a decrease in the neighborhood’s crime rate.

References:

Kuo, Frances E. & William C. Sullivan. 2001. "Environment and Crime in the Inner City: Does Vegetation Reduce Crime?" *Environment and Behavior* 33, no. 3: 343-367.

Asher, C., L. Bradley, J. Lelekacs, & J. Sherk. 2014. "Design Matters in Community Gardens." *Journal of Extension* 52, no. 1: 1-14.

Gachuz, Sheila, Maria A. Gracia, Hamil Pearsall, Brigit Schmook, Marcel R. Sosa, & Hans Van der Wal. 2017. "Urban Community Agrodiversity and Cultural Identity in Philadelphia, Pennsylvania, U.S." *Geographical Review* 107, no. 3: 476-495.

Branas, Charles, SeungHoon Han, Hohl, Bernadette Hohl, and Michelle Kondo. 2014. "Effects of greening and reuse of vacant lots on crime." *Urban Studies* 53, no. 15: 3279-3295.

Voicu, I. & V. Been, "The Effect of Community Gardens on Neighboring Property Values," *Real Estate Economics* 36.2 (2008): 241-283.



## Environmental Impacts of Community Gardening

This research brief considers how:

- Climate change will negatively affect food security.
- Biodiversity can support successful food security.

### National:

Climate change has the potential to negatively affect food security. Research has shown that climate change may have a negative effect of food security (Schmidhuber and Tubiello). They determined that as the climate continues to change, countries, towns, and families will have to rely more heavily on imported food, especially those with lower incomes. The researchers concluded that food security for individuals with lower incomes will depend almost entirely on the opportunities they are presented with, whether they come from the government or the community. They suggest moving away from the urban gardening scene and adopting a more industrial program that gives lower income families better and quicker access to imported goods.

Community gardening provides a different model. Other researchers suggest a farming and gardening technique that focuses on improving biodiversity and that increases food security in communities with less availability to food (Clough et al.). They point specifically to the land sharing vs. land sparing debate. Community gardening is an example of land sharing, which allows biodiversity to be cultivated through human practice. Alternatively, land sparing suggests farmers cultivate and maximize the space of a smaller area, leaving other areas untouched by man. The researchers do not make a concrete solution about the best way to both avoid disturbing ecological communities and increasing food production. However, they agree that biodiversity is key to creating that solution. Biodiversity is required for the survival and flourishing of Earth's ecosystems. Without biodiversity, evolution and adaptation are less likely to occur, making species more susceptible to the rapidly changing environment. There is a thin line between gardening and farming to increase food security that helps improve the quality of life for communities in poorer countries and destroying ecological habitats that could potentially mean the downfall or extinction of a species. This suggests that urban gardening programs should promote the growth of diverse crops or minimize their overall land space.

### Local:

There is no real information on the environmental impacts the BCCG program has on Brown County ecological community. However, it can be inferred that climate change will affect community gardening locally—for better or for worse. However, the cultural diversity of the gardeners has thus increased the diversity of food in the gardens. This could potentially have positive effects on the environment.

### References:

Schmidhuber, J. and F. N. Tubiello. 2007. "Global food security under climate change." *PNAS* 104.50: 19703-19708

Clough, Y., L. Jackson, I. Motzke, I. Perfecto, T. Tschardtke, J. Vandermeer, T. C. Wagner, and A. Whitbread. 2012. "Global Food Security, Biodiversity Conservation and the Future of Agricultural Intensification." *Biological Conservation* 151: 53-59.