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A Utah-Native Plant Can Be Used to Promote Low-Impact Landscaping

Macie Booth
Utah State University

A Utah-native plant can be used to promote low-impact landscaping.

Native *ceanothus* is a drought tolerant plant that could change Utah gardens.

Macie Booth
Utah State University

Youping Sun
Utah State University

Asmita Paudel
Utah State University

Introduction

- *Ceanothus velutinus* (snowbrush ceanothus)
- Native to Utah
- Fixes nitrogen in the soil
- Valuable landscape plant characteristics: Broadleaf, evergreen, small white flowers, low irrigation requirement

Fig. 2 *Ceanothus velutinus* in the wild

What is nitrogen fixation?

Nitrogen is essential for plant growth, but not all forms are able to be utilized by plants.

Bacteria convert nitrogen into a form the plant can use. Nitrogen exchange between plant and bacteria takes place in nodules.

Nitrogen becomes available to other plants when the host plant dies.

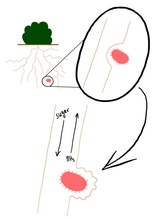

Fig. 3 Relationship between plants and nitrogen-fixing bacteria

Fig. 1 Nodules on *velutinus* grown during the experiment *Ceanothus*

Objective

The purpose of our research was to determine which substrate would be most conducive to nodule formation.

Ready, Set, Grow!

- Native soil collected from Tony Grove, Utah that contains *Frankia* bacteria.
- Ceanothus seedlings were transplanted into 1 of 3 soilless substrates: peat moss, perlite, and calcined clay.
- Seedlings were inoculated with 30mL of native soil.
- Fertigated without nitrogen.
- After 1 month of establishment, seedlings were harvested every 2 weeks to check for nodules.

Fig. 4 Experiment set-up

Hooray for clay!

- Nodules formed 4 months after inoculation.
- Peat moss yielded the most overall root growth.
- Calcined clay yielded the most nodules.
- Further studies could determine the viability of ceanothus as a landscape plant.

As Utah moves toward a future of climate-adapted landscapes, native plants like *Ceanothus velutinus* are excellent candidates due to their soil-building role in native habitats and low water requirement.

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