

UC Santa Barbara Student Farm

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UNIVERSITY Global Food OF CALIFORNIA 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.

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.

Education

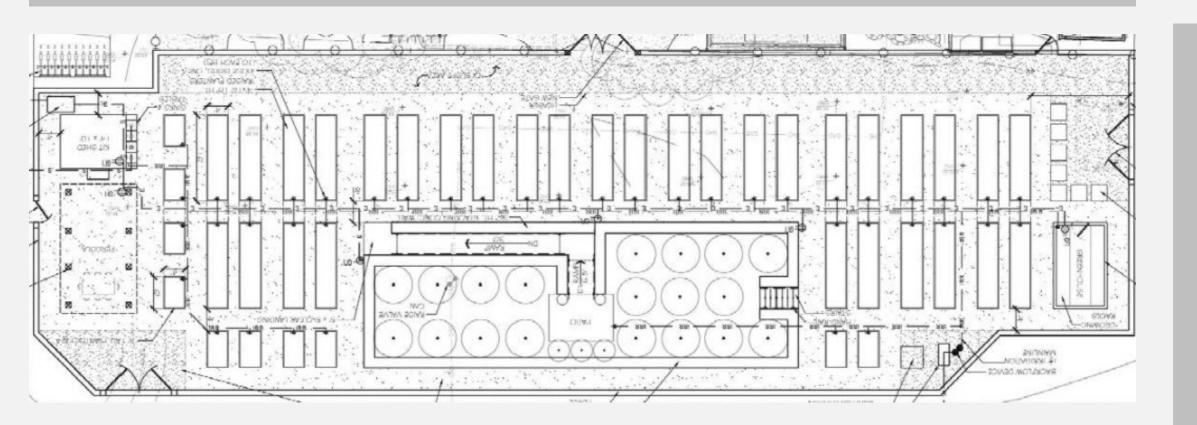
As the farm gets up and running, we look forward to bringing in students from across campus to spread enthusiasm for responsible gardening and to get more hands in the dirt. From the tabling that I have personally been a part of, we have heard from tons of students who want to grow food, but very few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

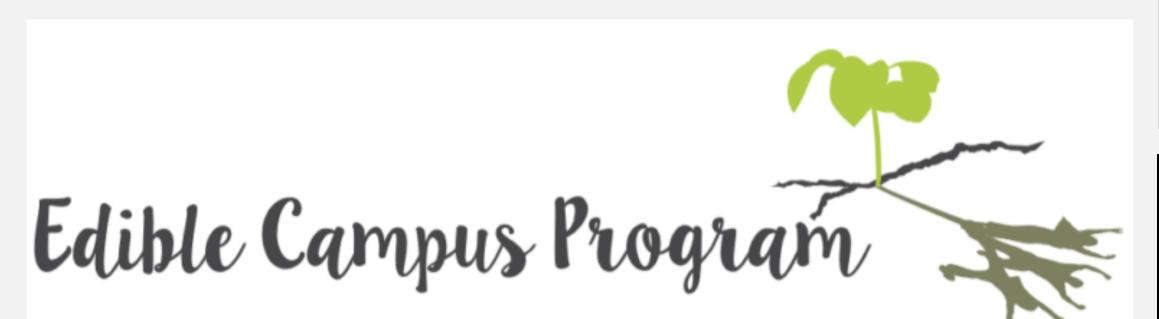
My project focused on preparing future Edible Campus Program student leaders with the best available resources and teaching materials for successful farm operation and management.

[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. So much to learn!

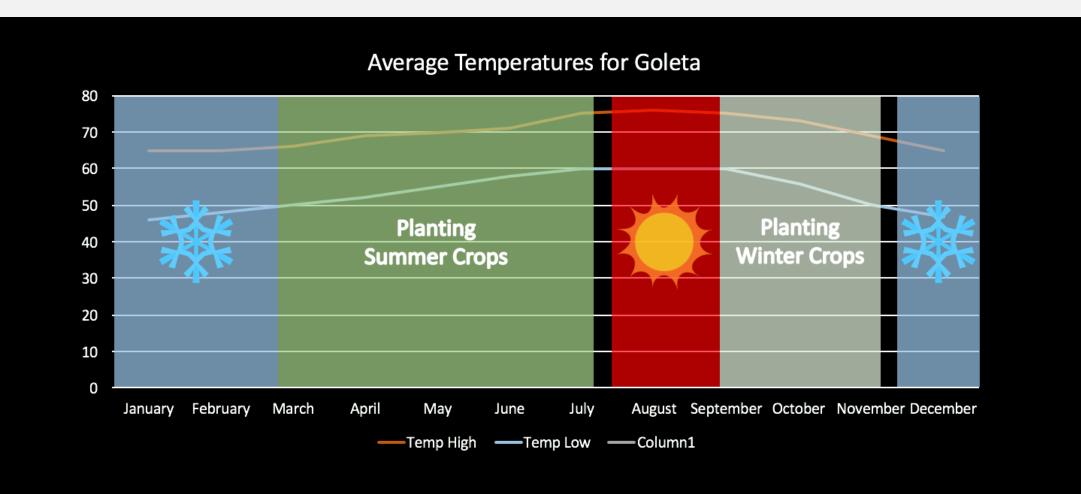


Crop Characteristics

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 varietals 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). 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.

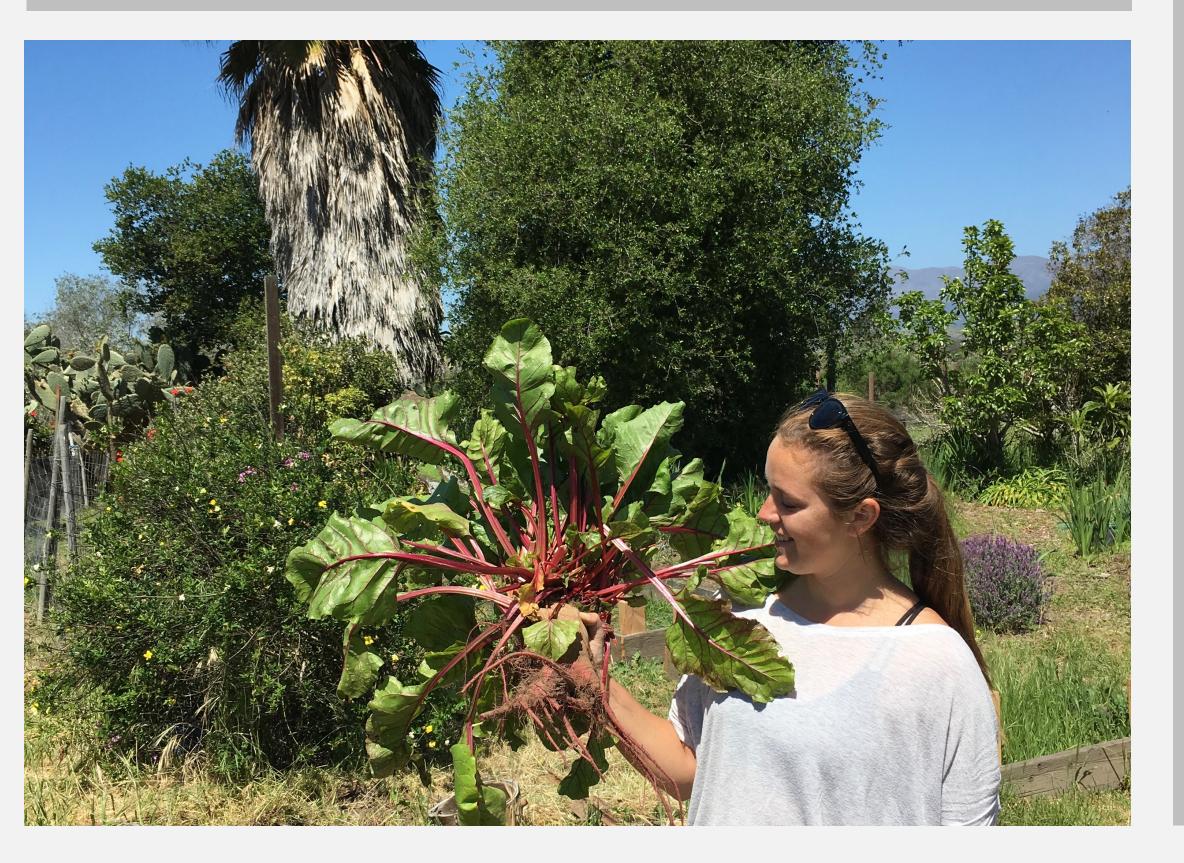
In my own project, I learned both about the delicate nature of garden management and the challenges that come along with making change in a greater system. I am proud to have been a part of the Edible Campus Program and look forward to observing and volunteering in their future endeavors. It would be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

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]



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

Crop Name	Crop Bio	Planting Time	Spacing of Plants (Individ	Growth Habit	Sun	Days to Maturity	Transplant?	If transplant, age of transp	Watering Needs	Soil Needs	Varieties for Goleta?	Pests? Corr	npanions?	Additional Comments	Nitrogen Fixer?
oregano		Both!	12 in	Sprawling	Partial	70-80	Yes	4-5 weeks	not picky	well-drained					yes
Peas		Both!	1-1/2" apart @ 4-6' spaci	Vertical, Sprawling, Vining	Full	60-70	No							Should be sown with inor	
Radish		Both!	1/2 in deep at 1 inch space	Vertical, Root	Full	20-30	No		loose	moise always	celests (fast), and pink t	peauty (pretty)		Have to pay attention as	older plants are not as go
Thyme		Both!	6-8in apart in 12-18in row	Sprawling, Bushy	Partial	90-100	Yes	after 4 true leaves appear	little	light, dry, well-drained		pest confuser			
Beets		Fall-Winter (Winter Crop)	1/2 inch deep at 2 inch ap		Full	40-50	No		consistently moist.	loose, well drained					
broccoli and cauliflower		Fall-Winter (Winter Crop)			Full	80-90	Yes		when dry to second knud	moist, slightly acidic	santee	cabbage moths/loopers. spray	with b.t.	feed with compost as hea	ads begin to form
Garlic		Fall-Winter (Winter Crop)			Full	130+	No		consistency is jey!	free draining loam with					rom cloves, takes up to nin
Kohlrabi		Fall-Winter (Winter Crop)	4in between @12-18in ro	Bushv	Full	30-40	Yes	roughly 3 weeks	drought-tolerant. occasio	r light, well-drained soils		practice crop rotation		diameter >3in/8cm will ge	et woodv!
Turnip		Fall-Winter (Winter Crop)	2 inch by 1 foot rows	Vertical, Root	Full	50-60	No		water when dry down to	÷ .	purple top globe			-	ing out every other plant to
Acorn squash			a 18-24 for small varieties.	Vertical, Sprawling, Vining	1	90-100	Yes	3 weeks w 4-7 days harde		well-drained 5.8-6.8 pH		mildew. keep in well-draining s	soils and rotate crops.		
Bean, French/green		Spring- Summer (Summe			Full	50-60	No		keep consistent moisture		eed high nitrogen soils			more harvest=more prod	
bean, garbanzo		Spring- Summer (Summe			Full	50-60	No		consistent moisture	not picky					yes
bean, lentil		Spring- Summer (Summe			Full	50-60	No		keep moist	not picky				harvest wet so as to not I	
Bitter melon		Spring- Summer (Summe			Full	30-40	No		regular	silty loam, well-draining	versatile	same as cucumber		harvest when still young.	
cantaloupe		Spring- Summer (Summe			Full	70-80	Yes	4-6 weeks. harden before		rich		use floating row covers for tran	nsplants	na root mon our young	
Celery			e 6-8 inches apart. 24-36 in		Full	80-90	Yes		keep soil moist	6.0-7.0pH					
chayote squash		Spring- Summer (Summe			Full	120-130	No		even, regular water	relatively neutral pH		pum	npkin, peppers, squas	sh. com	
Com			3/4-1inch deep 6-7 apart		Full	70-80	No		eren, regular frater	i control y i control pri	many options, choose se	or corn borers and earworms can			r pollination
cucumber			e 12 inch in row. 5-6' row s		Full	50-60	Yes	3-4 weeks	thorough for abundance		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			very sensitive to cold	
Cumin		Spring- Summer (Summe			Full	100-110	No			average to rich. well-dra	ained			,	
Dill		Spring- Summer (Summe			Full	90-100	No			prefer light, rich, Grow i					
Eggplant			e 18Inch apart in 30-36 incl		Full	70-80	Yes	6-8 weeks		6.2-6.8pH, well-drained					
Ginger		Spring- Summer (Summe		1 0 0	Partial	100-110	No		consistent moisture, no s					cover with mulch after pla	anting
ginger			give it a guess! 1ft would	Vertical, Root	Partial	130+	Yes		consistent	not too much nitrogen.	well-draining				harvest. Also needs shade
honeydew		Spring- Summer (Summe		Sprawling, Vining		70-80	Yes	3-4 weeks with hardening	steady supply	rich, well-draining	snow leopard!	use floating covers for transpla	ants	3	
Kabocha Squash			e 18-24 for small 36-48 for		Full	90-100	Yes	3 weeks w 4-7 days harde		5.8-6.8 pH well-draining			lew! Keep off the grou	und if possible	
okra		Spring- Summer (Summe			Full	60-70	Yes	4-5 weeks							
pea, snap		Spring- Summer (Summe			Full	50-60	No		not drought tolerant! Mus	t not picky					yes
pea, snow		Spring- Summer (Summe			Full	50-60	No		keep moist	not picky					yes
pepper, jalapeno			e 12-18 apart in 24-36 inch		Full	60-70	Yes	8 weeks		well-drained 6.5pH		Control climbing cutworms with	h Bacillus thuringiens	water-in transplants with	
Pepper, orange bell			e 12-18 apart in 24-36 inch		Full	70-80	Yes	8 weeks		well drained, fertile with	pl glow	Control climbing cutworms with			
	Are a root vegetable that			,											
Potato		Spring- Summer (Summe	e 3in deep, 12 in apart. spa	Bushy, Root	Partial	70-80	Yes	After 2in long sprouts. De	need soil moisture	well-drained sandy. low	ni fingerling, yukon gold	aphids, potato tubermoth, bligh	ht.	No more than once every	y 3 years
Spaghetti squash		Spring- Summer (Summe	a 18-24 inch	Vertical, Vining	Full	80-90	Yes	3 weeks w 4-7 days harde	keep moist	well drained, 5.8-6.8pH	is Angel Hair				
squash, butternut		spring- Summer (Summe	a 12-48 depending on varie	Sprawling		100-110	Yes	3 weeks with 4-7 days of	regular	pH 6.0 is best. In compo	ost				
Squash, Crookneck/zucch	nini	Spring- Summer (Summe	e 18-24 in 6 foot width rows	Bushy	Full	50-60	Yes	3-4 weeks with 4-7 days h	regular watering for grow	t fertile, well-drained. pH	5.8-6.8	Common cucurbit diseases inc	clude powdery mildew	, downy mildew, bacterial	wilt, and phytophthora. Av
Squash, delicata		Spring- Summer (Summe	er Crop)	Sprawling, Vining	Full	100-110	Yes	3 weeks w 4-7 days of ha	keep moist	likes compost and pH 6	.0			would be super fun to grr	ow over the pathways in th
Sunflower		Spring- Summer (Summe	e clusters of 3-4, thin to 1 e	Vertical	Full	50-60	No		drought-tolerant. grow be	low to moderate fertility					
Sweet Potato	A summer crop. Does not	Spring- Summer (Summe	e 3-4in deep. 10-18 apart. 3	Sprawling	Full	100-110	Yes	from supplier	well irrigated while estab	li sandy loam with a ph 6.	5 Mahon Yam	flea beetles, japanese beetles,	, wireworms	after harvest, cure 4-7 da	ays to toughen skin in 85d
Tomatillos		Spring- Summer (Summe	e 2-3 ft	Bushy	Full	70-80	Yes	4-5 weeks	best production with moi	st soil				no support. harvest once	husk splits
Tomato, cherry		Spring- Summer (Summe	e 14-20 inches if staked	Vertical, Bushy	Full	60-70	Yes	5-6 weeks	keep moist	need high nitrogen				follow corn. No more than	n once/ 3yr
Tomato, Heirloom		Spring- Summer (Summe	e 14-20 for staked toms. 12	Vertical, Bushy, Up a tom	Full	70-80	Yes	5-6 weeks	even supply. sporadic ca	n Rich, very fertile. Need	lots of nutrients	use row covers for seedlir NOT	T BRASSICAS> rec	I need lots of P early, but t	too much N can lead to lo
watermelon		Spring- Summer (Summe	e 2-3 feet	Sprawling, Vining	Full	70-80	Yes	1 month with hardening	steady supply	well-drained 6.5-7.5	small is good!	floating row covers for transpla	ants		
Brussel Sprouts		Unknown or Other	18-24 individuals with 30-3	Vertical, Bushy	Partial	100-110	Yes	4-6 weeks	well-irrigated	ph above 6.0					
Rosemary		Unknown or Other	24-36in for perennial	Vertical, Sprawling, Bush	Full	80-90	Yes	4-6 weeks	drought-resistant	easy-going				put at the end of beds as	s pollinator attractant and s

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. Thank you UCOP for this opportunity.

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



Moreover, we hope to increase our potential output by growing in most all 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.

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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- Olivia Locatelli- ECP Greenhouse and Garden Project coordinator, pal
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[Edible Campus Program – ECP]