Agrivoltaics: From Farm Fields to Rooftops

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Extension Mentors: Ron Meyer, Agronomist, CSU Extension, RF.Meyer@colostate.edu 719-346-5571 and Todd Ballard, Agronomist, CSU Extension, Todd.Ballard@colostate.edu 970-474-3479

Region: Front Range and Eastern Plains. Field research at the CSU Foothills Campus west of Fort Collins.

Goals, Scope, and Objectives: Co-locating the cultivation of food crops and solar panels allows farmers to garner benefits from two synergistic systems. Taking it further for urban area by putting it on a rooftop is called rooftop agrivoltaics. See a TEDx talk on the concept by the faculty mentor: https://youtu.be/pobj34HuHO8

Agrivoltaic growing systems are still in their infancy and require further investigation to evaluate the feasibility of growers producing both crops and energy in the same space. One of the primary benefits of these systems is that solar panels shade (or partially shade) crops so that there is reduced temperature variability in the production system as compared to typical field conditions. Solar panel performance also improves because of the evaporative cooling that the plants provide.

Therefore, the intern on this project would assist a graduate student in screening horticultural crops for use in rooftop agrivoltaic systems. Additionally, the Extension aspect will include a project that describes the subject, identifies applications, addresses costs and benefits, and reports current data.

Project Identified: In summer of 2020, HLA graduate student Thomas Hickey did a pilot study on rooftop agrivoltaics. This summer he will expand that research. This intern will work with him in the field as well as work on an Extension project that describes the subject, identifies applications, addresses costs and benefits, and reports current data.

Stakeholder Groups: Extension, agriculture, horticulture, green roof, and solar industries. This intern will also interact with a faculty member in the Dept. of Mechanical Engineering since we are working with solar panels.

Learning Outcomes/Professional Development: The intern will gain hands-on experience in the agricultural and horticultural aspects of agrivoltaics. Additionally, the intern will interact with professionals and gain experience in the areas of Extension, agriculture, horticulture, green roofs, and solar industries. Therefore, the intern will not only learn about the scientific aspects of these areas but also network with professionals.

The intern will travel to the Extension mentor locations. Extension activities will include learning from research and field days. The intern will also learn about Extension information dissemination, which includes news releases, social media posts, field days, websites, newsletters, and crop clinics.

Mentor Style: To begin with, the intern would be trained on what the summer duties will entail including a tour of the location of the field research. Then, we would do weekly check in conversations over the summer, including on data collection and progress. We approach our work as a collaboration and resource sharing. We communicate frequently but most often work independently.

Travel Funds: Funds will be provided by the faculty mentor for travel related to Extension activities.