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<b>Submissions are accepted semi-annually during two periods of opportunity: Dec. 1 - 15<sup>th</sup> and May 15<sup>th</sup> - 31</b>	
<b>Date:</b>	31 May 2016
<b>Subject Area:</b>	Experiential Learning & Curriculum
<b>Project Name:</b>	Urban Agriculture & Food Security – Field Education Program
<b>Co-Leads / UC Locations:</b>	Fortino Morales (UCR), Peggy Mauk (Agricultural Operations), Joyce Jong (City of Riverside), Grecia Marquez (R’Pantry), Claudia Carrasco (UC Cooperative Extension), Holly Mayton (UCR), Beth Thrush (Undergraduate Education)

## Overview

[Provide brief description including purpose, objectives, and any key accomplishments to date. Define how project fits within current aims of the [UC Global Food Initiative](#), include what audience(s) will be impacted or benefit from the project.]

## Purpose

*We will develop a field education program focused on training young and diverse people to join in the creation of sustainable and technologically savvy-agricultural careers.*

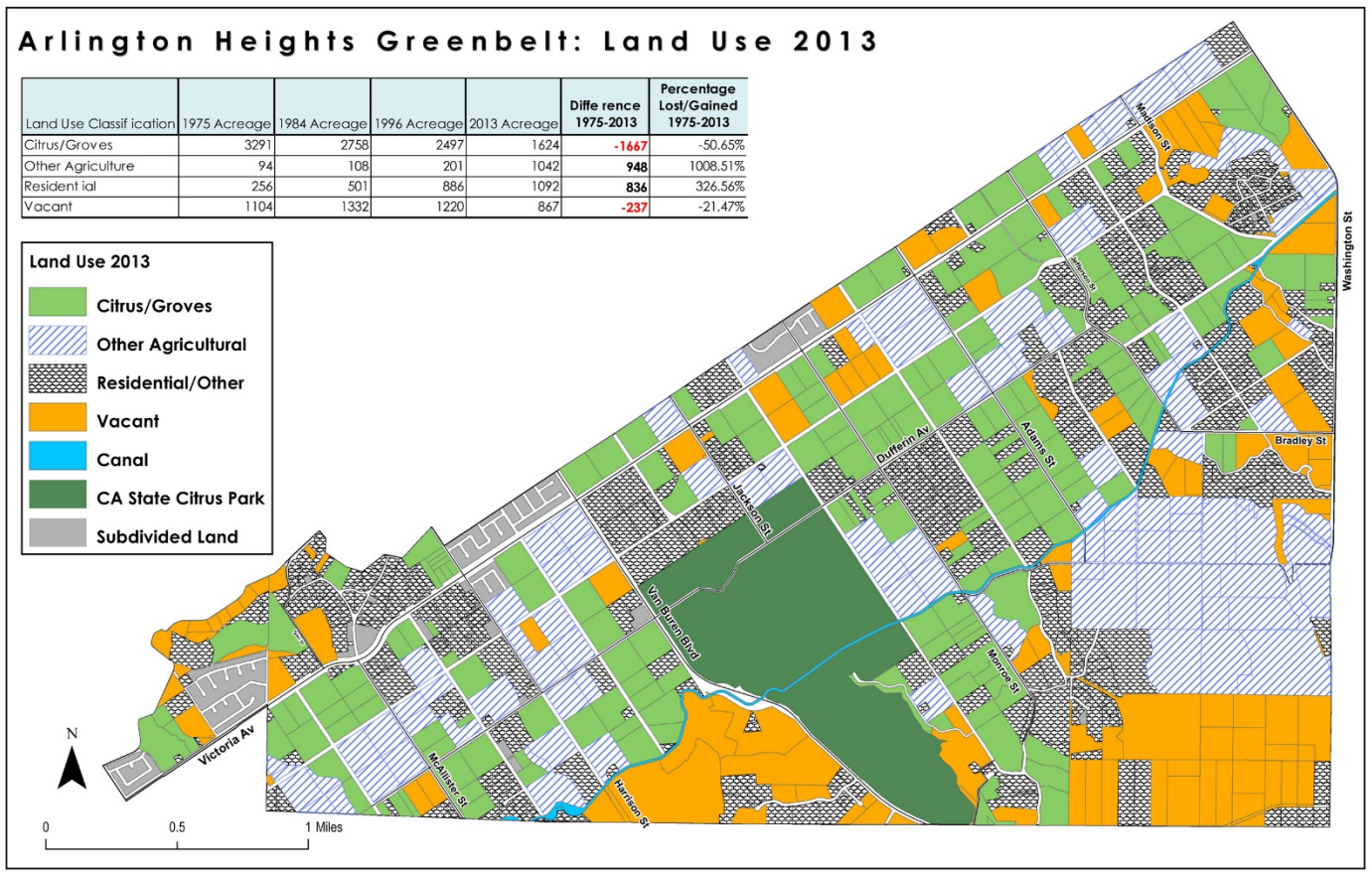
As the sole land grant university in the Southern California region, the UC Riverside campus has a critical leadership role within the regional agricultural sector. The GFI grant would assist in training the next generation of farmers and food system professionals. The region has a history in citrus agriculture but that industry has seen a decline for decades, there are four food deserts within the city limits and a large portion of the students on campus face food insecurity. The Field Education Program will initiate a training program that will expose students to hands-on agricultural skills and knowledge using the R’Garden as the living learning laboratory. They will also engage with the local farm community by convening Farmers Guild’s meetings, attending on-farm Field Days, and mentoring youth in the 4H Juntos Summer Program. This will be in coordination with the City of Riverside and UC Cooperative Extension agents.

## Regional Agricultural Sector

The City of Riverside, with a population of 319,504 (2014), is unique in that despite having a suburban sprawl feel contains roughly 5,000 acres of agricultural land that has been protected from development. This was due to a citizen referendum that passed called Proposition R (1979) and Measure C (1987). This created what is now called the Greenbelt by Riverside residents. Much of this land has traditionally been in citrus cultivation. Unfortunately, over the years this area has seen a decline in the amount of land that is in production with about 800 acres fallow or underutilized. Much of the acreage in “Other Agriculture” is in nursery stock for housing developments that are being built in the region. Following national trends the farmers in the Greenbelt are near or at retirement age and there is not a ready set of young professionals to take their place.

Nationally, there has been an increased interest in localized or regional food systems where regions try to grow and cultivate as much as they can for a variety of reasons from the environment to the economic multiplier effects. Grow Riverside is an initiative that aims to build a regional food and agricultural system through collaborating with farmers, residents, businesses, local agencies, and researchers to foster growth in this sector.

FIGURE 1: GREENBELT 2013



Source: City of Riverside

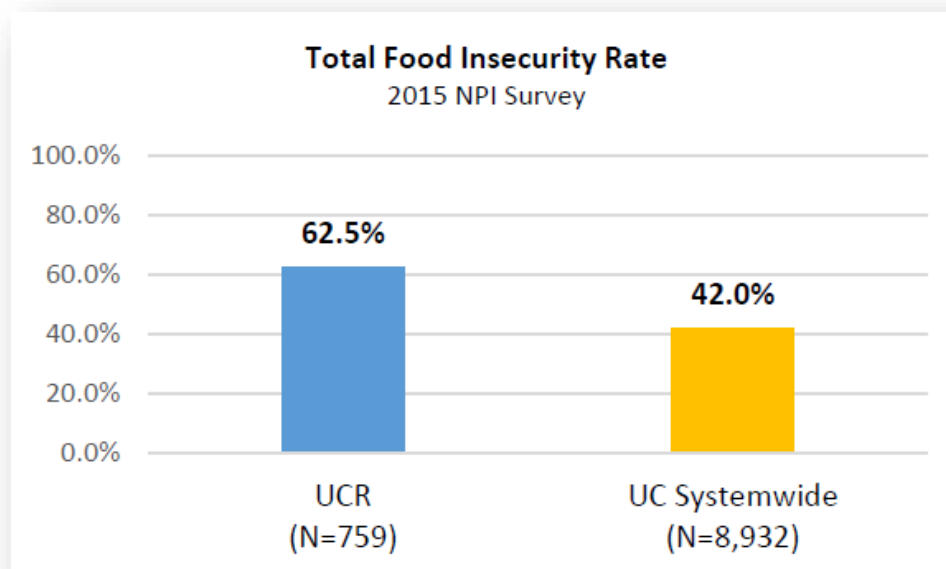
## Campus & Community Food Insecurity

Recent studies conducted by the UC Nutrition Policy Institute, the UC Undergraduate Experience Survey, and the Graduate Well-being survey all indicate that a large sector of the student population is food insecure using USDA measures. This issue is large and complex, but being that we are on a land-grant university, it only makes sense for us to take a leadership role in working to address this issue. The most recent study conducted in 2016 has been analyzed by the campus and a negative correlation was found between student food insecurity and their cumulative GPA (Figure 2). This relationship underscores the need for the university to adapt a variety of methods to address this system wide issue. One of those ways is to increase the amount of produce grown on and near campus. The R’Garden and the Field Education Program does just that. It is situated within the Agricultural Experiment Station and has the opportunity begin to not only provide produce to the R’Pantry, but to also become a training ground for students wanting to get involved in the agricultural field to address food security explicitly. While the R’Garden is only 3 acres, it becomes the seed to peak student’s interest and to connect them to the larger agricultural and food system network in the region.

FIGURE 2: 2016 UCUES UCR GPA & FOOD INSECURITY CORRELATIONS

2016 UCUES UCR Correlations		Cumulative GPA
How frequently -Skipped or cut the size of meals	Pearson	
	Correlation	-.148**
	Sig. (2-tailed)	$p < .001$
	N	4,448
I was worried whether my food would run out before I got money to buy more.	Pearson	
	Correlation	-.169**
	Sig. (2-tailed)	$p < .001$
	N	4,446
The food that I bought just didn't last, and I didn't have money to get more.	Pearson	
	Correlation	-.159**
	Sig. (2-tailed)	$p < .001$
	N	4,440
How often as an obstacle-Going hungry, not having enough food	Pearson	
	Correlation	-.131**
	Sig. (2-tailed)	$p < .001$
	N	4,235

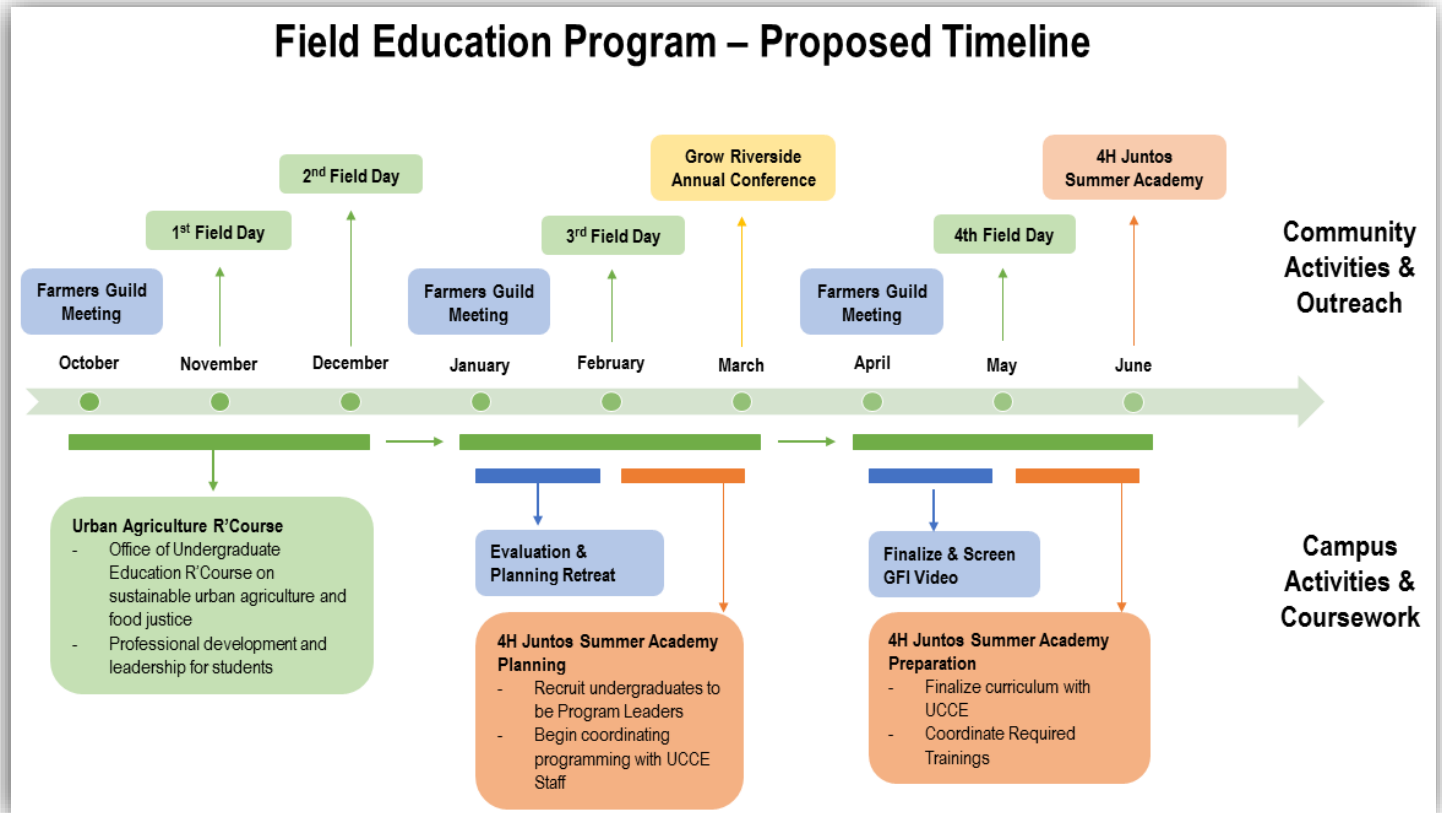
FIGURE 3: UCR VS UC FOOD INSECURITY RATE



Food security is not only an issue on campus, but also within the community. Within the City of Riverside there are four USDA recognized food deserts. There have been efforts to address this issue through initiatives like the HEAL Zone Initiative which is funded by Kaiser Permanente. They have funded 3 years of efforts and programming, and recently due to the program's success have refunded the program for an additional 3 years (2016). They have also collaborated with the Grow Riverside efforts as they see the need for more locally grown produce for preventative health reasons.

## Objective

Building on UC Riverside’s legacy of agricultural research we hope to begin the process of addressing the need for experiential learning opportunities for young people interested in agriculture by creating the Field Education Program. This program will address the lack of skilled young people interested in the local agricultural systems, food security on campus and in the community, and by connecting with the existing network of agricultural and food professionals in the region through field days and Farm Guild meetings. Finally, the students will be given the opportunity mentor youth in partnership with UC Cooperative Extension’s program called 4H Juntos Summer Academy.



## Urban Agriculture R'Courses

The Office of Undergraduate Education has a program called R'Courses which will be the vehicle for creating the Urban Agriculture R'Course. The R'Course program is a student-led course where undergraduates work with faculty and staff to create a course on a topic of interest. It offers students and faculty to explore other topics of mutual interest that are not currently available. This will be an opportunity for students to gain both hands on skills in the R'Garden, but to also gain a deeper understanding of the food system in general. Each quarter different topics would be highlighted in the garden including propagation, planting, cover cropping, fertilizing, IPM, pruning, soil health, compost, weed identification, and irrigation. The class time will be coordinated with the advising faculty so that it reflects the latest agricultural and food system research coming from the UC system and other scholarly works. In addition to the topics covered in the field, these will include food security, local food systems, agroecology, public health, climate change and sustainability. As part of the R'Courses program within UE, there is a quarter of professional development and leadership training for the students that will coordinating the R'Course. The R'Garden has hosted a single R'Course in the past, the goal with this GFI grant is provide a course each quarter to 15 students (the cap set by UE). This GFI grant will help UE and R'Garden develop the curriculum and training necessary for this to continue beyond the grant period. Lastly, utilizing previous funding from the GFI Video Project, students will create a short video on the experiences throughout the year that will be presented as part of Earth Week activities on campus.

## Field Day

The Field Day portion of the program will be an opportunity for students, residents, and farmers to engage in peer-to-peer learning in a real-world setting. The City of Riverside through its initiative Grow Riverside will help coordinate with farmers in the city and region to develop short one day learning experiences for other farmers, students, and residents. We will be able to visit orchards, packing houses, mushroom farms, poultry farms, and organic produce farms with a focus on Best Management Practices. Through the Grow Riverside conference there has been an inventory of local farms that we will draw on.

## Farmers Guild

Following the group, The Farmers Guild, guide called Guild Raising we will be able coordinate with the City of Riverside a convening of local farmers three times through the year. The Guild functions as a peer-to-peer networking space for farmers as well to share resources. We will work with the City to bring UC research and information to the guild as well as receive valuable feedback about what topics and research might be done. This will also be an opportunity to plan and coordinate topics for future Field Day's. Lastly, the undergraduates will be involved in the coordination and with the event itself to gain insight into professional agricultural careers. The Riverside-Corona Resource Conservation District has offered their facilities as the meetings space and the City is open to sponsoring the outreach portion.

## Grow Riverside

This is an annual conference that the City of Riverside has hosted for the past four years, it focuses on building a local food system. It brings panels and experts in business, agriculture, policy, health, and research. The conference has had about 400 attendees in the past years, but one demographic has been weak has been youth and young professional age group. This GFI grant will enable undergraduates to attend the Grow Riverside conference as well as support them in their submissions for poster and panel presentations.

## 4H Juntos Summer Academy

The 4H Juntos Summer Academy is a program of UC Cooperative Extension that they will be piloting next year. UC Cooperative Extension will be collaborating with UCR to provide mentoring to underserved Latino youth interested in agricultural disciplines and careers as well as to host a Summer Academy for a week of college readiness and exposure to agriculture research. The GFI grant would allow undergraduate students to be Program Leaders so that they can mentor the youth. They will also be able to plan and coordinate parts of the week to gain leadership and communication skills. They will be able to utilize the knowledge they have gained throughout the year from the Urban Agriculture R'Course, Field Day's, Farmers Guilds, and the Grow Riverside Conference.

## Key Accomplishments

### R'Garden

The R'Garden has secured dedicated and permanent funding and support from the campus beginning July 1<sup>st</sup>, 2017. This includes a full-time staff position, an operating budget, and a programming budget. These funds will be used as part of the matching funds for this grant proposal. The R'Garden started as a student lead initiative in April 2009 with a ¼ acre and has grown to 3 acres including an citrus grove, row crop area, community garden area, and a soon-to-be greenhouse. The Director of the R'Garden was one of UCOP's 30 Under 30 Food Awardees for the work done on sustainable agriculture and food justice in the Riverside area.

### R'Pantry

With the drastic numbers outlined above, UC Riverside started a campus pantry program in 2015 to provide emergency food aid to students. This program serves about 400 students on a weekly basis and is only open 2 days a week due to location restrictions. This coming year, they will be moving to a new location that does not have those restrictions and is

much larger. Since, January 2017, the R'Garden has been growing and harvesting produce to augment the canned and dry goods that are given out to the students. The R'Garden delivers once a week, due to the small storage and limited open hours. With the move, the R'Garden can increase the amount of produce delivered on a weekly basis and even increase the amount of deliveries. The GFI grant will enable the R'Garden to grow more produce more regularly thus increasing the amount of produce that we are able to provide the R'Pantry.

## California Food and Agriculture Enterprise (CAFE)

This is a campus based research group that is interested in interdisciplinary research on California's agriculture systems. As highlighted from their website: The California Agriculture and Food Enterprise (CAFÉ) will foster basic and translational research, facilitate interactions with external clientele and funding groups, and provide a conduit for dissemination of scientific information to the public. Through participation by Agricultural Experiment Station (AES) faculty and Cooperative Extension (CE) Specialists, CAFÉ will create a stronger linkage with the University of California Division of Agriculture and Natural Resources (UC ANR) as well as with other faculty, who work on issues relevant to agriculture (e.g., climate change, invasive species, economics of small farms, water use) and health and nutrition.

<http://cafe.ucr.edu/>

## Grow Riverside

This initiative has been integral in convening and coalescing the wide-ranging interest that the community has in fostering local agriculture and food systems. They have hosted four conferences with each one growing in size and influence in the region. They have had a steady focus on revitalizing the Greenbelt in particular and provides for a unique study in what a partnership between a land-grant university and a city can do to foster a local food system.

## Challenges

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### National Trends

Nationwide, farmers are typically over 60 years of age and the average age has been increasing over the past 30 years with the 2012 average age of 58.3 in the US. With fewer family-owned farms and even fewer youth going into farming, the U.S. is facing a crisis. We need to create a culture of self-subsistence and an active program training new farmers. Climate change will have effects on our agricultural practices and there is a dire need to learn to adapt to changing conditions thus sustainable agriculture will be a vital knowledge set for urban agriculture to thrive. This program will meet that challenge by equipping students with the sustainable growing techniques.

### Food Insecurity

As mentioned before, food access is a challenge that our campus and community faces. On campus, 62.5% of the students are food insecure according to USDA parameters. Off campus but within city limits there are four food deserts according to USDA's definition. UC Riverside is a land grant university that specializes in agricultural research solving the world's agricultural problems. This program begins to bring the focus on solving local agricultural issues. Lastly, this program aims to fulfill the demand for local produce that institutions are having trouble procure. While, 3 acres will not feed an entire campus, the aim is to educate students on practical agricultural and food system skills so that they can go beyond the 3 acres and support a growing local food economy.

### Sustainable Agriculture Education

Lastly, this type of focus on student involvement and sustainable agriculture education is a relatively new component to what UC Riverside is offering. Especially considering that UC Davis and UC Santa Cruz both have student farms that are 40 and 50 years old, whereas our program started only 5 years ago. This year the R'Garden will be moving from a pilot program to a fully funded and supported program of UC Riverside. Luckily, GFI recently funded UC Davis, UC Berkeley,

and UC Santa Cruz to develop sustainable agriculture education materials based on their collective knowledge to assist campuses like ours develop their programs. We look forward to working with them throughout the year, and for many years to come.

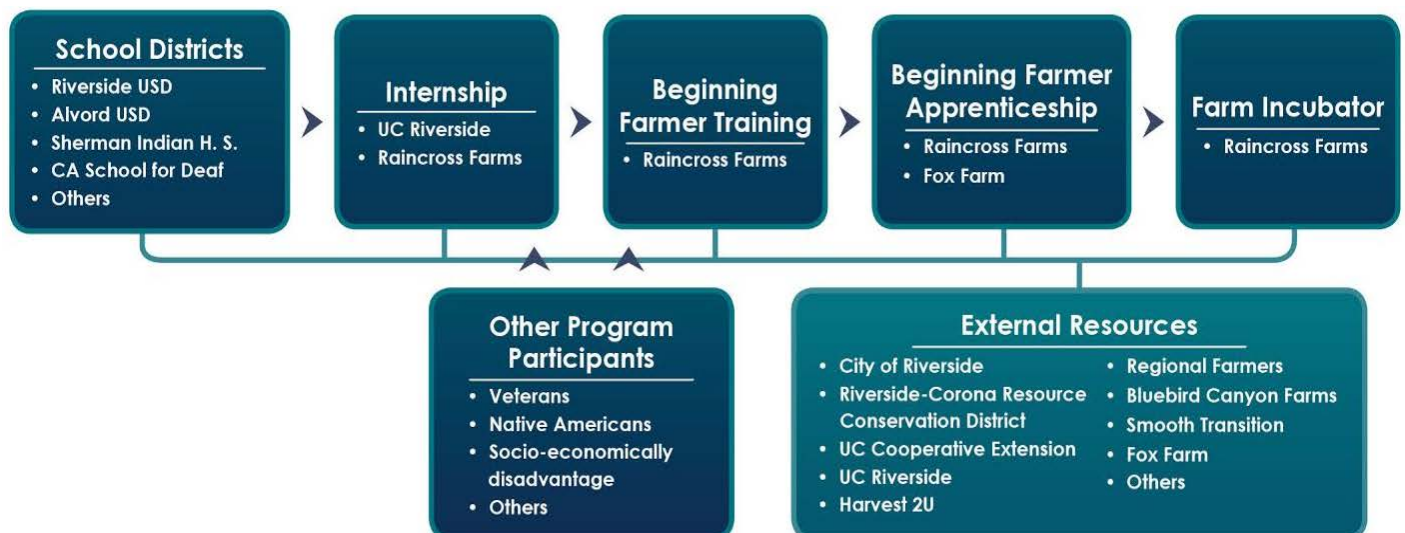
## Exportable Solution

With the partnership with Grow Riverside and the City of Riverside, this project will be an exportable solution to the entire region. The Grow Riverside conference in only its fourth year has had a great regional impact, inspiring Grow OC, Grow Orange, Grow Temecula conferences. One of the gaps that has emerged is this need for a sustainable agriculture training program for the region. With the GFI funds we will be able to bring together disparate components (available ag lands, food insecurity, land-grant university) to create a program that addresses a need for the local food system. The exportable solution here will be the training program that we develop. Collaborating with both the City of Riverside and UC Cooperative Extension we will be able to share this example with the entire Inland Southern California region.

## Post-Funding Vision

One of the main deliverables that the GFI grant will allow us to deliver is a full year of coursework for the Urban Agriculture R'Course. Once this is developed it will be the basis for subsequent years to come, where we can tweak it and refine it. This is important not only to the campus, but also to the community as this project is a piece of a larger movement in the region to localize the food system. Since Grow Riverside started in 2013 there has been an interest in developing a sustainable agriculture education pipeline. Riverside Unified School District is in the midst of developing AgTech Continuing Technical Education program. They were recently awarded a USDA grant to develop a food hub for local growers to be able to aggregate their produce to make it easier for medium sized institutional buyers to purchase from local farmers. This includes RUSD, AUSD, and the four local universities. The City of Riverside is also continuing its work with Grow Riverside in the policy and economic develop realm to make farming in the area viable. There are also a group of nonprofits in the area that are supporting the idea of a farm training programs within the city. A map of the road map was developed by the City of Riverside, Riverside Unified School District, UC Riverside, and a few nonprofit agencies. The figure below gives the post funding vision not only of this program, but of how this GFI funding can assist in one piece of a larger effort.

FIGURE 4: GROW RIVERSIDE - FARM EDUCATION & TRAINING PIPELINE



Through these educational and outreach programs associated with the various sites, UCR and the Riverside community residents will gain skills and opportunities to obtain, grow, and eat healthy and affordable foods, and to serve as leaders in the local food system. The Field Education Program will support emerging UCR farming apprentices to provide assistance to the community members who wish to implement new sustainable ag practices either commercially or as a home-based production systems. Using existing curriculum and workshop training programs (Santa Cruz, Berkeley, and Davis GFI Grant), we can immediately offer the vehicle for knowledge transfer to a broad age group and demographic and most importantly at the same time develop curriculum that are adapted to UCR's local needs.

Once the UCR R'Garden/Schools collaborative infrastructure has matured during the project, this program will be easily incorporated into UCR and the local community food systems. We will also seek support from several Foundations or granting agencies including USDA, NIFA, and CDFA.



## Timeline & Milestones

ID	Milestone / Deliverable	Targeted Completion Date	% Complete	Resource Responsible	Comments
1	Fall Urban Ag R'Course	Dec 2017	7%	UCR	15 Students
2	1 <sup>st</sup> Farmer Guild Meeting	Oct 2017	14%	UCR & City of Riverside	10 Farmers
3	1 <sup>st</sup> Farm Field Day	Nov 2017	21%	UCR, City, UCCE	20 Participants
3	2 <sup>nd</sup> Farm Field Day	Dec 2017	28%	UCR, City, UCCE	20 Participants
2	2 <sup>nd</sup> Farm Guild Meeting	Jan 2018	35%	UCR & City of Riverside	15 Farmers
1	Winter Urban Ag R'Course	Jan 2018	42%	UCR	15 Students
4	Eval. & Planning Retreat	Jan 2018	49%	UCR	16 Participants
3	3 <sup>rd</sup> Farm Field Day	Feb 2018	56%	UCR, City, UCCE	20 Participants
5	Grow Riverside Conference	Mar 2018	64%	UCR & City of Riverside	15 Students
1	Spring Urban Ag R'Course	Apr 2018	71%	UCR	15 Students
2	3 <sup>rd</sup> Farmers Guild Meeting	Apr 2018	78%	UCR & City of Riverside	25 Farmers
3	4 <sup>th</sup> Farm Field Day	May 2018	85%	UCR, City, UCCE	20 Participants
6	Screen GFI Video	May 2018	92%	UCR	150 Attendees
7	4H Juntos Summer Academy	Jun 2018	100%	UCCE & UCR	30 Youth

## Stakeholders/Constituencies

Stakeholders	Project Impact	Engagement Opportunities
City of Riverside	This program will help bolster the engagement of youth in Grow Riverside, which has been a missing link	Grow Riverside Conference host about 400 attendees' from across the region. This conference has been the catalyst for Grow OC, Grow Temecula, and other regional efforts.
UC Cooperative Extension	This program will provide trained undergraduate program leaders, as well as host the Summer Academy	The Riverside office is piloting the 4H Juntos program that has received White House recognition in the east coast. This is the first time it is being implemented in California and UC Riverside has the opportunity in assisting the program.
Riverside Food Systems Alliance	This program will assist with the policy goals of increasing local agriculture though policy and training	The RFSA, a nonprofit, worked for 9 months with stakeholders from across the regional food system, bringing farmers, young people, government agencies, nonprofits, and faculty to create the Food & Agriculture Policy Action Plan. This training program fits in with their Policy Action Plan.

Funding and Resources

Priority Level	Expense Category (e.g., Event, Travel, Meetings, Videos)	Purpose / Use of Funds	Matching Source/ Funds	Amount Requested
1		<b>R'Garden Field Education Program</b>		
1	Event	Undergraduate Education R'Course Materials	\$2,000	\$6,000
3	Materials	In-field Education Materials (\$40/student, 15 students)	\$600	\$1,600
1	Meeting	Honorarium for Guest Speakers (6)	\$500	\$1,600
2	Event	Grow Riverside Registration (\$50/per student, 15 students)	\$675	\$750
3	Materials	Grow Riverside Student Presentation Materials	\$100	\$300
1	Videos	Stipend for (2) students to produce a short video	\$1,000	\$4,000
2	Event	Event to screen video to the campus & community	\$150	\$300
3	Document	Field Education Program Swag	\$200	\$1,000
		<b>Mid-Year Evaluation &amp; Planning Retreat</b>		
2		UCR Retreat Center Rental	\$300	\$500
2		Food for up to 16 for 3 Days	\$250	\$250
2		Multi-Passenger Van Rental	\$150	\$150
		<b>Subtotal</b>	<b>\$5,925</b>	<b>\$16,450</b>
1		<b>On-Farm Field Day's – 4 Total</b>		
2	Travel	Multi-Passenger Van Rental (4x)	\$0	\$480
1	Meeting	Meals and meeting materials (4x \$25/person, 20 people)	\$200	\$500
		<b>Subtotal</b>	<b>\$200</b>	<b>\$980</b>
2		<b>4H Juntos – Summer Academy – 1 Week</b>		
1	Meetings	Educational & Workshop Materials for 30 students	\$2,000	\$1,500
2	Travel	Multi-Passenger Van Rental	\$0	\$500
1		(2) Undergraduate stipends for being Program Leaders	\$352	\$400
		<b>Subtotal</b>	<b>\$2,352</b>	<b>\$2,400</b>
2		<b>Farmers Guild Meetings</b>		
2	Meetings	Post it notes, markers, poster boards	\$100	\$200
2	Meetings	Coffee, tea, snacks, etc.	\$100	\$200
2	Event	Riverside-Corona Resource Conservation District Room Rental	In-kind	\$0
		<b>Subtotal</b>	<b>\$200</b>	<b>\$400</b>
		<b>Totals</b>	<b>\$8,677</b>	<b>\$20,230</b>