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Comparing heavy metal content found in spinach grown on the roof and ground level sites at Portland State University.

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Introduction

As a result of urbanization fresh, healthy produce can be expensive and inaccessible to some. While finding local areas to grow crops are limited the utilizing normally unused roof tops for farming can offer a solution to these issues. Determining if growing leafy greens on roofs will result in less contamination could lead to larger-scale use.

The purpose of this study is to replicate a previously unpublished study to find if growing leafy vegetables on roofs can limit heavy metal exposure from air pollutants.



Figure 1
Seeds to feed rooftop farm, managed by the community.

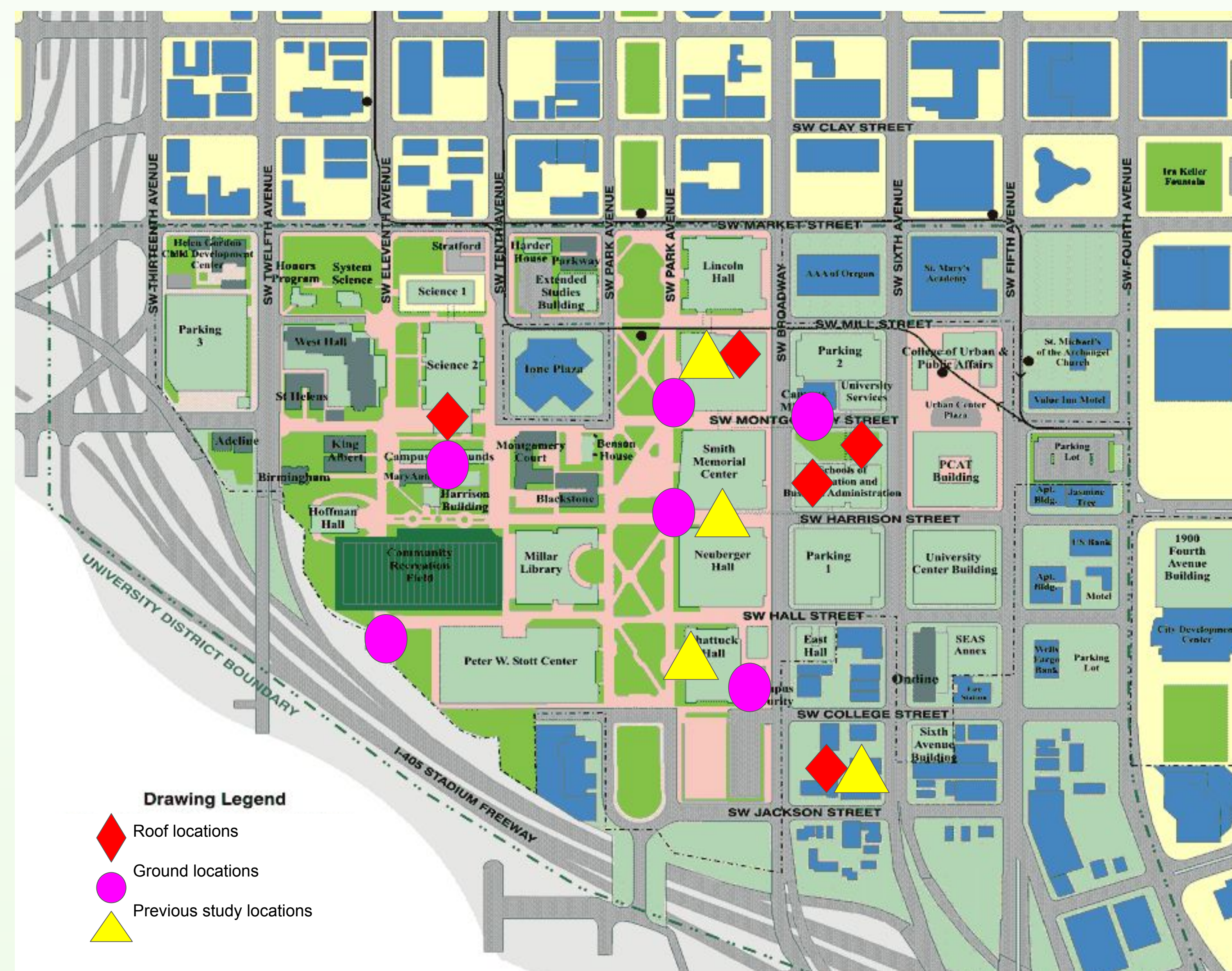
Acknowledgement

Portland State Landscaping department, Leslie Walters and Cavan Telford, The McNair Program, Dr. Starry ecology lab



Design

Addition of 7 more sites than previous study of 4 and slight change of spinach bed layout.
Weekly watering, photos, air quality tests and measurements of growth.
Heavy metal analysis and data comparison



Map 1

Map of Portland State University ground locations marked by purple circle and roof locations marked with red diamond. Previous sites marked in yellow triangles.

Timeline

5 weeks of growing
Week 1: planting and positioning
Week 2-5: growth, taking measurements, photos and air quality measurements
Week 6: harvest plants, take biomass and leaf area, send dried plants to Penn State
Week 7: Data analyse, experiment concluded.

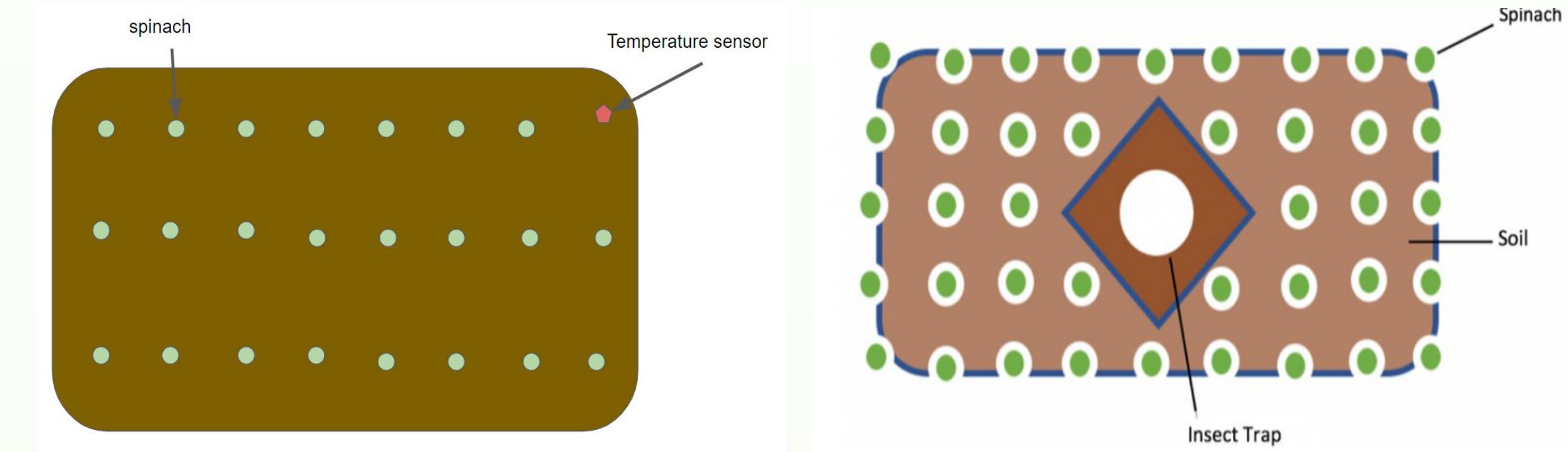


Figure 2

Comparison of spinach bed layout in current study(left) and previous study(right).



Figure 3

Spinach bed from previous study

Projected results

The study should correlate to the results of previous study done in 2018.

The results should show:

- Less heavy metals in roof sites
- Faster growth rates on roof sites
- Many advantages of growing on roofs

Works Cited

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