



Photo by: Malisia Wilkins

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<http://4.bp.blogspot.com/-5FewwCmXkbQ/ThmNjrAG4I/AAAAAAAAA4c/XIC6hLFWcWU/s1600/beanstalk.jpg>

ONWARD

Filling the Hunger Gaps with Vertical Pallet Gardens
Malisia Wilkins & Allison Kelly

Malisia Wilkins

- Sociology major
- Horticulture minor

- Interested in social justice, urban farming, and sustainability



Photo by: Malisia Wilkins

Allison Kelly



Photo by Allison Kelly

- Horticulture major
- Interested in landscape design and educating the public about the importance of sustainable gardens

Food Security

- Food deserts: geographic locations where due to lack of access, land, money, or transportation some people are not able to eat, or feed their children on a regular basis.
- Almost 15% of all households in the U.S. were food insecure at least some time during 2011.

United States Department of Agriculture (USDA). (March, 2012). *Definitions of food security.*

Food Security

The rules that define food security are known as the “5 A’s of food security”:

- (1) Availability
- (2) Accessibility
- (3) Adequacy
- (4) Acceptability
- (5) Agency

Percentage of households reporting indicators of adult food insecurity, by food security status, 2011



Source: Calculated by ERS using data from the December 2011 Current Population Survey Food Security Supplement.



Food Insecure
Households in the U.S.

Current Community Efforts

- Community Supported Agriculture
- Community Gardens
- Farmers' Markets

Community Supported Agriculture (CSA):

“A community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production.”

United States Department of Agriculture (USDA). (March, 2013).
Community Supported Agriculture. Alternative Farming Systems
Information Center.

Community Gardens

- Community gardens require a broad cross-section of the community to participate, and it is essential for the project to be representative of the community and contribute to the growth of a community food system in order to be successful, and is also dependent on funding.

Garrett, Steven & Feenstra, Gail. (Not dated). *Growing a community food system.*

Farmers' Markets

- “Are an integral part of the urban/farm linkage and have continued to rise in popularity, mostly due to the growing consumer interest in obtaining fresh products directly from the farm.”
- Farmers' markets give consumers the opportunity to have a better understanding of where their food comes from, and it helps farmers stay financially viable.

United States Department of Agriculture (USDA). (March, 2012). *Definitions of food security*.

Vertical Pallet Gardens

- Small-scale vertical farming is one method that could help nourish needy families, as well as educate them about food production.
- Vertical farming, started and patented by Patrick Blanc, is a simple means of growing, using a technique that allows for vertical growth.

Conclusion

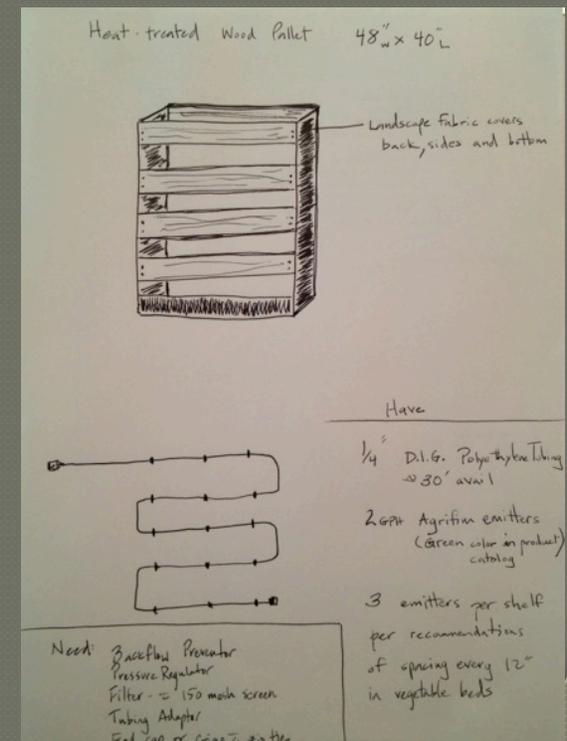
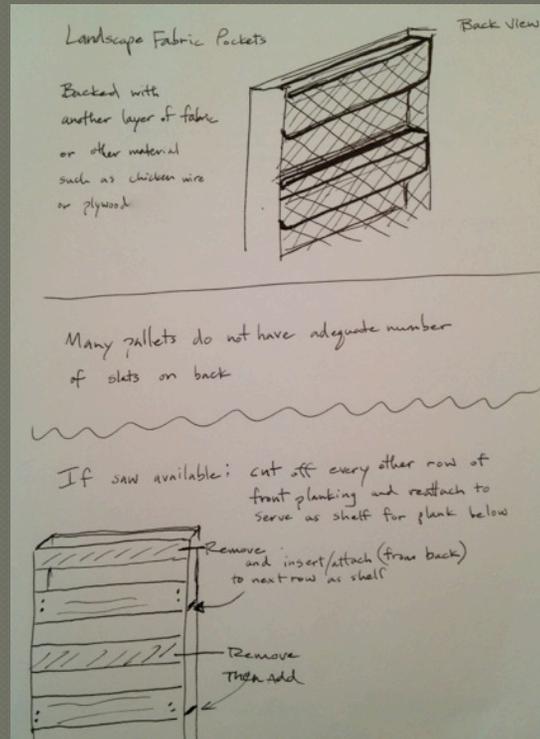
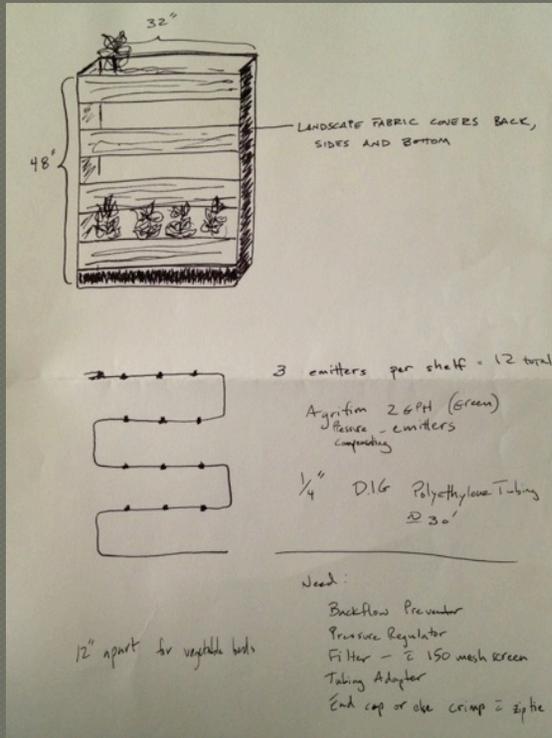
- Due to an increase in food insecurities, and a decrease in available funding, volunteers, and land, we have concluded that more research into small vertical farming could help to alleviate food insecurities for low-income families.

Vertical Pallet Garden

Design goals

- Sustainable
- Inexpensive to build
- Easy to use
- Little to no maintenance
- Easy to move for better production quality
- Minimal outdoor space requirements
- Enough yield to provide supplemental nutrition
- An educational tool to demonstrate food production

The Design Plan



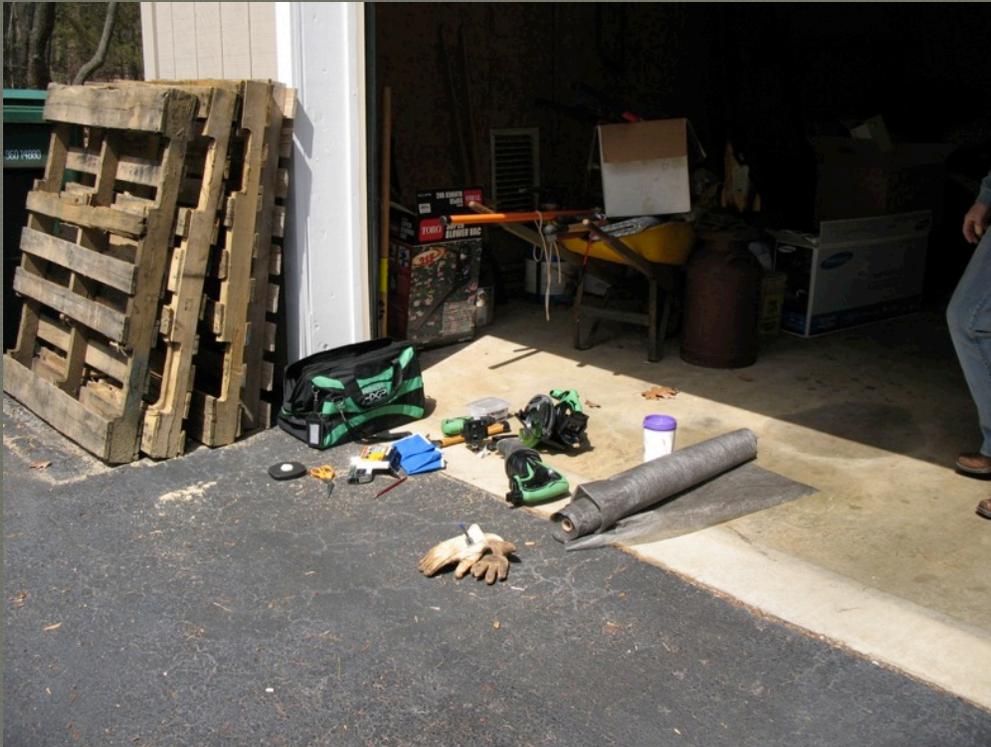
Photos by: Allison Kelly

Collecting pallets



Photos by: Allison Kelly

Construction time



Photos by: Malisia Wilkins



Prototype #1: Pocket Design



Photo by: Malisia Wilkins

Cut pallet in half (full size 48'' x 40'')



Photos by: Malisia Wilkins

Remove or hammer in any remaining nails
and then sand down



Photos by: Allison Kelly

Fitting with hardware net for additional support

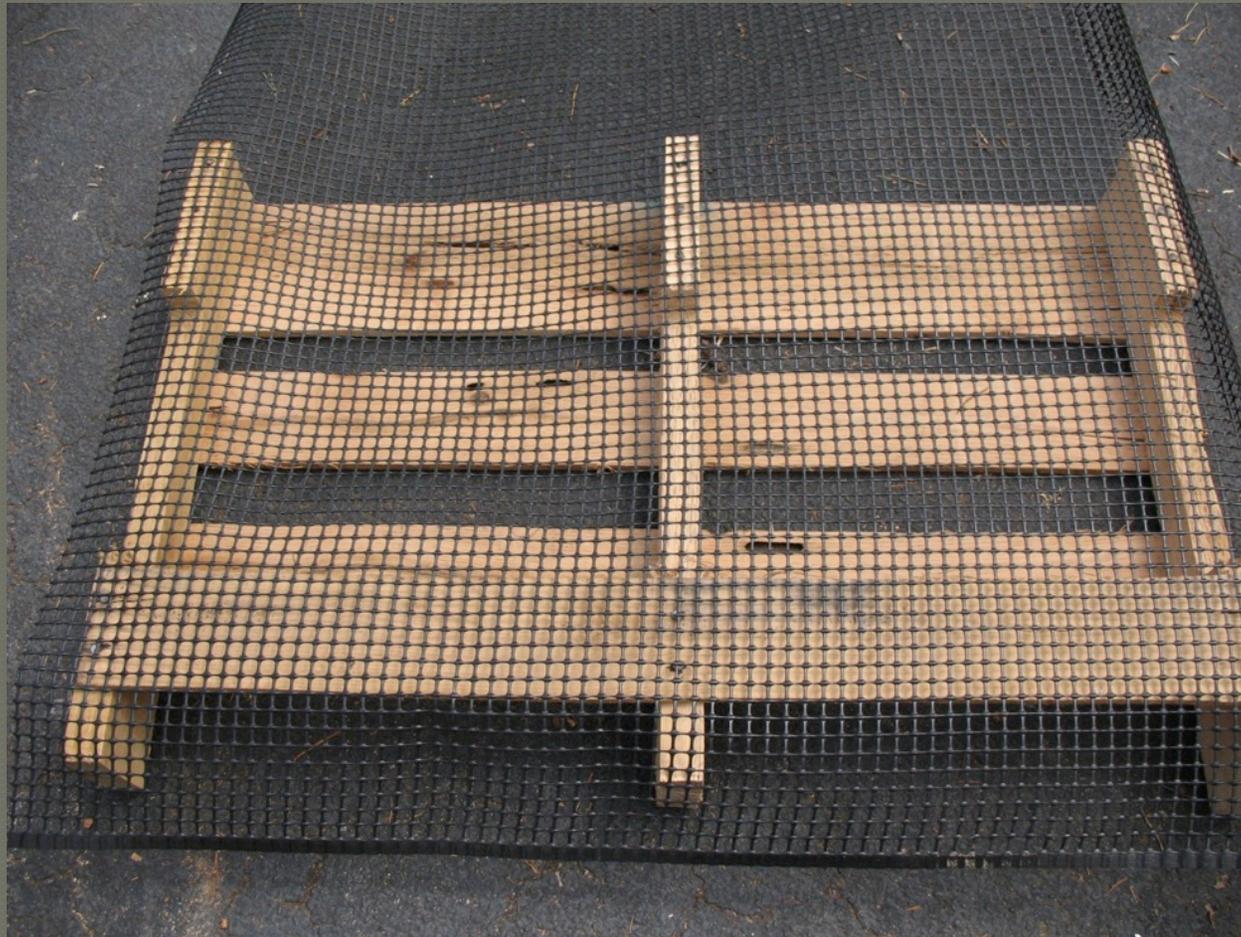


Photo by: Malisia Wilkins

Amplifying the tunes for our pallet friend



Photos by: Allison Kelly & Malisia Wilkins



Building the Pocket



Moisture Plus fabric used for soil pockets



Photos by: Malisia Wilkins

Interior: Pocket Design



Photo by: Malisia Wilkins

Prototype #2



Photo by: Malisia Wilkins

Applying hardware net



Photo by: Malisia Wilkins



Covering the pallets

Photo by: Malisia Wilkins

Interior: Prototype #2

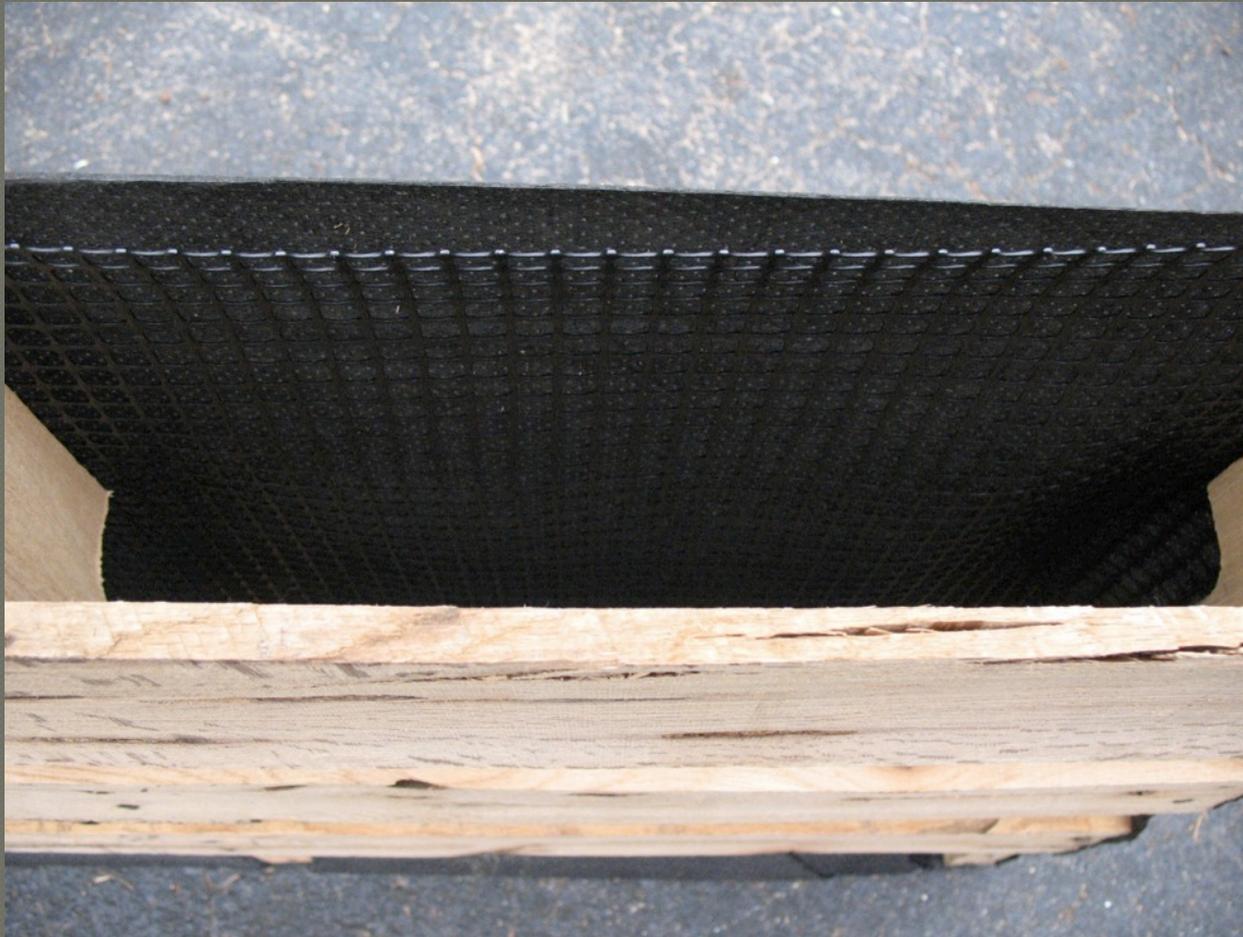


Photo by: Malisia Wilkins

Ready for phase 2



Photo by: Malisia Wilkins

Prototype #3: Full Pallet



Photos by: Allison Kelly

Remove every other slat, then saw off the ends of each extra slat after measuring



Photo by: Allison Kelly

Shelf Design



Photos by: Allison Kelly

Slide new slats in and attach, producing shelves for each pallet row

Shelves are only visible from the back and above



Photos by: Allison Kelly

Covering the Pallet



Photos by: Allison Kelly



Apply Moisture Plus fabric and hardware net

Ready for Phase 2



Photos by: Allison Kelly

Phase 2: Time to Paint

- Ensuring the gardens are aesthetically pleasing helps to promote use.
- To accomplish this, on a budget, we looked into making our own natural, organic paint, but during our search we discovered a company that had already mastered the art of organic paints.

The Old Fashioned Milk Paint Company

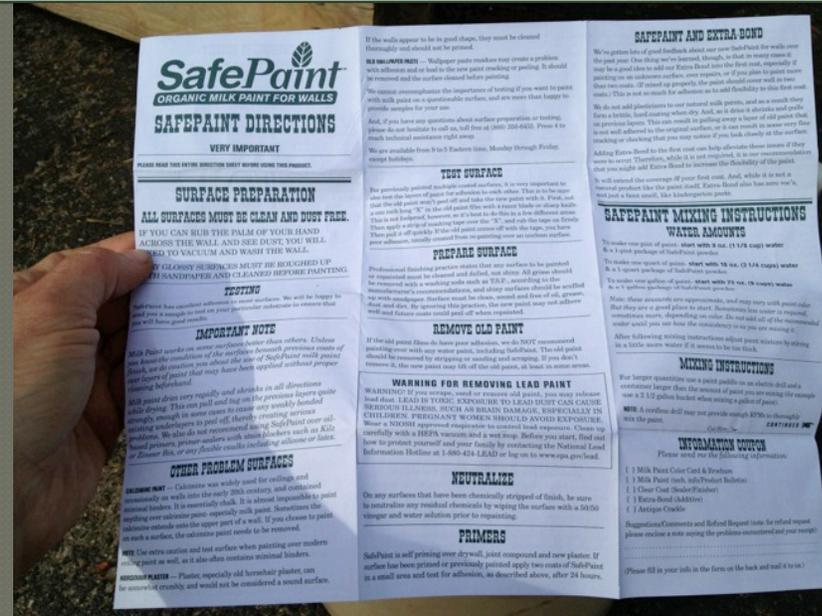
The Old Fashioned Milk Paint Company has been producing chemically safe paints since 1974, and “is now gaining an even wider usage because it contains only ingredients that are all-natural and will not harm the environment.”

The Old-Fashioned Milk Paint Company, inc. (Not dated). *Just because you're green doesn't mean you have to be drab.*

Safe Paint



Photos by: Allison Kelly



- Colors used
- Barn Red
- Federal Blue
- Lexington Green



Safe Paint in Federal Blue

Photos by: Allison Kelly



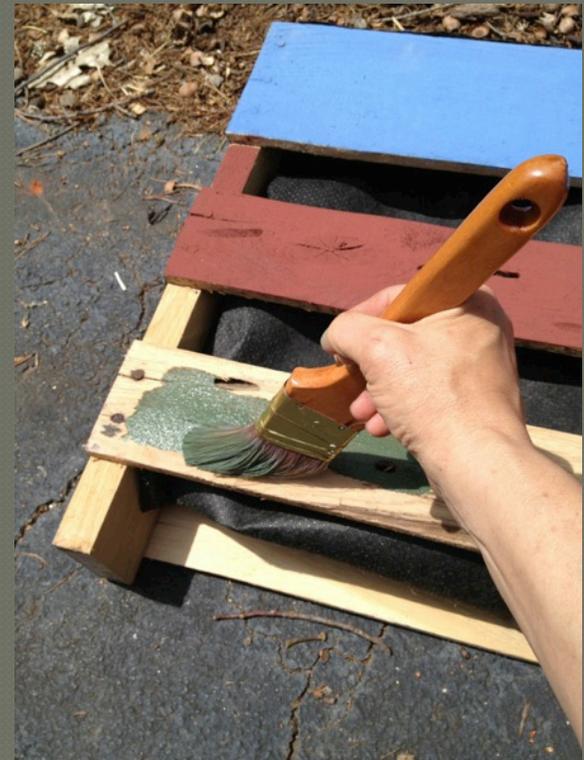


Safe Paint in Barn Red

Photos by: Allison Kelly



Safe Paint in Lexington Green



Photos by: Allison Kelly

Ready for planting!



Photo by: Allison Kelly

Planting Day



On location: Allison's house

Photo by: Malisia Wilkins

Plants



Photo by: Malisia Wilkins

Soil Mixture



Photo by: Malisia Wilkins

7 parts top soil



Photo by: Malisia Wilkins

2 parts peat moss



Photo by: Malisia Wilkins

1 part Perlite



Photo by: Malisia Wilkins



Photo by: Malisia Wilkins

- Hand mix
- Slowly add water to increase moisture in the peat moss

Finished mix:
Enlarged to
show texture

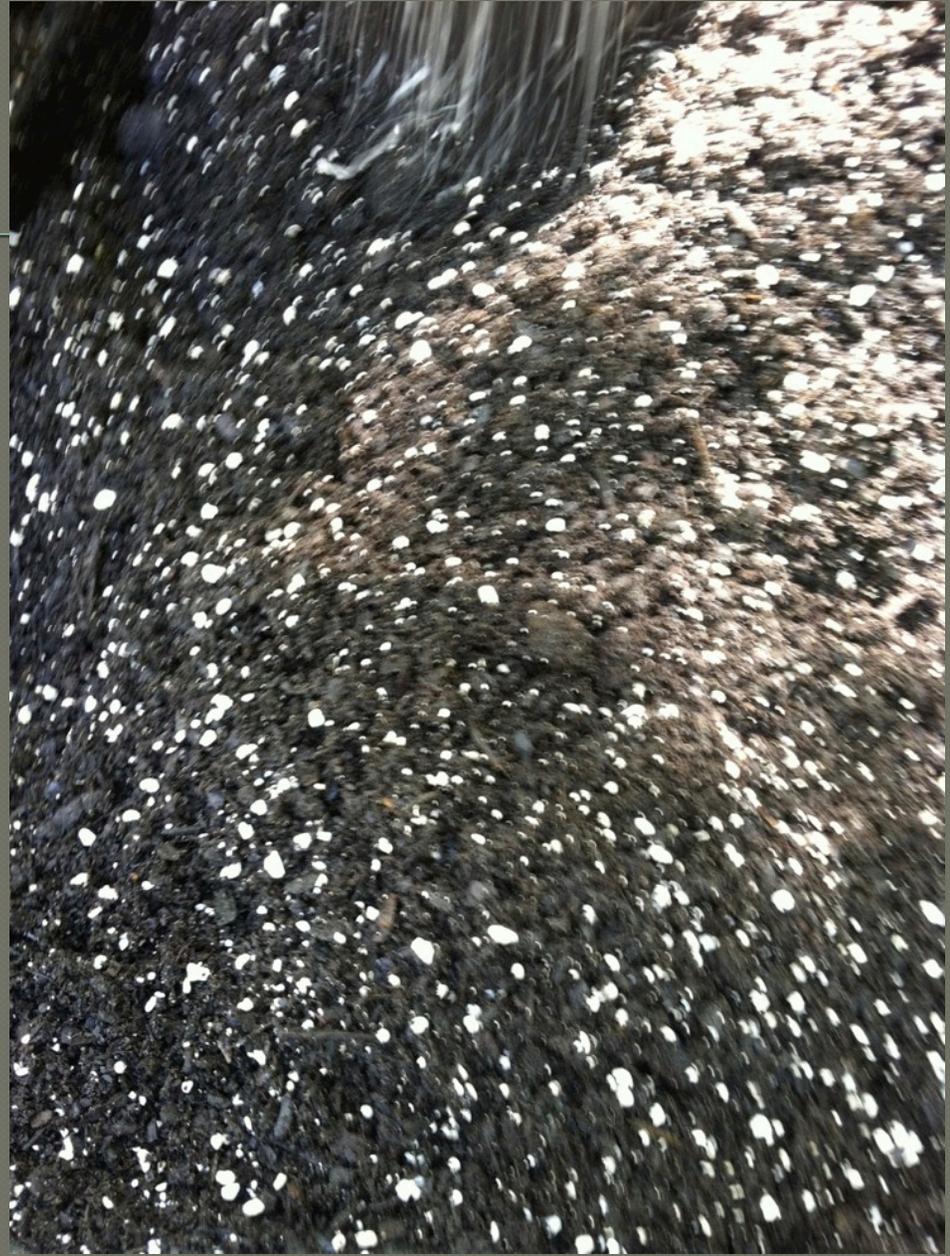


Photo by: Malisia Wilkins



- Add soil to pockets
- Loosely packed

Photo by: Malisia Wilkins

- Once pockets are filled begin planting from the top down.

- Cut small holes in fabric to insert plants in front pocket.



Photo by: Malisia Wilkins

Easy to carry



Photo by: Malisia Wilkins



#1

Photo by: Malisia Wilkins

#2



Photo by: Malisia Wilkins

3 Big
Blue
Bertha



Photo by: Allison Kelly

Finished Prototypes



Photo by: Malisia Wilkins

Mission Accomplished!



Photo by: Malisia Wilkins

Special Thanks

Our project would not have been possible without the efforts of many people, thank you for your support, and guidance.

- Dr. Ellen Vincent
- The Old Fashioned Milk Paint Company
- Ace Hardware of Clemson
- South Carolina Botanical Gardens