COLORADO STATE UNIVERSITY
EXTENSION

# ROOFTOP AGRICULTURE
# CSU SPUR, DENVER

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**Mentor:** Dan Goldhame, CSU Extension

## PROJECT INTRODUCTION

Rooftop agriculture is an up-in-coming solution to increasing green spaces in our ever-expanding urban world. Green roofs can have several environmental benefits such as carbon sequestration, increasing habitat space, and decreasing the urban heat island effect. Carbon sequestration aids in storing carbon in plants and soil, as opposed to carbon being released into the atmosphere. Habitat space, created by the vegetation, is significantly important for pollinators and native organisms effected by urbanization. The urban heat island effect happens when materials in urban areas, like cement, cause the climate to be hotter, because more heat is being absorbed. Along with environmental benefits, this internship investigated how rooftop gardens can assist in creating nutritious food accessibility and agricultural education accessibility.

Ultimately, our research investigates how differing plants preform under differing conditions. For example, we are curious whether plants on a rooftop perform better if slightly shaded or in full sun. Through our research, we will be able to recommend differing plants for differing rooftop conditions; the more that is known about rooftop gardens, hopefully, the more people will feel confident in implementing them.

## INTERNSHIP GOALS

- Understand fundamentals of rooftop gardening
    - Construction
    - Maintenance
    - Data Collection
- Understand career paths in field
- Connect with CSU Extension for community development opportunities

## WHAT YOU DID

***Planted***

At the CSU Spur campus, we planted research and community gardens at the Terra building.

***Irrigation***

We worked with different irrigation systems, primarily installing, removing, and maintaining drip irrigation.

***Data Collection***

Every week, we would measure the size of our plants in the pollinator and salsa gardens. I would measure the medicinal garden biweekly. To measure, I used a ruler to determine two widths of the plant and the tallest point of a plant. In some cases, we would also count the number of flowers a plant produced.
This allowed us to quantify the success of the plants.

***Harvested***

Every week, we harvested whatever was ready. We recorded the fresh weight of what was collected. Afterwards, we donated all produce to the GrowHaus, a local non-profit whose strives for food justice through food education and access.

***Public Outreach***

At Spur, we worked closely with the education team to talk with tours about our research, aspiring to inform and inspire about others about careers in agriculture. Along with tours, we put together different educational activities that visitors can engage with.

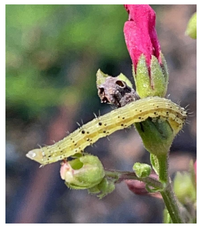
***Development Opportunities***

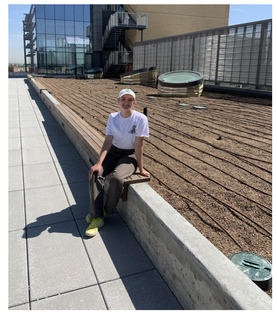
During our internship, we were able to coordinate with:

- GrowHaus
- CSU Spur
- Jack's Solar Garden
- Botanic Gardens
- CSU Extension
- Denver Mile High Green Roof Symposium
- Fucus Points
- Big Green
- CSU Nutrien Rooftop Research

## WHAT YOU LEARNED

- Connectedness of career fields
    - Irrigation
    - Construction
    - Engineering
    - Community groups
    - Education
- Identification of plant species, plant pathogens, and beneficial and pest arthropods.
- Methods of agriculture field data collection and experimental design
- Career application





## HOW DOES THIS APPLY TO YOUR EDUCATION

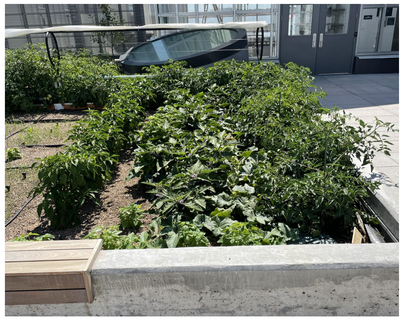
Green roofs are an up-in-coming field in agriculture. I was able to learn about the research, practices, and connections within this career field. Not only do I now understand this field now, but also those that are related.

Salsa Garden

Medicinal Herb Garden

Sown Meadow

Pollinator Garden



Vegetable Garden