

## **Abstract**

The gradual increase of global temperatures has created weather anomalies such as drought and flooding, leading to soil erosion that reduces water-holding capability and nutrient absorption in soil. Lack of nutrients and declining soil health stemming from soil erosion creates an imbalance between biodiversity and its ability to maintain a healthy relationship with ecosystem services. Poor soil health can negatively affect fruit tree ecosystem services such as reduced crop production, tree health, and water intake. We hypothesized that functional diversity will increase water-holding ability and total organic carbon in the soil through the use of understory plants in the orchard. Located in Boulder, CO, I worked with an experimental apple orchard that was established June 2023 by the Boulder Apple Tree Project to analyze the impact various understory plants have on the soil surrounding the apple saplings. During July 2024, soil samples were collected from two quadrants around thirty-two apple saplings in this orchard to analyze two main areas: the soil's water-holding ability and organic matter content around each sapling plot. While the span of this data collection will continue as the orchard matures, the gathered data could be utilized by future orchardists to better understand the connection between soil health and fruit tree resilience towards harsh weather conditions. This resilience could establish a more balanced and sustainable agroecosystem within fruit orchards throughout the country.

Hi Kayla! This abstract looks great!

## **Methods**

\*\*On poster: Unlocking Potential

Good morning Kayla!

You could show your methods graphically for the poster (see below).

You could do something similar for water holding capacity as well. This will give you more space for Introduction, Discussion & Conclusions

Abstract looks great!

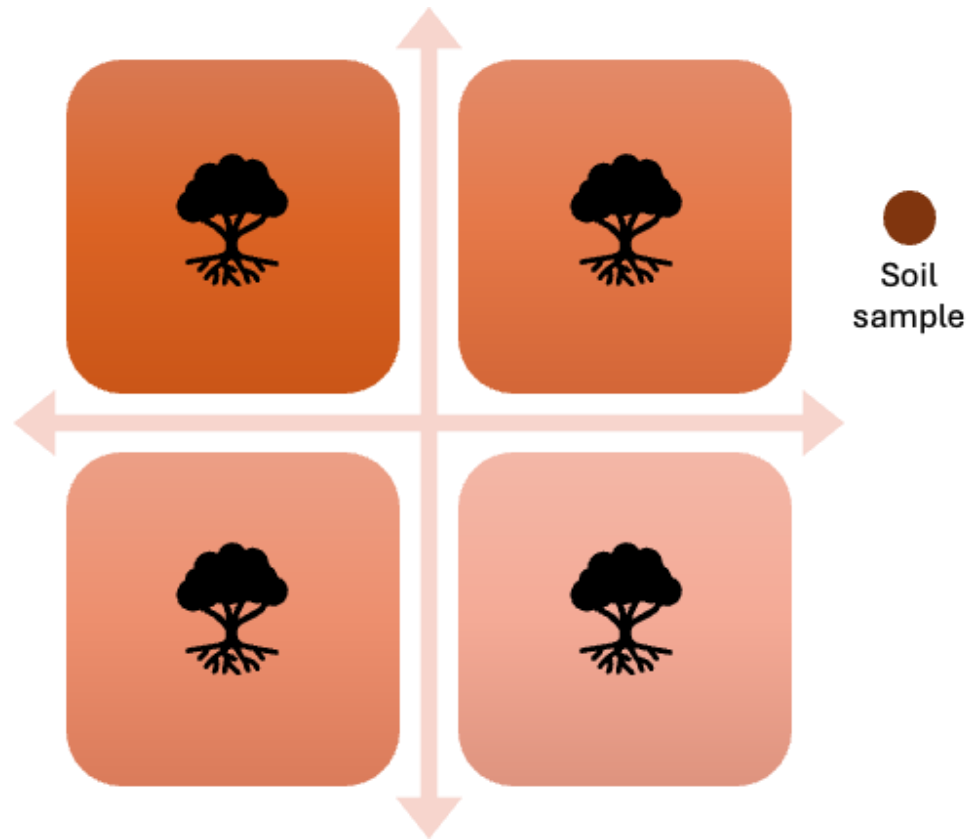
## **Conclusion**

The water holding capacity of the soil in the degraded prairie is 2 times/20% lower than the soil in the orchard.

The soil from the trees with the pollinator understory has the highest water holding capacity (0.78, n=10).

Examples: <https://www.clips.edu.au/wp-content/uploads/scientific-article-guide.pdf>

Examples: <https://www.clips.edu.au/writing/>



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Feedback from practice talk through

Explain experimental orchard \*

Explain why organic matter is important

Practice explaining more detail on the methods, \*

Was their consistency in soil depth of samples

What is an understory? Quadrat? \*

Connect the broader concepts to the orchard (where, what, how) and then what you asked (your research question) and then the details about the two measures.

Words to images looks good

Only total organic matter? only TOM, but future work to look different types of