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
• There are serious concerns in the Phoenix area as to whether or not water supplies will be sufficient to support the growing urban population, let alone the extant agricultural production in the area
• 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
Education
Engagement

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 education at ASU</td>
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<tr>
<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 USDA funding at ASU</td>
<td>New shared projects developed between urban and agricultural stakeholders</td>
<td>New collaborations between ASU and local Tribes</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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