The nexus of agricultural and urban trade-offs: Enhancing interdisciplinary education and research to create emerging opportunities in urban agriculture

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CAP LTER All Scientists Meeting

Background

- The Phoenix, Arizona metropolitan area has been experiencing the loss of agricultural lands due to urban expansion for decades.
- In Maricopa County alone, urban areas expanded from 3% of the total area in 1955 to 20% in 2001.
- Given the climate of the area is semi-arid, with a mean temperature of 15-30°C and average annual precipitation of 190 mm, the region is particularly vulnerable to climate risks.
- The Phoenix area supports over 4 million residents and is a major agricultural food and fiber exporter; therefore, disruptions and decreases to its productivity could have impacts beyond Phoenix and Arizona.
- We are working to enhance Arizona State University’s (ASU) ability to perform agricultural research and education through the topic of trade-offs and opportunities between urban and agricultural lands management.

Project Approach

Capacity Building

Research

Engagement

Education

Tiered Mentoring

Expected Outcomes

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Actions</th>
<th>Conditions</th>
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<tbody>
<tr>
<td>Emerging opportunities in addressing competing demands from urban and agricultural uses</td>
<td>ASU students choose careers in agriculture</td>
<td>Strengthened long-term connection between ASU, ALARC, and MCC</td>
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<td>Increased awareness of ASU faculty and students of connection to agriculture</td>
<td>ASU students from underrepresented groups participating in agricultural research and classes</td>
<td>Improved pathway for MCC students to pursue sustainable agriculture educations at ASU</td>
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<td>Increased student and faculty interest in agriculture</td>
<td>MCC students choose to pursue advanced degree at ASU</td>
<td>Improved long-term ability of ASU to provide agricultural education and research opportunities</td>
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<td>New network connections between urban and agricultural stakeholders in the Phoenix area</td>
<td>Faculty write papers or grant proposals with agricultural focus</td>
<td>Increased connectivity between urban and agricultural stakeholders in Phoenix area</td>
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<td>Evaluation of co-benefits of recycled fertilizer use in arid environments</td>
<td>New research collaborations occur between ASU, MCC, and ALARC</td>
<td>More opportunities for agricultural productivity in and around urban areas</td>
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<td>Evaluation of benefits and risks of urban resource recovery in agricultural applications</td>
<td>New agricultural-related courses at ASU</td>
<td>New collaborations between ASU and local Tribes</td>
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<td>Increased USD funding at ASU</td>
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<td>New shared projects developed between urban and agricultural stakeholders</td>
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Current Status

- Planning kick-off event for August 2019
- Preparing undergraduate experiential learning course to start in Spring of 2020
- Looking for student project partners!
- Student projects will be designed in spring semester, and students can then do a paid internship with the USDA ALARC to complete their project.
- Two new M.S. students starting January 2019 on projects co-advised by USDA ALARC
- Forming initial Stakeholder Advisory Group
- Looking for additional members!

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