

# Lafayette College Technology Clinic

Final Report, Fall 2012



**Plowing Food Deserts In the West Ward:  
Sowing Seeds for a Healthy Future**



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# What is the Technology Clinic?

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The Technology Clinic is a program that engages small groups of students, nominated by professors and assembled by two faculty facilitators of Lafayette College. Each Technology Clinic team tackles projects that span two semesters. Past teams have worked in projects involving sustainability, improving traffic patterns and riverside landscapes for local governments and corporate sponsors. The make-up of each team is deliberately interdisciplinary, with members selected from sciences, social sciences, engineering, and humanities. Since the Technology Clinic's founding in 1986, the course has offered its participants rewarding experiences through projects that emphasize problem-solving and consulting skills.

# Participants

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**Gregory Troutman** ('13) is a senior Neuroscience major and Health Care and Society minor. He is from Lancaster, PA, and is socially Amish. Exactly a year ago he traveled abroad to Switzerland, India, China, and South Africa, one of which helped him contract amoebic dysentery. When choosing between colleges, Tech Clinic was one of the deciding factors that brought him to Lafayette. He is overly enthused to be a part of TC and hopes to continue working in public health.

**Julia Seidenstein** ('14) is a Junior majoring in Geology and minoring in Math and is from Lawrenceville, NJ. She is interested in sustainability and is the student leader of the Lafayette Organic Garden. She is a member of LEAP (Lafayette Environmental Awareness and Protection), and serves as Social Action co-chair of Hillel. For the fall 2013 semester she will be abroad in Iceland.

**Helen Xu** ('14) is a junior majoring in Chemical Engineering and Economics from Radnor, Pennsylvania. She is Technical Team Board Leader of the Lafayette Chapter of Engineers without Borders and captain of the equestrian team. She works extensively with food justice issues and was grateful to be a part of this Tech Clinic project.

# Participants

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**Alexandra Behette** ('13) is a senior majoring in Government and Law & Women's and Gender Studies. She is passionate about service as she enjoys engaging in the Easton community through various Landis programs and her internship with Weed and Seed. She is grateful to have the opportunity to be a member of the Tech Clinic and to work on such a fulfilling project.

# Faculty Advisors

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**Prof. Lawrence Malinconico** is an Associate Professor of Geology at Lafayette College and Director of the Technology Clinic program. He specializes in natural disasters, tectonics and applied geophysics. He has worked and studied in 20 different countries including Pakistan, Italy, and Ecuador. He is a 20-year resident of Easton and currently lives on College Hill.

**Prof. Dan Bauer** is a Professor Emeritus of Anthropology at Lafayette College and Associate Director/Founder of the Technology Clinic program. His interests have ranged from engineering and technology to journalism and photography. Throughout his career as an anthropologist, he has done research in Peru, Mexico, and Ethiopia.

# Acknowledgements

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- ▶ Funding for this project was provided by the Community Action Committee of the Lehigh Valley (CACLV) through the West Ward Neighborhood Partnership (WWNP) of Easton.
  - ▶ These funds were made available to the CACLV from the Wells Fargo Regional Foundation.
- ▶ We would also like to acknowledge the generous support provided by:
  - ▶ Easton Area Community Center
  - ▶ Easton Area School District – Easton Area Middle School
  - ▶ Sodexo Corporation
  - ▶ Easton Baking Company
  - ▶ DeLorenzo's Restaurant



# Mission Statement

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- ▶ **Our goal was to find ways to increase the availability of fresh produce to the residents of the West Ward.**
  - ▶ We aimed to incorporate local schools and build onto the health-related education programs that they currently have.
  - ▶ We looked to extend our efforts not only to enhance existing neighborhood gardens, but also to encourage West Ward residents to experience the benefits of gardening within the convenience of their homes.
  - ▶ We encouraged the use of bucket gardens which allow families to grow vegetables, fruits, and herbs that might not be readily obtainable.
  - ▶ We considered distribution methods through mobile grocery trucks, community churches, and ethnic food markets.
  - ▶ Most importantly, we hoped to engage the community.

# Community Partners

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## West Ward Neighborhood Partnership (WWNP)

- ▶ The West Ward Neighborhood Partnership was our client for this project
- ▶ The WWNP is a community revitalization program that provides support for entrepreneurs and the youth through various projects such as urban beautification.
- ▶ Esther Guzman and Sophia Feller dedicate their time to ensuring that the community members have better access to opportunities that lead to their overall success and happiness.
  - ▶ Esther Guzman = Director
  - ▶ Sophia Feller = Urban Agricultural Coordinator and our liaison for the project.
  - ▶ Dennis Lieb = Project Coordinator



# Community Partners

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## Easton Area Middle School

- ▶ Ms. Shay Miller, the Consumer Science teacher at Easton Area Middle School, was kind enough to work with us.
- ▶ Her educational program teaches students about good nutrition and how to apply this valuable concept in their everyday lives through gardening and cooking.
- ▶ Her interactive class provides a interesting and informative environment for students and we hoped to enhance that experience by adding gardening to the curriculum.



Lehighvalleylive.com

# Community Partners

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## Easton Area Community Center

- ▶ The Easton Area Community Center is a nonprofit organization dedicated to providing a fun, safe environment for kids after school and throughout the summer. The kids engage in both mentally and athletically enriching programs and gain important life skills.
- ▶ Anita Mitchell, the Executive Director of the EACC, Bonnie Buncher, and their staff create a welcoming setting for these kids and fully dedicate themselves to the children's well being.



# Community Partners

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## Easton Baking Company

- ▶ Easton Baking Company generously donated numerous buckets to our cause. Owner, Mitzy Petty, has kindly supported other Tech Clinic projects in past years.
- ▶ The Easton Baking Company has a reputation for its friendly staff and phenomenal baked good including their famous tomato pies.



# Community Partners

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## Sodexo



- ▶ Sodexo is “the leading provider of integrated food and facilities management services in the U.S., Canada, and Mexico” (Sodexo, Inc). On Lafayette’s campus, Sodexo does a wonderful job of running two major dining halls and four eateries, serving the whole of the student population nutritious, healthy food.
- ▶ Sodexo is always looking for ways to support student efforts and generously donated buckets to the Lafayette College Tech Clinic to be used in construction for bucket gardens.

## DeLorenzo’s Restaurant



- ▶ DeLorenzo’s restaurant in Forks township supports a variety of local community efforts and also provide us with buckets for this project.

# What is a Food Desert?

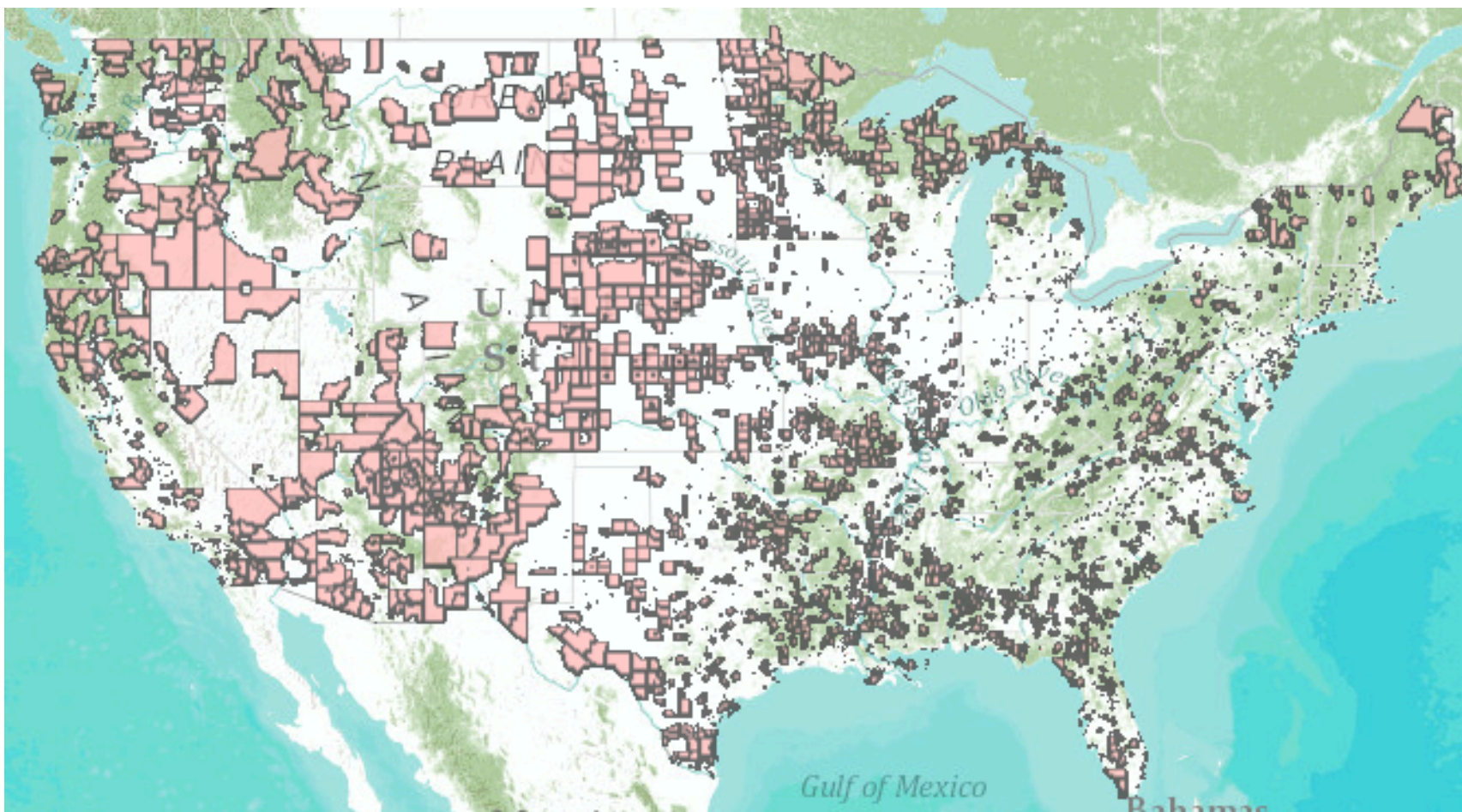
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A food desert is a low-income census tract where a substantial number or percentage of residents have low access to a supermarket or large grocery store. (This definition is according to the Healthy Food Financing Initiative, a sub-division of USDA.

- ▶ To qualify as a “low-income community,” a census tract must have either:
  - 1) poverty rate of 20% or higher, or
  - 2) a median family income at or below 80 % of the area's median family income.
  
- ▶ To qualify as a “low-access community,” at least 500 people and/or at least 33 % of the census tract's population must reside more than one mile from a supermarket or large grocery

# Food Deserts in America

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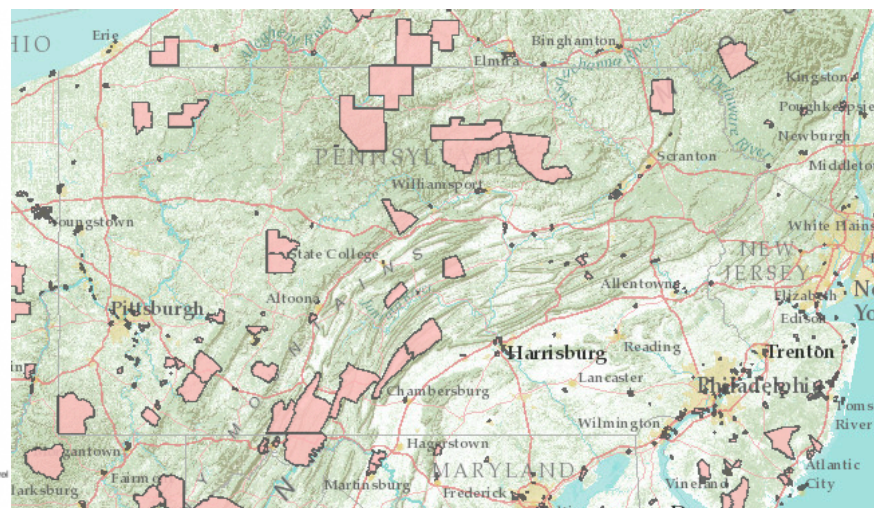
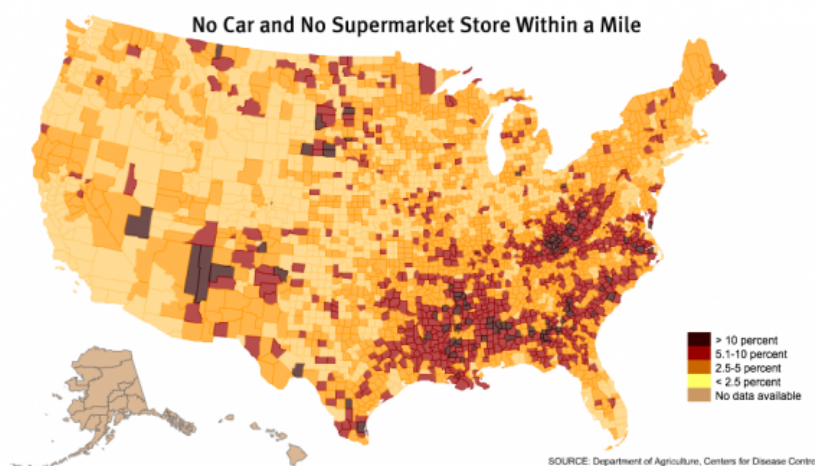


U.S. Department of Agriculture



# The Statistics of Food Deserts

- ▶ National Average: **2.8%** of U.S. residents live in food deserts
- ▶ National Average: **2.2%** of housing units are in food deserts
- ▶ There are about 6,529 food-deserts in the continental United States (food deserts are not yet defined for Alaska and Hawaii).
- ▶ Roughly 75% of food-deserts are urban.
- ▶ About 13.6 million people live more than 1 mile (in urban settings) or 10 miles (in rural settings) from a supermarket.



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# Spring 2012 Accomplishments

# Pizza Garden Project

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- ▶ Objective: To involve middle-school aged children to grow pizza gardens to learn about gardening and nutrition.
- ▶ Pizza Garden = a garden made up of produce to make the tomato sauce and vegetable toppings of a pizza



- ▶ Implemented at the Easton Area Middle School under the supervision of Ms. Shay Miller with her Family and Consumer Sciences 8<sup>th</sup> grade class.

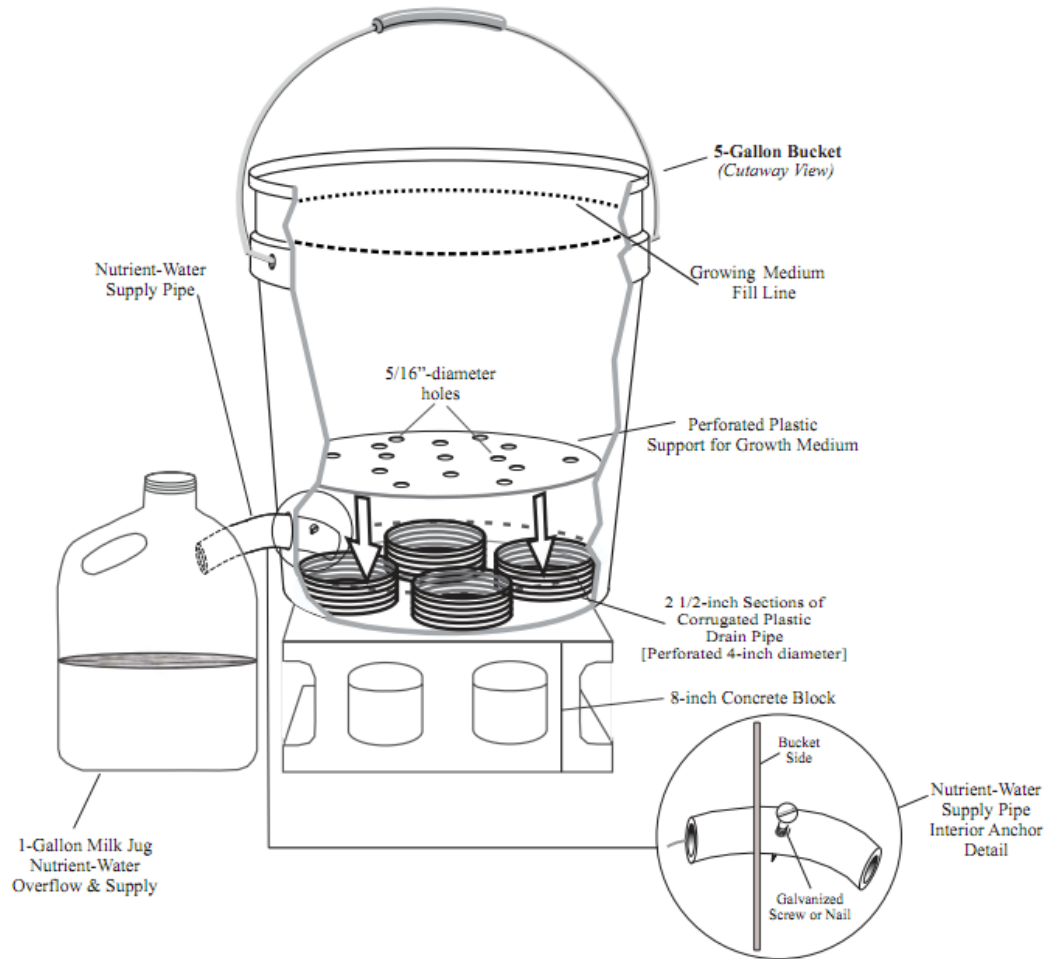
# Bucket Gardens

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- ▶ Bucket gardens allow for efficient gardening in areas with few garden areas, such as the West Ward.
- ▶ They are environmentally-friendly as one can use various containers such as old buckets, crates, and jars.
- ▶ Bucket gardens are easily transportable and the materials to make a bucket are readily available at Wal-Mart or Home Depot.
- ▶ **Implementation:**
  - ▶ Donated 5-gallon buckets from Easton Baking Company, Sodexo, and DeLorenzo's Restaurant.
  - ▶ WWNP purchased and guided Tech Clinic toward potting soil, seeds, and seedlings.
- ▶ **Bucket Garden programs at:**
  - ▶ EACC
  - ▶ EAMS

# Schematic for a Bucket Garden

Self-watering mini-garden (cutaway view)



# Working with the Easton Area Community Center

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- ▶ On April 26, 2012 the Tech Clinic went to EACC to teach the kids about bucket gardens



# Researching Methods of Distribution

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## ▶ Problems:

- ▶ Confusion over picking time
- ▶ Individuals feel they lack the “proper training” needed
- ▶ Stigma of stealing

## ▶ Solutions:

- ▶ Offer more gardening information
- ▶ Set specific times for picking and publicize
- ▶ Multi-lingual signs (“Please Pick!”)
- ▶ Traffic light system
  - ▶ **Green**=ready to pick
  - ▶ **Yellow**=ready soon
  - ▶ **Red**=not ready



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# Summer 2012 Accomplishments



# Bucket Gardens @ the Easton Area Community Center

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April

May

June

July

August

Buckets were delivered and planted with tomatoes and peppers by kids at the EACC.

Buckets were fertilized

Kids took their buckets home.

- ▶ In the end, 10 buckets went home in the West Ward and 8 stayed at the center.
- ▶ The buckets that stayed were harvested by the kids at the summer program and went to the EACC kitchen for lunches for the kids.
- ▶ The program was successful and kids expressed interest in doing it again the summer of 2013.



# Bucket Gardens @ the Easton Community Gardens

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- ▶ Bucket gardens are a good way to increase square footage for gardening.
  - ▶ Ideal for small community gardens that exist in Easton.
- ▶ 5<sup>th</sup> & Ferry Street Garden:
  - ▶ Five buckets were delivered to the community garden.
  - ▶ Local kids planted five buckets with tomatoes.
- ▶ This bucket-planting event was a very successful pilot program that introduced potential gardeners to the benefits of bucket gardening.
- ▶ The buckets stayed at the garden all summer and produce went home to the kids who planted the buckets.



# Bucket Gardens @ the Easton Urban Farm

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- ▶ The Spring Garden Day Care went to the Easton Urban Farm twice a week in the summertime to:
  - ▶ Take care of their own garden plot.
  - ▶ Plant seven bucket gardens with tomatoes.
  - ▶ To learn about gardening and have fun.
- ▶ However, the seedlings were not very healthy to begin with, so the productivity of the buckets was lower than expected.



# Overview of the Bucket Program

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- ▶ **Goal:** To teach children how to garden and let them take ownership of their own miniature garden.
  
- ▶ **This goal was achieved!**
  - ▶ The feedback was positive from the children and the master gardeners.
  - ▶ The buckets were portable, allowing the children to take their bucket gardens home and share the bucket garden with their families.
  
- ▶ **Future Ideas:**
  - ▶ The local master gardener or community gardener can plan bucket planting .
  - ▶ The buckets can be distributed to community gardens or interested individuals.

# Summer Camp Program @ the Easton Area Community Center

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- ▶ The summer camp program at EACC by master gardeners every Wednesday morning June through August.
- ▶ Julia, our summer Tech Clinic intern, helped the master gardeners and added in programming relating to bucket gardening.
- ▶ The kids helped to:
  - ▶ Plant the raised beds
  - ▶ Harvest the produce
  - ▶ Take care of the buckets
  - ▶ Create garden-related crafts.
- ▶ The programming was successful and allowed the children to spend time outdoors learning about gardening.





# Raised Beds @ the Easton Area Community Center

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- ▶ The master gardeners, Tech Clinic, Sophia Feller, and the kids from the EACC planted, took care of, and harvested the three raised beds at the EACC.
- ▶ Vegetables were planted throughout the summer including, but not limited to: tomatoes, potatoes, broccoli, climbing beans, cucumbers, squash, peppers, cotton and flowers.



# Raised Beds @ the Easton Area Community Center

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- ▶ The master gardeners added:
  - 1) A cucumber and bean trellis to create “a tunnel of green” between the raised bed and fence of the community center.
  - 2) A trellis next to the community center wall for squash and flowering vines.





# Pallet Garden @ the Easton Area Community Center

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- ▶ A pallet garden was created from recycled pallets, which were then filled with and planted with herbs and flowers.
- ▶ It gave the EACC more vertical gardening space and added to the outdoor green space.
- ▶ The kids enjoyed sitting near the pallet garden and smelling the herbs.



# Working with Master Gardeners @ the Easton Area Community Center

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- ▶ The master gardeners were a great help to programming at the EACC.
- ▶ They have been doing program at the EACC in past summers and were excited about trying ideas proposed by the tech clinic.
- ▶ They can be allies to ensure this tech clinic project is sustainable for next summer.



- ▶ Pictured above are master gardeners Rolla Gregory, Angelina Caiati, Julia Seidenstein (Tech Clinic member), Bill Crawford and Olive Gregory

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# Fall 2012 Accomplishments

# Corner Stores

- ▶ Corner/convenience stores in food deserts can play a huge role in the fight for increasing access to fresh produce and vegetables in urban areas.
- ▶ Corner stores serve residential neighborhoods and often supplement grocery shopping.
- ▶ Owners often have a close relationship with the area and able to offer feedback of the needs of the community.
- ▶ Although corner stores make most of their profits from cigarettes, salty snacks, and sugary sodas, convincing corner store owners to stock fresh fruits and vegetables can be profitable and beneficial to the whole community.



# Corner Stores – Benefit to Corner Stores

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## Business Benefits

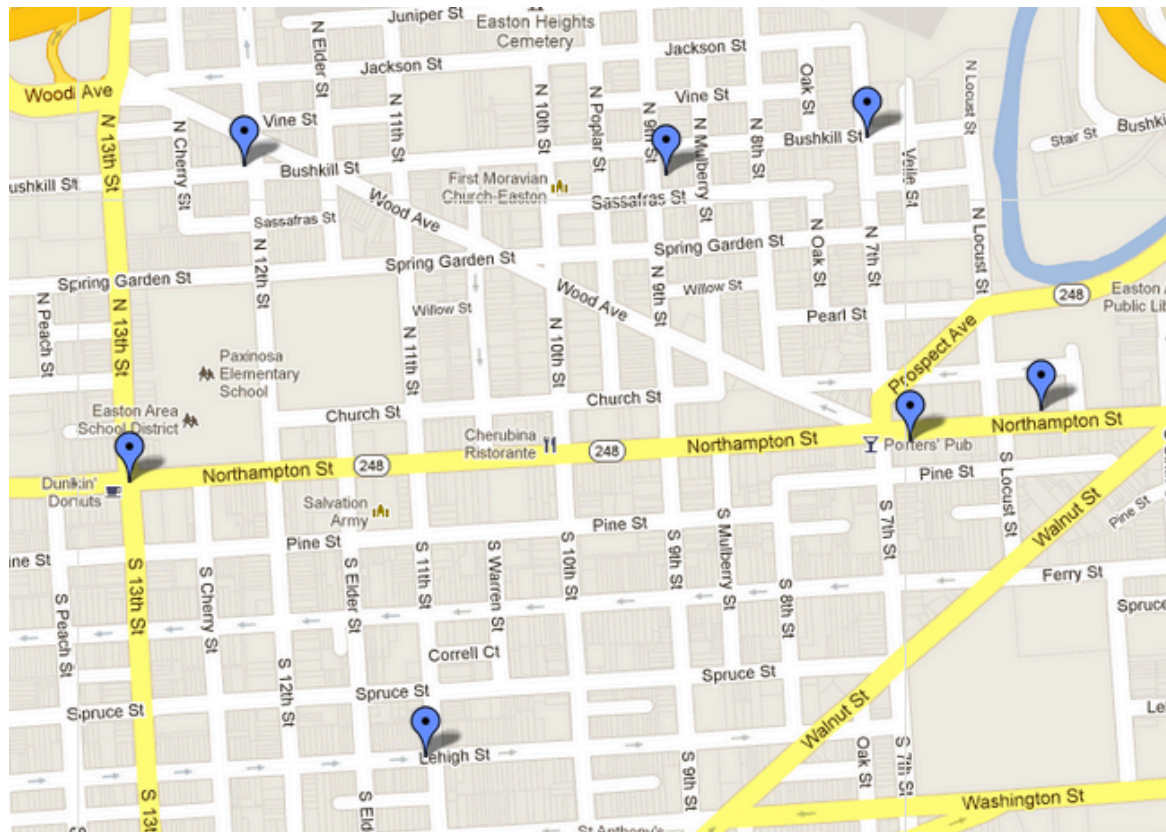
- ▶ New products and more variety attract new customers.
- ▶ Offering products that other stores do not helps corner stores stand out.
- ▶ Healthy foods can yield high profit margins.
  - ▶ 4 bags of chips = 20 cents profit
  - ▶ 1 apple = 20 cents profit

## Help from Organizations

- ▶ Nonprofit organizations can provide...
  - ▶ ...training for handling and storing fresh produce.
  - ▶ ...customer sales and demographic information.
  - ▶ ...financing to buy necessary equipment and/or to install the proper infrastructure.
  - ▶ ...startup capital and inventory.
  - ▶ ...promotion and advertising for the corner store.

# Corner Store – West Ward Study

- ▶ Two Tech Clinic members wandered around the West Ward neighborhood talking to corner store owners and asking about the community needs and their business models in relation to stocking fresh produce.



# Corner Store – Results of Study

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## ▶ Reactions:

- ▶ Desire to stock fresh vegetables and fruits.
  - ▶ Pan Tree: Already stock plentiful produce.
  - ▶ Supreme Mart: Historically stocked fresh produce.
- ▶ Frustration at the lack of interest from the community.
- ▶ Disinterest in the idea of stocking fresh produce.

## ▶ Conclusions:

- ▶ The biggest problem is distribution (finding and buying quality produce).
- ▶ Best to start with produce that do not need refrigeration.
  - ▶ Examples: corn, tomatoes, green peppers, cucumbers, potatoes

# Bucket Gardens @ the EAMS

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- ▶ The bucket gardening program at the Easton Area Middle School was continued from last semester to:
  - ▶ Teach middle school students about gardening.
  - ▶ Educate the students about nutrition and healthy living.
  - ▶ Introduce the students to playing with the soil.
- ▶ This program was made possible by Ms. Shay Miller, the Family & Consumer Science teacher, who guided her students through the lifecycle of the bucket garden.
- ▶ A hope for this program is the bottom-up effect it has on the families.
  - ▶ The student's enthusiasm for these bucket gardens would engage their parents and grandparents in the bucket gardening process.



# Bucket Gardens @ EAMS

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- ▶ **October 24<sup>th</sup>, 2012 - “Planting Day”**
  - ▶ Planted basil, a winter-friendly plant.
  - ▶ The Tech Clinic gave a brief presentation, with the help of Ms. Shay Miller, on the importance of fresh produce and how to incorporate cooking into one’s daily life.



# Bucket Gardens @ EAMS

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## ▶ Statistics:

- ▶ Originally, Ms. Shay Miller's class was given thirteen buckets.
- ▶ Eight of these buckets went home with students.
- ▶ Currently, five of the students have the buckets.



# Bucket Gardens @ EAMS

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## Future Plans

- ▶ Develop better record-keeping as it's difficult to follow-up with eighth graders as they go on to high school.
- ▶ Ms. Shay Miller plans to team up with the Special Education class.
- ▶ Create a greenhouse over the raised bed that sits outside her classroom.
  - ▶ Currently, students are held to the constraints of the academic calendar
  - ▶ Since the summer growing season is lost, it is crucial to take advantage of the rest of the time provided to the class



# Distribution

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- ▶ **Objective:** Increase availability of vegetables and fruits at affordable prices for those who have limited access in the West Ward utilizing:
  - ▶ Veggie trucks
  - ▶ Food carts
  - ▶ Cooking classes
  - ▶ Tables outside of community gardens and storefronts



## Distribution – A Success Story (Truck)

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Hilary Martin of the Burlington, Vermont, has a very successful business selling vegetables and fruits out of her slightly aged Postal Service truck. The residents there, like in Easton, had the option of purchasing less than optimal quality produce at a higher price locally and traveling great distances to supermarkets. The median income in Burlington was only \$27,000. The truck is very popular and even if residents did not purchase any produce, they still seemed to enjoy its presence. Martin ensured affordable prices by making them lower than the farmers markets' and is looking to accept EBT in the future. She started giving them away for free to kids and attracted people through its bright colors and fun music.

# Distribution - Trucks

- ▶ Colorful trucks that played music to the streets in West Ward would be a way to make buying produce fun.
- ▶ Offering the produce for free to children at the opening.
- ▶ The median income of West Ward in 2009 was \$35,222, comparable Burlington, Vermont so a success story can occur here as well!



# Distribution – Positive & Setbacks of Trucks

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<b>Advantages</b>	<b>Potential Costs</b>
<ul style="list-style-type: none"><li>• Visibility (fun colors and music)</li><li>• Saves time (quick and easy transport)</li><li>• FUN! – similar to ice cream truck</li><li>• Can use bus drivers from the community</li></ul>	<ul style="list-style-type: none"><li>• High liability</li><li>• Insurance costs</li><li>• Truck maintenance</li><li>• Truck initial cost</li><li>• Gas</li></ul>



# Distribution - Detailed Costs for Truck

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- ▶ Cost of old UPS truck: \$4,500
- ▶ Cost of Dodge Sprinter: \$15,000
- ▶ Building Shelving: Materials: \$200-300,  
Installation: Volunteers
- ▶ Gas prices: Possibly obtain a grant to use Sprinter because gas can be very expensive
- ▶ Regulations: Vendor's licenses cost about \$100 per year

Central Detroit Christian CDC  
Lisa Johanon (Executive Director)

Office: 313.873.0064  
ljohanon@sbcglobal.net  
More Info: [www.detcdc.org](http://www.detcdc.org)

## Distribution – A Success Story (Combo Truck, Storefront, Delivery, and Cooking Classes)

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There is an old Good Humor ice cream truck in Detroit that was transformed into a Peaches and Greens produce van. Central Detroit Christian Community Development Corporations, a nonprofit, started this venture. The Peaches and Greens truck travels to different locations around the city and also runs a storefront where cooking classes are offered. The company accepts EBT cards to ensure overall affordability.

Peaches and Greens sell bananas for \$0.25, apples and watermelon for \$0.50. carrots and tomatoes at \$1.50 per pound, and herbs are \$1.00 a bunch. They found that children favor grapes, strawberries, and watermelon.

# Distribution – Combo Truck, Storefront, Delivery, and Cooking Classes



- ▶ Customers prefer to eat food raw rather than take the time to prepare it.
  - ▶ Peaches and Cream hoped free cooking classes would alter this mindset.
- ▶ Peaches and Greens hung flyers throughout the city with their contact information.
  - ▶ Especially beneficial to:
    - ▶ Seniors
    - ▶ Disabled
    - ▶ Those w/o a child care option

# Distribution – Combo Truck, Storefront, Delivery, and Cooking Classes

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- ▶ 92% of all food stamp recipients purchase their food at convenience stores, gas stations, and pharmacies.
- ▶ Mari Gallagher, a researcher of food deserts, sells convenience stores \$50 worth of produce charges them for whatever they sell.
- ▶ Selling produce at convenience stores could be very viable in the West Ward.

# Distribution – Positives & Setbacks of Convenience Stores

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<b>Advantages</b>	<b>Potential Costs</b>
<ul style="list-style-type: none"><li>• Already a distribution center</li><li>• Positive recommendations through a reputable convenience store/ owner</li></ul>	<ul style="list-style-type: none"><li>• Prevalence of junk food</li><li>• Convenience stores are not set up for grocery shopping</li></ul>

## Distribution – A Success Story (Carts)

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YUMM, Youth Urban Mobile Market, was started by high school students who were involved in Urban Nutrition Institute nonprofit in West Philadelphia. They utilize a bicycle with a cooler attached to the front filled with produce. They sell the sliced fruit that they purchase from the local community gardens at parks for \$1.50. YUMM is particularly appealing to children who otherwise would have bought their snacks from the ice cream truck.

# Distribution - Carts

- ▶ Great summer job for teens in the West Ward.
- ▶ Teens can enjoy the fresh air, get exercise, and make money while supporting a good cause.



# Distribution – Positives & Setbacks

## Produce Cart

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<b>Advantages</b>	<b>Potential Costs</b>
<ul style="list-style-type: none"><li>• Old time feeling that gives a unique experience</li><li>• Personal connections</li></ul>	<ul style="list-style-type: none"><li>• Might not be able to cover a lot of ground</li><li>• Subject to weather and seasons</li></ul>

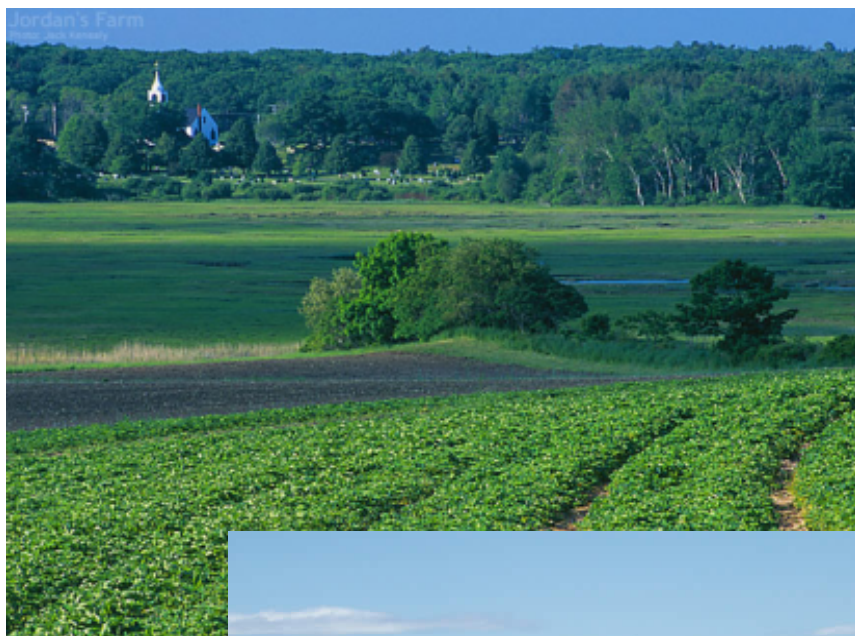


## Distribution – A Success Story (Delivery)

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Jordan's farm, in Maine transport fresh produce to senior citizen's centers. They participate in the Farm Share grant program that allows seniors to attain fresh produce. Main residents who meet the age and income requirements can receive \$50 of fresh produce free of charge during the growing season. Jordan's farm is reimbursed by the state for participating in the program. It has become a very competitive program.

# Distribution - Delivery



- ▶ Grants allow groups of people to be eligible for free or discounted produce.
- ▶ Possibility to partner with a senior center to increase the amount of people who can access the fresh produce.



## Distribution – A Success Story (Cooking Classes)

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Cooking Matters is a program that offers cooking classes that are targeted at different age groups for children as young as six to adults. The classes are taught by volunteers and are available in convenient locations such as Head Start centers, housing centers, and after school programs. The meals they choose to teach participants to prepare are affordable at \$10 for a family of four. All participants are able to take home a bag of groceries each time so they can practice the skills and recipes they learned during the class. It engages participants by teaching them how to cook healthy meals that appeal to each group that they can practically prepare themselves.

# Distribution - Cooking Classes

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- ▶ Cooking Matters' plan could be wildly successful in the West Ward.
- ▶ Classes can be run at a local center by:
  - ▶ Volunteers
  - ▶ Those who work for the distribution company
- ▶ Key Tips:
  - ▶ Tailoring the recipes
  - ▶ Taking a bag of groceries home to practice



# Distribution – Positives & Setbacks of Tables at Highly Trafficked Areas

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<b>Advantages</b>	<b>Potential Costs</b>
<ul style="list-style-type: none"><li>• Convenient</li><li>• Visible</li><li>• Residents can grab fruits/vegetables last minute</li></ul>	<ul style="list-style-type: none"><li>• Subject to weather conditions and seasons</li><li>• Residents might not be able to stop while commuting</li></ul>

# Distribution – Positives & Setbacks of Tables at Community Gardens

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<b>Advantages</b>	<b>Potential Costs</b>
<ul style="list-style-type: none"><li>• Residents know they are getting locally grown produce</li><li>• Increases appeal of gardening and gets people more involved</li></ul>	<ul style="list-style-type: none"><li>• People don't know about community gardens</li><li>• Out of the way/ too far away for some people</li><li>• Possibly not enough variety</li><li>• Subject to weather conditions and seasons</li></ul>

# Overall Positives of the Distribution Methods

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- ▶ Residents learn more about health and nutrition and can incorporate this into their everyday lives.
- ▶ Residents can socialize with their neighbors and meet new people through their interactions at the stands or at the carts. They can form a larger sense of community.
- ▶ Work opportunities and learned skills with whichever method(s) is/are implemented.

# Distribution - Personnel

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- ▶ Three Options:
  - ▶ Paid Staff
  - ▶ Volunteer Staff
  - ▶ Combination
- ▶ Should tailor to the conditions in the West Ward might be helpful.
- ▶ Great idea to provide incentives for quality work.
  - ▶ Examples: wages, gift cards, recognition, social events, banquets, staff outings, awards





# Distribution: Sources of Produce

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- ▶ Want to stay local.
- ▶ Urban farms typically yield X of produce.
  - ▶ Can develop a system where those who work the gardens take as they please. The excess produce can be handed out at the tables in front of the garden with the hope of a donation.
- ▶ The other methods of distribution might fare well from selling the produce at a set price that is lower than farmer's market and grocery store prices.

# Distribution: Sources of Produce

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- ▶ Directory that compiles information about these local farms, their contact information, and the type of vegetables and fruits they grow.
- ▶ In addition to selling produce from the West Ward community gardens, it might be helpful to purchase the remainder from one of these farms in the greater Lehigh Valley. The website to get this information is located at [www.buylocalpa.org/lehighvalley](http://www.buylocalpa.org/lehighvalley).



## For the Next Tech Clinic...

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- ▶ While the production of produce using buckets tended by school-aged students is an effective means of introducing youth to the process of produce production, the volume of produce actually produced still remain relatively small.
- ▶ We advocate continuing and expanding this program, however several issues can and will be further addressed in the follow-up Tech Clinic to the project.



# Questions for the Next Tech Clinic

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- ▶ **Focus on the question related to:**
  - ▶ How much produce is required?
  - ▶ How to produce it?
  - ▶ How best to distribute it?
  
- ▶ **Starting by considering:**
  - ▶ Calculating the square footage needed to produce the appropriate amount of produce for a typical family.
    - ▶ How many families are there to support?
    - ▶ What is the ethnicity distribution?
  - ▶ What is really wanted by the consumer?
    - ▶ Compile existing surveys.
    - ▶ What is the basic produce for everyone?
    - ▶ What about the unusual produce?

# More Ideas for the Next Tech Clinic

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- ▶ Enhanced consideration of distribution methods
- ▶ Reflecting on time logistics
- ▶ Year-round production
- ▶ Sources of vegetables
- ▶ Waste management

# Appendix I: Bucket Garden Construction

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## ▶ Materials:

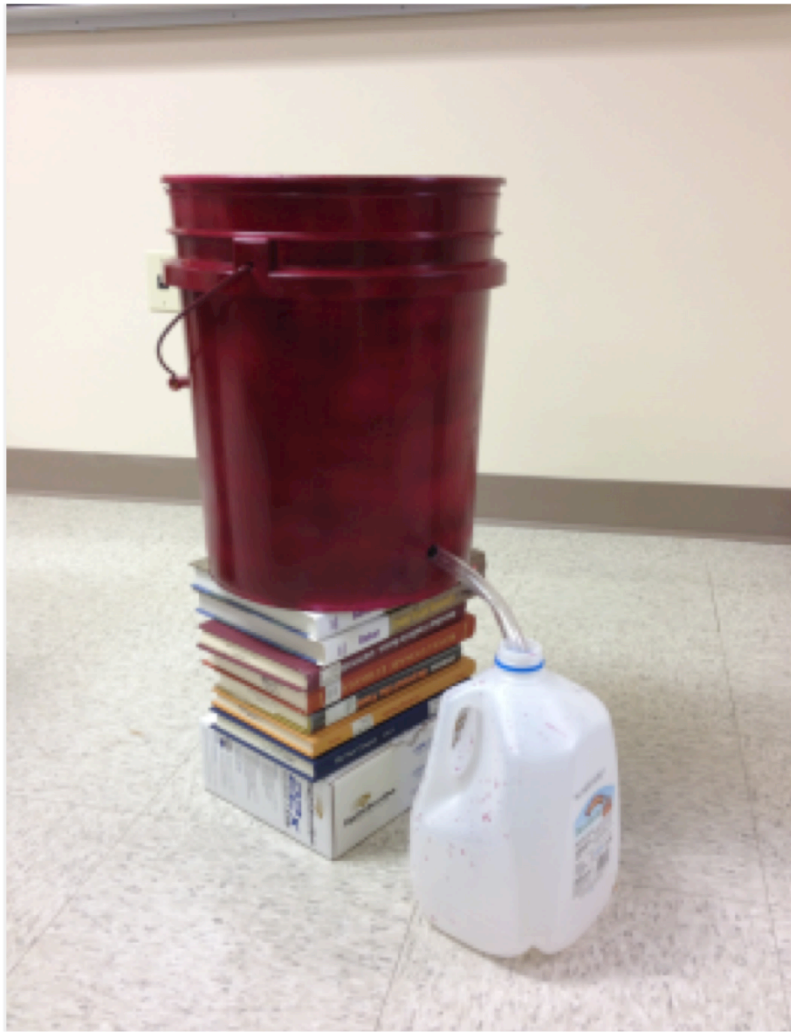
- ▶ 5-gallon plastic bucket and lid
- ▶ 4-inch diameter corrugated pipe (approximately 7.5 inches long)
- ▶ 6-inch section of ½ inch (inside diameter) clear plastic tubing
- ▶ Zip tie
- ▶ Electrical tape
- ▶ Empty 1-gallon juice/milk/water jug

## ▶ Tools Needed:

- ▶ Saber saw
- ▶ Drill (with 5/16 inch and 3/4 inch drill bits)
- ▶ Utility knife
- ▶ Hacksaw

1. Cut the lid such that it fits inside the bucket (approximately 4-5 inches from the bottom of the bucket). This will separate the soil from the water reservoir).
2. Drill approximately 15 (5/16" diameter) holes in the lid. This will allow plant roots to grow from the soil into the water reservoir. The holes will also aid water drainage.
3. Using a hacksaw, cut 3 pieces of the 4-inch diameter corrugated pipe into pieces approximately 2.5 inches long. These will be used to support the lid-separator at the bottom of the bucket.
4. Drill one ¾ inch hole approximately 2 inches above the bottom of the bucket.
5. Cut a 6-inch piece of ½ inch clear plastic tubing; wrap one end with some electrical tape as necessary to create a snug fit and insert into the ¾ inch hole.
6. Drill a small hole approximately 1-inch from the end of the plastic tubing (inside the bucket) and insert a zip tie through it. Tie the zip tie around the plastic tubing to ensure that the tubing will not slide out of the hole.
7. Cut an "X" with a utility knife into the shoulder of a 1-gallon milk/water/juice jug. Insert the end of the plastic tubing into the milk jug.
8. Raise the bucket approximately 8 inches by setting up on cinder block/bricks.

# Appendix II: Bucket Garden Usage Instructions



1. Fill the container with approximately 4 gallons of moistened medium (container potting soil), plant your seeds as desired and add 2-3 gallons of water.
2. The reservoir will fill with water and the excess will travel through the tubing into the milk jug. The bucket will need to be watered regularly.
3. Prior to filling up the container with fresh water, pour the water collected in the jug back into the container – this will help preserve the nutrients from the soil.

# Appendix III: Bucket Gardens at the Easton Area Community Center

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The buckets that were delivered and planted with tomatoes and peppers last April were taken care of at the community center and then went home. In late May and early June, more buckets were planted. The buckets stayed at the center for most of the summer to ensure the kids learned how to take care of the buckets before they took them home. The buckets were fertilized once in May and once in June with fish emulsion. This was necessary and it would have been difficult to ensure the kids did this when they took their buckets home. Most of the kids who took their buckets home did so in July. This worked because most of the kids who planted buckets during the afterschool program also went to the summer camp program at the center.

In the end, 10 buckets went to homes in the West Ward and 8 stayed at the center. The buckets that stayed at the center did not go home either because the kids would rather keep their bucket at the center or because a few of the kids did not come to the center over the summer and we were unable to find them. The buckets that stayed at the center were taken care of throughout the summer. The kids helped pick tomatoes that went to the center's kitchen to be used in the meals. It would have been ideal for the kids to take home the vegetables from their own bucket gardens, but this was hard to do logistically.

This program was very successful. The kids really enjoyed making the buckets and seeing their plants grow. Some of the kids that participated in this program were interviewed in October. Many expressed interest in doing it again. They said that they used their veggies at home. Most ate them raw and some of the kid's parents used them to cook dinners. Some had problems with their buckets that were probably due to not watering them enough or not getting enough sun. This program should be done at the EACC again next summer.

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# Appendix IV : Bucket Gardens at the Easton Community Gardens

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Bucket gardens are a viable way of increasing square footage for gardening at the small community gardens in Easton. This was tested at the 5th and Ferry Garden. Five buckets were delivered to this garden. The coordinator for the garden did her own program with neighborhood kids that visit the garden and taught them how to plant the buckets with tomato seedlings. The plants did well and were a great addition to the garden.

This shows that bucket gardens can be used in the Easton community gardens and that local gardeners can teach kids how to plant their bucket. Since their will not be a tech clinic member in charge of coordinating bucket planting events next summer, to make this program sustainable it is important that other Easton gardeners be able to teach kids how to plant buckets.

# Appendix V: Bucket Gardens at the Easton Urban Farm

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The Spring Garden Day Care came to the Easton Urban Farm twice a week throughout the summer to learn about gardening and take care of their garden plot. They also planted 7 bucket gardens. The seedlings planted in the buckets were not doing well before they were planted, so these bucket got a smaller yield than buckets elsewhere. Because they were not doing well, they stayed at the farm rather than be taken back to the Spring Garden Day Care. But the kids enjoyed planting and taking care of their buckets. This should be done next summer, and would be more successful if better seedling were planted. Then, the bucket could go back with the kids to their day care.

# Appendix VI: Overview of the Bucket Program

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This was a successful program. The goal was to teach kids about gardening and let them take ownership of their own mini garden. The buckets were convenient and portable allowing kids to take them home and share them with their families. Many families in Easton do now have the space or time for their own full garden plot, but are interested in gardening. This program showed how bucket gardens could have an impact.

The program should be continued next spring and summer. Since there are many buckets either made recently or cleaned from being used last summer, the only things needed are soil and plants. The seedlings used in the buckets last summer were planted by Sophia Feller and other community gardeners. Many seedlings are planted in the greenhouse to be distributed to homes and community gardens throughout Easton. The greenhouse is at the EACC, so it is convenient for some of those seedlings to be planted in the buckets. A bucket planting event can be organized next spring by a local master gardener or community gardener and buckets can be planted at the EACC. Also, buckets can be distributed to community gardens or interested individuals.

# Appendix VII : Summer Camp Program at Easton Area Community Center

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The summer camp program is run every summer by Easton Master Gardeners. This summer it was every Wednesday morning June through August. The master gardeners came up with and led programming with the kids at the community center. Julia, the summer Tech Clinic intern, helped the master gardeners and added in some programming relating to bucket gardening. The kids helped plant the raised beds and harvest from them, took care of buckets and did garden related crafts. One week the group went to a local community garden for a field trip.

The programming was successful and the kids enjoyed it. It was good that all the kids at the summer camp could participate in the program, but it made it hard on the master gardeners to run the program. The strategy used to deal with this was to split the kids into two groups. One group was doing the gardening craft while the other group did something in the raised beds like planting, harvesting or weeding. But ideally, for next summer, a group of around 15 kids would do the gardening program each week. Different kids could garden each week so everyone could get a chance.

# Appendix VIII: Raised Beds at Easton Area Community Center

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There are three raised beds at the EACC. Two of them were put together a few years ago and are along the edge of the community center building. The third was built a summer before the Tech Clinic project by Lafayette students. The master gardeners, Julia, Sophia Feller and the kids from the EACC helped plant, take care of and harvest from the raised beds. Things planted throughout the summer included tomatoes, potatoes, broccoli, climbing beans, cucumbers, squash, peppers, cotton and flowers. The new raised bed was especially successful because it was in a good location for getting sun and was constantly being planted and harvested from throughout the summer. A cucumber and bean trellis was added to make a tunnel of green between the raised bed and fence of the community center. A trellis was also built on one of the beds next to the community center wall for squash and flowering vines.

The food harvested from the raised beds was given to the kitchen at the EACC and used in the meals served to the kids. This included tomatoes, squash, peppers, cucumbers, beans and potatoes. The kids like picking the vegetable and getting to eat them soon after. One Wednesday, all of the kids helped harvest potatoes from a raised bed. The potatoes were given to the kitchen and they made a potato salad the next day.

# Appendix IX: Pallet Garden at Easton Area Community Center

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A pallet garden was put together by Julia in early June and brought to the Easton Area Community Center. The pallet garden was an experiment in vertical gardening. Easton has limited green space, so vertical is a viable alternative. The pallet garden was built from a recycled pallet, filled with soil, packet with herbs and flowers and put on display at the Easton Area Community Center (For more details see the instructions in the Appendix).

A wide variety of small plants can be planted in pallets, but herbs and flowers were chosen because there were no herbs—other than basil—at the community center. The pallet had to be watered almost daily, but in the future a self watering system could be set up. The pallet was very successful. The kids at the community center enjoyed sitting near it and smelling the herbs. It helped them learn how to recognize herbs and it added a nice wall of green to the community center. Just one pallet was made, but there is space for many more pallets at the center. The pallet garden along with the raised beds and cucumber, bean and squash trellis created a very nice garden space at the EACC even with limited space.

# Appendix IX: Building a Pallet Garden

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## ▶ Materials

- Pallet (It should be clean and not pressure treated so it is safe for growing food.)
- Plants
- Heavy-duty Stapler
- Circular Saw
- Soil
- Thick Garden Fabric (Or recycled bags of garden soil)

## ▶ Instructions

1. Cut pallet in half using a circular saw. This is not necessary, but it makes it easier to work with and move the pallet.
2. Use scrap wood to patch up any spots that need reinforcing.
3. Staple the garden fabric—or recycled soil bags—to the back of the pallet. The fabric should be doubled or tripled for reinforcement.



# Appendix IX: Building a Pallet Garden

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4. Fill with soil.



5. Plant the pallet tightly with seedlings and flower.





# Appendix IX: Building a Pallet Garden

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6. Let the pallet lay horizontally outside for a week or so to let the roots take hold.



7. Move the pallet to a vertical position wherever you want.



# Appendix X: Working with Master Gardeners at EACC

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The master gardeners were a great help to programming at the EACC. They have been doing program at the EACC in past summers and were excited about trying ideas proposed by the tech clinic. They can also be allies in making sure this tech clinic project is sustainable for next summer. They will continue the summer program at the EACC and help take care of the raised beds. They, along with other Easton gardeners, can help make sure the bucket gardening continues next summer.



# Appendix XI: Corner Store Investigation

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In the mindset of leaving no stone unturned, the 2012 Technology Clinic group looked into the position of corner stores in the fight against food desserts. Whereas corner stores or convenience stores are more known for their soda and salty snacks, they stand as a great distribution system for the local community. Oftentimes corner stores are based in residual areas run by mom-and-pop operations that have personal connections with their neighbors. Corner stores often stock staples and dairy products for cooks who have forgotten an item and need to simply run out to the local corner store to pick up an egg, some milk, or canned vegetables. However, recent health initiatives have pushed corner stores to stock fresh produce. Boards in North Minneapolis, Cleveland, and Newark have given cash and equipment incentives to convenience store owners to stock fresh vegetables and fruit in an attempt to push against the obesity trend.

Many obstacles present themselves when convincing corner storeowners to stock fresh produce. Fresh produce is perishable and therefore requires particular handling and storage. This is different than the usual business method of convenience stores. Most times, corner stores stock nonperishable items such as canned goods, sugary drinks, and bagged snack foods. Convenience stores need to be willing to make the necessary changes and invest time, money, and effort to make this venture profitable. There will also be some initial losses in order to maintain high quality of the fresh produce. This is especially hurtful to small business owners who survive on a slim margin of profit. Any losses for a day can mean going into the red of the account books. Appropriate equipment and infrastructure are also needed to stock produce and corner store employees need proper training in how to store, handle, display fresh produce, and/or new equipment such as coolers. All these obstacles deter many corner storeowners from stock fresh vegetables and fruits.

On the other hand, there are many benefits to corner stores to stock fresh produce. For one, it helps a corner store to distinguish itself from others. Many corner stores are similar in their product offerings. The staples include cigarettes, sodas, chips, and pretzels. However, a convenience store might attract a bigger consumer base by offering fresh produce. There are also many support organizations for stores that are looking to stock fresh produce. These organizations can provide training, sales information, and financing to buy the necessary equipment or to install the proper infrastructure. They can also introduce corner stores to distributors, provide startup inventory for free or a reduced price, help stock and cull the produce, and/or offer promotions and advertisements. Some corner stores who had successful produce sales even went as far as offering educational health classes and cooking suggestions. This attracted a wide variety of customers and investors who supported corner stores doing good for the community.

# Appendix XI: Corner Store Investigation

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In researching potential distribution points, two of the Technology Clinic members took a trip down to the West Ward neighborhood to walk around to different corner stores, talk with the owners, and get an idea for the community needs and obstacles when it came to fresh produce. They were met with discouraging results. Most of the corner stores visited had no or little interest in stocking fresh produce. If they had any, if at all, fresh produce it was in a tiny cooler and the inventory consisted of a head of lettuce or an onion or two. When speaking to the storeowners, they all explained the lack of interest in the community. One corner storeowner talked about his frustrations with the needs of the local. He had tried stocking fresh produce years before and it had all spoiled. Even when he cut prices below Walmart or Giant, running at a loss, customers would still complain about the high price. Other corner stores cited their proximity to Zangales making it unnecessary for them to stock any vegetables or fruit. The two members of Technology Clinic found out that many of the corner stores were not really stores, but sandwich shops with a few basic food staples on the shelf. However, there was one bright spot in this investigation with Pan-Tree convenience store located at 842 Bushkill Street. The owner was a young and Cuban and had recently started up his store in a completely residential neighborhood. In fact, the outside of his store looked more like a townhouse than a corner store. Inside there was raw milk and cheese from Klein's and baskets of fresh produce. There were still the bags of chips and pretzels and the cooler of soda, but there was also a stand devoted to vegetables and a cooler that stocked cheeses and meats. While talking to the owner, he described the high demand for fresh produce, meats, and cheeses in his area and that his main problem was the difficulty in finding a wholesaler willing to sell smaller quantities of produce. He talked about driving around to small farms and talking to farmers, but never finding anything adequate. To overstep the cooler problem, he simply stocked vegetables that did not need to be refrigerated such as corn, tomatoes, green peppers, cucumbers, and potatoes. He had no issues with spoilage because the produce sold out so quickly.

The investigation of corner stores of the West Ward resulted in a few key ideas for approaching this idea. The most important idea is that the biggest problem is distribution. These corner stores cannot find cheap, local produce to buy. Therefore, it is suggested that the Technology Clinic focus its efforts on finding and distributing fresh produce. The other important idea is customer demand. In many parts of the West Ward, there is simply no want of fresh produce. This particular problem is addressed in other parts of the report where the Technology Clinic talks about educational programs and gardening activities.