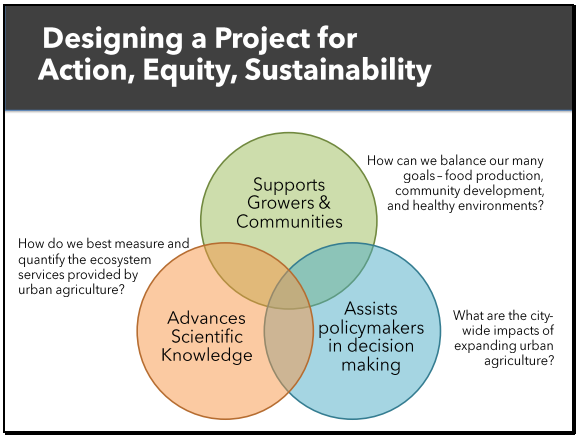
Hello! My name is Jennifer and I use she/her/hers pronouns. I'm a 2nd year PhD student at the University of Minnesota in the Land and Atmospheric Science Program. I conduct community-based urban agriculture research, and today I want to share with you the project design, interdisciplinary collaboration, and engagement models we use to conduct robust research with urban growers and communities.

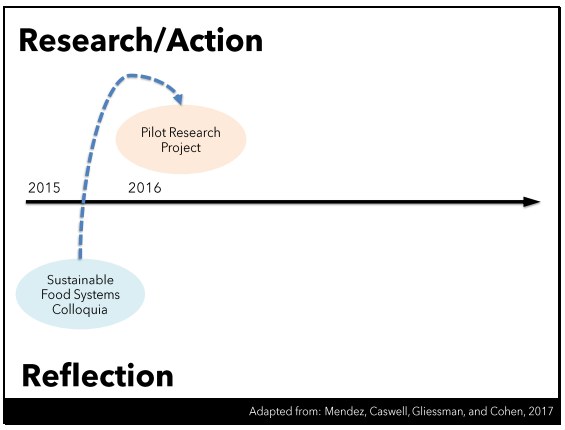
Before I go any farther, I want to briefly discuss what urban agriculture means for this project. While it's broadest definition, from the FAO, could include any way of growing food or raising livestock in the city, our project focuses on in-soil production in areas like vacant lots, parks, and private properties. Even so, urban agriculture in Minneapolis and St. Paul is incredibly diverse, and communities and policymakers are considering how different organizations practice UA differently based on the place, activities, scale, and growing systems used.



With a diversity of neighborhoods and missions, the question becomes – how do you find questions and design a project that meets the needs of growers, policymakers, and researchers so that any outcomes, policies, or programs that come out of the research are grounded in equity, sustainability, and action.

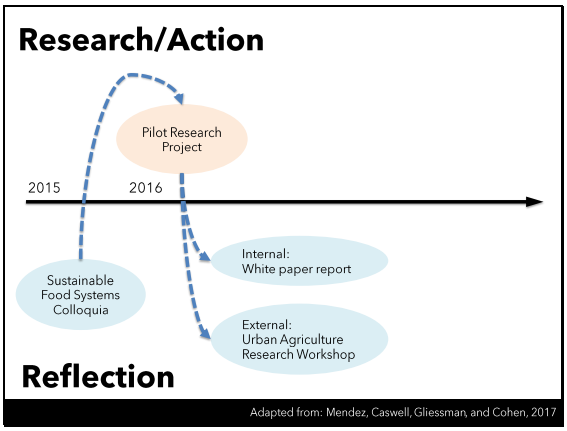
As researchers, we want to know how do we best measure and quantify the holistic impacts – both positive and negative - of urban agriculture? Growers and community partners want to know how to balance their multifunctional goals in the urban agriculture practices. And policymakers want to understand the city-wide impacts of expanding urban agriculture.

We seek to work at this nexus using an iterative process that uses cycles of reflection, research, and action in order to build relationships, create relevant projects that lead to applicable information, and honor academic, grower and community knowledge.



This process for us started just over 3 years ago. The University of Minnesota hosted a colloquium on sustainable food systems that brought together researchers, policymakers, growers, organizers, and activists. Out of that meeting, our academic and community partners applied for UMN seed funding to do a pilot project in 2016.

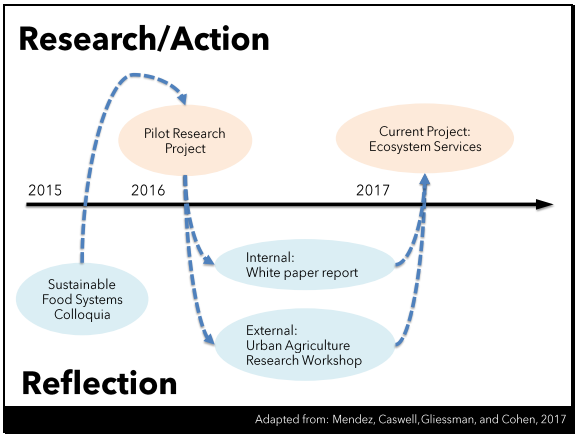
The pilot project sought to start understanding the diversity of practices used by the community partners and study that in comparison to vacant lots/turf grass. What we found was that practices varied depending on the organization's mission and land tenure. Growing Lots in the upper left is a for-profit CSA farm that has built it's growing spaces on top of parking lots, using strategies like succession planting and high tunnels to optimize production. The Urban Farm and Garden Alliance is located in a historically black neighborhood that was intentionally divided during the construction of a major freeway; their focus is on racial reconciliation through community gardens. Waite House and Frogtown Farm are both non-profits, but Waite House focuses on increasing food sovereignty and works across several vacant lots in their largely Native and immigrant neighborhood while Frogtown focuses on education and has a single, 8 acre farm in a neighborhood that's largely refugees/immigrants. Both use a mix of perennials and annuals for both food production and to promote biodiversity, but Frogtown also uses cover crops because they have the longest guaranteed land tenure.



After this initial study, the academic and community partners reflected on the process of conducting the study and on the results, ultimately creating a white paper report internally and holding a workshop that was open to anyone in the UA community in MSP. Two major things that guided the next phase of research and action came out of this reflection

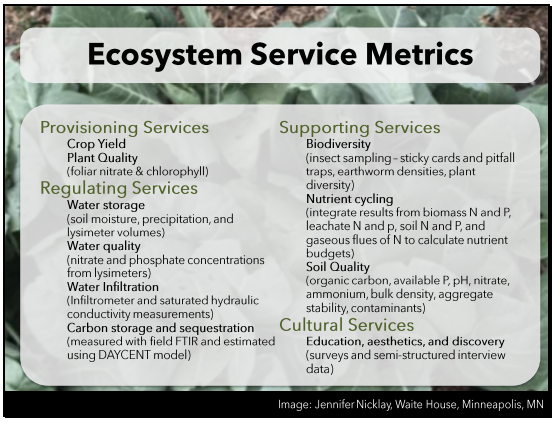
First, after the pilot study, the community partners wanted more connection and integration with the researchers – they wanted someone on the research team to intimately understand their farm and practices rather than just having someone come in and collect samples or measurements. They also needed labor, since they're all doing a lot with limited staff and funding. Thus, we decided for the next iteration of research, our undergraduate assistants would each spend one day a week with community partners. On that day, the undergrads – known as the Collard Crew because we grow collards for this project - worked for the community partners. That meant they might take down trees, help plant new beds, or even help build a brand new growing space on a recently acquired vacant lot.

Thus, this past summer, our undergraduates spent over 400 hours with our community partners. Which represented a $5000 investment for us, in addition to the stipend we pay each community partner. Ultimately, though, this is an investment in building relationships. It was remarkably effective at integrating research and community.

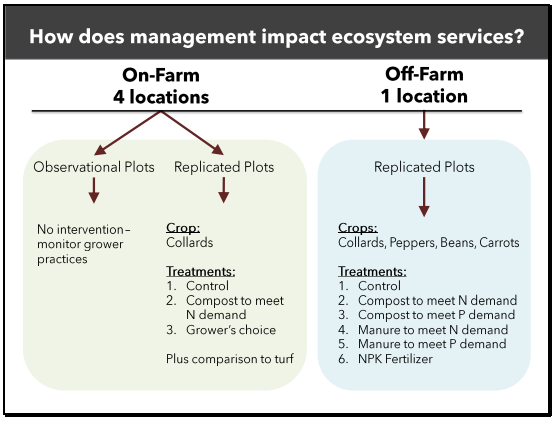


The second thing that came out of the reflection phase was the plan for our current project. With the diversity of practices and goals we found in the preliminary project, we all wanted to understand how the impacts of UA would change based on the practices used. So, for the second phase of research – which is what we're currently conducting

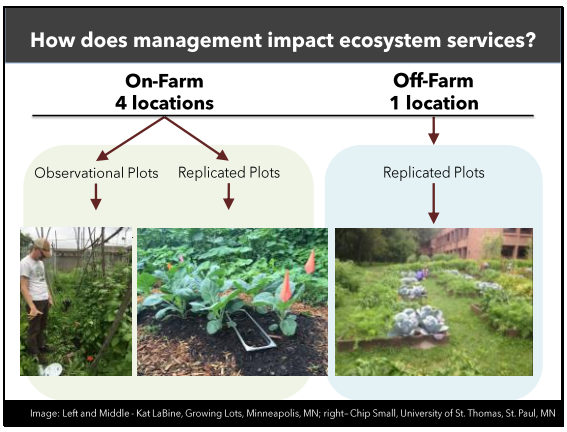
Our objectives are to measure and quantify ecosystem service provision by UA management practices, evaluate the current and potential UA land base in MSP, and continue developing long term collaborative networks



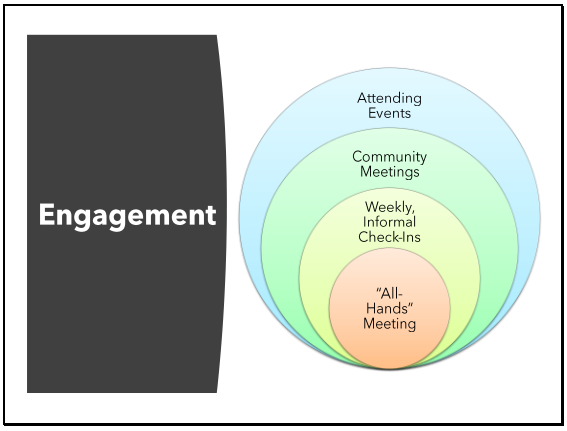
So what ecosystem services are we looking at? Well, a lot. We want a broad, holistic understanding of how farming and gardening in these two cities is interacting with urban ecosystems. This is where it becomes important that we have an interdisciplinary team. Dr. Nic Jelinski, the PI, at the University of Minnesota focuses on soil quality, Dr. Mary Rogers, also at UMN, focuses on provisioning services and biodiversity, Dr. Chip Small at University of St. Thomas in St. Paul focuses on all things water – storage, quality, and infiltration – and Dr. Valentine Cadieux at Hamline University in St. Paul focuses on cultural services. Synchronizing our efforts means we can take on this ambitious questions



We also explore these ecosystem services through both on and off-farm research. Dr. Jelinski is leading the on-farm work and Dr. Small leading the off-farm work (supported by an NSF career grant). This is important because on-farm research is limited by space constraints, so we're unable to fully explore different crop types and a variety of treatments. While we're doing the same measurements, Dr. Small is also able to do many of them more frequently, which results in more detailed datasets.



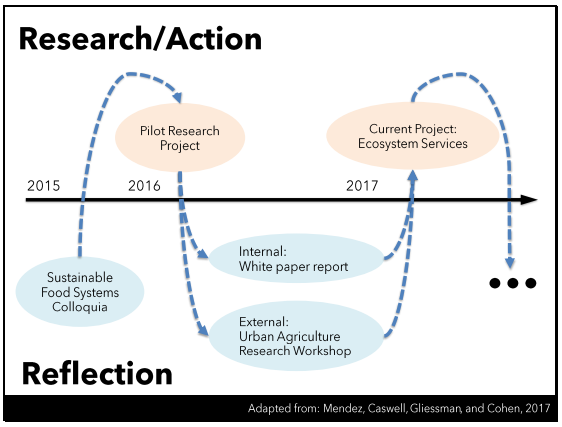
However, in our on-farm work, we're able to investigate grower practices in observation plots as well as allow growers to choose a treatment that they want to investigate. For example, since this plot at growing lots was mulched with comfrey because they have access to so much of it and often use it this way. This is just one way we engage our community partners in the research process



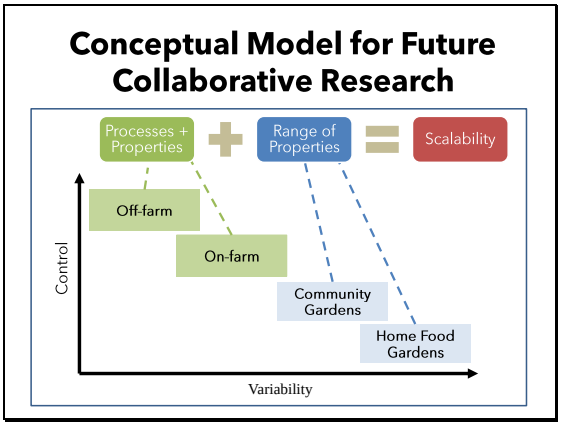
But that's really integrated throughout our whole project. We have a yearly 'all hands meeting' with all partners and collaborators where we can work through an challenges or obstacles, come to consensus about methods decisions, and analyze data collaboratively. During the growing season, I check in with growers weekly to find out how their season is going more broadly and also work through any changes that need to be made to our sampling protocols or measurements. The Collard Crew – myself, the researcher (Kat LaBine), and the undergraduates go to community meetings, taking on volunteer roles and leadership opportunities in many cases, and we also attend events and talk with folks who pass by our research plots while we're working. These regular, repeated interactions – in ways that are both related and not related to the project – are really, really important.

It allows us to honor grower and community knowledge in all aspects of our work – from question generation, to designing methods, to analyzing data. A really great example of this is our crop choice – collards. When I was first contacting community partners in winter 2018, planning for our first season, I checked in to see how they felt about kale, which is what had been used in the preliminary project and grant proposal. No one, though, was enthused about kale. Instead, they suggested collards, which was more popular and culturally relevant in their neighborhoods. At the all-hands meeting, we came to a consensus about this change, and then we were able to participate in a lot of community events as a result. For example, UFGA hosts an annual greens cookoff every year, and contestants were provided with our greens. Myself and Kat took on leadership roles in planning, one of our undergraduates volunteered, and Nic attended it as well.

This engagement model also allows us to take intermediary actions, so that the outcomes from this project aren't just the data and conclusions we determine 3 years from now. For example, based on our informal conversations, we were able to work with Waite House to apply for funding to plant this perennial farm site. Not only does it fulfill their goal to grow food in culturally relevant ways – Native elders are helping manage this site – but it is also represents their advocacy work. This is a Minneapolis owned vacant lot, and it is against regulations to plant perennials. Through our partnership, Waite House hopes to change this policy and remove barriers to urban agriculture for the wider city.



As I close, I want to note that this is an ongoing process. We have worked hard to build relationships, grow trust and respect, and create partnerships, and that will not end with this project. Instead, it will lead to the next cycle – the next iteration.



Already, we're thinking to the future. Through our partners and our own experiences, we know that there are innumerable community and home gardens in Minneapolis and St. Paul, and we want to figure out how to capture the impacts they are having. We're considering this model for that future work – where our replicated on- and off-farm experiments can tell us about how metrics of ecosystem services work to construct ecosystem processes. Then, in community gardens and home gardens, where we can't have replication, where we can't dictate crops, and where we might only have access to collect samples one or two times, we can take those measurements of ecosystem service metrics and draw conclusions based on those processes we're elucidating in our current work. Then, we want to scale that to Minneapolis and St. Paul city scales, helping ourselves, growers, communities, and policymakers understand the potential impacts of urban agriculture at this larger scale.

With that, I want to acknowledge our community and academic partners, our undergraduate Collard Crew from summer 2018, my advisors, and our funders.