# SPR Urban Food Systems 2019 IPM Strategy

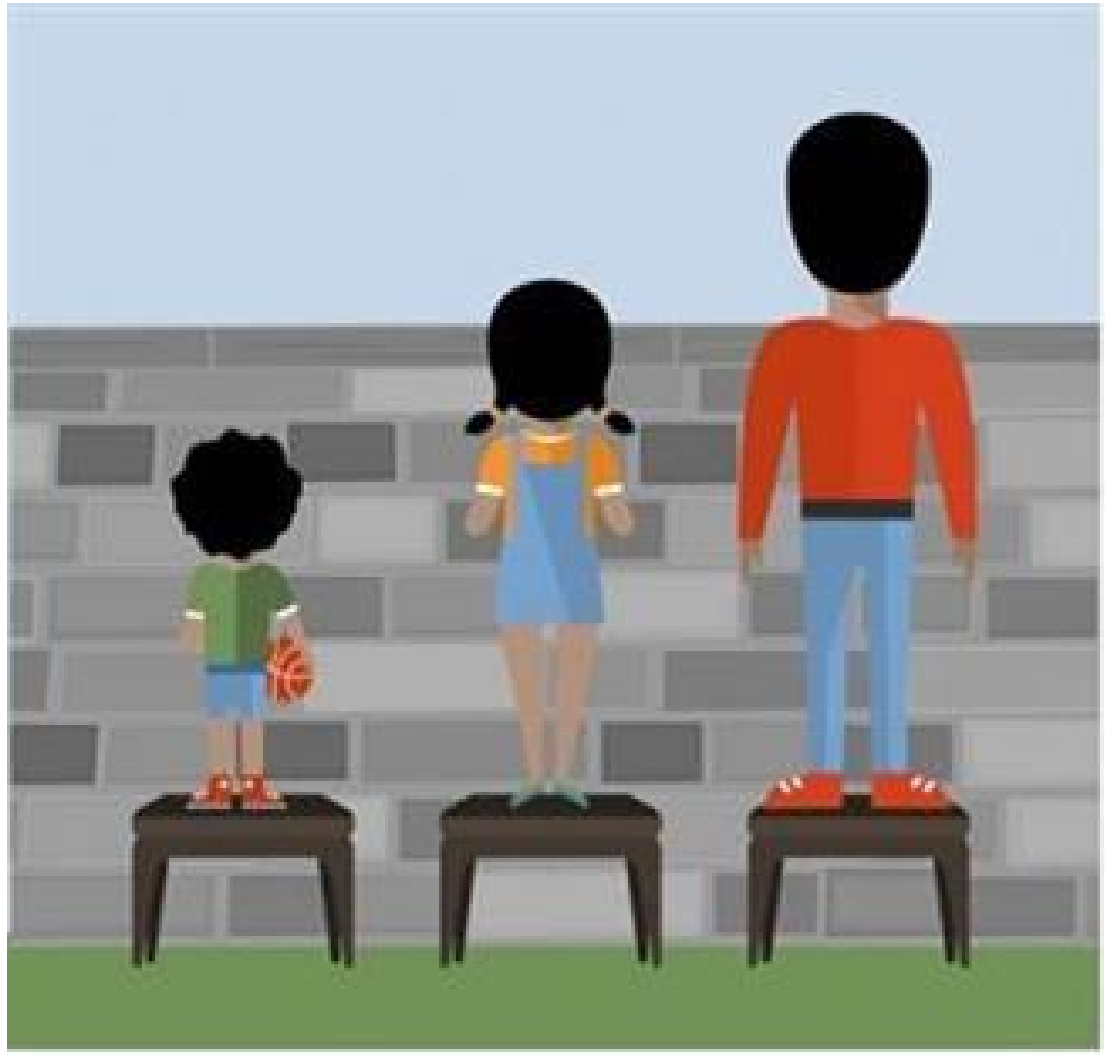

# *What is The Urban Food Systems Program?*

**Outcomes**

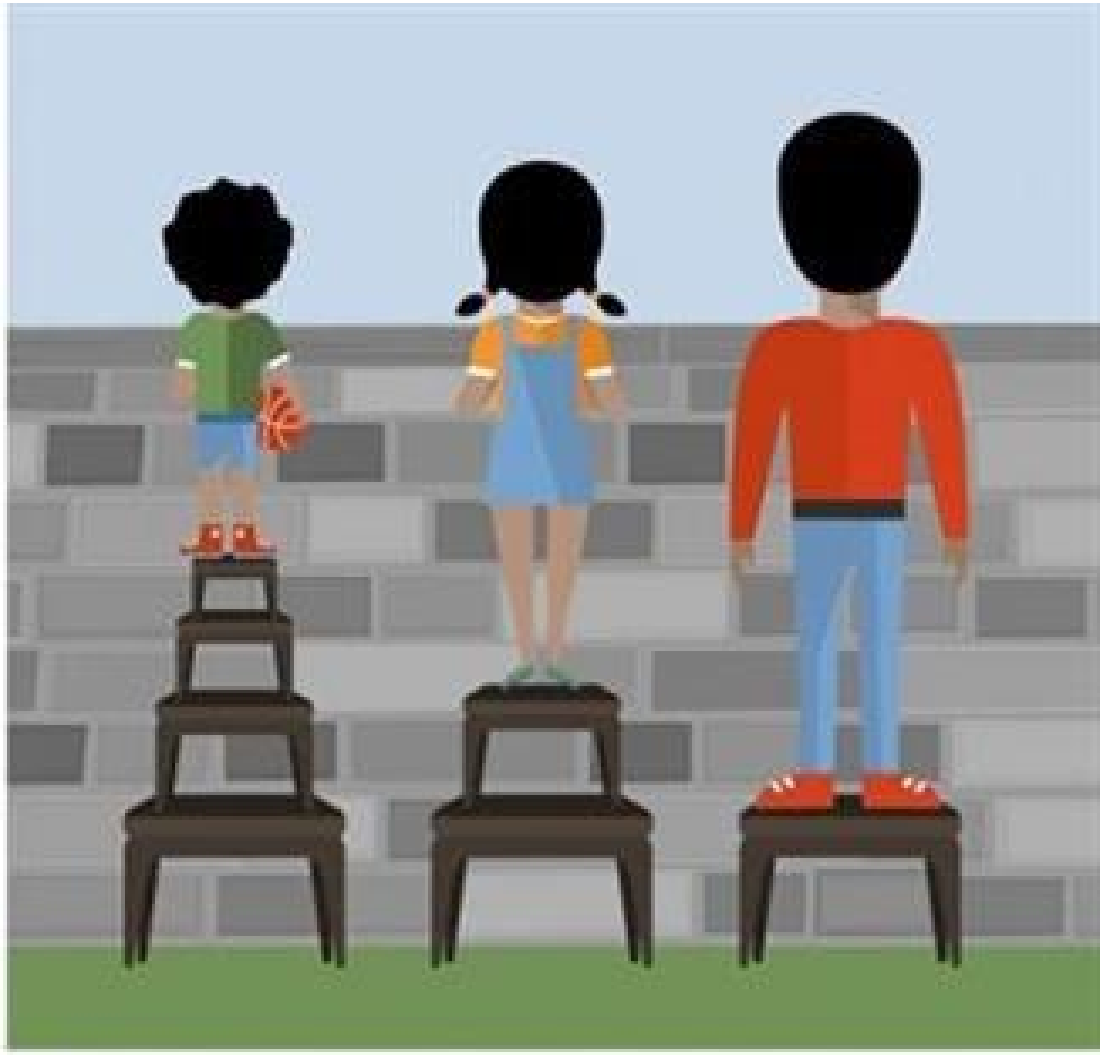
*Encourage healthy and active lifestyles*
*Steward park land for long-term sustainability*
*Support the local food system to build community and cultural place-making*

**Strategies**

*Community engagement leveraging SPR assets for growing, harvesting, cooking, and disposing of food.*
*Outreach and engagement of youth, POC and other underserved communities*
*Increase environmental stewardship through food system programs*

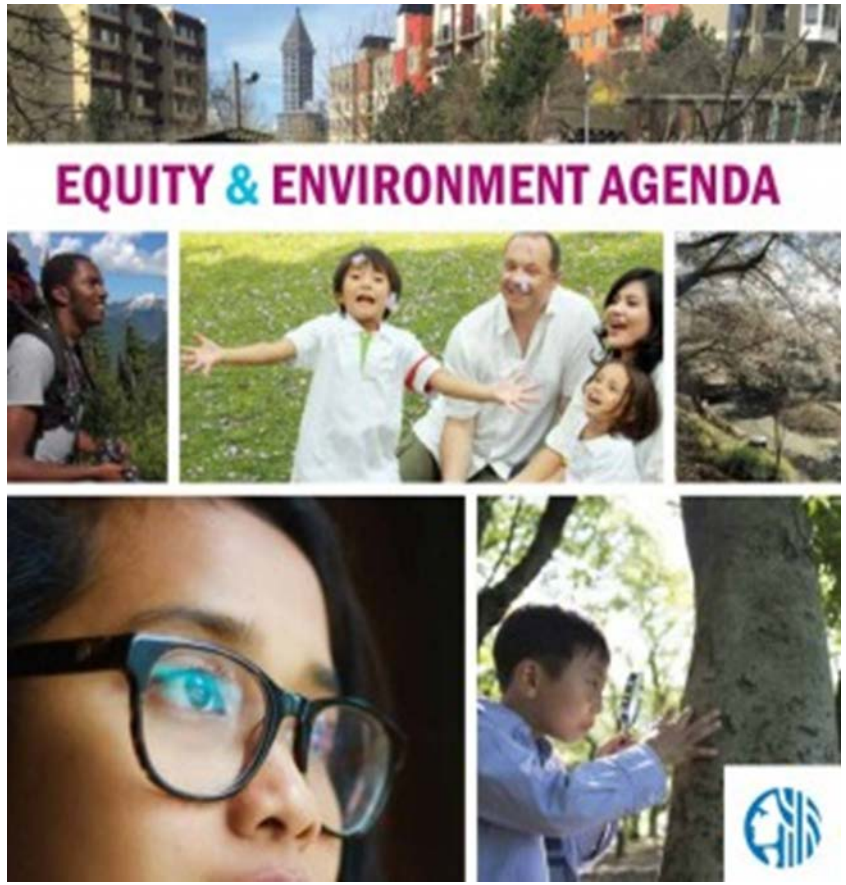


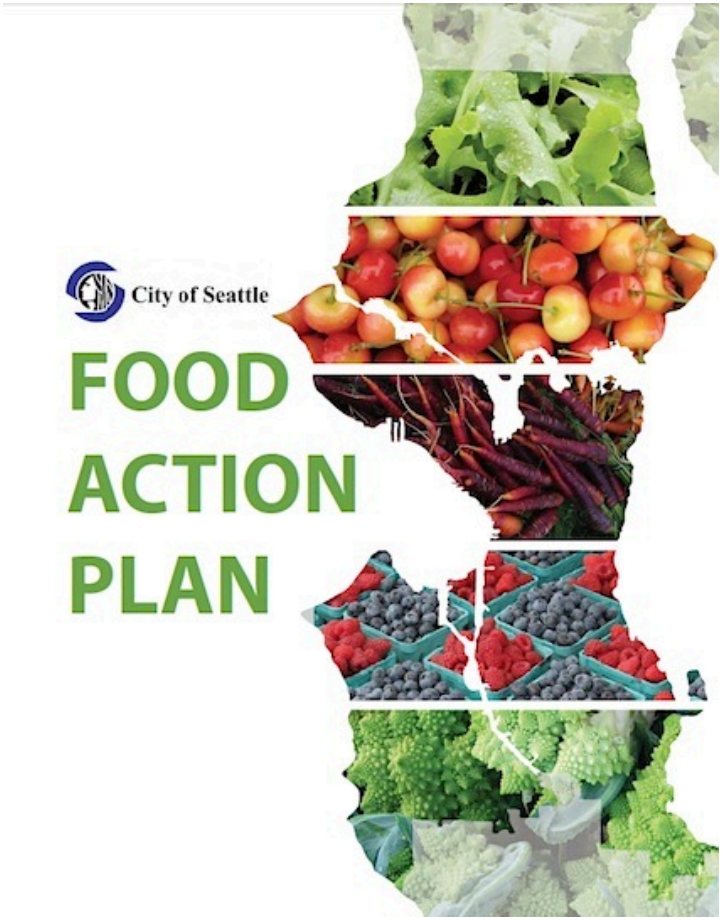
Equality



Equity

# *Equity Driven Policy*



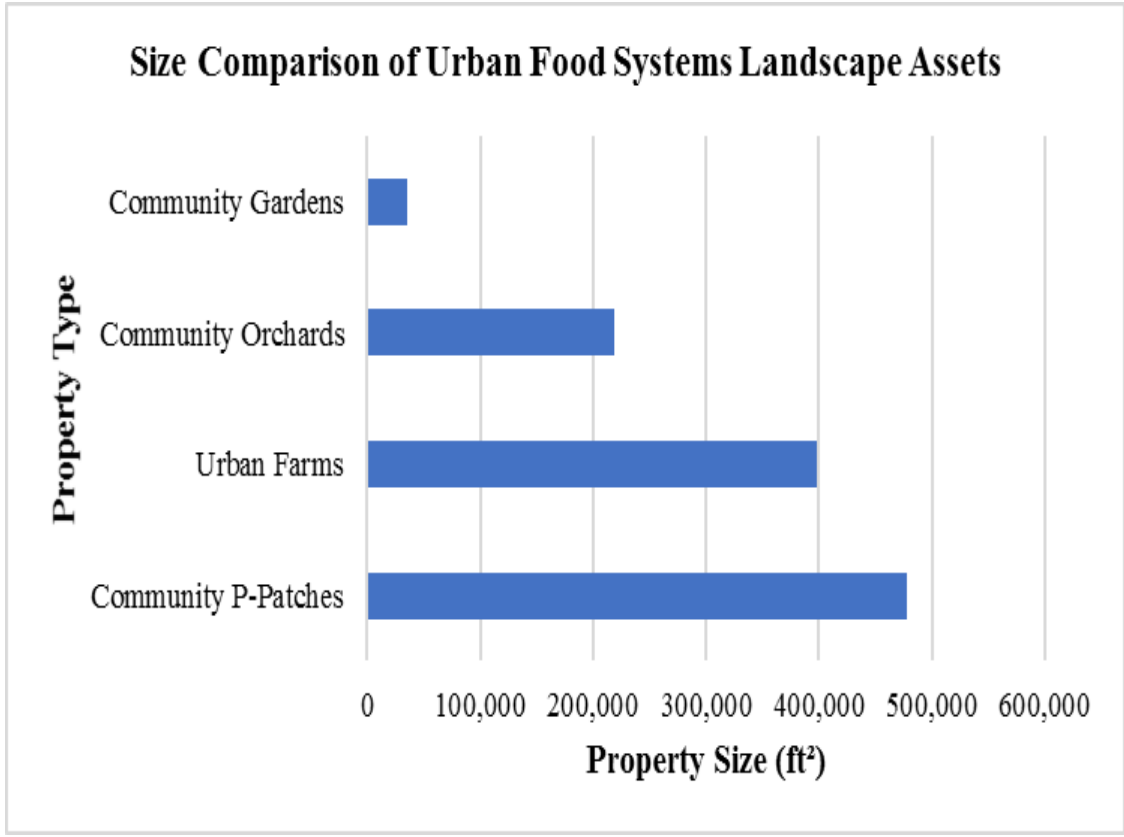

# *UFS Programming*




# *UFS Garden/Orchard Events*

# *Urban Food System Assets*

The Urban Food Systems (UFS) Program identifies its assets as Seattle Parks and Recreation's (SPR) designated food growing spaces. The UFS Program has domain of a total of 1,129,590 Square feet ($ft^2$) of food growing land, (including P-Patches). These 109 properties include community gardens, urban farms, community orchards, and although not stewarded directly by the UFS Program, community P-Patch gardens. Community P-Patches make up over 470,000 $ft^2$ of total growing space, while urban farms is a close second with almost 400,000 $ft^2$. Community gardens and community orchards account for over 250,000 $ft^2$ combined. P-Patch gardens make up 73% of SPR's food growing spaces; greater than that of community gardens, community orchards, and urban farms, combined.

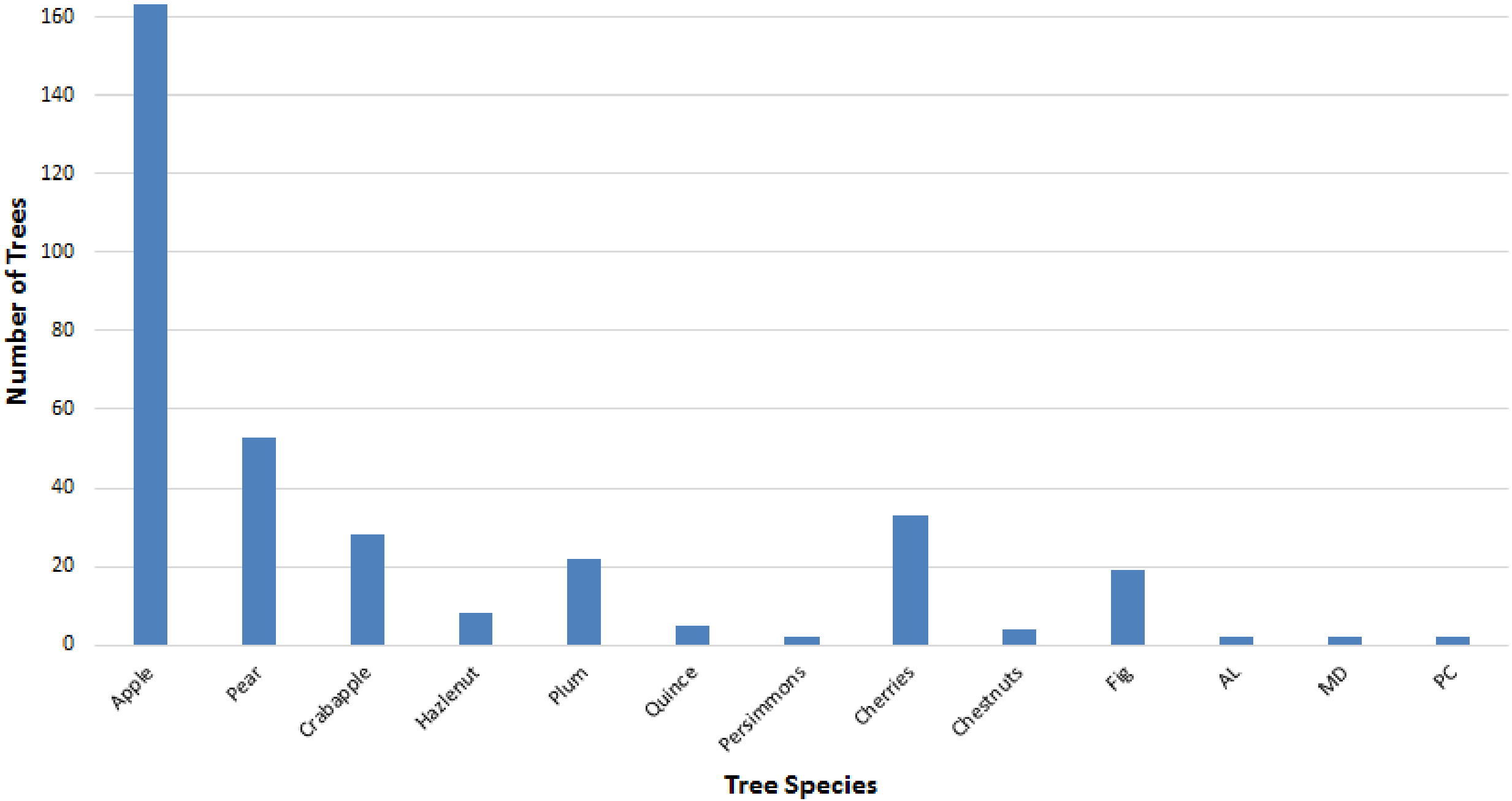


# *Community Gardens*

- There are currently 7 community gardens under UFS domain. These gardens include; ***Garfield Community Center garden, UFS Garden at Marra Farm, Meadowbrook Community Center Farm, Rainier Community Center Garden, Rainier Beach Learning Garden, Ravenna Eckstein Community Center Garden***, and ***Seward Park Giving Garden.*** The placement of UFS community gardens at SPR Community Center's was an attempt to provide local community stakeholders who utilize community center services opportunities to grow, harvest , and distribute fresh food to their communities.  Community gardens are used to support a variety of programming and events that surround food production, consumption, distribution, and waste elimination. They also support urban food resilience, food security, equitable land use, and environmental education programing. UFS works with SPR Community Center staff, non- profits, CBO's, City of Seattle agency partners, and local volunteers to ensure quality programming and stewardship at UFS garden sites

# *Community Orchards*

- There are currently 12 community orchards under UFS domain. These orchards include; ***Amy Yee Tennis Center Orchard, Burke-Gilman Trail Orchard, Dr. Jose Rizal Orchard, Kubota Garden Orchard, Langston Hughes Performing Arts Institute Orchard, Maplewood Playfield Orchard, Marra Farm orchard, Martha Washington Park Orchard, Meadowbrook Community Center Orchard, Meridian Park Orchard, Mountains to Sound Trail orchard, and Piper's Orchard.*** During a 2017 landscape asset assessment of UFS orchard properties, nearly 400 fruit trees of 13 different species were counted. Nonprofit organization *City Fruit* is contracted by the City Of Seattle to help glean fruit from public and privately-owned land in Seattle. UFS works with *City fruit* to glean and distribute fruit grown on SPR property. In 2018, UFS and *City Fruit* gleaned and distributed over 20,000 pounds of fruit from UFS community orchard sites.


160
140
120
100
80
60
40
20
0
Number of Trees
Apple
Pear
Crabapple
Hazlenut
Plum
Quince
Persimmons
Cherries
Chestnuts
Fig
AL
MD
PC
Tree Species


RATS IN THE GARDEN
HOW TO GET RID OF THEM

# *Apple Maggot Fly*

The apple maggot (*Rhagoletis pomonella*), also known as the railroad worm (but distinct from the *Phrixothrix* beetle larva, also called railroad worm), is a species of fruit fly, and a pest of several types of fruits, mainly apples.[1][2] This species evolved about 150 years ago through a sympatric shift from the native host hawthorn to the domesticated apple species *Malus domestica* in the northeastern United States. The adult form of this insect is about 5 mm (0.20 in) long, slightly smaller than a housefly. The larva, which is the stage of this insect's lifecycle that causes the actual damage to the fruit, is like a typical fly larva or maggot. The larvae are often difficult to detect in infested fruit due to their pale, cream color and small body size. The adult fly lays its eggs inside the fruit. The young "worm" that hatches consumes the fruit (rarely will the larva leave the fruit while it is still hanging on the tree) and causes it to bruise, decay, and finally drop before ripening. The insect overwinters as a pupa in the soil. It only emerges after metamorphosis into a relatively defenseless fly. Adults emerge from late June through September, with their peak flight times occurring in August.


# *Codling Moth*

- The **codling moth** (*Cydia pomonella*) is a member of the Lepidopteran family Tortricidae. They are major pests to agricultural crops, mainly fruits such as apples and pears. Because the larvae are not able to feed on leaves, they are highly dependent on fruits as a food source and thus have a significant impact on crops. The caterpillars bore into fruit and stop it from growing, which leads to premature ripening. Various means of control, including chemical, biological, and preventative, have been implemented.[1] This moth has a widespread distribution, being found on six continents. Adaptive behavior such as diapause and multiple generations per breeding season have allowed this moth to persist even during years of bad climatic conditions

# ***UFS Spring/Summer Orchard IPM Strategy 2019***

***Mulching, Irrigation/Spraying, Harvest, Distribution***

The Urban Food System(UFS) Spring /Summer Orchard IPM Strategy focus' on suppressing/eliminating populations of Apple Maggot Fly(AMF) and Codling Moth(CM) on trees located at 6 UFS orchard sites. These sites include; ***Meridian Park, Martha Washington Park, Maplewood Playfield, Langston Hughes Performing Arts Institute, Piper's Orchard, Dr. Jose Rizal Park.*** In order to reduce infestation of AMF and CM, you must interrupt their lifecycle. Mulching the soil under trees infested, spraying infested trees with water, and aggressive harvesting of fruit before it drops onto the ground are the three methods UFS plans to use to disrupt the lifecycle. Here are the details of each method:

•**Mulching**: Each tree infested will be mulched the diameter of the tree's dripline. Mulching the diameter of the dripline before **June 1st** is critical in disrupting the adult AMF emergence from warming soil during June and July. The mulching will also regulate soil temperature and feed the trees root system, improving the overall health of the trees.

•**Spraying**: Each tree infested will be sprayed with water at least three times during the month of June. Spraying leaves during this time period is a attempt to mechanically remove eggs laid by adult CM before they become Larvae. The spraying of water will also provide supplemental summer irrigation improving the overall health of the trees.

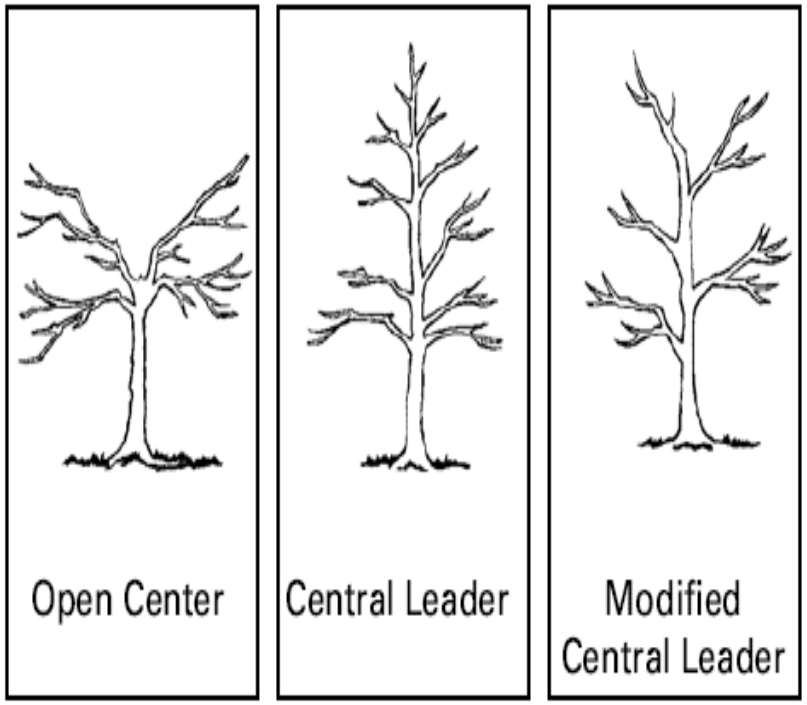
•**Harvest**: During the harvest season(August-October), each site will be checked/monitored at least twice a week for harvestable or compostable fruit. The goal is for no fruit to be left on the ground. This sanitation practice is designed to interrupt the lifecycles of AMF and CM before they become pupae. Our partners at City Fruit suggest this sanitation practice be performed on a two-year cycle.

•**Distribution**: The distribution of fruit deemed 'harvestable' will be guided by City of Seattle food equity policy. Fruit deemed 'compostable' will be disposed using sustainable composting systems.

Implementing this IPM strategy during the spring/summer seasons of 2019 and 2020 is an attempt to address the current AMF and CM issues at UFS orchard sites. Most trees located at UFS sites struggle with AMF and CM issues, and UFS needs to establish an IPM strategy to address this problem. The data collected during this plans implementation will help inform orchard/tree Best Management Practices(BMP) and establish an orchard/tree IPM baseline that could be used to inform City of Seattle municipal policy. This IPM strategy will also improve the overall sustainability of UFS orchard sites by providing sustainable habitats for beneficial insects and birds who are natural predators to the AMF and CM.




# *Pruning Fruit Trees*




- **Why:** Fruit trees are different from your average shade trees in that they need to be pruned every year to improve fruit quality. Pruning fruit trees improves sunlight penetration and increase air movement through the tree. Pruning also develops the structure of the tree so that it can support the crop load.
- **When:** Winter season (Jan-March)
- **Where:** In the winter of 2019, UFS pruned 143 fruit trees at these sites; Martha Washington Park, Maplewood Playfield, Marra Farm, Mountains to Sound Trail orchard, Langston Hughes Performing Arts Institute, Kubota Garden Orchard.

# *Mulching*

- Mulching rings around the base and under the dripline of fruit trees is designed to disrupt the entry and emergence of pests from the soil onto the tree. Mulch also serves a barrier between infested fruit that has fallen from the tree and the soil/lawn that pests like to live. In 2018 and 2019, UFS mulched over 170 trees at 9 orchard sites: ***Amy Yee Tennis Center Orchard, Martha Washington Park, Maplewood Playfield, Langston Hughes Performing Arts institute, Piper's Orchard, Dr. Jose Rizal Orchard, Meridian Park, Kubota Garden Orchard, Marra Farm Orchard***. The mulch was applied during April and may with a deadline of June 1st to comply with forecasted times of pest reemergence from wintering in the soil.

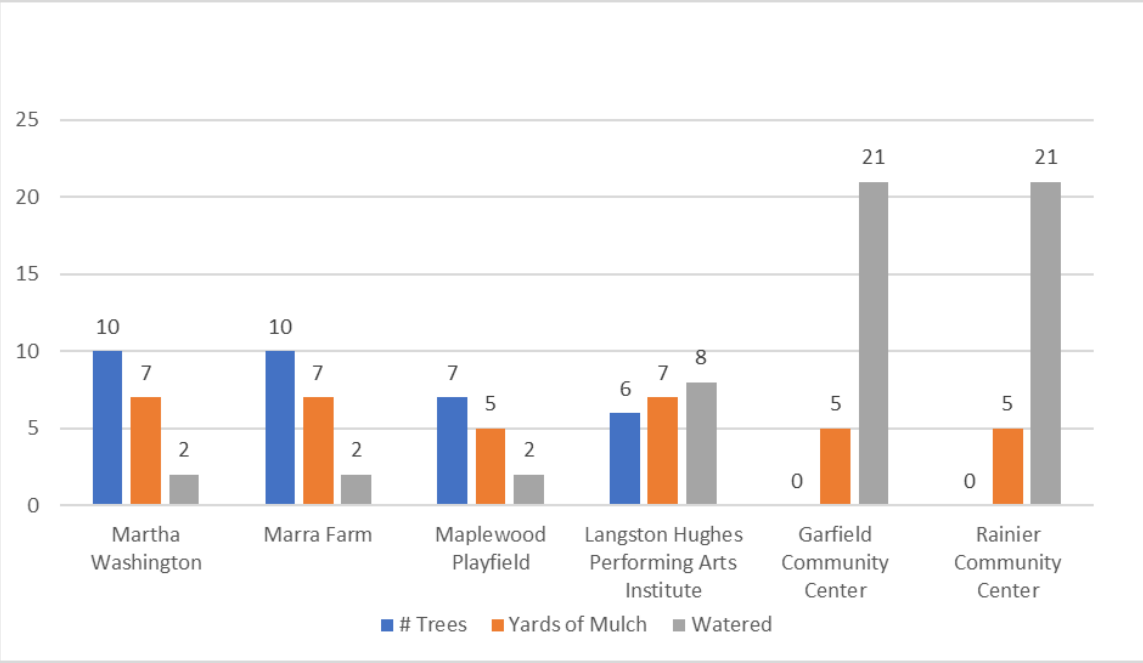
# *Watering*

- The IPM Strategy calls for ‘spraying’ infested trees with water during the early summer months( June-July) for active and passive beneficial outcomes. The active outcome to spraying leaves and fruit growing on trees is to mechanically remove pests located on the outside of fruit before they chew their way into the fruit. The passive outcome to spraying infested trees is providing supplemental summer irrigation needed to maintain the overall health of the tree and orchard space. Due to equipment logistical issues, UFS was not able to implement this step in the IPM Strategy during 2019. UFS plans to implement the watering during the 2020 implementation of the IPM Strategy.

# *Sanitation/Composting*

- Orchard sanitation practices is arguably the most critical step in the IPM Strategy, and a very important part of keeping UFS orchard sites healthy. During the summer harvest season(August-October), each orchard site was checked/monitored at least once weekly for harvestable or compostable fruit. Harvestable fruit was distributed via UFS food access points(programming, food banks, community led gleaning), and compostable fruit (fruit deemed inedible) was removed from orchard floor properly disposed. The goal was for no fruit to be left on the ground. This sanitation practice is designed to interrupt the lifecycles of AMF and CM before they become pupae. Experts recommend this sanitation practice be performed on a cycle of at least 2 years. UFS plans to implement this practice on a 3-year (2018-2021) cycle.

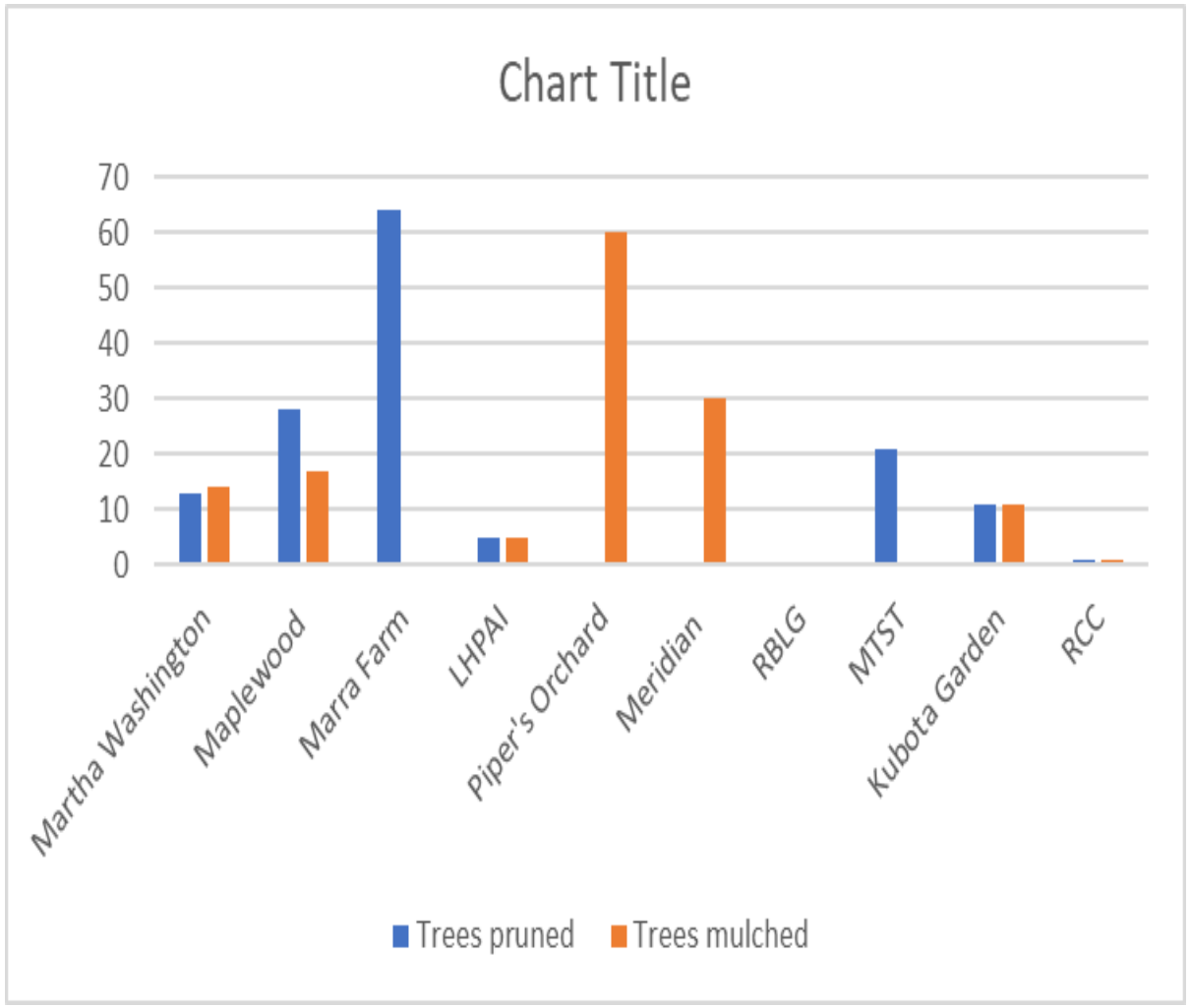
# 2018 Stats




| Food Bank/donations | lbs donated |
|---|---|
| West Seattle Food Bank | 440 lbs |
| Rainier Valley Food Bank | 752 lbs |
| Ballard Food Bank | 200 lbs |
| Ethiopian Community Center | 650 lbs |
| Hort cider press events | 418 lbs |
| CBO donations | 400 lbs |

| Site | lbs gleaned | lbs composted | total harvested |
|---|---|---|---|
| Langston Hughes Performing Arts Institute | 210 lbs | 4050 lbs | 4260 |
| Martha Washington Park | 650 lbs | 1100 lbs | 1750 |
| Maplewood Playfield | 100 lbs | 1600 lbs | 1700 |
| Marra Farm | 400 lbs | 150 lbs | 550 |
| Amy Yee Tennis Center | 900 lbs | 1350 lbs | 2250 |
| Dr. Jose Rizal Orchard | 350 lbs | | 350 |
| Piper's Orchard | 200 lbs | | 200 |
| Meridian Park | | 420 lbs | 420 |
| Ravenna- Eckstein Park | 50 lbs | | 50 |
| Total | 2,860 | 8,670 | 11,530 |
| | | | |
| | | | |
| | | | |

# 2019 Stats




| Orchard sites | Fruit composted |
|---|---|
| Martha Washington | 340 lbs |
| Maplewood | 260 lbs |
| Marra Farm | 1,000 lbs |
| LHPAI | 200 lbs |
| Piper's Orchard | 1,745 lbs |
| Meridian | 1,360 lbs |
| RBLG | 70 lbs |
| MTST | |
| Kubota Garden | 60 LBs |
| RCC | 3 lbs |

# Drought stress

- Due to the increasing affects of climate change/global warming, the need for supplemental summer irrigation of urban fruit trees is increasing. In 2018, UFS watered 33 fruit trees at 4 orchard sites ***( Martha Washington, Maplewood, Marra Farm, and Langston Hughes Performing Arts Institute )*** 2 times during the months of June and July. In 2019, there where no summer supplemental irrigation of fruit trees at these UFS sites. During the months of July and August, signs of drought stress where observed at 3 ***(Martha Washington, Maplewood, Marra Farm )*** orchard sites. In 2020, UFS plans to continue its supplemental summer irrigation plan at 4-8 orchard sites.

# *Gleaning*

- UFS has received feedback from partners, volunteers, and the public at large regarding the gleaning accessibility of fruit on trees located at our orchards. Community stakeholders have expressed the need for fruit on trees to be accessible to gleaning without the use of ladders. Many of the fruit trees at UFS orchard sites are central leader to modified central leader in shape and have been pruned infrequently over the past decade. Starting in 2017, UFS has begun cataloging orchard trees and pruning them annually for better fruit production. This practice has led to a rise in gleaning rates and a dip in composting rates at Martha Washington , Maplewood, LHPAI, and RBLG. UFS will continue to monitor the gleaning and composting rates at sites during the remaining IPM strategy implementation time period (until 2012). Providing better access for fruit gleaning to the public is a programmatic goal and mission value of UFS. Maintaining orchard spaces for optimal fruit production and gleaning provides access points to healthy and nutritious food. The increase in public gleaning contributes to the sanitation practices needed to disrupt the AMF and CM lifecycles, potentially reducing their populations.

# *Next steps*

| Continue | Gain | Create | Build |
| --- | --- | --- | --- |
| Continue annual tree maintenance and sanitation practices according to the IPM strategy | Gain labor and equipment capacity to better implement the IPM strategy | Create online food map of UFS orchards/fruit trees located throughout the Seattle area | Build UFS volunteer base and programmatic capacity |

# *UFS Staff*


- Chukundi Salisbury Sr.

Manager, Environmental Sustainability, Education and Engagement Unit

Chukundi.Salisbury@seattle.gov

- Belinda Chin

Urban Food Systems Program Coordinator

Belinda.Chin@seattle.gov

- Paris Yates

Urban food Systems Gardener

Paris.Yates@seattle.gov