



UC Santa Barbara Student Farm

Gabe Runte - UC Global Food Initiative

UNIVERSITY OF CALIFORNIA Global Food Initiative

Introduction

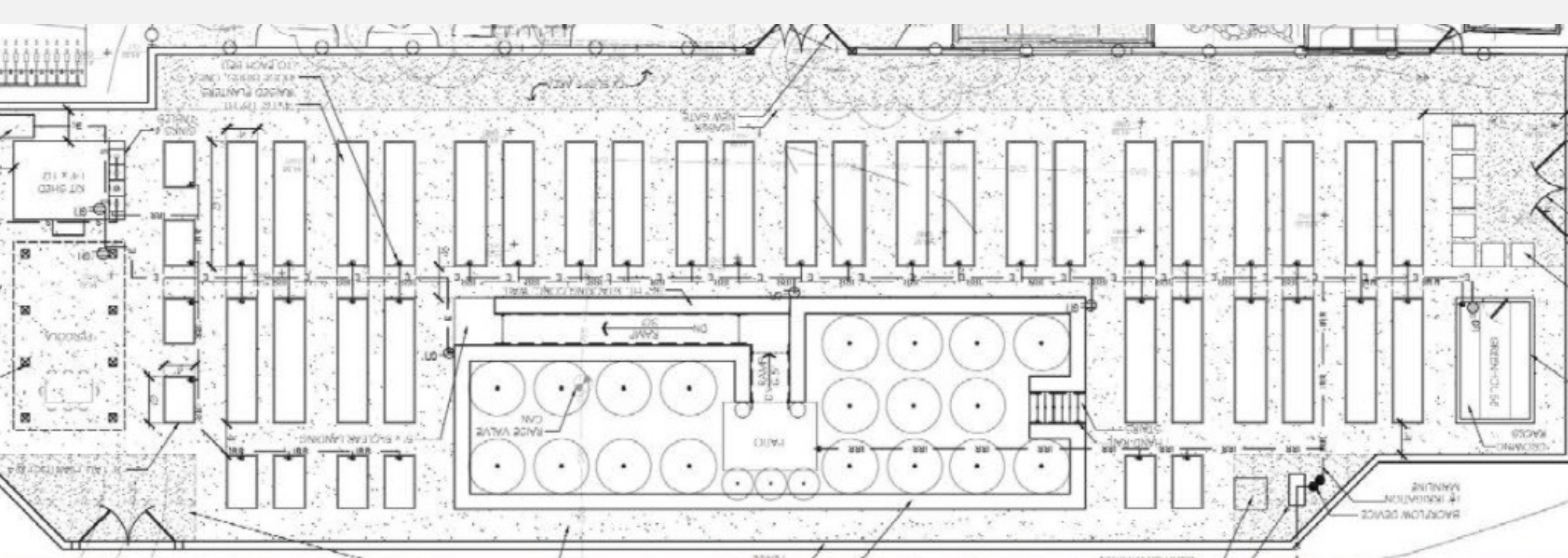
UC Santa Barbara, like our sister campuses, has been working to improve food access and education to battle growing food insecurities. Our *Edible Campus Program* is at the heart of these efforts; a partnership between the Associated Students Food Bank, the Department of Public Worms (campus composting team), and UCSB Sustainability.

In addition to boots-on-the-ground change-making and education workshops, the Edible Campus Program has long yearned to utilize our area's agreeable climate for student-driven food production. The history of this struggle is one of resilient effort on the part past student activists, gaining credibility in a series of incremental projects. The first milestone was achieved with an Urban Orchard project that put potted citrus trees near the University Center, with production slated for donation to the AS Food Bank. With the orchard successfully managed, the Edible Campus Program was granted a second approval for a pair of vertical aeroponic towers to provide additional fresh produce.

Each of these growing spaces helped lay the groundwork for the Edible Campus Program's flagship project - the UCSB Student Farm. The last few signatures are being collected this month, with construction expected to begin before school starts this fall. The Student Farm will donate all of its harvests to the AS Food Bank, supplementing fresh inventory and providing a more diverse array of fruits and veggies, all catering to the wants and needs of the students!

My project focused on preparing future Edible Campus Program student leaders with the best available resources and teaching materials for successful farm operation and management.

[Below- An early diagram of expected farm layout with raised beds and a large permaculture learning space.]



Goals of the Fellowship

This year has been a continuous learning experience, as timeline setbacks forced me to reshape and rethink my project on the fly. When my proposal was accepted, the description of my work had me planning the growing spaces of the farm during fall quarter and coordinating the horticultural rollout over winter and spring quarters. If you made it through the introduction above, you will know that the farm completion was pushed back until this summer.

As is the nature of real-world project management, setbacks happen and adaptation is crucial. My initial goals of creating a productive space with hands in the soil and students learning in the garden beds had to be remolded into more long-term motives. The results, I hope, will be the same.

My driving goals through the end of the project were to make the most of the time that the Global Food Initiative allotted me; to promote the goals of the Edible Campus Program along with my own passion for ecology. With these interests in mind, my guiding motivations were as follows:

- Provide Future farm coordinators with the most complete and current resources on garden management and productivity optimization.
- Create educational materials that connect ecological principles and environmental health with responsible gardening.
- Ensure Student Farm success by preparing for potential roadblocks and eventual challenges to the greatest possible extent.

[Below- Olivia Locatelli, Edible Campus Program student leader, proudly brandishing a gnarled but beautiful Chiogga beet]



Planning Framework

As we are a public campus, we must work with various planning entities to ensure a safe and equitable farm space. This in itself has been an educational experience as I have worked within different planning guidelines, straining to balance farm productivity with community space development.

The two main aspects of the farm that these issues interact with are the layout and crop planning. Firstly, the Edible Campus Program's student leadership voted on space allocations and pathways. Because we aim to foster community engagement and youth education, we integrated wide pathways throughout, sitting areas, and a covered group gathering space for workshopping.

Crop planning was quite a bit more challenging. After working with the campus to make sure we are only growing things that are the least likely to get people sick, we were still left with a huge list of highly varied fruits and veggies. We did our best to get feedback from the AS Food Bank as well as some professors who wished for educational plantings to grow things that would make everyone happy. And this is all before we get into the logistics of crop rotation and nutrient limitation and seasonality.

So much to learn!



Crop Characteristics

One of the most important contributions that this project made to the Edible Campus Program was to compile crop characteristics from resources across the web and from various planting books all into a single searchable format. While the romantic naturalist in me may have a hard time with plants in a spreadsheet, the functionality is undeniable.

Future coordinators will be able to sort plants by season, light conditions, nutrient requirements, and a barrage of other criteria. Not only will this save time, it will increase productivity by including companion planting suggestions and gardening tips! And this living document will continue to be improved as we learn about our specific environment and about the varieties that like our little stretch of coastline best. As the Edible Campus Program grows, we hope that more crops will be approved for planting so the Food Bank can provide an even broader array of goodies to the student body(ies).

[Below- a snapshot of some of the information compiled on our crops]

| Crop Name | Category | Planting Time | Harvesting Time | Days to Maturity | Temperature? | Lighting? | Watering? | Soil? | Planting Depth? | Planting Spacing? | Planting Method? | Planting Notes? | Planting Location? | Planting Season? | Planting Frequency? | Planting Quantity? | Planting Cost? | Planting Yield? | Planting Quality? | Planting Health? | Planting Safety? | Planting Ethics? | Planting Sustainability? | Planting Impact? | Planting Legacy? |
|-----------------|-----------|---------------|-----------------|------------------|--------------|-----------|-----------|-------|-----------------|-------------------|------------------|---|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-------------------|------------------|------------------|------------------|--------------------------|------------------|------------------|
| Asparagus | Vegetable | Spring | Summer | 100-120 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Beets | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Broccoli | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Carrots | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Chard | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Cherry Tomatoes | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Cilantro | Herb | Spring | Summer | 30-45 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Corn | Grain | Spring | Summer | 90-120 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Cucumbers | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Eggplant | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Kale | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Leeks | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Lettuces | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Onions | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Peas | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Potatoes | Vegetable | Spring | Summer | 90-120 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Spinach | Vegetable | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Squash | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Strawberries | Fruit | Spring | Summer | 45-60 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Tomatoes | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |
| Zucchini | Vegetable | Spring | Summer | 60-90 | 40-60 | Full | Regular | Rich | 1-2 inches | 18-24 inches | Rows | Plant in a sunny, well-drained area. Water regularly. | UCSB Student Farm | Spring | Once | 10-15 plants | \$50 | 10-15 plants | High | Good | Safe | Ethical | Sustainable | Positive | Long-term |

Garden Management Ecology

My Project's unexpected timeline shift provided me with time enough to think about bigger picture farm management practices rather than simply planning what would be planted in which beds and what would come next. I cannot pretend to have taken on this endeavor alone, for I was lucky enough to have access to some incredible minds from throughout the UC system and beyond. As a program, we expect (and hope) that the most limiting factor in our student farm will be space. This means that we have to do our very best to maximize the productivity of all the growing area we have - to maximize the ecological health of the space. A happy plant community is a productive plant community.

The constrained bed sizes present us with an opportunity to provide intensive management to ensure optimal growth. This will include practices such as pruning and trellising and mixed plantings. Crop pampering, such as we have planned, is less approachable at commercial scales, so publicly available information is mostly anecdotal. We will be tracking responses with each treatment so that others may learn from our trial and tribulations.

Moreover, we hope to increase our potential output by growing in most of our beds each season. Responsible no-till farmers throughout the state have developed functional organic methods for space optimization which we will work to mimic. By focusing on ensuring the health of the soil and the communities that reside there, it is our hope that plants will be provided with mutualists from the time of transplant, thereby expediting production. Between crops, we will amend with compost from the Department of Public Worms to replace lost fertility, recycling nutrients from out campus community back into the food that fuels it. Additionally, we will plant local flowering plants to attract pollinators and contribute to the environmental health of the surrounding plant and animal communities.

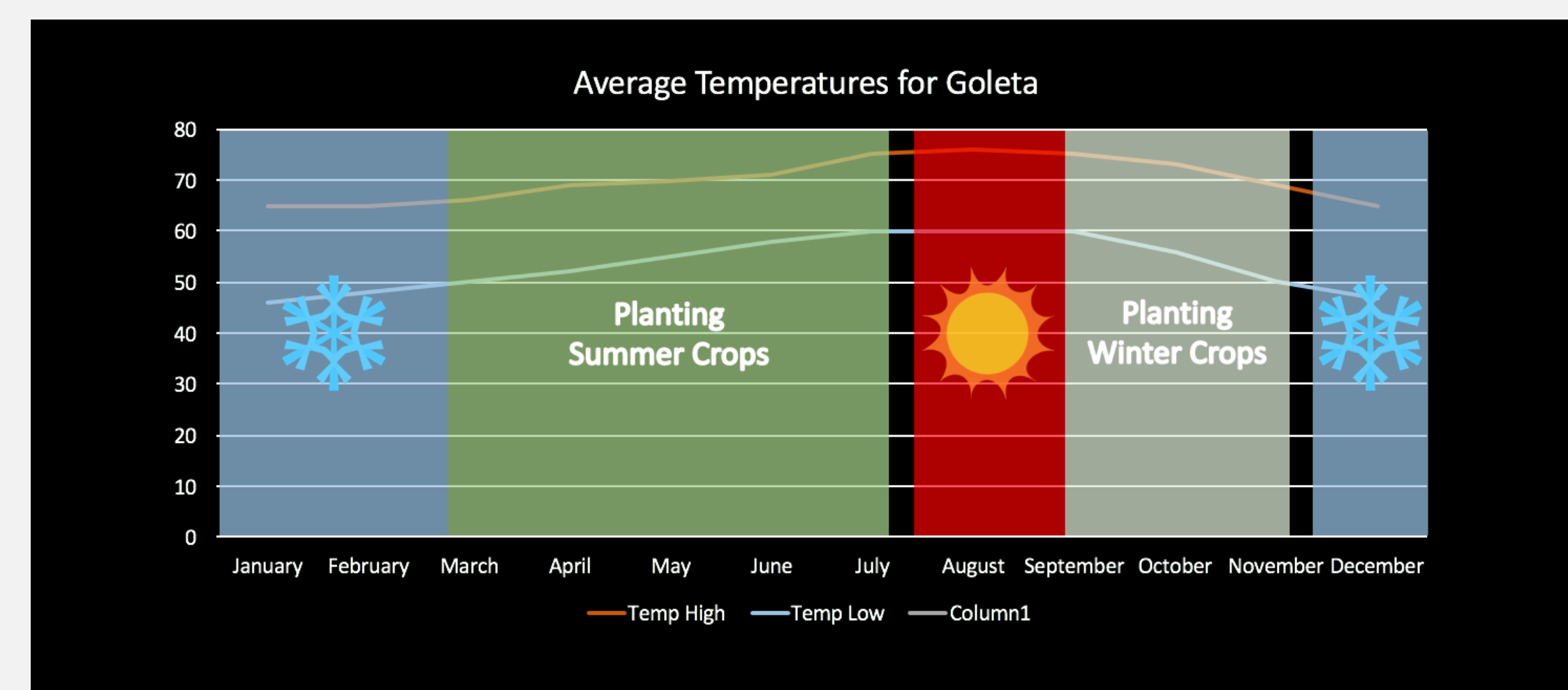
Education

As the farm gets up and running, we look forward to bringing in students from across campus to spread enthusiasm for responsible gardening and to get more hands in the dirt. From the tabling that I have personally been a part of, we have heard from tons of students who want to grow food, but very few who have ever had the chance to be a part of a garden space.

After hearing from some of the gardening programs on other UC campuses, I was inspired to develop a UC Santa Barbara garden curriculum for eventual implementation in a elective course. This course will serve as a springboard for students who have never worked in a garden, or even those just eager to learn more about the underlying ecological principles of responsible gardening. The space will also serve to educate community members of all ages; from preschoolers to senior citizens. Some of the great work already being done through the Edible Campus Program has been to host workshops and community gardening days, and the Student Farm will provide the space necessary to scale these events to the next level.

Each of our Edible Campus Program team members have been inspired in one way or another by the beauty and magic of watching food grow from healthy soil. We look forward to sharing these experiences!

[Below- an educational diagram illustrating the annual cycle of temperature and planting in the Santa Barbara area]



Takeaways

This fellowship has been a true blessing. I learned a great deal and made friends I'm sure I will keep for ages. The Global Food Initiative has always aimed to answer questions of equitable nutritious food production and distribution, and am confident that the individuals I met this year will be at the forefront of the revolution.

In my own project, I learned both about the delicate nature of garden management and the challenges that come along with making change in a greater system. I am proud to have been a part of the Edible Campus Program and look forward to observing and volunteering in their future endeavors.

It would be an injustice if I were not to include the incredible extracurricular opportunities presented through this fellowship. UCGFI-sponsored events laid the groundwork, allowing us to get to know one another, and the rest just came naturally. Some of the best memories of this internship came from trips throughout California to observe different growing spaces on various campuses, as well as walks in the redwoods with other fellows and nights, after long days of UC San Diego tours, circled around a touchy fireplace.

Thank you UCOP for this opportunity.

[Below- (from left) Candace Adleman UCSC, Mark Biedlingmaier UCLA, Camille Adleman UCSC, Gabe Runte UCSB on a garden tour at UCSC]



Acknowledgements

There are so many people that made this year special, and I know this list is nowhere near exhaustive. Still, there are a few people I would like to thank for making this fellowship possible and memorable:

- Katie Maynard- advisor, ECP Staff, Sustainability warrior
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- Jessie Schmidt- ECP Staff, farm enthusiast
- Adory Khandaker- ECP Student Coordinator, pal
- Olivia Locatelli- ECP Greenhouse and Garden Project coordinator, pal
- Alina Tejera- UCGFI coordinator, amazing trip executor
- 2017-2018 UCGFI Fellows- all of these amazing people made our retreats and conferences unforgettable.

[Edible Campus Program - ECP]