

# Agrivoltaics as a Pathway for Economic and Environmental Resilience



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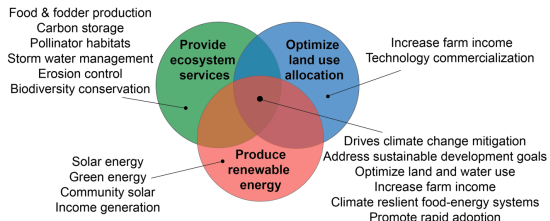
**Students:** Caroline Merheb, Pralad Phuyal, Chong Seok Choi, Natalie Thomas, Cara Rydzewski, Sofia Taboada

**Collaborators:** Joshua Caplan, Nicholas Davatzes

## Agrivoltaics

Agrivoltaics, which combines solar with agriculture or native habitats, is more than the sum of its parts. It can provide enhanced performance, stabilize the economic model for landowners that preserves the landscape and communities and culture on it, as well as makes the environment more resilient.

Co-benefits are specific to the application, the community, and the environment. Success requires collaboration with communities and stakeholders and data to tune best practice.



## Agrivoltaics Research @ TU

Leveraging our ongoing **research program**, (funded by NSF and DoE), we operate a problem-focused learning community focused on agrivoltaic research, education, and outreach.

## Research

Over the past decade, we studied the co-location of solar energy with crops/biofuels, grazing and/or pollinator-friendly native plants at multiple sites around the world (Southwestern US, MN, CO, PA, India, and Indonesia) and provided important data on land/water footprints, cost comparisons, low-impact site preparation techniques, soil quality impacts, crop suitability, and economic analyses.



## Research Collaborations

Field campaigns and research internships establish fruitful collaborations between multiple universities, National Labs, solar developers, and conservation organizations (including international).



## Temple's Own Agrivoltaic Test Site

Opportunity for data collection, model testing, industry cooperation, technology demonstrations, and community engagement regarding agrivoltaics.



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## TU approach to Agrivoltaics (since 2014)

### Research

Foundational data from multiple field sites  
**10** publications in peer-reviewed journals  
**25** research and outreach presentations



### Education

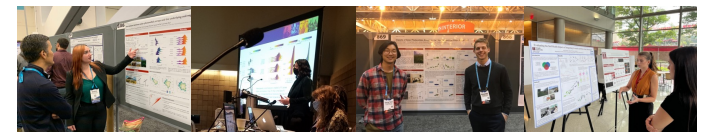
**15** total students (9 B.S., 2 M.S., 3 PhD)  
**6** Current students (2 B.S., 1 M.S., 3 PhD)  
**8** female  
**4** first-generation  
**3** international  
**6** majors/programs

→ **4** transitions into PhD programs

→ **12** conference presentations  
**8** other research presentations

→ **5** journal publications  
**4** in review/in preparation

→ **5** Competitive federal internships  
**4** internal fellowships/awards



## Planned Activities (2024 -2026)

- Explore the potential of agrivoltaics in **urban settings** including research on community needs and perceptions
- Collaborating with **local high schools**: integrate small photovoltaic structures with their preexisting, student-managed, urban garden. (proposal in review)
- STEM teacher (**Philadelphia School Districts**) training workshops based on sensors.
- Collaborate with a **local solar developer** (Solar States) and **horticultural societies**, to organize science-outreach activities related to agrivoltaics.