

POLLINATORS ON GREEN ROOFS LARIMER COUNTY

PROJECT INTRODUCTION

The Nutrien Agriculture Sciences Building green roof has been used for pollinator garden research in the past. This summer we expanded on this research by adding in crop plots in between the wildflower gardens. We study how increased pollinator interaction can increase crop yield.



Green roofs in urban areas provide many benefits like stormwater runoff reduction, natural insulation, increased biodiversity, ect. With this research we hope to provide evidence that growing crops on green roofs is a plausible way to improve food security and provide fresh produce in cities.

We have planted the “three sisters” crops, corn, beans, and squash, to evaluate and compare to crops on grade level.

INTERNSHIP GOALS

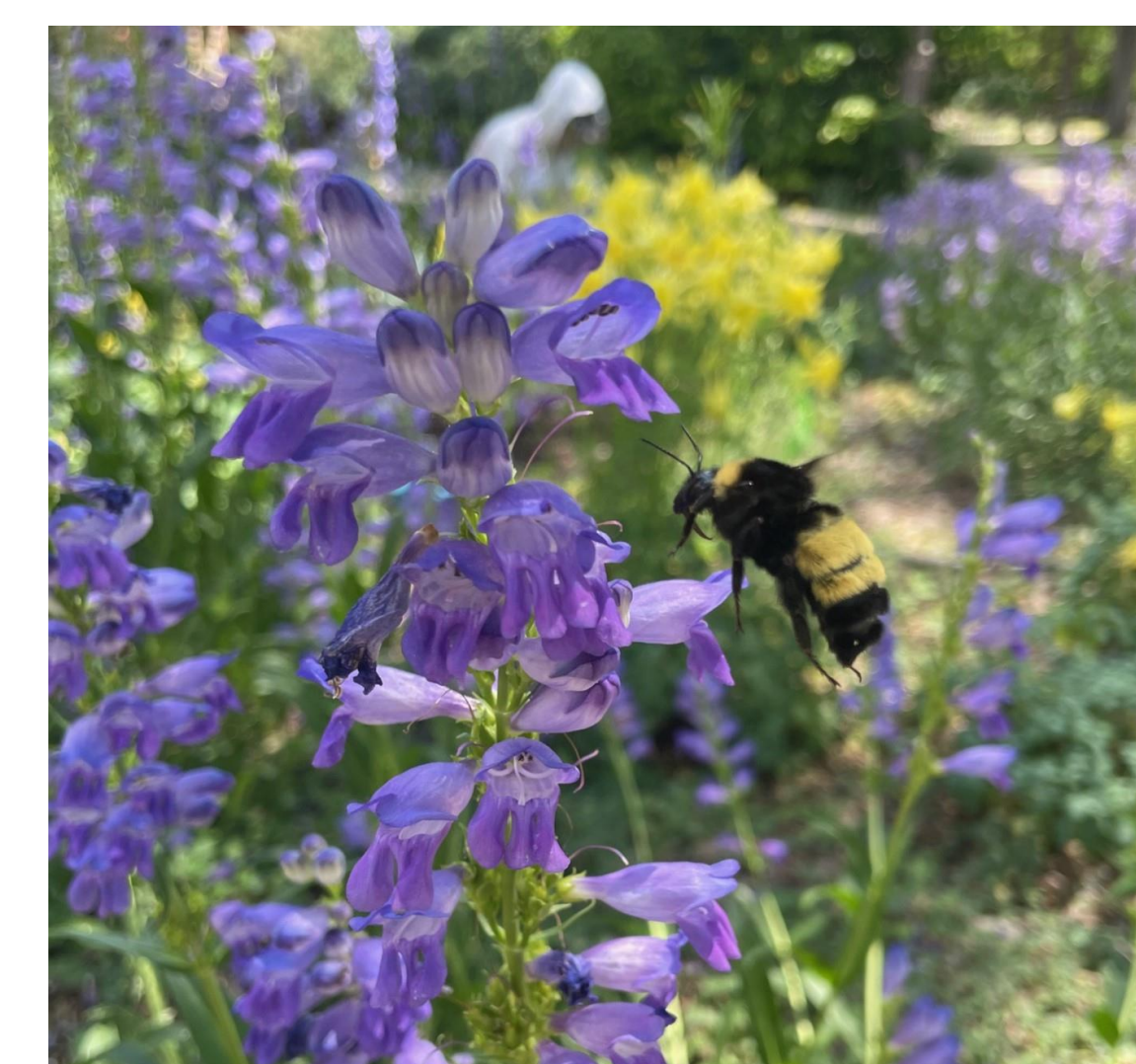
- Learn about different pollinators and how they pollinate.
- Take care of the major maintenance of the green roof.
- Record, analyze, and compare flower and fruit count from different sites.
- Maintain a visually appealing garden on ground and roof sites.
- Work with Extension to participate in workshops and lectures within the community to that relate to horticulture and pollinators.



WHAT YOU DID

Pollinator Observations:

Once a week we would follow Lisa Mason’s pollinator observation protocol to evaluate how many pollinators were interacting with the crops and the native flowers.



flower was done blooming, we would immediately dead head.

Pest Maintenance:

Aphids were a major pest we had to deal with. Once a week we would apply a horticultural soap to combat these pests. The flowers and seed pods were their favorite parts of the plants, once the

Data Collection:

The first part of the summer we recorded seed emergence almost every day until a majority of crops showed signs of maturity. Then we started recording flower count and fruit count once a week. Once a week we would also measure and record how much chlorophyll each plant was producing.



HOW DOES THIS APPLY TO YOUR EDUCATION

As a horticulture and landscape design major this has been a great opportunity to grow and maintain a green roof garden. This has been a great way to study plant-insect interactions as well.

I want to build and design green roofs later in my career and I appreciate learning how to grow crops to add an extra layer of functionality. This internship has provided me with knowledge about the intersection of beauty and functionality for green roofs.

WHAT YOU LEARNED

- How to identify different pollinators, especially the difference between bees and flies. How to identify different types of bees and bumble bees was important to our pollinator observations.
- I was able to grow crops from seed to harvest. This was a unique, hands-on opportunity that I had not had before this summer. This will help me in my field with knowledge of how long these crops take to fruit.
- How to identify pests and disease. Observing the same plants all summer allowed me to see the actual damage being done by pests in real time. Along with this I learned effective methods of dealing with grasshoppers, aphids, and powdery mildew.



NEXT STEPS

Reproduction of data is key now. Our crops are coming to the end of season so the data will be analyzed over the coming fall/winter. Since this was the first season of this project, we were able to work out this kinks in the protocol. This will be followed the next couple seasons to collect more data to compare too. Finally, a paper will be published with the findings.

For me, this opportunity has been a great insight to the horticulture and green roof industry. With the new knowledge provided by Extension I have many more perspectives on different career path for myself. I am now developing new possibilities for my future and professional work.

