

Buckwheat, wheat, and vegetable crop impacts of the soil in Mount Vernon

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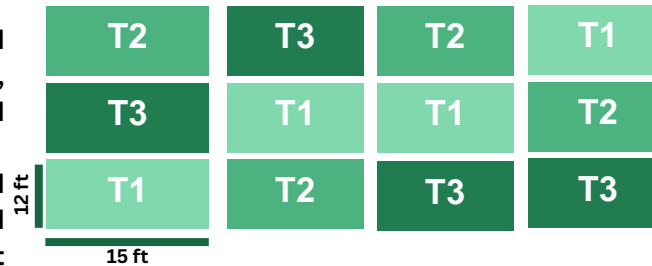


INTRODUCTION

- Objective of the project was to find out if buckwheat, wheat, and vegetable crops' benefit the soil.
- The goal is to see which crop produces the most weed biomass and suppress weeds.
- This project is trying to improve production of buckwheat in Western Washington.
- Studies of Juhász and colleagues (2023) did weed survey where they tested buckwheat, radish, and lupin. Resulting in buckwheat and radish having the best weed suppressant.
- Another research group, Vieites-Álvarez and colleagues (2023) did experiments of weed management from three types of buckwheat and Tartary buckwheat. The results showed that all the buckwheat kept their weed management in control within their region.
- Vieites-Alvarez and Juhasz's studies have helped to show for the predicted results on how buckwheat might have the higher influence.

MATERIALS & METHODS

- Weed counts and biomass from ¼ meter squares are taken at several times.
- Used the dryers at WSU Research Extension Center, Mt. Vernon, WA.
- The researchers used analysis of variance (ANOVA) that captures significant changes of the treatments.



The randomized complete block design will help reduce bias and won't have the same structure per each block.

Fig 1: T1 is wheat; T2 is veg. crop; T3 is buckwheat

RESULTS

The project's completed results aren't available, however, the preliminary results show that there were fewer weeds in the vegetable treatment which is different than the researchers hypothesis. (Young & LaHue, 2023)

--- buckwheat -- veg. crop -- wheat

Weed Management

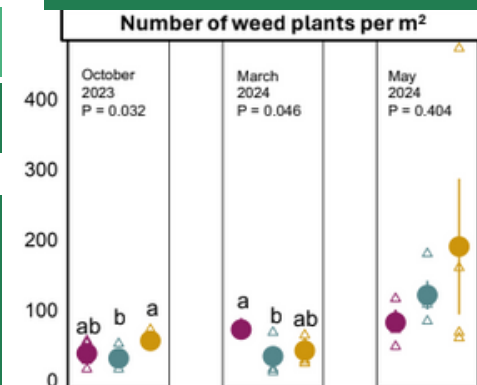


Fig 2: There were fewer weeds under vegetable treatment compared to wheat in October and buckwheat in March.

CONCLUSION

As the predicted results was buckwheat having the most influence of soil and weeds. But, there was less weeds in the vegetable treatment. The objective of the project was which treatment had the more influence and vegetable treatment had the fewer weeds.

RECOMMENDATIONS

- Researchers can study on vegetable crops and see why buckwheat, a well-known weed suppressant was outcompeted by a vegetable treatment.
- Farmers can start using vegetable crops in a way for suppressing weeds.

REFERENCES & ACKNOWLEDGEMENT

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Juhász, C., Pál, V., & Zsombik, L. (2023). Results of weed surveys in greening plants. *Acta Agraria Debreceniensis*, 1, 53-57. <https://doi.org/10.34101/actaagrar/1/12513>

Young, A., & Griffin-LaHue, D. (2023). *Cropping system diversification in Skagit Valley, WA*. [Manuscript in preparation]. Washington State University Department of Crop and Soil Sciences.