

Internship funded by the
Spalding Family

URBAN AGRICULTURE AND POLLINATOR ACTIVITY: LARIMER COUNTY

Piper Levendofsky
Natural Resources
Management

Jennifer Boussetol
Izzy Rodelius
Armando Villa-Ignacio
Allisa Zurbuchen
The Boussetol Lab

INTERNSHIP INTRODUCTION

As urban populations grow, sustainable solutions like **urban agriculture** (the practice of growing food in urban areas) and **agrivoltaics** (simultaneously using land for agriculture and solar energy) are emerging as solutions to urban food insecurity and declining pollinator activity in densely populated areas. Over 75% of plants worldwide depend on pollination for reproduction (Ritchie 2021), which means protecting and promoting native pollinator populations is crucial to promote food security in urban areas.

I joined a team of researchers and students that examines how green roofs, agrivoltaics, and urban agriculture can serve the Front Range of Colorado. This group aims to utilize native plants, the power of solar energy, and specialized microclimates to advance the world of urban agriculture.

GOALS FOR THE SUMMER

- Contribute to research furthering knowledge about rooftop agrivoltaics and green roof agriculture.
- Conduct community outreach to improve understanding of native pollinators in Colorado.
- Explore possible careers within Horticulture, Extension, and Natural Resources, as well as graduate school.

HOW DOES THIS APPLY TO MY EDUCATION?

Gaining first-hand experience working with pollinators, applying my previous knowledge of native plants, and learning about urban agriculture operations have equipped me with skills applicable to numerous careers within natural resources. Carrying this experience with me into my final year of undergraduate studies will prepare me with a deeper understanding of this industry in Colorado.

PROJECTS OF THE SUMMER

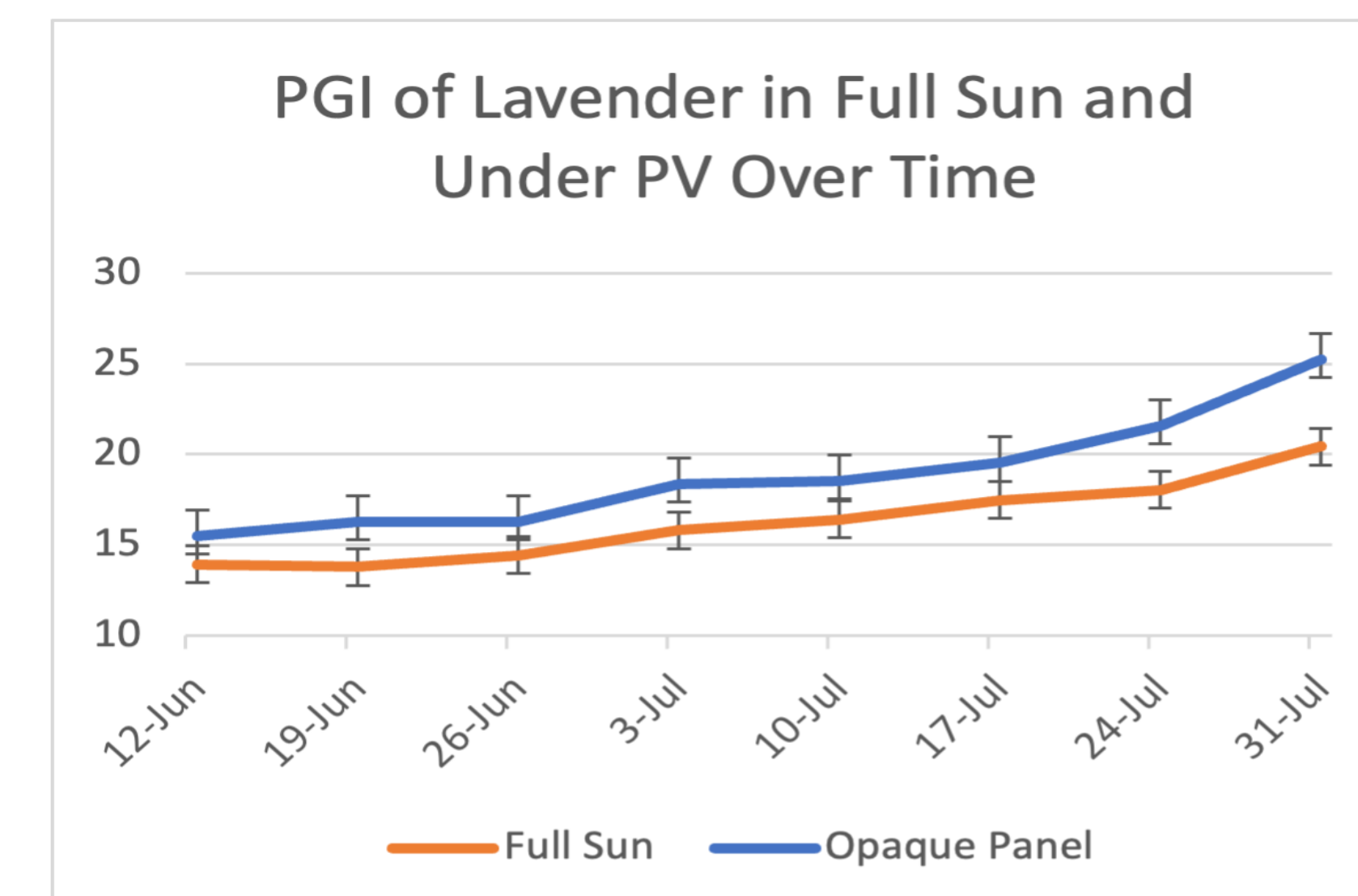
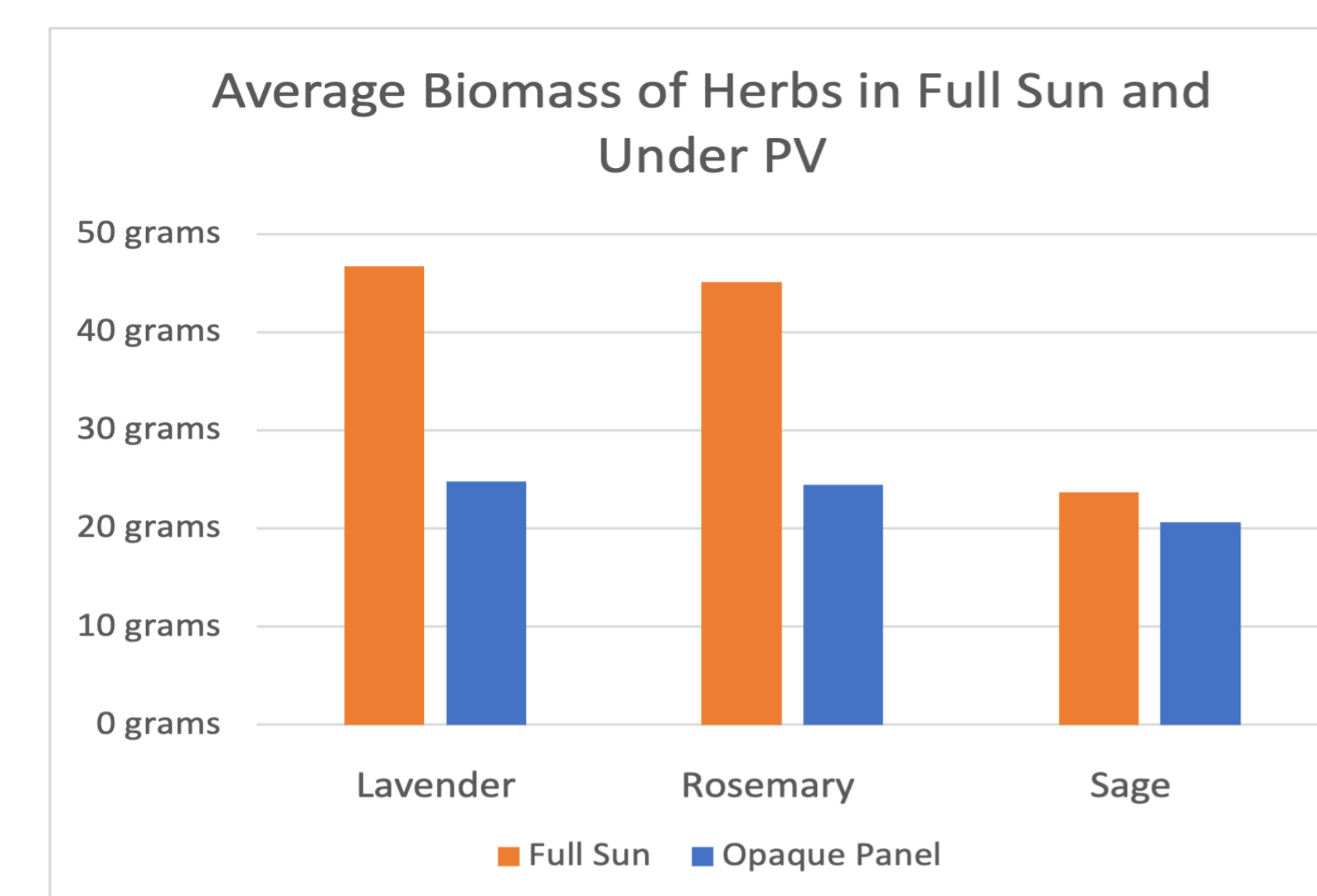


Herbs and Agrivoltaics:

This pilot study was conducted on three herbs: lavender, rosemary, and sage. They were planted at the CSU Foothills Campus underneath photovoltaic panels and in full sun to assess their growth patterns in an agrivoltaic setting. We found that biomass was larger for herbs grown in full sun; however, the average plant growth was greater underneath photovoltaic panels.

Raspberries and Agrivoltaics:

This research, conducted at CSU Spur and the CSU Foothills Campus, investigates the growth of raspberries in a rooftop agrivoltaic system in comparison to full sun on green roofs.



Pollinator Activity and Crop Yield:

Three sisters crops were grown on the green roof of CSU's Nutrien building and at ground level nearby. Native American maize, beans, squash, and sunchokes grow surrounded by wildflowers to examine how the presence of wildflowers influences crop yield on green roofs. These crops were planted without wildflowers at CSU Foothills Campus as a control.



MAIN TAKEAWAYS

Throughout this internship, I have learned numerous invaluable skills that I will be able to apply to the rest of my studies at CSU, as well as my future career. A few of these skills and takeaways include:

- Community outreach and science communication skills
- The importance of innovative ideas in a rapidly changing environment
- Gaining deeper connections with professionals within the Front Range
- Research and data collection skills
- What a future career in extension could look like
- Identification skills of native bees and native wildflowers



NEXT STEPS

Going forward, the data collected from this summer will be analyzed by researchers and used in new publications, continuing to evolve the world of urban agriculture. I hope to continue outreach efforts and educate communities about the importance of native pollinators and their role in our ecosystems, as well as explore further education in this topic.