Veggielution Community Farm Workday Leader and Farm Intern Training Manual

A Senior Project

presented to

the Faculty of the Agricultural Education and Communication Department

California Polytechnic State University, San Luis Obispo

In Partial Fulfillment of

the Requirements of the Degree

Bachelor of Agriculture Science

by

Sarah Wool

June 2014

Abstract

The purpose of this project was to write an updated and complete Workday Leader and Farm Intern training manual that could be used at Veggielution Community Farm. It could be presented as reference materials while participants are in the Workday Leader class or could be presented to Farm Interns to orient them on different jobs they might face while working on the farm. This manual provides general overview of many organic farming practices, as well as specific guidelines that Veggielution uses. It also focuses on leading volunteers to have effective workdays. It is hoped that this manual will be actively used in the coming years at Veggielution Community Farm.

Acknowledgements

The author would like to acknowledge the hardworking farmers and ranchers who once cultivated the soils in the Valley of Heart's Delight and the ones who continue to farm today. This lost part of history continues to grow as long as seeds are planted each spring, and crooked old trees still bloom in forgotten corners of the valley. The people at Veggielution do their part to encourage farming and bring life back into the bare but fertile soils that started the fame of Santa Clara Valley. I would not be where I am today without the commitment of past and present farmers.

Table of Contents

List of Figures

Chapter One

Introduction

Urban farms are a rising trend in today's populated cities. This is due to the fact that the world's population continues to grow, which demands more food to feed everyone. Additionally, consumers have developed a new craving for specialized agriculture such as organic or sustainable, a want for more local, in season produce, and a desire to be aware about their food production. Urban farms allow for social, economic, and environmental benefits. Urban farms create a food system producing local food within the most densely populated places,

One such urban farm is Veggielution Community Farm (Veggielution), which is a non-profit farm located in San Jose, California. The six acre farm relies on volunteers to complete important day to day tasks. These volunteers are led and taught by trained Workday Leaders and seasonal Farm Interns. Workday Leaders and Interns are trained about all aspects of the farm, as well as how to lead groups of people.

Prior to this, the training manual for Workday Leaders and Farm Interns was a collection of various articles of organic and sustainable farming practices and the principles and goals the nonprofit works toward. Although it contained good information, the training manual was lacking overall cohesiveness and had not been updated since the farm had expanded acreage from two to six acres in 2012.

The goal of this senior project is to update the existing training manual to reflect the changes to the farm, create one that is easier to comprehend for first time Workday Leaders and Farm Interns. Additionally, the new manual is to include accurate in depth articles on sustainable organic vegetable production practices and the psychology behind working with volunteers.

Statement of the Problem

The problem that needs addressing is the current manual that Veggielution Community Farm (Veggielution) presents to its Workday Leaders and Farm Interns when orienting them on the farm has not been updated since the farm expanded. Because Workday Leaders and Farm Interns are the people that the volunteers get direction from and interact with the most, they must be well informed about all activities, dangers, and day to day changes on the farm. Workday Leaders go through a training course that meets once a week for five weeks, while Farm Interns are introduced to the farm and then learn specifics by performing different daily farm tasks. The farm has many different vegetable types in production at once and each different area requires different tasks to be done. In order for Workday Leaders and Farm Interns to get a sense of what is expected at each different task or area, a complete training manual is needed. As the primary overseers of volunteers, Workday Leaders and Farm Interns are responsible for the safety of the volunteers and need to be adequately trained to deal with hazardous situations that could arise on the farm. Overall, a manual is needed to make the farm more efficient and a productive and positive working environment.

Importance of the Project

Veggielution Community Farm (Veggielution) survives on volunteer work contributions. Without it, the farm could not survive. Workday Leaders and Farm Interns are an integral part of the farm as they create the bridge between the farm managers and the volunteers. They need to be well versed in all aspects of production on the farm in order to relay it to their volunteer groups. Veggielution has usually only one Farm Manager and one Farm Hand on site on a given workday. There are too many tasks that must be completed in a workday that make it virtually

impossible for the Farm Manager to oversee and train the Workday Leaders and Farm Interns. In holding a leadership role, Workday Leaders and Farm Interns need to take that responsibility and learn the basics for what farm tasks need to be completed for the day, while leading and facilitating groups of volunteers. Providing complete and updated farm training manual will help them become familiar with the practices done on the farm so that the work is completed more efficiently and productively.

Purpose of the Project

The purpose of this project is to update and enhance the current training manual for Veggielution's Workday Leaders and Farm Interns. They are the main contact with volunteers and professionally represent Veggielution. These representatives need to be well versed in all aspects of farming that happens at Veggielution, including personal safety and food safety, in order to effectively supervise and instruct volunteers, as well as execute the tasks themselves.

Objectives of the Project

The objective of this project is to create a complete and helpful training manual for Workday Leaders and Farm Interns by:

- Educating leaders about Veggielution Community Farm mission and history so that they are able to understand their significance on the farm and communicate it to volunteers
- Presenting teaching and communication skills that leaders can use when working with volunteers including:
    - Communicating investment and ownership of work
    - Facilitating and educating large groups

    - Learning how to be ambassadors of sustainable food systems
    - Managing volunteers from wide backgrounds and cultures (ie: language barriers)
- Outlining the typical daily farm activities for leaders to follow and explain to volunteers
- Stressing the importance of farm and food safety for the leaders themselves and the volunteers they will be working with
- Providing both a general overview and detailed look at organic farming principles and how they are applied at Veggielution including:
    - Chicken care and egg production
    - Crop rotations
    - Fertilizers and plant nutrition
    - Greenhouse production
    - How to on weeding and weed identification
    - Implementing organic practices on a small or home garden scale
    - Integrated Pest Management principles
    - Irrigation, efficient water use, and how to set up drip lines
    - Orchard pruning and care
    - Soil properties and soil bed preparation
    - Tools frequently used and correct manner in which they are utilized
    - Vegetative composting and worm composting
    - Vegetable crop descriptions

Definitions of Important Terms

Community Farm- is a farm that operated by volunteers from the community as a whole instead of split into individual garden plots.

Community Supported Agriculture (CSA)- is a program that farms can utilize to bring local and fresh produce to consumers on weekly or biweekly basis. Consumers can sign up for a box for a monthly or overall fee, which will be delivered to them or available for pick up directly from the farm throughout the production season. Veggielution's Farm Boxes are a CSA program where consumers will receive weekly boxes with 7-10 different vegetables. From the Farm Box program, Veggielution also provides a subsidized Farm Box for 30 low income families in the community. The rest of the Farm Box profits support the farm's educational and community programs.

Dig Crew- is a summer program for high school students who have a desire to learn about agriculture. The program runs for six weeks and gives hands on experience in planting, harvesting, and cooking, at the same time as learning about sustainable agriculture, nutrition, social justice, and environmental issues. Students receive a stipend for their work and any fresh produce harvested that day.

Food System- is the processes and distribution that food or produce undergo in order to get from farm to consumer plate. Veggielution focuses on a local and sustainable food system since their core value is to bring healthy produce to the community.

Internships- are an important aspect to both the growth of participants and the success of the farm. Interns are able to gain responsibility for projects, develop

communication skills, and learn about a working farm. The internships take place during spring, summer, and fall, and run for 13 weeks with a requirement of about 12 hours per week. Veggielution offers internships in Farming, Community Organizing, Education, and Administration. Each has different job requirements that help the farm to run efficiently.

Organic- is a system of farming that avoids the use of synthetic fertilizers or pesticides and instead relies on practices like composting, green manure, cultural pest management, and crop rotations to sustain production and enhance the ecosystem. Although not USDA certified, Veggielution uses only organic practices on its farm.

Sustainable- is a type of farming that focuses on enhancing environment, efficient use of nonrenewable resources, and improving the quality of life for farmers and society while at the same time being an economically viable production. Veggielution's core values include being sustainable production for the better of the community.

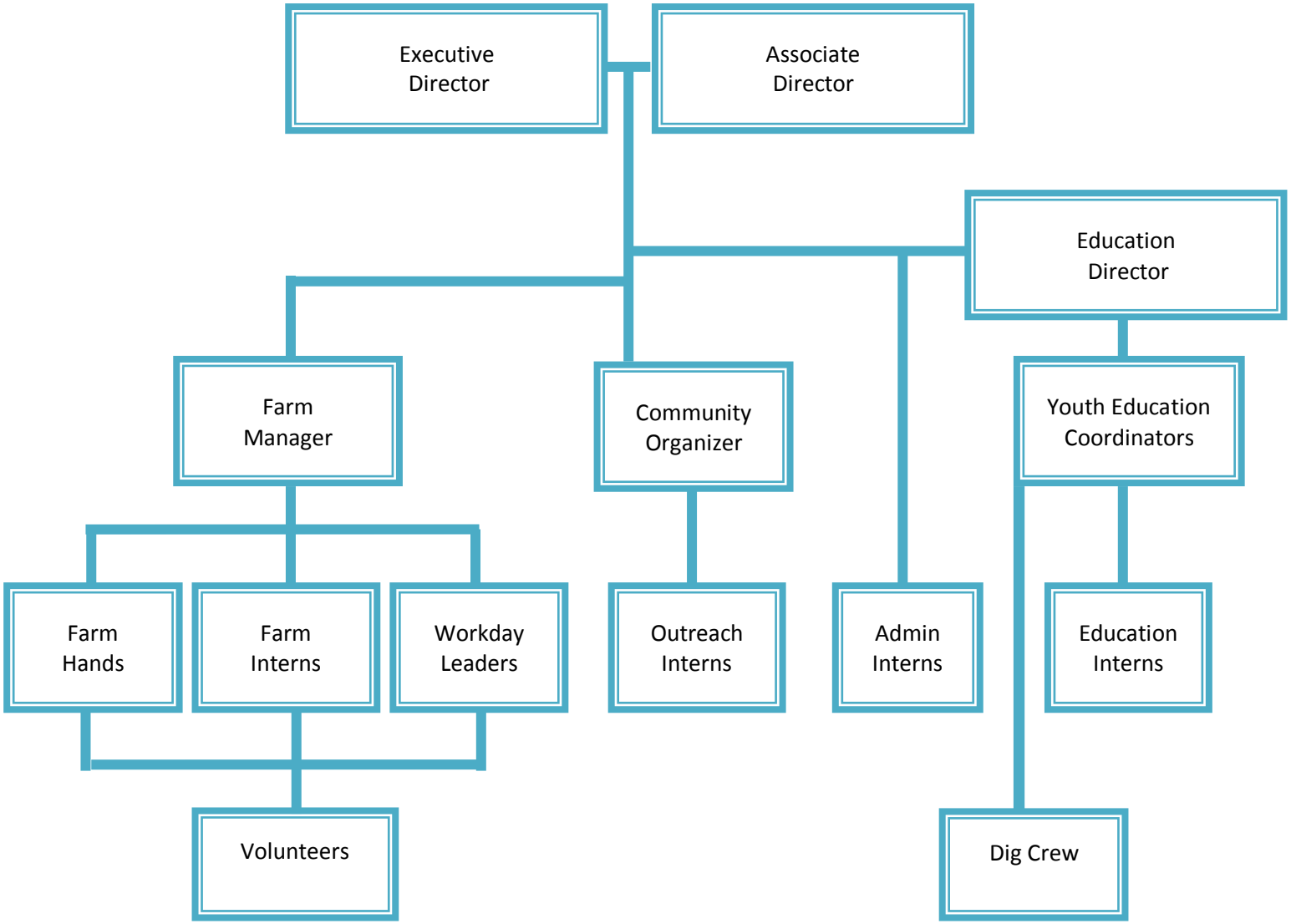
Veggielution Community Farm (Veggielution)- is a non-profit volunteer run six acre farm located on Emma Prusch Farm Park in downtown San Jose, California. It was created in 2008 with a focus on building community, embracing diversity, empowering youth, and promoting an accessible sustainable food system for local low-income families in San Jose. Veggielution runs programs like adult and youth education in farming and cooking, food access, and community outreach.

Workday Leaders- are trained volunteers who lead other volunteers during weekly workdays on the farm. They participate in a training program that meets once a week for five weeks to learn about production on the farm and leadership skills.

Veggielution Administration and Management

Veggielution Community Farm is run mostly by a group of staff who oversee the rest of the workers. The Farm Manager directs most of the farm production and coordinates the people who work on the farm like Farm Hands, Farm Interns, Workday Leaders and volunteers. Other programs are handled by directors, such as outreach and education programs. The only paid positions are the three directors and the Farm Manager. Other positions, such as Farm Hands, Community Organizer, and Youth Education Coordinator, work through the Silicon Valley Health Corps and receive stipend through that organization. The other positions are unpaid volunteers. The farm also has a board of directors and advisory board, which are not included in the figure below.

Figure 1: Veggielution Administration and Management



Summary

Veggielution has expanded its land and production in the last few years without having any major updates or additions to its training manual. The Workday Leaders and Farm Interns who the manual is intended for, need to be well versed in all aspects of the farm production, organization values, and personal safety when dealing with equipment, tools and processes, as well as food safety. The manual will include information in both a simple overview and detailed approach on current farm practices. This will require lots of information and research, focusing on organic farming practices and working with volunteers. Other information will come from personal experience as a Farm Intern at Veggielution as well as corresponding with the Farm Manager and other directors. The purpose is to make Veggielution a more efficient farm in the way that it depends on the work of volunteers who are lead and assisted by Workday Leaders and Farm Interns. This training manual will also be used as a reference guide for anyone who is curious about a more detailed understanding of current sustainable practices on the farm. This senior project will be presented to Veggielution Community Farm and used for the 2014-2015 Workday Leaders training sessions and future seasonal Farm Interns.

Chapter Two

Literature Review

A manual or training guide is useful to any company to encourage a productive and safe workplace and protect the employer from liability. With agriculture and farming, complete training information is essential for workers and volunteers on the farm. A thorough guide should include equipment safety, policies, general farming practices, and general organization values. Each new worker should be required to read and understand each part of the manual and uphold it throughout their time with the company. This project will develop a training manual for Workday Leaders and Farm Interns at Veggielution.

Importance of Training Manual

In order to have a productive and effective workplace, an organization needs to make its workers aware of the dangers of working on a farm. It is essential for an employer to adequately train and inform workers of hazards and how to work with them in order to avoid injuries. According to California's Division of Occupational Safety and Health, both workers and employers have rights to a safe workplace, but also have a responsibility to create a safe workplace for others. Employers are legally obliged to disclose exposure to hazardous materials (Cal/OSHA, 2014). Additionally, there is an additional threat of working with fresh produce and ensuring proper food safety. A manual for people who harvest produce can outline how to prevent, reduce, and eliminate food borne illnesses in production agriculture. In addition to creating a safe work environment, a workers' manual can create a positive and effective work culture. In the article "How to: Assemble an Employee Handbook", they stress that workplace

standards are more productive than a list of threats (2008). Therefore company policies, workers code of conduct, and other legal policies need to be included in the manual. Finally, every time a company changes or expands in a merger or acquisition, the employee handbook should be updated and reviewed by all workers so that any new standards are understood (Flynn, 2000). This proves strong rationale to revise Veggielution's current manual. Since the daily farm production relies on the work of volunteers led by Workday Leaders and Farm Interns, they have to be knowledgeable about the farm practices to communicate them to people. Workday Leaders and Farm Interns are the representatives of the organization and have to inform and lead the volunteers in a way that will keep them safe while working on the farm. There are many dangers that are a part of normal farm activities that everyone has to be aware.

Safety on Farms

A farm is a dangerous place, with tools, fertilizers, and equipment. "Farm work is one of the most dangerous industries in America," says AFOP's Levy Schroeder (2013). "In fact, we estimate that every 17 hours a farm worker dies because of dangerous equipment, pesticide poisoning and heat stress" (2013). It is important to stress a worker's rights to a safe workplace, and no one should be working with dangerous environments without having been properly trained. For workers at Veggielution, this safety is more important because they are not employed and are giving their time and effort to the farm. Veggielution has not only a liability but also a moral duty to make sure that the people who are helping better the farm do so in a safe manner and are not threatened by any practices. The farm relies on the work of volunteers who return to work day after day and losing them due to fear of personal safety would negatively affect farm production. Firstly, minors should always be supervised and accompanied by an

adult. Also, tools are a general safety hazard. Understanding the space needed to work with tools and equipment are vital when working in close proximity with others. Additionally, heat stress is a serious concern when working in fields. The workers trained at the Veggielution must be well educated on safety because Working Leaders and Farm Interns are responsible for ensuring volunteer safety at all times.

Working with Volunteers

Volunteer work is an essential part of Veggielution Community Farm's success. The farm is completely run by volunteers. As a representative of the farm, Workday Leaders and Farm Interns will be leading groups of volunteers in productive manners. The most impact a volunteer will have is when they feel like they do not identify with the organization and probably will not return for more work (Steimel, 2013). Additionally, volunteers who learn about their work through memorable messages are able to find a place within the organization. They get these messages from the person who is overseeing their work. At Veggielution, the Workday Leaders and Farm Interns are the main people from whom this message is received (Veggielution, 2014). They are the main influence on how the volunteers respond to their experience. Also, messages that highlight the significance of volunteer work had more impact on returning volunteers than those messages of "gratitude, competence, or rule" (Steimel, 2013). For that reason, it is important to communicate the impact a volunteer's contribution has on the overall big picture of the organization and what it stands for.

Importance of Internships

More and more college programs are requiring students to have internship experience in order to graduate. If not officially required, employers show a preference to people with internship experience when hiring for full time careers. According to Robert Koelher, internships help students to apply and reinforce skills they learn in a classroom, enabling them to find their strengths and weaknesses (1974). It is said that internships help students to feel a sense of purpose in their field of work. "Greater awareness of the practical aspects of an [internship] enables the student to select his remaining courses more wisely and strengthens his desire to master the subject material" (Koehler, 1974). According to Debra Burke, internships are a type of experimental learning that helps participants to enhance problem solving skills, engage in critical thinking, and encourage lifelong learning (2013). An internship can also provide benefits of real world experience in a chosen career field, introduce professional networks, and build upon participants' knowledge. The internships offered at Veggielution aim to serve the community and help develop communication, innovation, and responsibility for the interns (Veggielution, 2014). The interns gain experience in public relations, nonprofit organization, and overall sustainable farming practices while interacting with the distinct culture of an urban farm.

Urban Farms

With an increasing public awareness of food production, more and more urban farms are being started in populated areas. The USDA estimates that "15 percent of the world's food now grown in urban areas" (Riggs, 2011). Some examples of these farms are City Farm in Chicago, Earthworks Youth Farm in Detroit, Greensgrow Farm in Philadelphia, and The Food Project in Boston. These farms give the general public a better understanding of how agricultural

commodities are produced. Additionally, many urban farms focus on innovative practices such as organic, sustainable, no-till, and permaculture that promote a bigger picture of environmental stewardship and human health. Urban farms are the educational solution to public curiosity of food. "Urban agriculture is just a piece of the food system, but it's an important piece to educate the consumer and get food to underserved communities" (Christian, 2010). It provides an opportunity for people to touch the food, to feel it, for it to be more present in their daily lives. Volunteer and community work are sometimes values held by urban farms. They emphasize a giving back approach to farming and usually attempt to solve the problem of food insecurity. Veggielution is one urban farm whose goals as an organization are to "build community, empower youth, embrace diversity, and create a sustainable food system" (Veggielution, 2014). Ultimately, urban farms serve as a hands-on educational link between average consumers and food production while at the same time promoting sustainable farming.

Sustainable Farming Overview

Sustainable farming has become a popular trend in small scale agriculture production. This involves using practices that emphasize environmental stewardship. These focus on maximizing production without destroying the ecosystems and land where the farming takes place. The organic movement has helped promote this idea of farming. Organic farming uses techniques that do not require chemical fertilizers, pesticides, or herbicides. Some examples of these techniques are composting to use for fertilizer, using worm castings, hand weeding, crop rotation sequences, efficient water use and irrigation, integrated pest management techniques, and production of seasonal produce. Veggielution adopts many of these principles in order to promote environmentally friendly production and increase the overall quality of their produce.

By having sustainably grown produce, Veggielution aims to bring back a type of agriculture that once existed in the urban area it farms in.

Santa Clara Valley History

Veggielution Community Farm is located in the Santa Clara Valley, also known as the Silicon Valley. The area's extensive population and high rise technology center was once known as the "Valley of Hearts' Delight" because of its agricultural productivity. According to "The Genesis of Silicon Valley", from the time the area was settled by Spanish, it was used as agricultural lands, intensifying into the 19th and 20th centuries (Saxenian, 1983). In the early 1900s, the valley was "boasting about 100,000 acres of orchards and 8,000 acres of more traditional vegetable crops" (Griffin, 1958). This was possible because of the valley's fertile soils and mild climate. The area was in the top 20 most agricultural productive places in the country and produced more than a third of California's crops by 1939 (Scaruffi, 2010). The bountiful harvests created a processing industry. The valley had "18 canneries, 13 dried-fruit packing houses, and 12 fresh-fruit and vegetable shipping firms" that were known worldwide. (Robertson, 2013). Veggielution aims to keep the agricultural history of the valley alive and growing. The soil is still one of the best in the nation, hidden under piles of concrete and buildings. The farm does its part to showcase a living part of Santa Clara County history.

Summary

Veggielution Community Farm is an urban farm in a previously agriculturally productive area in California. The farm practices sustainable farming in order to give back to the community and enhance the environment. The farm is run by volunteer work, and Workday Leaders and

Farm Interns play a large role in both daily farm tasks and making an impression on volunteer groups. For that reason, they need to be knowledgeable about the safety procedures and risks associated with farm work for both their own personal safety and the safety of the volunteers. Thus a complete training manual for the leaders and interns is needed at every farm, including Veggielution Community Farm, in order to have informed workers and increase success of the farm.

Chapter Three

Methods

In order to create an up to date training manual for Workday Leaders and Farm Interns at Veggielution Community Farm (Veggielution), several research steps were taken. Firstly, the key players at the farm had to be consulted as to needed to be in the manual. The Farm Manager, a Farm Hand, and the Associate Director were interviewed on what they thought was most important to update in the manual. Other urban farms, such as the Boston Food Project, which operate similar to Veggielution were reviewed in order to see what they included and how they implemented a training manual. General research on the topics not specific to Veggielution was done in order to complete the manual chapters. Finally, previous personal intern experience at Veggielution was considered. It was important to include input from all sources in order for the manual to be the most useful and accurate.

Farm Directors

Meeting the farm directors was the first step in outlining what sort of manual was needed. The importance for an updated and more complete manual was apparent due to the farm's recent growing area expansion. Through both in person meetings and email messages, an outline for the manual was formed. The Associate Director was consulted for most of the input, based on his previous five year experience as Farm Manager. The current Farm Manager gave advice on what was currently needed for the farm. Finally, a Farm Hand was the main contact for any day to day inquiries on topics for the manual.

Other Manuals

The currently used manual for Veggielution was collected and reviewed by all parties. It created a backbone structure for the main topics to be updated and included in the new version. However, the fact that the farm has expanded and the "manual" consists of series of articles that are not specific to Veggielution, the information needed to be added to and altered to be specific to the farm. Additionally, training manuals from similar urban farms were analyzed for new topics. The Food Project is an organization in Massachusetts that has similar goals on its farm of sustainability and urban agriculture, as well as youth and community involvement. They make multiple guides available on their website, such as "Volunteer Manual" and "Urban Agriculture Manual". This provided more information on working with volunteers, what topics they believed were important for their workers to be knowledgeable about, and how they trained and implemented each.

The current manual is composed of the following contexts:

- Veggielution Background (1 page)
- Orienting First-Time Volunteers at the Farm (1 page)
- Leading Work and Facilitation the Community (1 page)
- Farm Safety (1 page)
- Farm Logistics/Buereaucracy (1 page)
- Article: Organic Vegetable Gardening Techniques (5 pages
- Article: Soil and Bed Preparation (3 pages)
- Bed Preparation: The Veggielution Way (4 pages)
- Article: Starting Transplants at Home (4 pages)
- Article: How To Composting (4 pages)
- Article: Worm Composting (2 pages)
- Article: Some Notes on Weeding (1 page)
- Common Weeds at the Farm (2 pages)
- Plant Anatomy and Crop Families (1 page)
- Article: Warm Season Vegetable Planting Guidelines for Santa Clara County (2 pages)
- Cesar E. Chávez Core Values (1 page)
- References (1 Page)

Personal Experience

The researcher previously held a four month long farm internship at Veggielution Community Farm during the summer of 2011. The researcher was able to draw from that experience to know what basics to include for a future Workday Leader or Farm Intern to be successful.

Manual Development

The manual for Veggielution Community Farm will be a professional document that can be given to future Workday Leaders and Farm Interns. The manual will be informative on the farming practices utilized at Veggielution, as well as practical tips on how to work with volunteers. It will include both in depth resource as well as a "cheat sheet" on topics. This is so new Workday Leaders and Farm Interns can use the manual as a reference if detailed information is wanted, but also can be a quick information source to get the basics and implement them into the work done on the farm.

The following is the organization of the new manual:

- Veggielution Community Farm Background (3 pages)
- Quick Facts: Veggielution Background (1 page)
- Farm Logistics and Bureaucracy (4 pages)
- Quick Facts: Farm Logistics and Bureaucracy (1 page)
- Orienting Volunteers at the Farm (3 pages)
- Quick Facts: Orienting New Volunteers (1 page)
- Leading Work and Facilitating Community Efforts (4 pages)
- Quick Facts: Leading Work and Facilitation Community Efforts (1 page)
- Farm Safety (5 pages)
- Quick Facts: Farm Safety (1 page)
- Growing Conditions (7 pages)
- Quick Facts: Growing Conditions (1 page)
- Veggielution Crop Calendar (1 page)
- Organic Production Techniques (11 pages)
- Quick Facts: Organic Production Techniques (1 page)
- Plant Anatomy and Crop Families (3 pages)
- Quick Facts: Crop Families and Plant Anatomy (1 page)
- Weeding Overview (5 pages)
- Quick Facts: Weeding Overview (1 page)
- Composting Overview (4 pages)
- Quick facts: Composting (1 page)
- Harvest and Packing Procedure Guide (7 pages)
- Quick Facts: Harvesting and Packing Procedure Guide (1 page)
- Looking Forward (1 page)
- Thank You (1 page)

Summary

The new training manual for Veggielution Community Farm was composed of information gathered from farm directors, old training information, other farms' training manuals, and past internship experience. The meetings with Veggielution key players showed what outcome was necessary for the project. Other manuals provided ideas of what else to include for making it the most complete and readable. Finally, the manual was developed in a way to be useful and informative to future users.

Chapter 4

Results and Discussion

The result of this senior project is the Training Manual itself. This chapter includes a copy of the completed manual. The Workday Leader and Farm Intern Training Manual below will be presented to the farm managers and facilitators of the Workday Leader training program at Veggielution Community Farm. They will be provided a hardcopy, pdf file, and word document in case they'd like to add to the manual as the farm expands and changes. This manual will be used as a supplement and reference for future Workday Leader classes, but how much is actually used is decided on the instructor. However, it is advised that each Workday Leader and Farm Intern be presented a hard copy before they start their position at Veggielution Community Farm.

Veggielution Community Farm

San Jose, California

Workday Leader and Farm Intern Training Manual

Table of Contents

Please note: throughout this manual, the term Workday Leader will be used to describe both Workday Leaders, Farm Interns, and anyone else who fills the role Workday Leaders often. However, the information is the same for anyone volunteering and working at Veggielution Community Farm.

Veggielution Community Farm Background

Mission Statement

Veggielution Community Farm empowers youth and adults from diverse backgrounds to create a sustainable food system in San Jose. Our urban farm engages the community by providing access to healthy and local food, creating youth leadership opportunities, and developing creative solutions to social and environmental justice issues.

Core Values

Build Community- We foster positive social interactions between all those who participate in our community farm. Participants should feel as though they are a part of a larger farm community, which is centered on the land that we work, the food that we share, and the understanding that we are all dependent on each other and the natural environment that sustains us.

Embrace Diversity- For this farm community to be viable and to truly represent San Jose, it must include children, teens, adults, and elders from diverse backgrounds. The experiences of recent immigrants, youth, working class people and professionals are equally vital. Many voices will be represented in the decision making at the farm.

Empower Youth- San Jose's youth will be at the forefront of a changing world with many social and environmental challenges. Our youth programs will empower youth to understand and undertake these challenges. Working on the farm will teach them valuable leadership skills and how to work together in a community.

Create a Sustainable Food System- We recognize that the Santa Clara Valley, its soil, ecosystem, and watershed are important resources for future generations. The way we produce food today has radically changed from the past. Farming chemicals are damaging our natural resources, genetic engineering is changing the nature of the food we eat, and cheap empty calories are causing major public health problems. We choose to be a catalyst for food system change by educating people about sustainable farming and engaging the community to advocate for policy change.

History of the Farm

Veggielution Community Farm was started by a group of San Jose State students who began a series of backyard gardens near campus. After the first year, they found out about Prusch Farm Park and decided to move there. The city staff and the Prusch Foundation were skeptical, but they let them begin using 1/6 of an acre in 2008. In 2009, they expanded onto one acre, growing 4,000 lbs in 2009 and 15,000 lbs in 2010. In May 2011, the farm expanded to 2 acres. In 2012, they signed an agreement with the City of San Jose for the full 6 acres available for the farm.

Santa Clara Valley History

Before settlement, the Bay Area was a lush natural landscape. The land was covered with vast meadow lands, marshes spread out near the shores of the bay and thick oak, bay and redwood forest covered much of the hillsides. Herds of elk, antelopes, and deer were as common as the bald eagles, giant condors, mountain lions, bobcats and coyotes. There were grizzly bears who fed on the abundant berries and acorns as well as the salmon and steelhead that swam in the area's creeks and streams.

From the time the area was settled by Spanish, it was used as agricultural lands, intensifying into the 19th and 20th centuries. In the early 1900s, the valley was "boasting about 100,000 acres of orchards and 8,000 acres of more traditional vegetable crops". This was possible because of the fertile soils and mild climate. The area was in the top 20 most agricultural productive places in the country and produced more than a third of California's crops by 1939. The bountiful harvests created a processing industry. The valley had 18 canneries, 13 dried-fruit packing houses, and 12 fresh-fruit and vegetable shipping firms that were known worldwide.

Veggielution aims to keep the agricultural history of the valley alive and growing. The soil is still one of the best in the nation, hidden under piles of concrete and buildings. The farm does its part to showcase a living part of Santa Clara County history. Each year, Veggielution holds a fundraiser dinner called "Bounty of Heart's Delight" in the spirit of the agricultural productiveness that still remains in the Valley today.

César Chávez Core Values

At Veggielution, it important that we remember the work of César Chávez for the farm workers in the nation. His work took him all around the state, but he did have a lot of influence in San Jose, even close to the farm. He and his wife settled in the neighborhood in the area of Story and King on East Side San Jose in 1939. Chávez would go on to form the United Farm Workers Union which after many labor strikes and boycotts, succeeded in bettering labor conditions and increasing wages for farm workers. Veggielution carries on these core values of César:

Service to Others- service that is predicted on empowering others; engaging self-help, self determination, and self-sufficiency versus charity

Sacrifice- sacrifice that is spiritual; that is courageous and steadfast in its willingness to endure great hardship for others

A Preference to Help the Most Needy- a concerted effort to support programs that reach the most needy, the most dispossessed, the most forgotten people in society no matter how difficult the challenge that choice my bring.

Determination- determination that is characterized by an attitude that with faith, steadfast commitment, patience and optimism human beings can prevail against all odds

Non-Violence- invoking non-violence as the most powerful tool for achieving social economic justice and equality; action that requires boldness and courage versus meekness and passivity

Acceptance of All People- an essential ingredient for success in organizing diverse forces to achieve social change, create community, and actualize democracy is the is the acceptance of all people; an absolutely indispensable necessity to the well-being of this country

Respect for Life- respect that holds as sacred as the land, the people, and all other forms of life

Celebrating Community- sharing the joyous and respectful expression of cultural diversity through the reinforcement of the values of equity and responsibility to and for one another

Knowledge- the pursuit of self-directed learning and the development of critical thinking and constructive problem solving skills; overcoming ignorance through education

Innovation- a creative capacity to find pragmatic strategies and tactics to resolve problems and situations that often seem insurmountable to others

Quick Facts: Veggielution Background

When orienting a new volunteer about the farm and its history, communicate the basics. Include how and why Veggielution was started and what the goals are by having a community farm in San Jose. Keep it brief but be knowledgeable.

Mission Statement:
Veggielution empowers youth and adults from diverse backgrounds to create a sustainable food system in San Jose. Our urban farm engages the community by providing access to healthy and local food, creating youth leadership opportunities, and developing creative solutions to social and environmental justice issues.

Core Values:

- Build Community
- Create a Sustainable Food System
- Embrace Diversity
- Empower Youth

Santa Clara Valley History:

- Prior to settlements, the area had extensive landscapes and animals.
- The fertile soil and mild climate made it one of the most agriculturally productive areas in the 1900s in California.
- The area used to be called "The Valley of Heart's Delight".

History:

- The farm was started by San Jose State students
- In 2008, started farming 1/6th acre at Prusch Farm Park
- Over the years, has expanded to the current 6 acres

Management:
There are a variety of positions at Veggielution such as Interns, community organizers and Workday Leaders. Everyone does their share of work to make the farm a successful and happy place.

César Chávez:
César Chávez was an influential and important person who lived in the neighborhood near Veggielution. We remember his work for farm workers and labor conditions. At Veggielution, many of our values reflect the same values that Cesar worked towards.

Farm Logistics and Bureaucracy

Veggielution Workdays

You need to know about workdays along with the volunteers knowing our workdays!

Tuesdays through Fridays 8:30 am to 12:30 pm
Saturdays 10 am to 12:30 pm, and 1:30 pm to 3pm
(Potluck Lunch 12:30 pm to 1:30 pm)

Most harvest gets done on Tuesdays and Thursdays, while all other farm tasks happen on Wednesdays and Saturdays.

You and your volunteers need to have:

- closed toed shoes or boots,
- long pants and long sleeved shirt,
- hat and sunscreen,
- reusable water bottle

All persons are required to sign in to log their hours and fill out a liability waiver.

Scheduling Workday Leaders

The Workday Leader commitment is at least two workdays a month. Scheduling will happen through an online signup calendar (doodle). As a Workday Leader, one must sign up on the schedule so that we can plan to have Leaders for all our volunteer groups. In addition to Saturdays, we need Workday Leaders on the Tuesday-Friday workdays. Interns should have a weekly schedule set with the Farm Manager.

Workday Structure

Arrive on time!

One should always arrive on time in order to keep the workday on time. Workday Leaders should check into the farm no later than 9:00 am on Saturdays and 8:30 am during weekdays. A staff member will act as an area coordinator and supervise you and your group of volunteers. The staff member will orient you on your task and prepare you start with the volunteers. The volunteers will be assigned to you by the person organizing the sign-in table.

Help out!

If staff are occupied, help out by getting the kitchen ready, setting up the farm stand, putting out tools, etc. We want work to start promptly at the beginning of each workday. Workday Leaders and Farm Interns should be in their stations and ready with equipment to complete tasks by the beginning of the workday.

Work efficiently and safely!

Remember to encourage 5-15 minute breaks for you and your volunteers. Fifteen minutes before the end of the workday, start to wrap up the task, take note how far a task was completed, put away tools, and clean an area of vegetative litter. If your volunteer group finishes the assigned task, ask the staff member in the area for what to tackle next.

Workday Meetings

After each workday (Saturdays at 1:15 and weekdays at 12:30), Leaders and staff will participate in a workday debrief. This is where you provide what tasks were completed or not completed, any problems with volunteers, or bring up any other issues that occurred that day. Updates on supplies or facilitation also are mentioned.

Quarterly Saturday meetings are scheduled for Workday Leaders at 8:30 am. These meetings are required and are part of your commitment as a Workday Leader. This is where extra training is given, updates on farm procedures are discussed, and future projects are assigned.

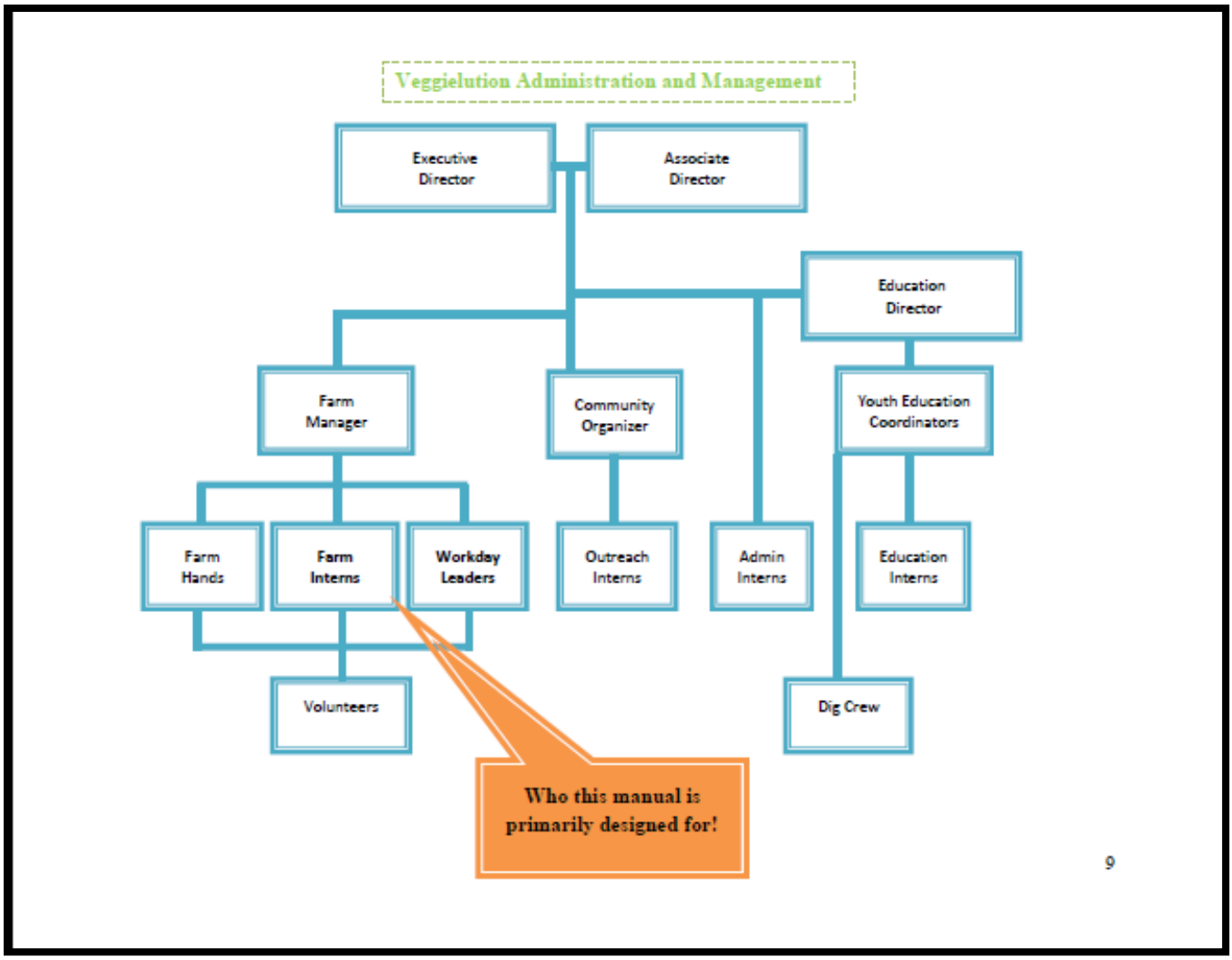
Workday Records

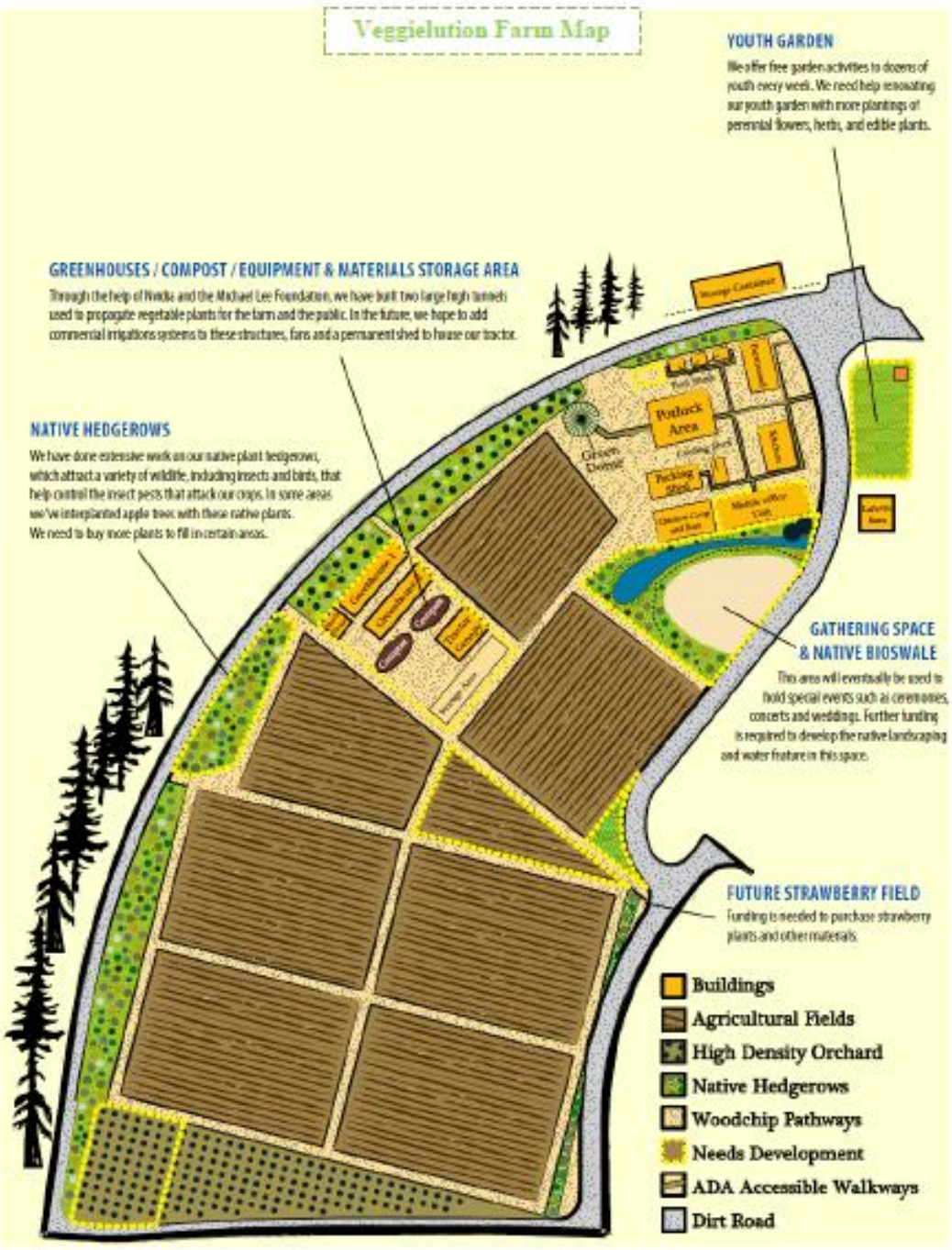
We keep track of all the things occurring at Veggielution and want to make sure our records are correct and updated. We all have a responsibility to ensure this is completed!

- Make sure you sign in and out during a Workday! You also have to fill out the liability waiver before you start working on the farm.
- Read the Workday Leader Email that is sent out each week. Make sure you read them completely in order to know the Saturday Workday Tasks and any updates about the farm.
- Farm Work Whiteboard contains information about all upcoming work and where it happens on the farm. The Workday Logs is a recording of what was actually done each day. Both of these are where you can write down any future tasks or supplies needed.
- Any community service sheets for students that need to be signed off must be done by a farm staff member.
- All food that is harvested during a workday should be weighed and recorded in the Harvest Log.

Other Workday Notes

- Farm Tours happen during workdays approximately every other week, led by Julie, Amie, or other farm staff.
- We want the Saturday Potluck to start right at 12:30pm. Please help getting dishes ready or cleaning up so that all volunteers are sitting down ready for announcements at 12:30.
- Workshops, meetings, and other programs start at 1:30 pm on Saturdays.


Veggielution Administration and Management
Executive Director
Associate Director
Education Director
Farm Manager
Community Organizer
Youth Education Coordinators
Farm Hands
Farm Interns
Workday Leaders
Outreach Interns
Admin Interns
Education Interns
Volunteers
Dig Crew
Who this manual is primarily designed for!
9


Veggielution Farm Map
YOUTH GARDEN
We offer free garden activities to dozens of youth every week. We need help renovating our youth garden with more plantings of perennial flowers, herbs, and edible plants.
GREENHOUSES / COMPOST / EQUIPMENT & MATERIALS STORAGE AREA
Through the help of Wedu and the Michael Lee Foundation, we have built two large high tunnels used to propagate vegetable plants for the farm and the public. In the future, we hope to add commercial irrigations systems to these structures, fans and a permanent shed to house our tractor.
NATIVE HEDGEROWS
We have done extensive work on our native plant hedgerows, which attract a variety of wildlife, including insects and birds, that help control the insect pests that attack our crops. In some areas we've interplanted apple trees with these native plants. We need to buy more plants to fill in certain areas.
Potluck Area
Packing Shed
Green Dumpster
GATHERING SPACE & NATIVE BIOSWALE
This area will eventually be used to hold special events such as ceremonies, concerts and weddings. Further funding is required to develop the native landscaping and water feature in this space.
FUTURE STRAWBERRY FIELD
Funding is needed to purchase strawberry plants and other materials.
Buildings
Agricultural Fields
High Density Orchard
Native Hedgerows
Woodchip Pathways
Needs Development
ADA Accessible Walkways
Dirt Road

Quick Facts: Farm Logistics and Bureaucracy

You need to know what is expected of you as Workday Leaders in order to have productive workdays. Make sure you fulfill all of your Leader duties every workday. Also be the communication bridge to volunteers about how the farm is run, when workdays are, and what they need to do be helpful as volunteers.

Workdays:

- Schedule
  - Tuesday - Fridays 8:30 am - 12:30 pm
  - Saturdays 10 am - 12:30 pm; 1:30 pm - 3 pm
    - Potluck lunch 12:30-1:30pm
  - *Any other days and times depends seasonally*
- Bring appropriate work clothes, shoes, gloves, water and sunscreen
- Log all your hours on sign in sheet
- Make sure Leaders sign up online!
- Do your best to help get the workday started efficiently
- Work productively but safely
- Attend workday meetings (morning and monthly)
- Correctly log all paperwork for what was done, harvested, weight, etc
- Read your emails for updates

Administration and Management:

- Many positions and people on the farm interact to make things run successfully
- Always looking for new interns and Workday Leaders
- Also, Silicon Valley Health Corps positions are offered
- No one position is more important than another. Everyone does their specific job to make the farm work.
- Volunteers are just as important as directors

Farm Map:

- Don't get lost! Help volunteers know where to go!

Orienting Volunteers at the Farm

As Workday Leaders and Farm Interns, you will often be giving new volunteers their first introduction to the farm. It's important for new folks to understand that full scope of what we're trying to do, and hear about all our programs and opportunities to get engaged. On a more basic level, they should feel welcome and included in our community.

Tips:

- Orient all volunteers to the task at once, making sure that volunteers are introduced to each other as well. You should also give background information as to why the task is important, safety, and tips on how to work quickly and efficiently.
- Find out whether this is the first time for any of your volunteers. If you have new people in your group, it is then your responsibility to communicate the vital farm information. This is a lot to communicate, so prioritize what you feel is most important.

Most volunteers encounter a new experience while on the farm. It could range from a new farm task or meeting new people while working together. New experiences offer people a chance to see the world in a different way and ask new questions. They are able to learn about themselves, others, and the Earth.

In order to connect with volunteers, you as the leader have to be outgoing to create a lasting and friendly impression. The new volunteers that you lead on a workday will form an initial impression about the farm and who we are based on what they got out of their time volunteering. As leaders, one has to be bold enough to get the volunteers to feel comfortable in this new place. The farm can be very big and overwhelming to someone who has never been before. They most likely will not know the difference between our crops and how we grow them. The volunteers will look towards you for answers and we want them to be comfortable enough to ask them.

Every day is going to be something different. It is always going to be a new experience to Workday Leaders and Farm Interns as you interact and learn things about your own teaching capabilities. We want volunteers to have a good experience at the farm because Veggielution relies on volunteer work. We want to encourage returning volunteers, and potential growing volunteers into future Workday Leaders or Farm Interns like you.

Veggielution is a working farm. You have to be the one to make that bridge between carrying on production while teaching people about farming. You have to show your energy and dedication to working for Veggielution and for the community around it to be able to have your volunteers feel that same power in simple shoveling. It could be a 60 degree day and have to dig up potatoes all workday. It could be 95 degrees day and have to thin beets. Regardless of which task, they are all important to Veggielution's success and you have to have a positive do-anything attitude so that your volunteers will carry that same positivity.

The Basics a Volunteer Should Know

You have the responsibility to inform the volunteers and implement these into the workday.

Work in yields food out

- All volunteers should know that it is their privilege to take home food every workday in return for their hours of volunteer work.

Saturday Potluck

- Volunteers are invited to join from 12:30-1:30 pm following Saturday workdays. Please do your best to bring a dish to share so that there is enough food to go around. *Before the end of the workday, make sure to remind new volunteers that they are welcome to attend.*

Watch your step

- Walk in the paths and not in the rows. A healthy farm depends on good soil quality! The "pore space" (tiny air pockets) in the soil helps with water drainage and supports important soil microbe life, which give our plants nutrients.

General Safety

- Coil hoses and place tools pointed side down. Be aware of your surroundings and if you get hurt, notify a Workday Leader immediately! *Remind your volunteers to gauge where the end of their shovel, pick, etc will land and keep it away from others.*

Clean up

- Everyone is responsible for keeping the farm clean. Clean the work area 15 minutes before the end of the workday. Tools are stored; weeds are taken care of properly, etc.

Personal Protection

- Always bring gloves, hats, and sunscreen to protect you while you work. We have extra gloves, sunscreen and hats available by the sign in table if you forget yours. *If you see a volunteer who isn't prepared, ask them if they'd like to borrow some. Many people on their first time to the farm are not aware of what they will need to do work and are too intimidated to ask for protection!*

Water and Heat

- Remember to pace yourself and drink lots of water while you work. It's best to always bring a reusable water bottle with you. You can fill it up from any faucet at the farm. Especially during the summer workdays, heat stress can easily sneak up on you. Work only at a pace that matches your own physical limits. If a task or pace is too strenuous, don't feel like you have to do it. Let your Workday Leader know if you'd like a different task. *You have to be on the lookout for someone who is getting overworked and is too shy to ask for a different job. We want the work to be self-fulfilling instead of frustrating!*

Where does the food go?

- We try to distribute as much food at as low cost as possible to community members who need it. Each week produce is distributed to volunteers, program participants, soup kitchens, sold at the farm stand, farmer's market, restaurants, and the Farm Boxes.

13

Other Farm Activities for Volunteers

- Dig Crew
  - Youth empowerment program for local high school students
- Youth Activities
  - Saturdays 10am-12:30pm in the Youth Garden: Garden walk, activities and crafts, visiting the chickens, then potluck lunch
- Cooking Matters
  - A free, six-week long course offered in Spanish in cooking and nutrition.
- Workshops
  - Some workshops are run here and there but do not have any structured schedule. We are open to having volunteers run workshops on topics of their choice.
- School Gardens
  - We work with Gross Elementary and McKinley Elementary in their school garden
- Farm Committees
  - Outreach, Cooking, Chickens, Construction, and other need-specific teams
- Workday Leader Class
  - Occurs yearly February through March, a six week long course that meets for 4 hour classes each Saturday to be trained in farm practices and leadership skills.
  - *Let your volunteers know if they are interested in becoming a larger part of the farm just like you did!*
- Seasonal Internships and Silicon Valley Health Corps positions
  - We seasonally recruit unpaid interns and paid Health Corps staff positions for Farm Interns, Administrative Interns, Farm Hands, Education Interns, Outreach and Marketing Interns
- Farm Box
  - The summer Farm Box runs June 1st to November 8th and is $25/week
- Special Events
  - Bounty of Heart's Delight is a fundraising event in the summer.
  - We have a volunteer appreciation lunch during the year
  - Hold an art night with Avante Garden and Art in the Garden
  - We now offer Yoga at the Farm on specific days

More than anything make the volunteer feel welcome and reach out to let them know that their work is important no matter how simple! Veggielution could not survive without every hand that helps out!

Quick Facts: Orienting New Volunteers

Workday Leaders are the main Veggielution representative that volunteers interact with. You are given that special and huge responsibility of telling them all the important and fun details about the work and farm activities. Connecting with volunteers depends on how you personally interact with them!

Orientation:

- Make volunteers feel welcome and engaged
- Be a friendly Veggielution representative
- Explain the task for every skill level to understand and why it is important
- New volunteers should get the basic farm overview, history, etc
- You are their impression of the farm. Create a lasting one that is comfortable and positive!

Basics Everyone Should Know:

- Work in yields food out
- Saturday pothuck
- Watch out for soil and plants
- Be prepared, safe, and tidy
- Don't overwork yourself. Take breaks and drink water.
- Food goes to community, volunteers, and farmers market

Farm Activities

- Always have lots of things happening at the farm
- Give an overview of current happenings and opportunities
- If specific people seem interested go into detail, (i.e.: a volunteer who wants to be a workday leader)

Leading Work and Facilitating Community Efforts

Quality Work and Setting the Pace

Introduce the Task

- Give a quick an explanation of the work, how long they will be working, and safety.
- Be conscious of communicating details that will help volunteers do a good job. The more that is communicated in the beginning the better the volunteers will work

Quality

- Everything you do in a day affects future events and processes. If you do a good job today, things will go smoother the next time.
- If the job is poorly done, the next steps will not go as smoothly. The new tasks will take more time. For example, breaking up a bed well for efficient seeding, tying up the irrigation into neat bundles for transporting, etc.
- *Remember this in your own work efforts as well as communicate this to volunteers.*

Motivation

- Get the work done while having fun! Sometimes the task is less exciting and keeping people motivated is more difficult. In those cases, remind people why the job is important and how long they have to work.
- Your attitude will be copied by the volunteers. Do everything with positivity, hard work can-do approach, and 100% commitment.

Correcting Volunteers

- Sometimes you will need to correct a volunteer that is doing a task wrong. Do this right away but nicely.
- Use phrases like "that is good effort" "this will make it easier" "if you do it this way, it is better". Explain why we are do something a certain way.

Teaching

- Not everyone will pick things up exactly as you explained during a short demonstration. Think about how long it takes you to learn to do something for the first time.
- Go slow. Repeat important or detailed parts. Stress critical points. Ask if anyone has questions.
- Don't use farm jargon without explaining any terms. Use simple explanations that anyone can understand.

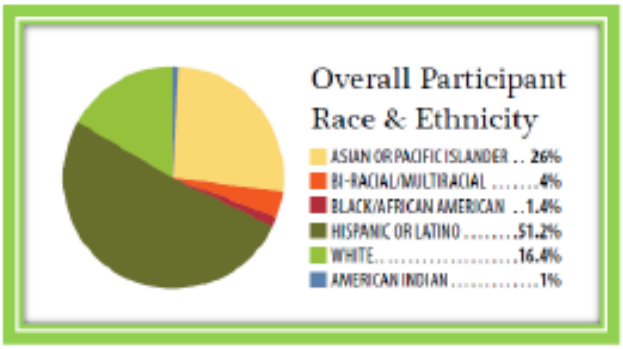
Think Ahead

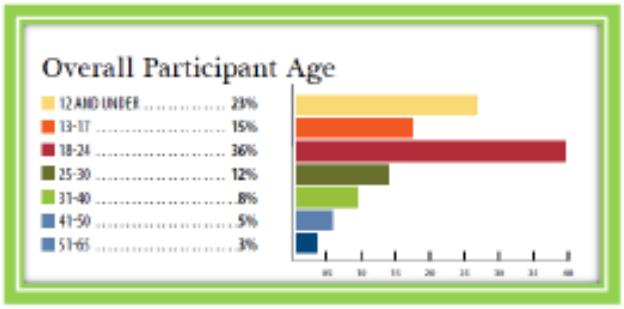
- A big part of your job is to anticipate the next part of the take before the current part is complete. A farm runs on efficiency! There's always something to be done.
- Transition some volunteers into the next part of the task while others complete the first.

While at Veggielution, your work and the work of all volunteers have a bigger impact than you can see. Any contribution to the farm, helps our community, helps the larger public, and brings about positive change to our world. No matter how small, your time is very important.

Inclusion and Cultural Competency

You don't generally think about it, but you feel most comfortable initiating contact with certain types of people that are most similar to yourself. All people working at the farm come from a variety of different backgrounds. Workday Leaders are responsible for bridging barriers and facilitating communication and friendship between our diverse participants. *As a general rule, at each workday, make an effort to first talk to those people you are least likely to regularly communicate with. You never know what you can learn from people!*





Some Things to Think about:
Do you speak the same language fluently? If not communication can be difficult, but don't let that stop you for reaching out. It is primarily our responsibility to break that boundary!

Read body cues. Be aware of others and whether or not they feel included. Indentify new volunteers and make sure they feel welcome.

Do volunteers feel shy or excluded from the group during work? Do they look disengaged or uninterested? Try to engage them in conversation. Ask them their favorite recipe from the crop you're working on.

Is there a clique in your group that seems uninterested in communicating with others? Be conscious of these potential issues and help everyone work together.

Do volunteers have gardening experience? If they don't, make sure to explain gardening concepts with a lot of detail. If they do, respect their knowledge and give them an opportunity to teach you and others.

Facilitate Introductions and Conversation

Two of Veggielution's core values are Building Community and Embracing Diversity. These are achieved directly with volunteer interactions and it is up to the Workday Leaders to instill these values in each and every workday on the farm.

Learn everyone's names! Show an interest in who they are. Ask about their hobbies or where they're from. Always introduce volunteers to each other at the beginning of work, or when new volunteers join you during work. Make sure you remember their names so you can talk to them later. The most meaningful thing is to know people individually. Get people to make friends! They sometimes don't do this naturally, especially if they come from very different backgrounds.

To make your work more interesting, talk about the crop, and farming techniques that you're using. Start conversations.

- How did they hear about the farm?
- What do you already know about Veggielution?
- Do you have any questions about the farm?
- How did you get involved in Veggielution?

Talk to volunteers about recipes for the crop you're working on, about your life, what you've been doing lately so that they can get to know you. Since you are the leader, they will look towards you for social cues. Volunteers will likely not start conversations with others unless you break the ice first! Be overly friendly and sociable and others will follow.

Find out why they are volunteering. Maybe it is to meet new people. Maybe they are compelled to give back to the community. Sometimes all they need are the hours and aren't looking for a long term relationship with the farm. Once you know an individual's motivation on volunteering at Veggielution, it makes it easier to meet their expectations and match them with the right opportunities at the farm.

Sometimes a language barrier will prevent conversation. This is up to you to get around. As seen in the figure on the previous page, most of the volunteers are Hispanic/Latino or Asian. Their first language might not be the same as yours. It is up to you to use what skills you have to communicate that sense of welcoming to them. Just because they can't have long conversations with you doesn't mean that they should be ignored or left out of the conversation. Try to use what you can to make them feel just as included as the other volunteers.

Saturday Potluck

The potluck is the weekly social gathering for all involved at Veggielution. It is an important part of the friendships that are made as we rejoice over the benefits of our labor: good food. It's a time to try something new. Maybe you try a new dish that a volunteer brought or maybe someone has never tried your okra recipe. This sparks new conversations, awareness, and friendships.

Food has a special capability of bringing people together. We have so many different heritages represented on the farm, but we are all working towards the same goal. During the potluck, we eat together like a family because we want to instill that sense of belonging. Our volunteers are important and we want to make sure they feel welcomed at Veggielution.

- Always ask your volunteers if they'll stay for the Potluck and encourage them to do so
- Try to sit with someone new or the people you worked with or new people you don't know
- Make conversation. Ask questions about their life, or let them know about things going on at the farm
- Help everyone be quiet during announcements

Quick Facts: Leading Work and Facilitating Community Efforts

Quality Work and Setting the Pace

- Give introduction to task details
- Do quality work so that nobody has to fix problem areas
- Keep volunteers motivated by making the task fun and having a can-do attitude
- Nicely correct volunteers who are doing something wrong. "It is better to do [task] a different way"
- Teach skills for task in different ways: verbally, demonstrate, repeat, etc
- Be efficient to transition to next task
- Volunteers and any work they do are important to the farm!

Inclusion and Cultural Competency

- Workday Leaders have to bridge the barriers of diverse participants
- Talk to people you wouldn't normally
- Engage someone who is shy or new to farm
- Variety of ages, ethnicities, and experiences at Veggielution

Facilitate Introductions and Conversations

- Learn everyone's names and what they are about.
- Ask them their past with Veggielution and how they want to be involved
- Make friends and met new people
- Go above and beyond to work through language barriers to connect with people whose first language might not be the same as yours

Saturday Potluck

- Come together as community and celebrate efforts
- Sit with people who are new to the farm and make connections
- Try new things and always bring something to share!

Farm Safety

At Veggielution, everyone needs to be responsible and aware of the dangers of working on a farm. One has to understand how they can protect themselves and the people working around them. Workday Leaders need to inform and instill the importance of farm safety to volunteers each and every day they are on the farm.

Personal Safety

Minors

Children under the age of 13 must always be accompanied by a parent or guardian. Youth 14-18 should only be supervised by AmeriCorps staff or other employees that have had a full background check. Never work in an area alone with a minor.

Long Handled Tools

Long handle tools can become dangerous in that they extend the reach of volunteers' arms. Volunteers should be warned about this. Be conscious of the distance between volunteers who are using hand tools. Eight feet of clearance should be exercised with volunteers working with picks. When working with hoes, rakes or shovels, four feet of clearance is appropriate. Guidelines for specific tool use can be found on the following page.

Sharp Tools

Pruners, shears, harvest knives, and scissors are all especially dangerous and should be treated with respect. Think about whether a person will handle these tools safely before allowing them to be used. There should never be a reason a volunteer under 12 uses a sharp tool. We allow volunteers 13-18 to use sharp tools in most cases. Never leave sharp tool unattended on the ground. Keep them in their holster when available, in harvest bin, or stored away properly. Before allowing a volunteer to use a sharp tool, warn them to be careful, watch where they are working and walking, and to return to tool to you when they are done with it. Guidelines for specific tool use can be found on the following page.

Power Tools

Volunteers are required to wear safety glasses, ear plugs, and gloves at all time when using power equipment.

First Aid Kit

The kit lives in the Sign-In Area. Please report any issues with stocking the first aid kid to farm staff.

Common Injuries and What to Do

Common injuries at the farm include minor cuts, scrapes, blisters, heat exhaustion, sunburn, and allergic reactions to plants we are handling.

- Cuts and blisters- always take them to the first aid kit for some disinfectant and a band aid. No cut is too small.
- Sun and Heat- encourage your volunteers to wear sunscreen and a hat, especially on sunny days. We should always have these available. NOTE: during hot days, keep a close eye on volunteers who seem to be getting tired. Encourage them to take long breaks and drink plenty of water. Sometimes you need to insist or take a group break in order for them to stay safe.

Symptoms of Heat Exhaustion-

Know these for yourself and your volunteers! If someone shows signs of these symptoms have them sit down in shade, rest, drink water, and apply cool wet cloth to their skin.

- Muscle cramping is first sign
- Heavy sweating
- Weakness or fainting
- Nausea or vomiting
- Cold, pale clammy skin

Heat exhaustion can transition to heat stroke which requires immediate medical attention. Alert staff immediately if someone exhibits high body temperature and a rapid and strong pulse after working through the above symptoms.

- Allergies- for any rash, stop the volunteer from working and bring them to farm staff for assistance
- Other injury- alert the farm staff immediately.

Responsibility

We are all responsible for farm safety. There are many potentially dangerous things on the farm, such as trip hazards, sharp pieces of metal or wood, and tools left lying on the ground. Workday Leaders need to keep an eye out and help to fix these hazards. If everyone is careful we will make it out of the next workday alive!

Food Safety

At some point, everyone at Veggielution will come into contact with produce that will be consumed by people in our community. The danger of food borne illnesses from a lack of clean working habits is something that everyone has to do their part to prevent!

Workers need to have clean hands and take proper personal hygiene. If you have a cold, don't sneeze on your hands and then pick a tomato. The bathrooms are located for anyone's use at the white barn where the office is located. Make sure you wet hands with clean water; rub with soap for 20 seconds cleaning under nails and between fingers, rinse and dry with a paper towel. This should be done before handling any produce.

Harvesting produce in the field is the first step where cleanliness is important. Workday Leaders need to inform volunteers the proper way to prepare. Start with clean hands. Anyone with open wounds on their hands should wear gloves that cover the wound. The produce should be picked into a clean harvesting bin. Any vegetables that have been touching the ground or have come in contact with animal feces should not be harvested.

Next the produce should be brought back to the washing station and thoroughly washed to remove all dirt. Depending on where the produce is going, it will next be packing into bins. The bins should be clean and disinfected before produce is packed. While processing produce (especially if for CSA boxes), make sure nothing other than produce goes into the box. Take note to tie back hair or bracelets/necklaces/earrings that could be accidently. Store personal belongs away from the area of packing. Cell phones can be our best friends, but on the farm we don't want them to end up in a box of carrots.

The underlying principle is ***practicing common sense!*** Anything that you wouldn't want on the vegetable you are going to eat shouldn't be allowed. You very well might take home that zucchini that you just picked after you were hand applying manure (probably not a very tasty seasoning). It is a working farm but we want to keep everyone clean and safe!

Tool Guidelines and Safety

All of our tools are located either in the tool shed by the front gate, in the storage container under the redwoods, or will have bins of clippers or trowels already at the sign in table for use. Workday Leaders need to know where the tools are that you will use for that day before the start of each work day. Wheel barrows are also located by the tool shed. Load one up for all the tools you will be using out in the field.

Hula Hoe (also known as a Stirrup Hoe): used for weeding easily since it cuts through weeds and roots in both backwards and forwards directions, allowing user to continuously hack at weeds without lifting hoe from the ground.
Use a 4 foot radius when using to be mindful of the handle extending past your body.

Flat Head/ Transfer Shovel: used for moving soil, sand, manure, compost. Also used to shape beds, or level areas. Used like any shovel, by inserting the blade into the soil and pushing down on one foot or both. **Use care when carrying them through the fields. Set blade- side down in fields.**

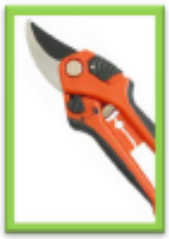
Round Shovel: used for digging, planting, cutting sod and small roots. Used like any shovel by inserting the blade into the soil and pushing on one foot or both. **Use care when carrying them through the fields. Set blade- side down in fields**

Trowel: used for hand digging, breaking up dirt clods, weeding, transferring plants into pots, mixing in fertilizer. **Use care not to lose these out in the fields.**

Harvest Knife: used for harvesting soft stem and vine vegetables, cuts with serrated edge. **Always keep in cover when not in use. Do not misplace out in field. Cut away from body.**

Garden Rake: used for leveling beds, clearing debris from soil, and spreading woodchips or mulch. **Use care when carrying through fields. Set with teeth side down in ground. Keep 4 food radiuses for handle extending past your body.**

Garden Hoe: used for weeding by digging out large taproots and cutting off, for creating a long planting trench, move small amounts of soil. **Use care when carrying through fields. Set with blade side towards ground. Keep 4 foot radius for the handle extending past your body.**



Pruning Shears: can prune branches and stems up to 2 cm thick, harvesting vegetables with thick stems, cut other materials. **Be sure not to misplace them out in the fields. Always lock the blades. Keep blades sharp and rust free.**

Loppers: used for pruning twigs and small branches. Operated with two hands. Place bottom blunt edge on bottom of branch where you don't want to cut and pull down with top/blade side handle. **Do not let the blade twist or slide if the branch is too large. Keep sharpened and rust free. Carry with both handles.**

Garden Pick or Mattock: used for digging, breaking up hard packed dirt, weeding, cultivating. Use pointed end to create a sharp break and the blade end to break up clods into smaller pieces. **Use a 10 foot radius when work with picks. Watch that your swing does not go into a walkway where people might be passing by. Always be alert of your surroundings.**

Quick Facts: Farm Safety

Creating a safe working environment is one of the most important things at Veggielution because we want volunteers to feel like they can work without harm and not be afraid to come back. Being a farm there are all kinds of dangers and things to trip over, but if we all do our part, everyone can stay safe!

Personal Safety

- Minors under 13 have to be accompanied and 14-18 have to work with a staff member
- Long handled tools need 4 to 8 feet of clearance
- Sharp tools need to be stored and used properly and youth need to be supervised
- Power tools require proper protective equipment
- First Aid Kid is by the sign in table
- Know what to do with common injuries
- Heat Exhaustion can be prevented as long as you take breaks and drink water
- Everyone has a responsibility to make a safe working environment

Food Safety

- Always have clean hands when working with produce
- Produce touching the ground should not be processed or sol
- Vegetables need to be thoroughly washed
- Personal belongings and lose jewelry need to stay out of packing area
- Practice common sense. Don't do something you wouldn't eat.

Tools Guidelines and Safety

- Variety of different types of tools on the farm
- All have different uses that make tasks easier
- Take into account specific cautions with each tool you work with
- Make sure tools are not misplaced!

Growing Conditions

Climate

San Jose has a subtropical Mediterranean climate. It has an average of 301 days of sunshine and average temperature of 60.5 degrees Fahrenheit. It is a valley which three sides are bordered by mountains, shielding it from some rain. This means it is semiarid area with 15.82 inches of rain on average per year. About 62 days per year are rainy. The snow level occasionally drops down to 2000 feet elevation on peaks of Mt. Hamilton.

The winter daytime average temperature is about 50 degrees Fahrenheit. Summer average daytime temperature is around 70 degrees Fahrenheit. The record highest temperature was 109 degrees Fahrenheit in June of 2000. The record lowest temperature was 19 degrees Fahrenheit in December of 1990. However there is an average of 2.7 nights per year where temperatures reach below freezing. The average number of days where temperatures are above 90 degrees Fahrenheit is 16 days per year.

Because of the area's size and breadth as well as differing topography throughout, San Jose has many microclimates. Downtown typically gets the smallest amount of rainfall and less extreme temperature variations. It is in the USDA Hardiness Zone 9b of 25 to 30 degrees.

Soil Characteristics

The USDA Soil Survey gives the soil at Veggielution mapping unite symbol 180 and the name Urbanland-Newpark complex, 0 to 2 percent slopes. The primary soil type is mollisols. The elevation is 10 to 190 feet above sea level for the entire span of the 180 soils. The soil is made up of parent material from alluvial fans from metamorphic and sedimentary rock, in addition to disturbed and human transported material. The soil is moderately well drained. It also transmits water at 0.2 to 0.57 inches per hour. It can store 11.2 inches of available water. This soil also has low runoff. The depth to the water table is more than 80 inches and the depth to a restrictive feature is also past 80 inches. There is 10% calcium carbonate in profile, as well as 2% of gypsum in profile. It is described as nonsaline to very slightly saline.

Typical Soil Profile:
0-18 inches neutral silty clay loam
18-52 inches slightly alkaline silty clay loam
52 to 63 moderately alkaline fine sandy loam
63 to 79 slightly alkaline find sandy loam

*Note this is the overview of soils for an area that includes Veggielution, but has a vast spread. Some characteristics could be different at the farm or in multiple places on the farm.

Overview of Soils

It's not just dirt!

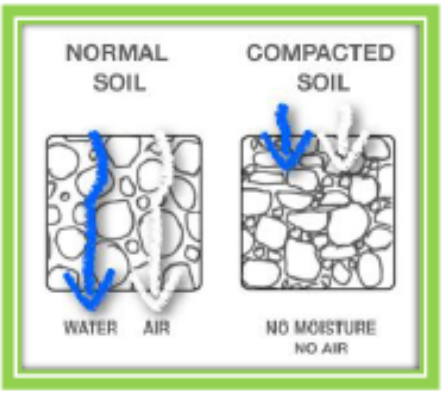
Soil Composition

Soil is made from decomposed rock particles, organic matter from decomposing plants and animals, air, water, and living organisms. Soils differ in the quantities and characteristics of each component but all are essential parts for healthy soils.

Soil Texture and Type

Soil type is generally classified by the size of broken down rock particles in the soil. Sand has large particle size, silt has a medium particle size, and clay has a very fine particle size. The proportion of sand, silt and clay particles determines the texture of your soil and effects drainage and nutrient availability.

Soil type and texture influences how much water holding capacity the soil has. Sandy soils have large particles and a very low eater holding capacity so water drains through them quickly. Clay soils have very fine particles and a very high water holding capacity. This influences how often and how much you will need to water your plants. Texture also influences the amount of nutrients the soil particles can hold on to for plants to take up. This is referred to as cation exchange capacity. The particles hold on to the nutrients in the form of cations for the plants to use. Sand has a low cation exchange capacity, where clay has such a high hold on cations that it is sometimes hard for plants to access them. Silt soils have the best cation exchange capacity for plants.



Soil structure is determined how individual soil particles aggregate in the profile. Good soil structure allows for water, oxygen, and microorganisms to penetrate the soil and increase the amount of nutrients available to plants. Structure can be influenced by good management. Consistently adding compost with organic matter to a soil will improve its structure, increase water holding capacity, and make it easier to work in the long run.

28

Soil Testing

A professional soil test will give information about your particular soil, including type, pH level, and nutrient levels. If you are starting to plant in a new area, soil tests are good for finding deficient nutrients or other problems. Additionally, if you are seeing problems in growth in your field, a soil test can shed light on the cause.

Soil Fertility

Soil fertility is what gives it the capacity to produce any plant life. The soil needs to have amendments added so that the soil stays healthy, promotes microorganism activity, and produce crops. This can include compost, cover crops, and other nutrient amendments.

Soil Preparation

Your primary goal before planting is to loosen the soil so that roots, water, and oxygen can easily penetrate the soil. The next thing to focus on is mixing in compost and nutrients into the soil. Finally there should be areas that are designated for walking on and areas that are designated just for planting. This is because foot and equipment traffic compact the soil and makes it hard for plants to grow through. You want to make sure that the area to be used has been preirrigated. This will help breaking up clods as well as mixing the nutrients to all parts of the soil. You want to clear all weeds and old plants from the area.

Forming Beds: The Veggielution Way

This is the primary way we form the beds we plant in here at Veggielution. Starting with a well-formed bed is crucial to promoting healthy growing plants and harvest. We have the extra aspect of working with heavy clay soil which is dense and tends to form hard clods. Although it has a high water and nutrient retention, it easily compacts and has poor water drainage. When compacted or too dense, vegetable roots have a hard time growing into the dense soil. This is why we spend a lot of time preparing our soil and breaking up the clods and compaction before we plant.

The dense clay also requires more energy to work with but is the most important thing to prepare because it influences how the rest of the season will grow. Think: If it is hard for you to get a shovel through, image the difficulty tender young vegetable roots would have trying to push through. The tendency for our clay soil to compact easily means it is vital that everyone stay off the vegetable planting beds and use the paths to walk in. *Remind your volunteers of this frequently!*

Clay soil also tends to stick to tools when wet. For this reason, we need to take time to clean your tools after finishing and have the correct moisture content in the soil when working the bed. If it is too wet, only mud will form and be unworkable; when too dry, the clay is rock hard and unable to cultivate. We aim to have a fluffy texture of beds when we go to plant.

At Veggielution, we have a high bed turnover rate as our beds are frequently replanted with the next crop. We need to loosen the soil effectively and efficiently so that the next crop can grow easily and be planted as soon as possible.

Steps:

1. Remove plant material:

First remove the previous crops and weeds. All green matter should be removed from the bed and taken out of the field to the compost pile. Plants left growing in the soil can outcompete the new plantings for water and nutrients. As it breaks down, the green material also absorbs nitrogen from the surrounding soil to aid decomposition. After it completely breaks down, this nitrogen is released back into the soil. However, since we usually replant the bed soon after the last crop, we don't want that green material to take the nitrogen away from our new plants as it decomposes.

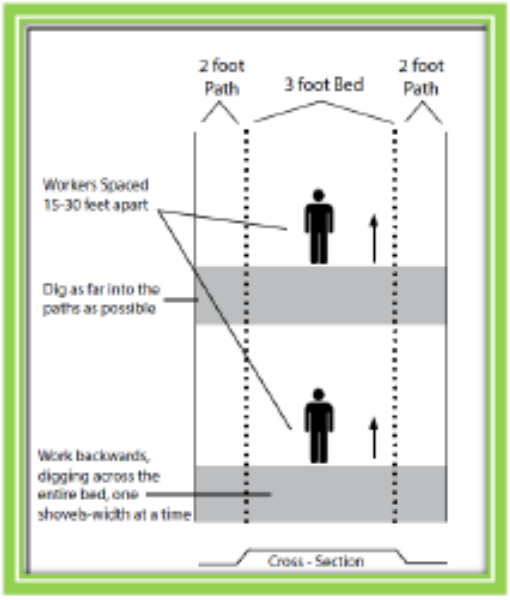
Next you want to remove any T-tape and the irrigation staples. These should be picked up and put away properly so that they are not damaged or stepped on. Also remove any twine that was used to mark the row border. Roll up row covers and collect metal hoops.

Use hoes or mattocks to uproot plants and weeds. Some plants can be hand pulled out. This plant matter should be raked into piles for wheelbarrow pickup to the compost piles. Try to retain as much soil as possible by shaking clods out of root masses.

2. Turn the bed:

The first step in turning is to break the ground into chunks. This is done by using a shovel or mattock if it is especially hard and dry. You will want to push the shovel into the soil as deep as it will go and pry back on the handle to loosen that chunk of dirt. You can wiggle the shovel back and forth and push down again to work the tip of the shovel into the dirt to the entire face is submerged. You don't have to pull that entire chunk up and turn it over. It just needs to be loosened from the surrounding soil by prying with the shovel.

Then with a stabbing motion, break up that chunk into smaller chunks. Each person will turn the entire width of the bed in their section. You should stand in the unturned bed while turning it. After you've broken up a part, don't stand in those sections or you will compact the soil you just worked hard to break up. After turning the soil across the width of the bed, move back about a shovel's length into unturned soil and work across the bed again. Keep turning the soil and working backwards until you complete your section.



Workday Leaders should delegate volunteers throughout the length of the bed. Make sure they are spread out wide enough to be safely working. Each person should be responsible for their own section. Make sure that at least half of the path on either side of the bed is also broken up. You can do this at the end to make sure it is completely done.

The second process is to hoe or rototill the bed. After breaking the bed into chunks, these chunks can be chopped up with hoe. This requires forceful hacking. At this point the whole bed should be broken up and loosened, so this step should be performed while standing in the baths not in the bed to avoid compaction.

Often we run a rototiller after the initial shoveling. This happens when the bed needs some further tender loving care to get it adequately prepared for planting. When we rototill, we don't need to use a hoe to break up smaller chunks since it will be taken care of with the rototiller. The ultimate goal when breaking the clods is to have particles and clods that are small enough and smooth. This is extra important when direct seeding and transplanting small plants.

3. Stake out the bed

The next step is to map out the bed with stake and twine. You are aiming to mark the boundaries of the bed and the path. Typically our best are 3 feet wide with 2 feet wide paths on each side. It is important to first make sure the bed is the full 3 feet and then allow for the paths. It is okay to have the paths be a little narrower or wide as needed, as long as the bed itself is 3 feet. This allows us to have consistent plant spacing within the beds and having uniform bed widths helps the crop planning process.

Each bed will need two lengths of twine (one on either side) and four wooden stakes that are 8 inches tall. Using a mattock or small hammer, pound the stakes in the corners of the bed so that only the top two inches protrude from the soil. Pull the twine as taunt as possible and tie it securely to the stakes. We don't want a loose twine to be moved around by feet and loose dirt.

4. Shape the bed

First you want to define the paths and the bed. Using the staked twine as a guide for bed width, shape the bed by scooping loose dirt from the pathways onto the bed space. This helps to define the paths and raises the bed for more top soil, water draining and air penetration. You don't need to dig from the paths. Rather just move the loose dirt. Make sure your twine stays straight and secure.

Second, taking a rake, make the bed flat. This is done by using push and pull motions with the rake along the length of the bed. Do not

rake side to side, but rather end to end. We want to have as level beds as possible so move soil from high areas to fill in low areas. Remove any rocks or clods that are larger than a golf ball. As you are raking, keep forming the bed to be in line with the twine markers.

5. Topdress the beds

Often one step in bed formation is topdressing the soil with compost. This puts vital nutrients and organic matter back into the soil for the new crop. We typically use the black colored city compost for this step.

You want to dump half of a wheelbarrow load every 10 feet. Rake all of it throughout the bed evenly. This can be done last after the bed has been made or before even starting to turn the bed. Regardless of the order the compost is applied, it needs to be completely worked into the soil. Topdressing is typically done every other planting in a bed at Veggielution, but depending on the soil health, it might be done more or less frequently.

Your bed should be ready transplanting or direct seeding!

Quick Facts: Growing Conditions

Climate:

- San Jose has subtropical Mediterranean climate.
- 300 days of sun, 60 days of rain with average temperature of 60.5 degrees
- Many microclimates in San Jose

Soil Characteristics:

- It is mapping unit 180 Urbanland-Newpark complex soil.
- Well drained, good water storage capacity, low runoff

Soils Overview:

- Made of decomposed rock particles, organic matter and microbes
- Texture is determined by different percentages of particles to be sand, silt or clay
- Sand is large particles, silt is medium, and clay is small
- Influences nutrient and water properties of soil
- Structure is how the particles are arranged in the soil.
- Good structure is important for plant growth
- Soil fertility is what makes plants grow

Forming Beds:

- Clay soils can be hard to work with
- Need moist to break up
- Need fast bed turnover rate
- Steps:
    - Remove plant material
    - Turn the bed
        - Break up with shovel
        - Break clods with hoe or rototiller
    - Stake out the bed with twine
    - Shape the bed
        - Define paths and bed
        - Mound and rake flat
    - Top dress

Veggielution Crop Calendar

Crop	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Arugula		Direct seed, thin to 3" apart, harvest every two weeks, keep shade cloth on. Replant and repeat										
Basil			Transplant at 4 wks, 6-12" spacing, harvest 75% of plant every 3 wks, deflower to keep production									
Bean (green and yellow)				2" apart, direct seed, train on trellis, harvest beans 2-3 weeks after bloom								
Beets		Direct seed, thin 2-3", shade cloth, harvest every 5-6 weeks, replant and repeat										
Broccoli	Transplant, 5-6" apart. Harvest 2-3 times									Harvest at 10 wks 3-8" head		
Cabbage	Harvest 70 days									Transplanted, 12-14 " apart		
Cauliflower	Harvested 2-4 times when heads are 6 in								Transplanted, 12 inches apart			
Carrot		Direct seed 3-4" apart., harvest 2 months										
Chard		Direct seed or transplant 9-12" apart, 40-60 days to harvest, cut back plant to continue growth										
Chayote	Perennial Vine. Direct seed, 7-11 ft apart, trellis, harvest 6 months in summer season when fruit 3 ", trim plants for next year's production											
Cilantro			Direct seed mature at 40 days, harvest every 2 weeks cloth covers									
Corn					Seed 7-10", thin to 16-23" apart, harvest brown tassel							
Cucumber (All)				Transplant or seed 8-12" apart 55-70 days to mature, pick throughout								
Eggplant			Transplant, 12-2" 80 days to maturity, remove to continue fruit set									
Fenugreek				Direct seed 2" Matures in 105-140 days								
Garlic	Let dry for 3-4 weeks, let dry for 1 month									Direct seed ½ -1" spacing		
Kohlrabi	60 days to maturity									Direct seed 8" apart		
Kale	Harvest after 70 days									Direct seed, thin 12"		
Lavender	Perennial. Harvest once flowers are drying. Prune back vegetation to 3-4 in plants											
Lettuce	Direct seed 2 in apart thin to 10-12"							harvest after 70-100 days				
Mixed greens	Direct seed 2 in apart							Harvest when 4-5" tall, every few weeks re-cut				
Muskmelon				Transplant 8-16" harvest when fruit easily come off vine								
Nopales	Plant in full sun. harvest in the summer after blooms											
Okra				Direct seed or transplant, thin to 6-9" harvest pods 3-5", 2 months after								
Onion (bulb)	Direct seed 3-4 "											
Onion (bunch)					Direct seed 2" apart, harvest when bulbs are 1-2"							
Pak choi	Harvest after 45 days								Direct seed 10-18", plant every 10-14 days			
Peas	Trellised, seeded every 3-4", require 55-60 days to harvest											
Pepper (hot)			Transplanted, 8-16" apart, harvest every two weeks based on color maturity									
Pepper (bell)			Staked for support, transplanted 8-16 " harvested every two weeks based on color maturity									
Potato		direct seed, 6-10", mound every 2 weeks, water 2x a week, harvest when vine dies										
Radish				Direct seed 1" apart, use cloth cover, harvest 30-40 days								
Spinach		Direct seed ½-3/4" apart, 30-50 days till harvest, can harvest and let second crop regrow										
Romanesco	Transplant 16" apart harvest after 90-days											
Pattypan				Transplant 12-15", harvest when 3-4" in diameter								
Tomatillo			Transplant 16-24" harvest when fruit fills shell, 1x per week									
Tomato (whole and cherry)			Transplanted Trellised, prune to 3 branches18-20" apart, harvest after 80 days, every week									
Turnip	Harvest 70-80 days after								Direct seed 3-4" apart, staggers for long harvest			
Winter squash					Transplant 12-15" apart, harvest after 120 days							
Yellow squash				Transplant 12-15", harvest when 4-7" long								
Zucchini				Transplant 12-15", harvest when 6-8" long								

Organic Production Techniques

Organic Production is a system of farming that avoids the use of synthetic fertilizers or pesticides and instead relies on practices like composting, green manure, cultural pest management, and crop rotations to sustain production and enhance the ecosystem. Although not USDA certified, Veggielution uses only organic practices on the farm.

The processes increase natural diversity and biological cycles over a long term. We work towards making farming practices sustainable Creating organic system starts with the soil quality and carries on throughout all aspects of production over many seasons. Soil as discussed before is the backbone of successful vegetable production. It provides plants with the nutrients and water they need to grow. By incorporating organic matter through compost, one can build up fertile soils.

Fertilizers

Sometimes the soil cannot provide all the nutrients that plants need to produce a good harvest. You can add these nutrients to the soil or by foliar application to make sure the plants get what they need. The amount really depends on what crop, the characteristics of the soil, previous applications of fertilizers, and how quickly the nutrient is taken up by the plant. Doing a soil test can help show what nutrients your soil is deficient in and thus what to add to help the plants grow. The three main nutrients that fertilizers aim to ad are nitrogen, phosphorus and potassium. These are listed as N-P-K on most fertilizer labels in terms of percentage. There are usually other nutrients in them but are not listed on the label. Some of these nutrients are release slowly or quickly depending on the form of the fertilizer.

Some common organic fertilizers are rock phosphate, bone meal, fish emulsion, blood meal, compost, gypsum, and soybean meal.

Disease Management

Plant diseases are something that needs to be constantly monitored in order to prevent harm to yields. They can stunt or kill plants and can come in a variety of symptoms, such as leaf spots, wilts, stunts, rusts, or legions. Diseases can be caused by fungi, bacteria, mycoplasms, or stressful environment conditions. The key to disease management with organic farming is prevention. There is little that can be done to save crop once it is infected.

Resistance: When starting your crops, chose varieties to plant that are tolerant or resistant to common diseases. This decreases the chances your plants will become infected and if they do, gives them a better chance of surviving.

Clean Transplants: The most important strategy of controlling disease is to start with clean plants. This starts with having clean seeds, trays, and soil medium when seeding in the greenhouse or at a nursery. Any transplants that do not look healthy should not be planted. You don't want to bring the disease into the field with your other plants. Plants that are healthy should have white roots.

Planting: Make sure you plant in a place that has good drainage because some diseases such as root rot thrive in wet soils. Make sure there isn't high humidity in plant canopy so plants should be adequately spaced apart. Also keep fruit and vegetation from touching the ground to prevent soil diseases from spreading. Raised beds can help solve these problems.

Mulching: Using organic mulching can prevent disease by decreasing the contact between soil and plant. This is especially important in rainy season when soil pathogens can be splashed onto the plant and infect the bottom leaves.

Sanitation: Remove any diseased plants so that the disease doesn't spread. Also clean all tools and supplies before moving on to a new crop or row. Discard any diseased plants. Do not leave them in the field. Remove weeds that can act as hosts for diseases. Additionally, only save seeds from clean plants. Make sure you start with clean seeds before planting.

Fungicides: Some organic fungicides like copper, hydrogen peroxide, sodium bicarbonate can be used to control and prevent some diseases. Also beneficial fungi and bacteria can fight against disease

Crop rotation: Rotating your crops after a season can help prevent disease build up. Some diseases that affect one plant may not affect the following crop. Rotate at least every three years.

Insect Management

Organic insect management is based on avoiding insect outbreak rather than dealing with the pest. Some ways to prevent pest build up is to actively monitor the plants. One should always be looking for different kinds of damage.

Beneficials: It is important to encourage beneficial insects to live near your crops. These can help keep pest populations under control without you ever having to lift a finger. In order to attract predatory insects, spiders and mites, plant a mixture of flowers on border of crops. You can also buy parasitic wasps to release into the fields that target pests.

Row Covers: By using the lightweight fabrics, you can protect your plants from insects. They exclude the bugs from reaching your plants. These are especially useful in controlling beetles.

Planting: By planting in the correct date, you can avoid the peak of pest populations. You can also plant trap crops next to your fields .These are plants that are specifically planted to attract insects towards and away from your vegetables. Once the insects are present on the trap crop you can destroy it to prevent them from getting other places on your farm. Similarly, if you have a mixture of crops, or practice intercropping, you can lessen the intensity of pest populations. You should also keep your plants healthy. Stressed plants are more easily overcome by pests.

Sanitation: Make sure all dead plant material and vegetables are removed from field. These can be hosts of insects. Additionally, plowing in the fall can help kill overwintering insects.

Organic Pesticides: If you do have a pest infestation there are several organic pesticides such as Bt, pyrethrums, rotenone, some soaps, diatomaceous earth, neem and horticultural oils.

Cover Crops and Crop Rotation

Planting a cover crop is a good way to refresh and restore your soils after they have been exhausted from the previous crop. They help build soil quality and add nutrients to the soil. Many cover crops are planted because they have the ability to fix atmospheric nitrogen and add it to the soil. This is one of the most limiting and expensive nutrient in soils. Other benefits of cover crops are that they can prevent erosion by protecting the soil, providing habitat for beneficial insects, suppress weeds, and aerate the soil. They are usually planted over the winter months when there is less that will grow. Some common crops include annual rye-grass, fava beans, vetch, alfalfa, oats, and clovers. You can harvest these, but it is customary to till them back into the soil to add the organic matter and nitrogen that they contain in the plant matter. This should be done right before full flowering to get the most nitrogen content restored.

It is important to use cover crops in your crop rotation plan. Crops should not be grow n in the same area for more than three years. This is because pests and diseases that affect that once crop can build up. Some crops use more specific nutrients than others, and will not grow if they have consumed all the years prior. Also, some plants exude alleliopathic chemicals which prevent the same plant species from growing again. Rotating the crops helps to break these patterns and promotes healthy growth and harvest.

Orchard Fruit Tree Management

Veggielution's high density orchard is located at the back of the last acreage. Many varieties of trees were planted there in 2012. These baby trees can be somewhat neglected since they are not close to the main production areas of the farm, are not fully in production and also take longer than a month to produce a crop. It is important to give these trees the care they need in order to make productive trees in the years to come.

Firstly, it is important to have varieties of fruit trees that are suited for your climate and average temperatures. Each different cultivar has a minimum chill hour accumulation or a minimum amount of hours below a certain temperature, that it needs to reach in order to restart its seasonal production. Additionally, some are also very sensitive to frost once they have started developing buds and leaves. Veggielution's trees are already planted so this is not something that is changeable in the short term. It is just a matter of watching to see how the weather will affect production.

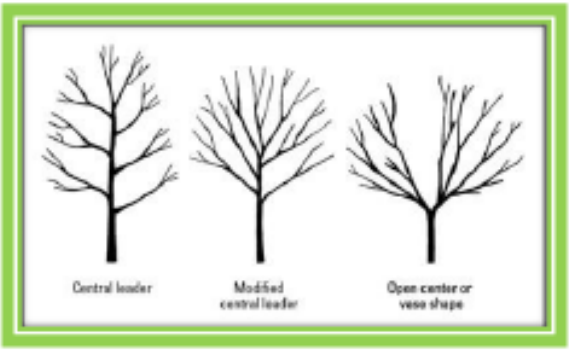
The trees in the back acre are currently just becoming established. Because of this, careful management needs to be executed in order to make sure they can reach production soon. Make sure they get enough water, are monitored for pests and disease, and are pruned each year. Fruit trees grow best in direct sunlight and well drained soils. Fertilizer should be applied to give the trees nutrients they need to grow and produce fruit.

Pruning:

Pruning needs to be done each year on these young trees to train them. You typically want to have enough light penetration through the canopy as well as spaced out and strong supported scaffold branches (the main three strong branches off from the truck on a tree). Some general pruning rules:

- Prune trees during winter dormant season.
- Remove any branches that are weak, cross over or shade others.
- Remove any diseased or broken wood

Depending on the type of tree, there are different ways to shape by pruning.



Central Leader Trees: apple, cherry, pear, plum

Modified Central Leader trees: used in high density orchard production

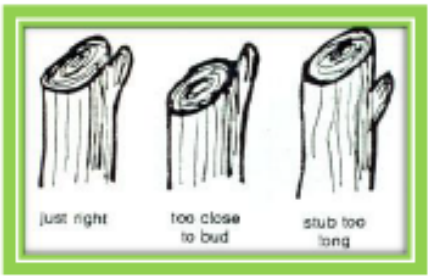
Open Center Trees: peach, nectarine, plum, apricot

When pruning, one has to take into account the type of wood that the tree fruits on. This could be one year old wood, two year old wood, or spurs. Spurs are short reproductive shoots on trees. They are usually densely covered in the buds that flower for this year's fruit. It is important to know what kind of tree has what kind of spurs when pruning, so that you don't cut back spurs that are long-lived.

Long lived spurs (like the photo to the left) are found on apple, pear, cherry, plum, apricot trees. Each individual spur can last for 5-10 years depending on type of fruit tree. You do not want to cut these spurs until they have lasted the length of their productiveness because you only get crop produced on these.

Other trees produce fruit only on second year wood. These include peaches and nectarines. When pruning, you should look for the buds on the second year wood. Make sure to prune about a quarter to half of all the branches. This will encourage the tree to grow more vegetative branches for next year's fruiting wood, and also reduces some of the thinning you'll have to do later by pruning some of the second year growth.

Making cuts:
All pruning should be done with sharp tools. Use loppers and shears properly. Do not try to cut through a branch that is too thick. Use a saw or different tool. Use water-bleach solution to dip tools in after each tree to prevent the spread of infection. Make cuts to a lateral bud (or at a node) along a branch. Use the blade edge to cut closest to the branch since the dull edge has about a centimeter thickness.



Thinning:
Fruit trees usually naturally set too many fruit. They have natural thinning mechanisms where they drop the fruit, but in order to get marketable sized fruits, hand thinning is important. Thinning space between fruits is dependent on kind. Usually, you want to have a 2"-5" spacing between fruit. Thinning can also reduce alternate bearing, or a heavy load of fruit one year and little fruit the next. Remove fruit that are small, misshaped, or pest/disease damaged. Thinning is usually done when fruit are 2" in diameter.

Other notes:
Using sod, mulch or woodchips to cover the ground helps orchard management. It increases moisture held in the soil. You can also have a cover crop (even weeds are a cover crop). The idea is to eliminate the bare soil so that erosion doesn't occur. However, weeds and cover crop need to be maintained, as they can be a host for pests that ruin the fruit.

Chicken Care and Egg Production

Veggielution has its own chicken coop run mostly by the chicken team of volunteers. They are responsible for the chicken duties. Ask if you want to take on some of these responsibilities!

Veggielution's chicken coop houses a variety of types of chickens. The most common egg laying varieties are Rhode Island Red, Barred Rock, White Leghorn, Buff Orpington, and Americana. There are also specialty and show chicken breeds that you may come across such as Silkies, Marans, or Turkens.

The chicken house is cleaned every week or every other week depending on how much is needed and seasonally. We want to keep a clean coop because it prevents flies and decreases the risk of any food contamination on the eggs.

Coop Details:
Chickens need nesting boxes to lay their eggs in. Usually it is one box for 3 to 4 hens. The boxes should be filled with bedding material, either shavings, straw, or a mixture of both. This needs to be kept clean and dry. It is one of the things that are changed when cleaning the coop. Chickens need roosting poles to have somewhere to roost at night when they sleep. These should be positioned high but not over any food. The poles should be round for gripping and about 10" per bird. The coop itself needs ventilation to provide fresh air to prevent disease. This can remain open if it has a cover to keep out predators. The coop also needs a place to hang food and water stations. These can be outside the coop or inside. Outside stations may be better since the chickens spend more time and have more access during the day. This also prevents chickens from being in the coop too much during the day which would increase the amount they poop on the bedding and how often it needs to be changed. The area also should have areas for the chickens to dust themselves in the dirt. They do this to decrease mites and other pests.

The chickens at Veggielution get a feed of layer pellets and scratch. They also get generous helpings from any spoiled produce. Chickens also require a source of calcium to replenish their body levels that are used to produce the eggshells. This comes in the form of oyster shells. These don't get eaten as fast but should always be available.

What to Look for:
Watch for chickens to make sure they look healthy. Chickens have a natural pecking order that causes them to fight. However if one chicken is picked on too much by multiple chickens, it can be injured. Once a chicken has a wound it is hard to prevent others from making that wound worse. It might be good to try and separate hurt chickens. Additionally, just keep an eye out for any abnormal behavior. Sick chickens are sluggish, don't follow the rest of the flock, and can sometimes be ganged up on by other chickens.

Sometimes chickens will become broody and attempt to sit on eggs to hatch. This happens in the spring. They go into a trance-like state and will sit on a nest of eggs without getting up to eat, drink, or socialize. This can happen even if the eggs are not fertile. It is important to take away these eggs from the broody hen and try to get her out into the run.

Eggs:
Chickens normally lay eggs in the late morning to early afternoon. They need to be collected daily after all have laid. Wash your hands after touching chickens, eggs, or coop materials. There is a risk of salmonella when working with chickens and eggs. Once our eggs are collected, they should be wiped of any remaining dust, bedding or poop. Do not try to rinse them thoroughly as there is a natural seal on the shell to keep out bacteria that can be removed with water.

If you see anything in the coop or with one of the chickens that doesn't look normal, let a staff member or any of the chicken team people know right away! We love our chickens and want them to be happy and safe.

Greenhouse Production

The vegetables that get transplanted into the fields are started in trays in the greenhouse. They are usually seeded about 2-4 weeks before we want to transplant the plants. We have a whole team who manages the greenhouse to know when and what to do to have plants ready for the field. Our two greenhouses were the result of work by Project Inspire from Nvidia.

Seeding Trays

When starting seeds you have to have the right conditions that make the seeds grow. Make sure the trays are cleaned of soil and plant matter from the previous plantings. Starting with good clean trays can reduce the spread and infection of plant diseases and pests to your new seedlings. The trays need to be filled and firmly compacted. The soil should be full to the line below the lip of the tray. Pack down the soil to this level. If it is too loose in the tray, the soil level will decrease when you water the trays, resulting in less nutrients and area for your plants to grow.

We have the nifty tool called the Soil Blocker at Veggielution that will create perfect squares for the plantings. The soil needs to be well mixed so that all the perlite, husk and soil are distributed evenly. The soil should be moist enough to stick together but not too wet when packing. Place the tool into the tray and press down slowly but firmly. Fix any squares that get stuck to the tool. The same principles apply for planting directly into pots or other six packs. Pack the soil firmly.

Next use a dibble tool or your finger to create a small hole in the tray per square. The depth of this hole depends on what kind of seed it is and all have specific requirements listed on the seed packages. You don't want to bury the seed too deep that it never has a chance to reach the surface but you also don't want to plant it too close to the top so that it's not able to be well supported. A general rule of thumb is you plant a side twice the diameter of the seed. Depending on the type of plant, you can put 1-3 seeds in per hole. This helps to increase the chances of germination if one seed fails. You will have to come through and thin to 1 plant per square later. Additionally, some seeds will be lightly covered by sprinkling a layer of soil over them while others are pinched closed and have more dirt added to fill the holes. These specifics are listed with the seed planting instructions on most packages.

Further Care:
Trays and pots should be well watered so that all the soil is wet after the seeds are planted. New seed trays should be watered so that the whole tray is entirely wet. The greenhouse is a hot place and trays can easily get dried out. Do this with a shower nozzle never stopping in one place through the trays. The idea is to go back and forth constantly in the direction that the seeds run. Every other day a thorough watering should be applied. There may be sprinklers set up in the greenhouse for this. You still have to check to make sure that they are working or are on proper timing.

Once the seedlings are about 3 inches tall or have the second pair of true leaves you can go ahead and thin them down to 1 plant per soil cube. Pick the biggest and healthiest plant to save. Make sure you take all the thinned plants out of the greenhouse and put them in the compost pile.

Transplanting
Starting a seedling and then transplanting offers the benefit of letting the plant get big enough to survive outside against conditions like intense weather, insect and bird predators, and competition with weeds. If any plant is going to go to sale or has overgrown its cube/six pack, transplant it into a gallon container. This is done by filling the pot about ¾ full with good soil. Create a hole in the pot big enough to insert the plant and root ball. When pulling soil cubes apart from a six pack or tray, be careful not to rip the roots. In a six pack, it is easy to squeeze the individual cell to loosen the soil. Easily hold the small seedling by the leaves close to the surface of the soil. Gently tug it out of the container or from the surrounding cubes. Once free, gently loosen the soil around the root ball to encourage their growth. Place in the new container hole and fill around plant. Firmly pack down soil around seedling. Make sure that the soil fully covers all the roots and does not cover much of the green stem. The seedling crown (where it goes from root to stem) should be right at the surface of the soil. Water these transplants completely.

Other Tips:

- If a plant is in the greenhouse for too long waiting for sale or plant, you can prolong its life by pinching off flowers. This works for basil and herbs.
- Write the name and date of the planting seeds on labels and firmly secure in the trays.
- Remove any dead plants from the greenhouse. Take the all plant material in the compost pile and put the soil in the reuse pile in the back.
- Gradually put plants outside before being transplanted to let them "harden" to field conditions.

Irrigation

California is currently in a statewide crisis due to the fact of drought. This has come about from multiple extremely dry years. California is also responsible for most of the nation's production of fresh fruits and vegetables. For this reason, farmers are put in this tight situation where they have to produce the same high level of harvest with little to no water. At Veggielution, we also have to be conscious about our water usage. Everyone contributes in conserving water. It is important that our practices save as much water as possible because water cannot be replaced with something else. Without water there is little hope for an effective production and harvest. Our irrigation equipment has to be efficient at delivering the right amount and not a drop should be wasted.

Prior to the drought, there had been a trend in the entire agriculture industry moving from older forms of irrigation like furrow and flood to drip and microsprinklers. This is because drip irrigation helps to conserve water by being more efficient and uniform, which in turn saves farmers from paying for more water. It increases the irrigation efficiency of your irrigation system. This is because the water gets applied right at the surface of the plant near the root zone. There is also less evaporation from the soil. Water is applied more evenly throughout the field eliminating the need for running the system longer to make sure all points of the field gets enough water.

One thing important about irrigation systems is to make sure is that you have a good filtration system. Drip emitters can easily be plugged by fertilizers and solids in the water can build up. Plugging can also be happen because of moss and fungal build up in the pipes. It can be caused by of pH levels. Proper monitoring of the system as well as routine flushing can prevent major problems. Irrigation lines can also be damaged by vertebrate pests or equipment if you're not paying attention where you're shoveling. *Make sure volunteers realize to take extra care around our drip tape. Only trowels should be used when weeding or working around the irrigation lines!*

Drip tape can also be reused from year to year. It can last between 2 to 5 years if properly cared for. Length of drip tape will depend on the pressure of the pump and slope of the land. You want to have level lands and equal pressure throughout the line. Veggielution uses T- tape and we just place it on the surface and secrete it with stakes. This is usually placed right below the plant. It is the lowest cost drip system of rows and raised beds. It operates at a very low pressure and works for low pressure gravity systems. It ensures equal water distribution and has a long life. Each outlet is part of a true drip emitter and the small slit reduces insect damage and root intrusion and eliminates start-up plugging. The slits close when the water is off which eliminates external plugging problems.

Use a punch to make a hole in the tape. Insert the emitters into the tape. Fold back the end to secure with another piece of the line.

Sprinklers are less efficient than drip tape at water usage but are a good way to irrigate seeds and smalls transplants that need a lot of water to get established. These also need to be flushed regularly and checked to make sure the heads are not broken and functioning properly.

Monitor the fields and beds on a regular basis looking for leaks and breaks in the irrigation line. Fix immediately with stoppers or by cutting the line and reattaching.

Quick Facts: Organic Production Techniques

Organic Production:

- Avoids the use of synthetic fertilizers and pesticides
- Focuses on sustainable practices like compost, crop rotation , cultural pest management
- Promotes biodiversity and healthy soils in ecosystem

Fertilizers:

- Soil needs to contain the nutrients plants need.
- This can come from amendments like gypsum or compost

Disease Management:

- Prevention is number one key to disease
- Monitoring for disease symptoms and taking proper measures to remove
- Use clean transplants, seeds, and sanitation

Insect management:

- Prevention is key
- Beneficial can keep control
- Mixing plants can help decrease concentration

Cover Crops and Crop Rotation:

- Restores organic matter to soil and prevents erosion
- Restores nitrogen and other nutrients
- Helps break pest and disease pressure

Orchard Fruit Tree:

- Tree selection is important to harvest outcome based on climate
- Pruning needs to be adequately and correctly done to promote good harvest and growth
- Cut to lateral branches, cut depends on where fruiting wood is
- Thinning should be done to promote marketable fruit production

Chicken Care and Egg Production

- Clean chicken coops means happy healthy chickens
- Coop should have nesting boxes for laying and poles for perching
- Keep an eye out for sick chickens
- Eggs are collected daily
- WASH YOUR HANDS!

Greenhouse Production

- Seeding trays have to be prepared properly for baby plants to grow
- Trays need to be watered and thinned
- Transplanting to field or bigger pots can be done

Irrigation

- Drip tape is efficient and uniform watering
- It is easily damaged by wild shovels so take care!
- Sprinklers can be used for freshly seeded or planted beds
- Flushing and correct maintenance will prolong the life of your system.

Plant Anatomy and Crop Families

It is important for you to know the basics of plant anatomy and know about the plants you will be working with. This will help you when explaining why we prune, how the plants grow, and other important information to tell volunteers. Remember that the role of Workday Leader is also teaching people about farming practices. The underlying principle of farming is understanding the crops and individual plants which you are attempting to cultivate for harvest. Knowing how plants grow can help time different applications and practices, help diagnose a growth-limiting factor, and help in maximizing yield.

Crop Families

Plants are grouped into over 600 different families based on having shared ancestors, similar growing pattern characteristics, pests and disease pressure, and fertility requirements. Planting crops of different families helps in managing crop rotations as you can select crops from a family that enhances the soil or plant a crop of a different family to help control pest and diseases.

Brassicceae (Mustard Family)

- Include cole crops such as cabbage, Brussels sprouts, cauliflower, kale, broccoli, kohlrabi, turnips, rutabagas, collards, radishes, horseradish, and pak choi
- Tolerant of drought due to water storage capabilities
- Cold season vegetables
- Biennials

Solanaceae (Nightshade Family)

- Include crops such as potatoes, tomatoes, peppers, eggplant, tobacco, tomatillo
- Require rich damp soil
- Warm season vegetables
- High in vitamin C

Apiaceae (Carrot Family)

- Includes crops such as parsnips, celery, carrots, celeriac root, bulb fennel, parsley, dill, cilantro; *also the poisonous wild hemlock*
- Seed is slow to germinate
- Umbrella-like inflorescence
- Tolerate frost temperatures

Asteraceae (Sunflower Family)

- Includes crops such as sunflowers, lettuce, endive, chicory, dandelions, artichokes, safflower, tarragon, chamomile; *also includes marigolds, zinnia, mums, cosmos*
- Has multiple flowers within florescence
- Salad group vs. thistle group

Liliaceae (Onion Family)

- Includes crops such as onions, leeks, shallots, chives, garlic, asparagus
- Monocots having parallel veins
- Grow from base
- Some form a bulb

Chenopodiaceae (Goosefoot Family)

- Includes crops such as beets, Swiss chard, spinach, sugar beet
- Have a waxy cuticle and deep roots
- Their seeds are actually small fruits
- Can be multi-season crops

Cucurbitaceae (Cucumber or Squash Family)

- Includes crops such as cucumbers, summer squash, winter squash, pumpkins, melons, gourds
- Fast-growing with large biomass
- Cold sensitive
- Requires large growing space due to spreading vines

Fabaceae (Legume Family)

- Include crops such as peas, beans, bush beans, broad beans, pole beans, soybeans, peanuts, lentils, fava beans, vetches, alfalfa, clovers, cowpea
- Form nodules on roots for bacteria to fix nitrogen from atmosphere to put back into soil
- High protein content
- Can be used as cover crop

Other Important Families

- **Lamiaceae (Mint Family)**: Includes crops such as lavender, basil, oregano, rosemary, sage, thyme, mint, catnip
- **Polygonaceae (Knotweed)**: Includes crops such as buckwheat, rhubarb
- **Poaceae (Grass Family)**: Includes crops such as corn, wheat, barley, oats, sorghum, rice, millet, rye, ryegrass, fescue
- **Roaceae (Rose Family)**: Includes crops such as apples, peaches, apricots, nectarines, plums, strawberries, blackberries, raspberries, pears, cherries, roses

Plant Anatomy

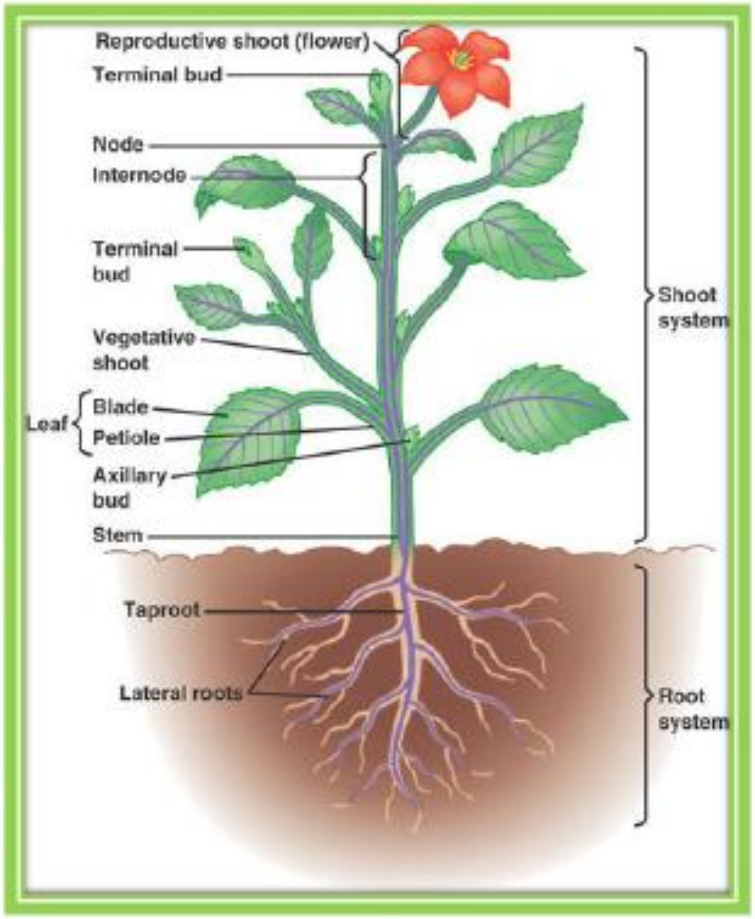
Nodes- where plants have meristematic tissue (cell dividing tissue that causes new growth). These can growth vegetative buds or reproductive buds

Taproot- the first root that emerges from the seed to secure the plant in the soil.

Lateral roots- provide surface area and spread out in soil to uptake water and nutrients

Axillary bud- the bud between a node and existing shoot which may be vegetative or reproductive

Terminal bud- *also known as apical bud if when at top of plant;* causes growth to continue upward from shoot.



Xylem- internal system of vascular tissue that transports water throughout the plant

Phloem- internal system of vascular tissue that transports sugar and nutrients throughout the plant.

Cotyledons- the first leaves that emerge from the seed, related to if the plant is dicot or monocot

Quick Facts: Crop Families and Plant Anatomy

Crop Families:

- Plants are grouped in families based on genetic similarities and ancestors
- Plants in the same family have similar growing characteristics
- It is important to know the different family characteristics to manage planting and growth of different plants.

Plant Anatomy:

- Being able to tell the different parts of a plant can help with identification of the plant as well as management of the plant in the field.

Weeding Overview

Keeping a control on weeds is important for any farm or garden. Weeds can suck nutrients and water and create competition for your crops and plants. At Veggielution, weeding is a proactive thing that happens frequently. Weeds grow fast as they are adapted to survive harsh conditions. We don't use any herbicides to control the weeds as we want to stay organic and have wholesome soils free of chemicals. Most of our weeding is done by using tools or by hand.

Weeding Practices

Weeds can be described as any plant out of place. Some herbs and flowers can be considered weeds if they pop up in the wrong places. We want to promote moving beyond the narrowly hostile attitude towards eliminating all weeds. Some plants considered weeds for one person might actually be used in medicine and food for others. However weeds that don't offer many benefits and only drain resources should be actively removed.

Weeds in abundance can compete with crop plants for soil nutrients, light and water. If left to themselves with adequate water and nutrients, vigorous weeds will grow and overtake crop plants or beds. This leads to reduced yields or very slow stunted growth of crops. Weeds can also be host plants for pests and disease which can infect your crop even if you work on eliminating them from the crop plants.

However, weeds in control can bring positives to your planting area. Having some weeds can stabilize the soil and add nutrients such as nitrogen. They can act as wind barriers and prevent erosion. Having weeds that attract beneficial insects and pollinators can help your crop yields. Some weeds may also be the remaining native species in the area and still important to that native ecosystem. For these reasons, harmless weeds in control and limited numbers can increase diversity for a healthy organic garden area.

When controlling weeds, one has to understand how they grow and react as plants of cultivation. Weeds will increase and thrive whenever the soil is disturbed through tilling the soil. This encourages their growth and proliferation in the area. Thus, one needs to try to minimize cultivation and disturbance of the soil and encourage a natural ground cover to out-compete weeds. When one does need to remove weeds, it should be done in a way to minimize soil breakage. This can be easily done by chopping off the tops of weeds with a hoe; this happens quite often in the rows on the farm. Most of the weeds will die this way, but some might have to be managed later if they regrow from the roots still in the soil. In this practice, more of the good soil properties remain undisturbed and more weeds are not able to take advantage of broken soil.

A new bed should always be completely weeded before being planted with a crop. This can be done by hand pulling weeds, or using a fork or trowel to dig out. You want to get the entire root system out when doing this so the weeds cannot resprout. Wait a few days before planting the

seeds to see if any new weeds arise and take appropriate measures to control them when they do. Once weeds are controlled, one must be actively looking to prevent them from overtaking a bed again. Mulching is a good practice to smother weeds and prevent more growth.

Pulled weeds should always be picked up from beds and rows and put into the compost piles where they can break down. Some weeds when left in field will regrow roots and reestablish themselves.

Finally, some weeds are easily confused with actual plants when they are small. Take caution to correctly identify the weed that you are going to remove. If you have time, wait until the plant has grown more to be able to clearly identify it as a weed.

Common Bay Area Weeds:

*Ones marked with * are especially troublesome to manage*

Annual bluegrass
Black medic clover
Burclover
Common groundsel*
Crabgrass (large and smooth)*
Little mallow (aka cheeseweed)
Pigweed (redroot and prostrate)
Prickly lettuce
Purslane
Sowthistle
Spurge (prostrate and creeping)*
Wild barley
Wild oat
Bristley oxtongue
Bermuda grass*
Creeping woodsorrel*
Dandelion
Field bindweed*
Kikuyugrass
Nutsedge (yellow and purple)
Oxalis (creeping woodsorrel and Bermuda buttercup)

Most Common Weeds on the Farm

Amaranth: *Amaranthus cruentus*
Amaranthaceae Family
Characteristics: Amaranth can grow up to seven feet tall and has a strong central stem. Its broad leaves resemble leaves of sunflower and as a young plant it can be confused with crops like beets and spinach. Amaranth comes in many colors but most common is red or burgundy. Though it is a common weed on the farm, we have grown amaranth on borders alongside sunflower or corn.
Fun Fact: Amaranth has been grown in the Americas for thousands of years mostly by Aztecs. Its leaves can be eaten like spinach and its seeds are very high in protein.

Wild Chard: *Beta vulgaris, Cicla*
Chenopodiaceae Family
Characteristics: Chard grows up to two feet tall and has large broad leaves. Though wild chard is a common weed, we also grow Swiss chard as a row crop on the farm. Wild chard has only green stems and leaves, where as Swiss chard comes in many colors.
Fun Fact: Chard is very closely related to beets.

Garden Huckleberry: *Solanum melanocerasum*
Solanaceae Family
Characteristics: These plants resemble pepper plants and have many branches. The black berries grow from white flowers. The plant will grow up to two feet tall and is relatively bushy.
Fun Fact: The berries of the garden huckleberry are edible much like tomatoes, though both plants are related to the poisonous nightshade.

Goathead: *Tribulus terrestris*
Zygophyllaceae Family
Characteristics: Goathead grows low to the ground and forms dense mats with many leaves. Bright yellow flowers and large thorny seedpods make this plant easy to identify. This plant is common in summer but absent in winter.
Fun Fact: The seed pods have large spines that resemble the horns of a goat and can puncture bicycle tires.

Lamb's Quarters: *Chenipodium album*
Chenopodiaceae Family
Characteristics: Usually, low growing, the blue-green leaves often shimmer as if they were coated in glitter and the undersides of the leaves are often magenta. The leaves and stems are edible and taste similar to collards.
Fun Fact: It is often called goosefoot because of its leaves.

Mallow: *Malva neglecta*
Malvaceae Family
Characteristics: Mallow is a very common weed on the farm. Its round palmate toothed leaves are easy to recognize. Its small seed leaves are heart shaped. It can grow as a prostrate mat on the ground or a tall woody bush. Flowers are small and purple. The small seedpods are shaped like cheese wheels, giving the plant its other name of cheeseplant. These plants have impressive taproots and need to be removed.
Fun Fact: It is related to okra, hibiscus, and marsh mallow.

Mustard: *Alliaria petiolata*
Brassicaceae Family
Characteristics: A common weed on the farm, mustards looks a lot like the radish we grow. The leaves are toothed broad. Plants grow upright with long stems, though roots are shallow and plants can be pulled out easily. Flowers are yellow and plants can grow up to five feet tall.
Fun Fact: Mustard is edible and related to broccoli. When Captain De Anza was exploring the Central Coast, he scattered mustard seed along the trail. When he returned to Santa Clara Valley a year later, the mustard was six feet tall.

Poison Hemlock: *Conium Maculata*
Apiaceae Family
Characteristics: It is related to carrots and cilantro and often confused with them. The ferny delicate leaves and lacey white flowers are attractive. It can grow up to six feet tall.
Fun Fact: This is the plant that Socrates used to make the tea to kill himself with. The red fibers running down the main stem are referred to as "Blood of Socrates".

Stinging Nettle: *Urtica dioica*
Urticaceae Family
Characteristics: Small compact plants have dark stems and are covered with dark green leaves. The spinney leaves inject histamines that cause a burning sensation that usually lasts less than 30 minutes. Use gloves when working with it.
Fun Fact: Nettles are often used to treat a variety of medical conditions including arthritis, skin conditions, and kidney problems.

Yellow Dock: *Rumex crispus*
Polygonaceae Family
Characteristics: The long sword-shaped leaves will grow up to two feet tall while the larger flower stalks will grow up to four feet tall. The leaves also have a sour taste. Even small plants can have thick long taproots that can be difficult to remove without the use of a mattock or trowel.
Fun Fact: Plants of this genus are used for making green and yellow dyes.

Purslane: *Portulaca oleracea*
Portulaceae Family
Characteristics: This plant is a low growing weed that can cover the ground in a mat when dense. It has a significant taproot and is able to tolerate drought and poor soil conditions. The stems are mostly red with succulent green leaves that have a waxy cuticle. The plant has yellow flowers.
Fun Fact: It is eaten as a vegetable with a sour taste in salads and soups. It has more omega-3 fatty acids than any plant.

Spurge: *Euphorbia maculate*
Euphorphiaceae Family
Characteristics: This plant is a late germinating, low growing vine plant. It is often found in un-irrigated areas that get full sun. It has a spreading root system with a shallow taproot that makes it easy to remove by hand. It will replant itself if left in the field. They have a toxic milky sap.
Fun Fact: There is current research for the sap to be used as skin cancer cure. However, it is toxic enough to kill sheep that graze on it.

Quick Facts: Weeding Overview

Weeding Practices:

- Managing weeds is crucial for farming production
- Realize that controlling and not eliminating weeds is the goal
- Weeds can outcompete small crop plants for nutrients, water and light
- Knowing how a weed grows can help management practices (i.e.: mowing before setting seeds)
- Management practices should focus on minimal soil disturbance
- Remove entire root and shoots when weeding a bed
- Take plant material out of field rows to compost pile

Common Weeds:

- There are a bunch of weeds that grow on the farm. There are some more common than others.
- Some of the weeds on the farm are edible where some are poisonous.
- It is important to wear gloves for the ones that are poisonous or toxic or have burning stings

Composting Overview

Composting is vital part to organic farming. It helps create a nutrient rich fertilizer and acts as a way to dispose organic matter. There is a specific science that goes into creating effective compost piles. However, once one knows these methods, composting is easy to do on a large scale while on the farm as well as implement in your own home garden.

Compost is a dark crumble and earthy-smelling form of decomposing organic matter. Decomposition and recycling of organic matter is something that naturally occurs in soil formation to release the carbon and nutrients stored in the old plant matter. This is constantly happening in any natural setting where dead plant material is broken down by microorganisms that live in the soil. By channeling those same natural settings and conditions, you can speed up the decomposition process and concentrate the nutrients in compost piles. Using the rich product of compost in your garden or farm helps build healthy soils, which in turn produce healthy plants. Composting is distinguished from natural decomposition because of *human intervention*. These intervening practices are discussed below.

The Science of Composting

The important part of compost piles is having the correct conditions for microbial activity. This is mostly based on temperature and moisture levels.

Conditions Needed:

- 5% of pore space needs to be oxygen for microbial respiration
- Moisture content needs to be between 40-65%
- Organic matter size needs to be between 1/8" to 2" in diameter
- Carbon to nitrogen ratio needs to be between 25:1 to 40:1
- Temperatures between 120-140 degrees Fahrenheit
- A pile large enough to hold the correct temperature (about $4ft^3$).

One needs to aerate the pile somehow to get proper oxygen to all microorganisms. This can be done by manually turning the pile to mix the middle to the outside and vice versa. You can also insert pipes to act as ventilation that go to the center of the pile.

The pile needs to be composed of a mixture of different plant materials. This can be achieved by layering or by just collecting different sources of organic matter. If a pile is composed of many different materials, one doesn't need to spend too much time worrying about carbon to nitrogen ratio because it will be easily met with a diverse pile. The materials should be chopped small to increase the amount of surface area the microbes can work on at a time.

You want to measure the temperatures of the center of the pile because that is where it would get the hottest, and too high temperatures can cause microorganism death. There is a fine line where you want high temperatures to promote microbial activity while at the same time being hot enough to kill pathogens, insect larva, and weed seeds but not the microbes. Spontaneous combustion is also a concern if piles get too hot and too dry. Too low temperatures inhibit microbial activity and slow the conversion of matter to compost. If temperatures fall before the compost has fully formed, you need to either add more oxygen, more moisture or both. However, towards the end of composting, the pile will drop to temperatures in the 100s degrees Fahrenheit. This is when the pile has entered a curing stage that lasts for about 30 days while it becomes suitable for field application. This can be simply tested by taking a handful of the compost. If water can be squeezed out, there is too much moisture, but if the compost is not moist to the touch, there is not enough.

Moisture also needs to be checked and monitored frequently. This usually means applying water to the pile often if during the hottest months. The moisture content needs to be at least 40% for any microbial activity. However, you don't want the content to be over 70% moisture because then the pore spaces are full of water instead of oxygen that is just as important for microbial activity.

The final compost should be dark brown to plant and smell sweet. There should be nothing bigger than ½ inch and nothing recognizable. Applying immature compost can negatively affect seed germination and plant growth. It has natural chemical build up that can inhibit plant root growth and respiration, decrease soil oxygen concentration, and increase heavy metals in the soil to a toxic level. However, if one has accurately maintained their pile and allowed to cure enough time, there are so many benefits that come from using compost.

Benefits:
Composting helps to manage and reuse your plant matter wastes. By incorporating these materials you are contributing to the sustainability of the land you farm on. Having healthy soil is the backbone of any farming. Compost organic matter helps to build good soil. It can help to improve water holding capabilities and add nutrients to soils. The microorganisms in the soil thrive on organic matter and can help prevent disease and pests. Overall fertility of the soil is increased, as well as the structure and aeration of the soil. It reduces bulk density so that plants have deeper root penetration.

Compost can increase cation exchange capacity of your soil which increase nutrient availability and reduces nutrient leaching. Finally, compost leads to overall soil aggregate stability which allows soil to function at optimum levels to produce the best yield. Having a better soil also means less work in the long run at maintaining soil each year.

Common Problems and What to Do:

Symptoms:	Cause:	Solution:
1. The compost has a bad odor	1. Not enough air; pile too wet	1. Turn it, add coarse, dry materials like corn stalks or straw
2. The center of the pile is dry	2. Not enough water; too much woody coarse material	2. Turn and moisten materials; add fresh green wastes
3. The compost is damp and warm in the middle but nowhere else	3. Pile is too small	3. Collect more material and mix the old ingredients into a new pile.
4. The heap is damp and sweet-smelling but still will not heat up.	4. Lack of nitrogen	4. Mix in a nitrogen source like fresh wastes or manure.

60

Compost Teas

Compost teas are concentrated nutrient solutions that you can utilize from compost. They are produced by combining composed plant and animal materials with water and a concentrated nutrient source like molasses. This mixture is aerated by bubbles to causes a bloom in microbe populations. These microorganisms work at rapidly breaking down materials to release nutrients. The finished product can be applied as a liquid to plants.

Worm Composting

Feeding worms can make high quality compost as well. You can use any kitchen scraps (not meat) or fatty foods. We have our worm bins in the back behind the greenhouse. It needs solid sides and drainage holes. You start by laying the bin with moist leaves, shredded newspaper and cardboard. You then add the worms and the food throughout the bin. You turn the bin contents every 3-6 months to start burying the fresh bedding. Most everything can be composted except meat, dairy or grease.

You'll want to keep your worms able to breathe by having loose bedding. The bin should not be in very cold temperatures. You will be able to harvest in 1-3 months. Allow this compost to cure for 30 days before using.

Quick Facts: Composting

Composting:

- Recycles matter from your farm making it more sustainable.
- Helps create healthy stable soils that produce healthy plants for yield
- Depends on moisture and temperature to promote microbial activity
- Needs to cure before applying

Compost Tea:

- Liquid compost of concentrated nutrients

Worm Composting:

- Another way to increase matter breakdown for soil amendments
- Can help break down kitchen scraps and paper

Harvest and Packing Procedure Guide

written by Colleen Hotchkiss

Introduction

Production and Distribution Goals:
As a community farm, we aim to provide healthy, fresh, sustainable grown vegetables to the community at affordable prices. Approximately 70% of our produce is distributed through these low-cost channels, including subsided Farm Box shares, the Farm Stand, Education programs, and donations to volunteers, soup kitchens, and other organizations. The other 30% of the produce is distributed through revenue-based channels, primarily full price Farm Box shares. These revenue-based sales help us fund our community programs, making it possible for us to offer our produce to as wide a cross-section of San Jose as possible. Our goal is to provide consistently high-quality, fresh, sustainable vegetables through our various distribution channel sin order to establish Veggielution as an integral part of our community and a catalyst for food system change.

Goals of the procedure guide:
The primary purpose of this harvest and packing procedure guide is to establish a clear and organized system in order to maximize efficiency, quality, and consistency. Because our main sour of labor at Veggielution is our volunteers, it is important to have well-defined harvest and packing procedures in order to properly facilitate volunteers on harvest days, ensure that everyone is utilized well, and maintain consistent quality standards. This guide will make our procedure readily available to staff, Workday Leaders, and volunteers, allowing everyone to be well informed about all aspects of the harvest and packing system, and thus more empowered to do a great job!

Harvest Procedure

General Quality Standards:
Throughout all our distribution channels, we aim to provide consistently high quality produce. This means that whether we are harvesting for the Farm Stand, a Cooking Matters class, or for the Farm Box CSA, everyone should follow the same procedures and uphold the same quality standards. Ensuring quality during harvest and maintaining quality post-harvest involves a number of practices that should be followed for all crops, regardless of type or season.
These practices are:

- selectiveness
- minimum handling of produce
- keeping things cool
- using ideal harvesting tools and containers

Selectiveness:

The first step in harvesting any vegetable is selection, and having consistently high stands for each crop and community these standards clearly to volunteers is essential! Produce that is destined for one or our distribution channels should be as free from superficial imperfections and insects as possible. This means that greens (kale, chard, collards, etc) and fruit vegetables (squash, eggplant, tomatoes, etc) should not have holes, root vegetables (carrots, beets, radishes) should not be split, and all vegetables should be free of discoloration, insect damage, and bugs. Always check produce thoroughly for insects as you harvest! Also, select only produce at its optimum level of maturity; the following chart is a good reference.

Crop	Index
Root, bulb and tuber crops	
Radish and carrot	Large enough and crispy (over-mature if pithy)
Potato, onion, and garlic	Tops beginning to dry out and topple down
Yam bean and ginger	Large enough (over-mature if tough and fibrous)
Green onion	Leaves at their broadest and longest
Fruit vegetables	
Cowpea, yard-long bean, snap bean, batao, sweet pea, and winged bean	Well-filled pods that snap readily
Lima bean and pigeon pea	Well-filled pods that are beginning to lose their greenness
Okra	Desirable size reached and the tips of which can be snapped readily
Upo, snake gourd, and dishrag gourd	Desirable size reached and thumbnail can still penetrate flesh readily (over-mature if thumbnail cannot penetrate flesh readily)
Eggplant, bitter gourd, chayote or slicing cucumber	Desirable size reached but still tender (over-mature if color dulls or changes and seeds are tough)
Sweet corn	Exudes milky sap from kernel if cut
Tomato	Seeds slipping when fruit is cut, or green color turning pink
Sweet pepper	Deep green color turning dull or red
Muskmelon	Easily separated from vine with a slight twist leaving clean cavity
Honeydew melon	Change in fruit color from a slight greenish white to cream; aroma noticeable
Watermelon	Color of lower part turning creamy yellow, dull hollow sound when thumped
Flower vegetables	
Cauliflower	Curd compact (over-mature if flower cluster elongates and become loose)
Broccoli	Bud cluster compact (over-mature if loose)
Leafy vegetables	
Lettuce	Big enough before flowering
Cabbage	Head compact (over-mature if head cracks)
Celery	Big enough before it becomes pithy

Minimum Handling:

According to a UC Davis report on harvest and post-harvest procedures for small farms, "any practices that reduces the number of times the produce is handled will help reduce losses. Field packing (selection, sorting, trimming and packaging of produce at the time of harvest) can greatly reduce the number of handling steps that the produce must undergo before marketing" (UC Davis, 2003. Follow these steps while harvesting to ensure minimum handling of produce and maintain quality:

- Selection (see standards above)
- Sorting
  - Sort "firsts" (high quality veggies) into one bin destine for the distribution channel
  - Sort "seconds" (imperfect veggies) into a bin for volunteers to take home
- Trimming
  - Remove old, dead or otherwise undesirable leaves from crops like beets, cabbages, lettuce, green onions, pak choi, and radishes
  - Trim roots of green onions
  - Remove the flower from squash and cucumbers
  - Cut ends uniformly on bunches of greens (kale, chard, cilantro, etc)
- Bunching
  - Vegetables should always be bunched in the field
  - Bunches must be uniform in size – different sized bunches mean inconsistency and difference in value (e.g. bigger and smaller bunches of cilantro all priced at $1)
  - Secure twist tie tightly so veggies don't come loose while washing
- Packaging
  - Crops that don't need to be washed can be packed in the field
    - Cherry tomatoes are picked directly into pint baskets
    - Summer squash sorted by size
    - Peppers picked into different bins based on type
    - Eggplant
    - Green beans
    - Snap peas

Refer to the chart on the next page for harvest procedure based on crop.

Crop	Trimming	Bunch size	Washing
Arugula	cut ends of bunch	0.5 lb. (~2" diameter)	wash tub
Basil	remove dead leaves	4-6 stems 6-8" tall	do not wash
Beans (green)	remove flower	n/a	do not wash
Beets	remove dead leaves	4-5 beets (1.5 lbs.)	spray
Broccoli	n/a	n/a	wash tub
Cabbage	remove outer leaves	n/a	spray if necessary
Carrot	cut stalks to half length if necessary	6-8 large carrots (1.5 lbs.)	soak in buckets, scrub, then spray
Cauliflower	n/a	n/a	spray
Chard	cut ends of bunch	8-10 leaves (0.75 lbs.)	wash tub
Cilantro	cut ends of bunch	1" diameter (0.25 lb.)	wash tub
Corn	remove outer husk, chop end off	n/a	do not wash
Cucumber	remove flower	n/a	do not wash
Eggplant	n/a	n/a	do not wash
Kale	cut ends of bunch	10-15 leaves (0.5 lb.)	wash tub
Lettuce	remove dead leaves	n/a	wash tub
Lettuce mix	remove dead leaves	n/a	wash tub, salad spinner
Melon	n/a	n/a	do not wash
Okra	n/a	n/a	do not wash
Onion (green)	remove dead leaves, trim roots	8-10 onions	spray
Pak choi	remove dead leaves	2-3 heads (0.5 lb)	wash tub
Peas	n/a	1 pint basket	do not wash
Peppers	n/a	n/a	do not wash
Potato	n/a	n/a	do not wash
Radish	remove dead leaves	8-10 radishes (0.75 lbs.)	spray
Daikon Radish	remove dead leaves	4-5 radishes (2.5 lbs.)	spray
Spinach	n/a	n/a	wash tub
Squash (summer)	remove flower	n/a	do not wash
Squash (winter)	n/a	n/a	do not wash
Tomato (slicing)	do not remove cap	n/a	do not wash
Tomato (cherry)	do not remove cap	1 pint basket	do not wash
Turnip	remove dead leaves	4-5 turnips (1.25 lbs.)	spray

66

8

Keeping Things Cool:

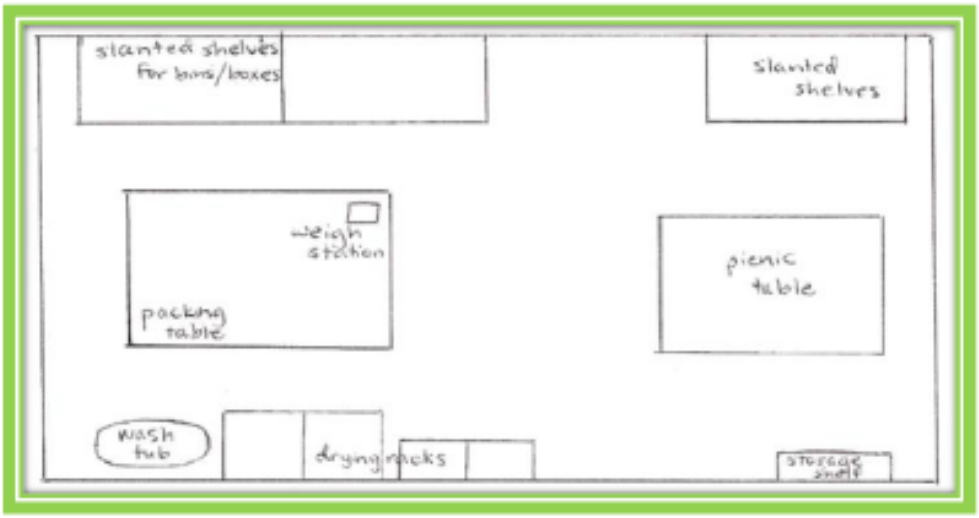
The first step to keeping vegetables cool during harvest, which helps maintain quality, is to harvest at the coolest par t of the day – morning. Greens should always be harvested first, since they are most vulnerable to wilting in the sun/heat. As cited by UC Davis, "produce exposed to sunlight can soon become 4 to 6 degrees C (7 to 11 degrees F) warmer than air temperature" (Thompson et al, 2001). Bins should always be placed in the shade while harvesting or covered with an empty bin or wax box to keep the produce out of the sun. Once vegetables are harvested, they should be cooled as quickly as possible to remove field head, which will be explained in the packing procedure section.

Ideal Harvest Tools and Containers:

Choose the appropriate tool for the vegetable you will be harvesting, whether it is scissor, harvest knife, clippers, or just your hands. Knives should ideally have rounded tips to prevent from accidentally damaging produce while harvesting. Clippers, knives, and scissors should always be sharp and clean. Yellow harvest bin should be clean and free from rough or broken edges. When harvesting certain crops such as tomatoes, eggplant, summer squash and corn, you should wear long sleeves and gloves to prevent scratches and/or skin irritation.

Packing Procedure

Packing Shed Layout:



67

Order of Operations:
For post-harvest to run smoothly and efficiently, and to minimize confusion and errors, it is essential that each harvest day, the same packing procedure is followed. This means that tasks should be carried out in the same order, and crop-specific handling procedures should always be followed (i.e. tomatoes should never be washed or refrigerated below 50 degree F). Follow this order of operations each time and everything will be great!

- Weigh
  - The very first thing you should do when you bring vegetables into the packing shed is to weigh and record them
  - Set the tare on the scale for the bin you are using (3 lbs for a yellow bin, 1 lbs for a blue bin, 2 lbs for a wax box)
  - Weigh vegetables, rounding to the nearest quarter pound
  - Record the weight on the harvest whiteboard (more details below)
- Cool/Wash
  - Once weighted, produce should be cooled
    - Greens go directly into the wash tub
    - Root crops are soaked in bucked and/or sprayed on mesh table
    - Crops that will not be washed (summer squash, peppers, etc) go directly to cooling shed
  - For most crops, cooling and washing are essentially the same step
  - Once washed, produce should be placed on mesh table to dry
- Pack
  - Once produce is reasonable dry (aka not dripping water) it should be packed in containers appropriate for the distribution channel
    - Wax boxes for off-site Farm Box shares, yellow bins for everything else
  - Pack produce in a way that maximized space but does not crush the vegetables
    - Tomatoes should be packed in a maximum of two layers, with cap facing downward on first layer, cap facing up on second layer
    - Lettuce should be packed face-down
- Refrigerate
  - Unless produce is to be used immediately it should be stored in the cooling shed
  - The cooling shed is organized by distribution channel
    - Left hand shelves = Farm Stand
    - Right hand shelves = Farm Box CSA
    - Back table = volunteers
  - Tomatoes should not be refrigerated below 50 degrees F

Post-harvest Quality Maintenance:
The same practices used to ensure quality during harvest should be used after harvest

- Vegetables should be kept in the shade in the packing shed

- Produce should be handled as few times as possible. This is especially important for delicate crops such as tomatoes, summer squash, and lettuce.

Also, "directly following harvest, when produce is prepared for marketing, cooling is essential. Cooling (also known as "pre-cooling") is the removal of field heat directly after harvest, before any further handling. Any delays in cool will shorten postharvest life and reduce quality. Even produce undergoing repeated cooling and warming deteriorates at a slower rate than produce that has no be cooled" (UC Davis, 2003). Veggies should be weighed and recorded immediately after coming into the packing shed, so they can be cooled as quickly as possible.

Record-keeping and the Harvest Whiteboard:

Record-keeping is a very important part of the harvest process. By recording the pounds harvested for each croup we can keep track of the yield of different varieties at different times of year, which helps us formulate a better crop plan for the next year. By recording the total pounds designated for each distribution channel, we are able to know what percentage of the harvest went to revenue-based sales and what went to our community programs.

We use the harvest whiteboard to record this data. Here's how:

- Harvest needs will be written on the whiteboard on harvest day
    - Each crop to be harvested and the bed number
    - Amount needed of each crop
        - This will be color coded according to distribution channel
- When you weigh produce, record it in the final column. Always record weighed produce!
    - Weigh produce that is designated for different distribution channels separately
    - Record the number of pounds for each distribution channel for each crop in the appropriate color

Conclusion

By following these procedures, explaining practices and expectations to volunteers and reminding ourselves why those practices are important, we can work as an efficient and cohesive team to produce consistently high-quality, sustainable veggies for our community. And that's what Veggielution is all about!

Quick Facts: Harvesting and Packing Procedure Guide

Introduction:

- Want to have healthy, fresh, sustainable veggies at affordable prices
- Different channels of distribution: low-cost or revenue-based sales
- Working towards food system change and equality
- By having good harvest and packing procedures, we can ensure high quality produce for any of distribution channels
- Make efficient teamwork

Harvest Procedure:

- General quality standards to ensure consistently high-quality produce
- Selectiveness of damage and insect free produce that is at perfect maturity
- Minimum handing reduces the chances for post harvest damage.
    - Select, sort, trim, bunch, and package
- Harvest in the cool mornings, keeping bins in shade and cooling quickly
- Use the correct tool that is sharp and clean for harvesting

Packing Procedure:

- The same procedure is followed each time to minimize confusion and errors
- Weigh, cool/wash, pack, and then refrigerate
- Post-harvest quality needs to be ensured
- Produce needs to be cooled as quickly as possible
- Record everything correctly on the harvest whiteboard

Conclusion:

- Following these procedures and explaining why we do them to volunteers will help meet the expectation of the quality of produce we aim to have
- Helps us to be efficient and cohesive team to deliver our veggies

Looking Forward

As we move on in the world, every day is a new day. Times change, people live their fast paced lives. All around the world, no second is ever repeated the same way. Except for the one thing that connects every human being in this web of life: the fact of subsistence off food. Human beings will never be able to live without food. Thus, human beings will never be able to live without farmers. Farmers and food make the world happen. All processes that humans invent, control or run are based off the fact that those people are still living because they *eat* food –food that farmers produce all over the world. Whether it is corn from the monoculture in the Midwest or it is berries handpicked on our California coast or its beets pulled from the ground at Veggielution, we are all contributing to making this world continue to run. And that is something that needs to be recognized. All work that goes into cultivating seeds into harvestable produce is important and contributes to this cycle.

Veggielution offers a unique opportunity for people to see how their food is grown. This awareness is something that is important to the face of agricultural production. Without consumers knowing how hard it is to turn a bed by hand or manage trellising tomatoes, there is not that appreciation for the food itself and the energy that went in to bringing to the table. Veggielution itself is a perfect chance for people to see how and appreciate the work all in one visit. It is important that each volunteer knows how their few hours of work contributes to the farm, the community, and the greater world around us.

By being a part of the Veggielution community, we are striving to promote sustainability. We can cultivate food at the same time as cultivating a healthy relationship with our Earth and the resources available on it. We are striving to create food equality. The sadness of having processed unhealthy food options be less expensive than whole fruit and vegetables full of nutrients is something we are working to change. This change could do so much for our society and impact health for all persons.

Each person who touches the soil at Veggielution becomes a part of the farm. That part equates to the position of spreading the word about food cultivation, sustainability and healthy eating. As a team, we can work together to bring about positive changes to the world, starting right here in our community. As Veggielution grows, so does the extent and effect it has on bringing awareness of all these goals; and with more awareness, the goal becomes more achievable.

Veggielution would not survive without the hard work of its volunteers. Along with that, the goals and achievements that Veggielution makes are because we have hardworking volunteers that cultivate new life and new relationships in the soil at the farm. No contribution is too small or unimportant. Everything is one step forward towards a greener future.

THANK YOU FOR VOLUNTEERING!

72

Chapter 5

Summary, Recommendations, and Conclusions

Summary

The completed manual will be used for the Spring 2015 Workday Leader class at Veggielution Community Farm. This manual will continue to be updated and added to as the farm continues to grow in its production and programs. It will be a key resource for Workday Leaders and Farm Interns while they work on the farm. It will help them understand their job when leading volunteers as well as the principles of organic and sustainable farming.

Recommendations

It is recommended that this manual be updated prior to the Workday Leader class each year. This should be done with contributions from the Farm Manager as well as current Workday Leaders and Farm Interns. It is important to keep the manual as current as possible so the production at Veggielution Community Farm can be efficient.

The manual should be used as a reference and overview teaching tool during the class. Workday Leaders still require the class in order to learn vital leadership and application skills. Farm Interns will have the opportunity to learn by doing during their time on the farm. This manual should be just a reference and tool of refreshing principles of Veggielution.

Additionally, other managers of programs on the farm, such as the Outreach or Education team, should add their respective information and skills needed for interns working in those positions. This will help everyone be on the same page while working at Veggielution.

Conclusions

The Farm manager and key correspondents look forward to reviewing and implementing this manual into their program. It has been a positive experience by being able to go full circle throughout college experience: starting as a Farm Intern at Veggielution the summer before attending Cal Poly and finishing with the manual as a senior project. It was a successful venture as it met the requirements of the farm as well as the objectives stated at the beginning of the project. The new manual is more cohesive and visually appealing. It is more of an official manual compared to the previous one. It contains information in understandable forms that can be easily applied to Veggielution. The only negatives was that the limited time frame did not allow for in depth details from spending more time actually on the farm while writing the manual. This could have been in the form of literal work application or interviewing staff more times on what to include. However, this would have made the manual endless. Overall the project was a success and benefited all parties involved.

References

AFOP Honors Volunteer Farm Safety Trainers. (2013). *Professional Safety*, *58*(5), 29.

Burke, D. D. and Carton, R. (2013), The Pedagogical, Legal, and Ethical Implications of Unpaid Internships. Journal of Legal Studies Education, 30: 99–130. doi: 10.1111/j.1744-1722.2013.01115.x

Cal/OSHA, "Safety and Health Protection on the Job" State of California Department of Industrial Relations. February 2014. Print

Christian, S. (2010). A growing Concern. *Earth Island Journal*, *25*(2), 56-60.

Flynn, G. (2000). Take Another Look at the Employee Handbook. Workforce, 79(3), 132.

Griffen, Paul F. (1958). Urban Impact on Agriculture in Santa Clara County, California. *Annals of the Association of American Geographers.* 48(3)

How to: Assemble an employee handbook. (2008). Inc, 30(8), 46.

"Internships". *Veggielution.com*. February 2014.

Robert W. Koehler, "The Effect on Internship Programs in Subsequent College Performance." The American Accounting Association. *The Accounting Review*, Vol. 49, No. 2 (Apr., 1974), pp. 382-384.

Robertson, Mark (2013). Looking Back: Canning in the Valley of Heart's Delight. San Jose Public Library. http://www.sjpl.org/blog/canning-valley-heart-s-delight-0

Riggs, Erika. (2011) Urban Farms Growing in Popularity. *Real Estate-Maine Today.com.* http://realestate.kjonline.com/Urban-farming-growing-in-popularity.html

Saxenian, Annalee. (1983) The Genesis of Silicon Valley. *Built Environment.* 9(1), 7-17

Scaruffi, Piero. (2010) A History of Silicon Valley. http://www.scaruffi.com/politics/sil1.html

Steimel, S. (2013). Connecting with Volunteers: Memorable Messages and Volunteer Identification. *Communication Research Reports*, *30*(1), 12-21. doi:10.1080/08824096.2012.746220