



PALS Pope Farm Expansion Project

Students of INAG 248



Outline

- Introduction
- Montgomery County Food Security Analysis
- Economic Analysis
- Site Analysis
- Crop Plan
- Initiating Process



Overview of Pope Farm Project



The PALS partnership is an opportunity for UMD students to assist M-NCPPC's Pope Farm in developing a crop plan for emergency food production.

In 2020, Pope Farm and several Montgomery County community gardens donated approximately **4,500 pounds** of fresh produce through HarvestShare to support food security in the county during the COVID-19 pandemic.

In 2021, Pope Farm aspires to *double that amount* with assistance from students in Meredith Epstein's Class, INAG 248, this semester.



Montgomery County Demographics



60% White

15.6% Asian

20.1% African American/Black

20.1% Hispanic/Latino



**EVERYONE
COUNTS**

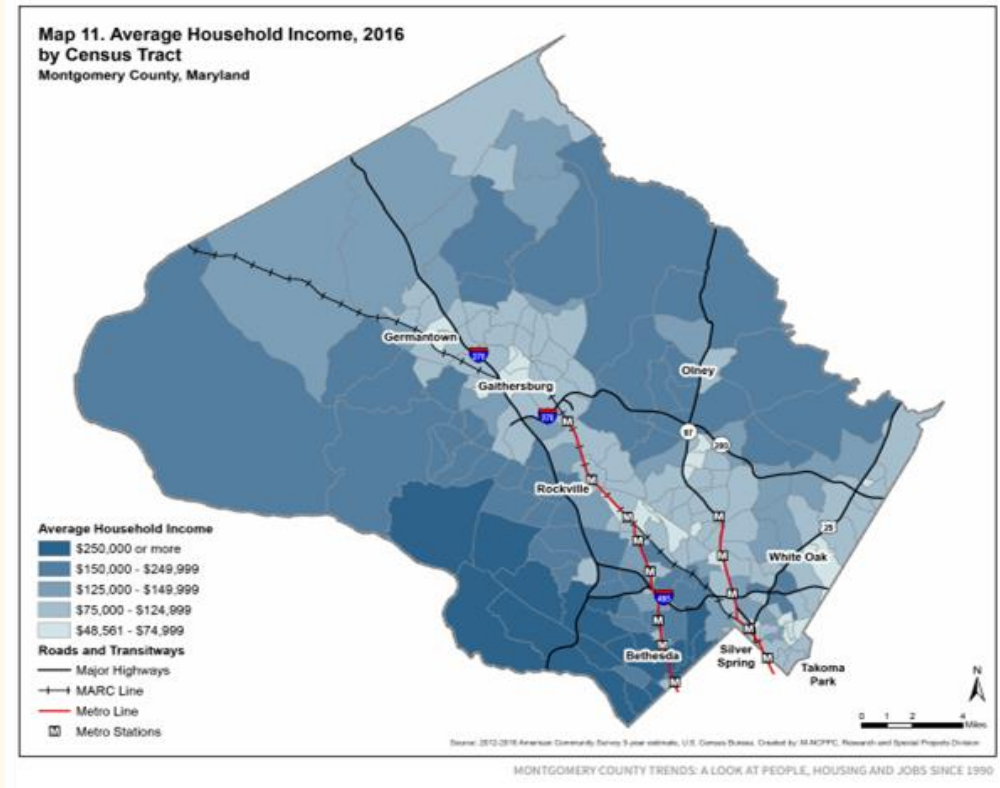
IN MONTGOMERY COUNTY

www.montgomerycountymd.gov/census

- # Economic Analysis

→ The Montgomery County communities that suffer the most from food insecurity are located in areas with the lowest household income. These include:

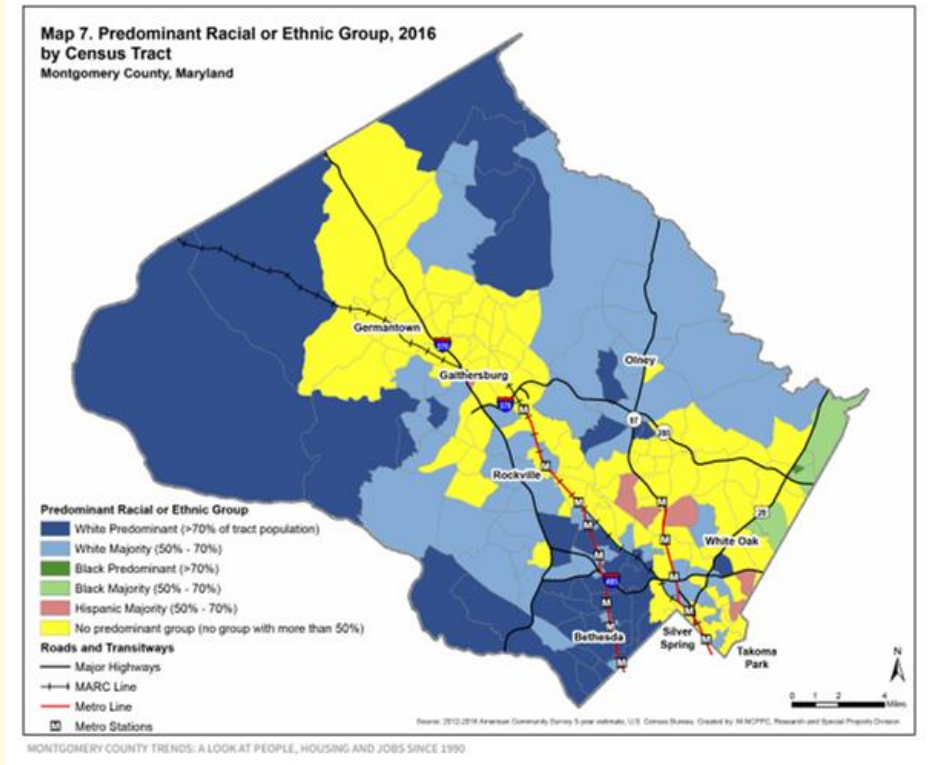
Gaithersburg, Germantown, Wheaton, Silver Spring, and Takoma Park.



Economic Analysis

Areas with the lowest household incomes are also the most diverse communities.

The areas highlighted in yellow represent the most diverse areas with household incomes between \$48,000 and \$75,000.

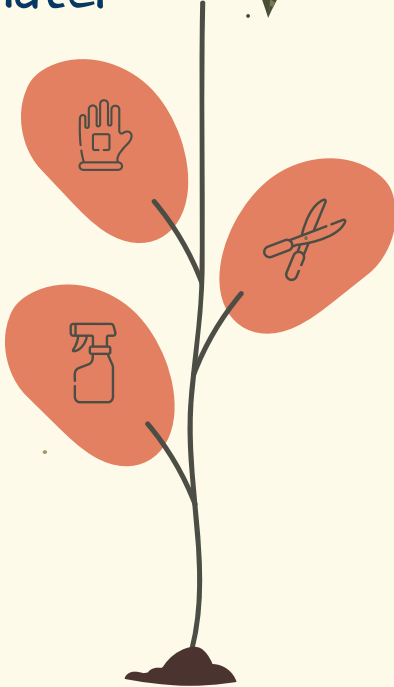




COVID-19 impact - one year later

Before Covid-19 food insecurity was the lowest it has been since the Great Recession, but still at 37 million people in the country.

- At the start of Covid-19, 14 million workers were lost their jobs, left with little to no family income.
-



Due to the pandemic an estimated 17 million people in the US could become food insecure, leaving more than 54 million people including 18 million children without consistent access to food.

Food Insecurity in Montgomery County

total population: 1,050,688

% of Montgomery County population that is food insecure: 8% (83,208)

The most food insecure communities in Montgomery County:

Eastern County, Wheaton, Silver Spring, Gaithersburg, Aspen Hill, and Germantown



Top 3 racial groups most likely in need of food assistance:

Black or African American, Hispanic, and Asian people

Ethnic groups with the largest foreign born populations in Montgomery County:

El Salvador, China, India, Korea, and Ethiopia

International Recipe Ideas Straight From the Plant!

El Salvador – Pupusas

- Declared El Salvador's national cuisine
- Corn flatbreads with meat and cheese topping or filling.
- Often topped with *curtido*, a Salvadoran slaw made from cabbage, onion, carrots, oregano.

India – Butter Chicken

- Pieces of tandoori chicken cooked in a tangy, velvety tomato cream sauce.
- Cardamom, cumin, cinnamon, coriander, pepper, fenugreek, chili powder, and turmeric are traditional spices and flavors used to flavor the butter chicken.

China – Hot Pot

- Making soup by gently cooking raw vegetables in the serving bowl by pouring hot broth over the top, and allowing them to steep.
- Can use an array of veggies, herbs, and flavors like: ginger, garlic, mung bean sprouts, green onions, mushrooms, and bok choy.

Ethiopia – Doro wat

- National dish of Ethiopia—a spicy chicken stew with onions, garlic, and ginger
- Doro wat was originally specific to Amhara culture, but increased mobility spread this food tradition.



Potential Crops for Pope Farm



Orégano



Mung Beans



Radishes



Cilantro
(Coriander Spice)



Chilies



Cardamom



Onions
(varieties)



Garlic



Bok Choy



Ginger



Carrots



Cabbage



Turmeric
(root or spice)



Mushrooms



Evaluation of PALS Project

With further understanding of Pope Farm's needs, we adjusted the plan.

- Large equipment requires larger rows between beds
- Low maintenance crops with minimal labor - adjust crop list
- Adjust vegetable gardener perspective to encompass different approaches



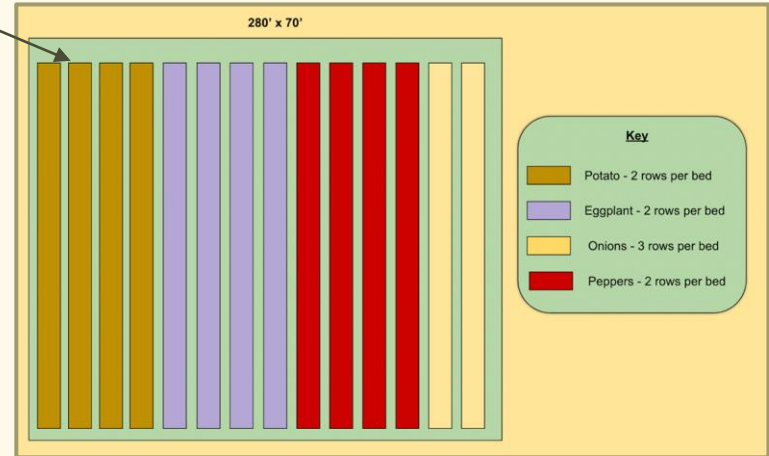
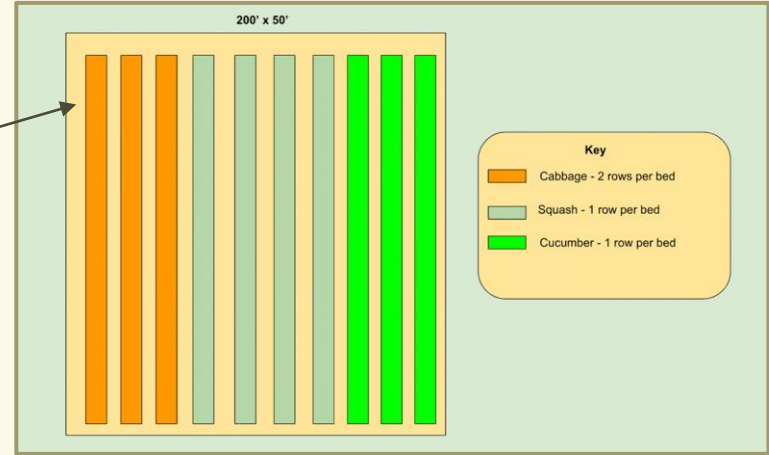
Pope Farm Crop Production List

Key: DTM= days to maturity; GH = greenhouse; DS = direct seeding; TS = transplant; IPM = Integrated Pest Management												
Crop	Plant Family	Spring Planting Date	Days to Maturity	DS or TP	Plant Spacing	Seed or Plants per 100' Row	Yield per 100' row	Pests	Recommended IPM	Nutrient Requirements	Harvesting	
cabbage	Cabbage- Asteraceae	Mar 15-Apr 10	52 days	TP	18-30" between rows; 8-12" apart in row	100 plants	150 lb; 60 heads	worm grey/brown	ms/chives seeds tre	nitrogen fertilizer	in a near-freezing, humid cool	
cucumber	Cucumber- Cucurbitaceae	May 10-June 1	48 days	DS	48-60" between rows; 18" apart in row	1/2 oz	120 lb	old/rot; aphid	revent fungus, chiv	high phosphorus	numbers at 45-50°F (7-10°C)	
eggplants	Tomato- Solanaceae	May 15-June 10	58-70 days	TP	30-42" between rows; 24" apart in row	67 plants	200 lb	eetles/worms;	ms/chives seeds tre	balanced fertilizer	fruits of desired size regularly	
onion (bulbing)	Onion - Amaryllidaceae	Apr 1-May 1	104 days	TP	15-24" between rows; 6-8" apart in row	400 plants	140 lb	nematodes; rot	vent nematodes we	nitrogen fertilizer	protected location to finish d	
peppers	Tomato- Solanaceae	May 15-June 10	green; 70-80 d	TP	30-42" between rows; 18-24" apart in row	67 pants	20-80 lb	ot; aphids, cater	seed hand pick/c	balanced fertilizer	to encourage further fruit set.	
potato	Tomato- Solanaceae	Mar 20-May 10	mid-season: 80	DS	30-36" between rows; 12" apart in row	8 lb	60-150 lb	nematodes; rot	olds and well drain	assium and phosph	leave tubers in the ground fo	
winter squash (Acorn squash)	Cucumber- Cucurbitaceae	May 15-June 15	50-55 days	TS	60-84" between row; 36-48" apart in row	1 oz.	200 lb	ms/beetle	milk	when young. proper s	balanced fertilizer	vines and handle carefully. S

Pope Farm Crop Production spreadsheet includes:

- 2020 Crop Production List
- 2020 Crop Production Projected Yield
- Future Crop Production List

Pope Farm Vegetable Garden Site Plan



Crops have been assigned to plots by plant family.

- Facilitates implementation into existing crop rotation
- Easier to spray if issues arise

Recommend a permanent plot of asparagus in addition to the two existing plots.

2020 Crop Production Projected Yield

Crop	# of Beds	Row/bed	# of 200' rows	Total row per foot	Yield per 100'	Total Yield (lb)
cabbage	3	2	6	1,200	150 lb	1,800
cucumber	3	1	3	600	120 lb	720
eggplant	4	2	8	1,600	200 lb	3,200
onion	2	3	6	1,200	140 lb	1,680
pepper	4	2	8	1,600	80 lb	1,280
potato	4	2	8	1,600	150 lb	2,400
squash	4	1	4	800	200 lb	1,600
					Total Yield (lb):	12,680

The projected yield meets the crop production goal weight of 9,000 lbs.



Harvest Time

Dates for major harvests:

These crops are all harvested at one and we expect to need between 15-20 volunteers each.

- Cabbage: close to June 1
- - Onion: close to August 13
- Potato: close to July 29

Continuous harvest dates:

These plants are harvested several times a week. would most likely need between 3-5 volunteers per crop several times a week.

- Cucumber: July 29th lasts between 50-70 days
- Winter Squash: August 7th lasts between 60-90 days.
- Eggplant: August 13th lasts between 50-80 days.
- Pepper: August 24th lasts between 60-90 days.

Food Delivery

Same day or next-day delivery to partner food banks is critical to maintaining the highest quality of produce.

Ask either volunteers from the day or Harvestshare's drivers to deliver to affiliated food banks





Possible Volunteer Groups

We believe that the best way to look for volunteers are students looking for service hours and religious groups close to Pope Farm.

Watkins Mill high school (301) 284-4400

Magruder high school (301) 840-4600

Gaithersburg high school (301) 284-4500

Inter-Denominational Church of God (301) 963-3012

Mill Creek Parish United Methodist (301) 926-9024

Islamic Center of Maryland (240) 912-4976

Progress of Crop Plan to Initiation

Incorporate INAG 248 students with the actual planting process of these crops.

The internship will incorporate the student-made crop plan, plant harvesting, real-time communication and skill building, and working with volunteers to support this project to reach its final stages.

Students who've helped develop the project planting plan can support Pope Farm and HarvestShare in achieving the 9000 pound goal!

Thanks!

Are there any questions?

Contact the Project Management Team:

Sydney Winkler - sydneyw@terpmail.com

Ana Lizama - lizamaanal8@gmail.com

Carlos Villamar - villamarc4carlos@gmail.com

A special thank
you to Pope Farm!

