

Saline Soils and Shrubs: The Role of Woody Plants in Soil Health

Public Value Statement

Soils are North Dakota's greatest resource and managing saline soils is one of the greatest challenges. This collaborative effort is providing managers an additional tool to help improve North Dakota's soil resources.

The Situation

In recent years, Soil Conservation Districts have identified saline soils as one of the major conservation issues they are dealing with, at the local level. Much of the research and educational response has focused on water management, specifically with use of herbaceous perennial plants and minimized tillage or cultivation. The role of woody plants has been largely ignored.

Extension Response

With support from the ND Natural Resources Trust, NDSU Extension specialists established three demonstration plots in Carrington (2016), Minot (2016) and Langdon (2018). Workshops were held in Minot and Carrington in 2017 and 2018 for various natural resources professionals including Soil Conservation District personnel, Natural Resources Conservation Service employees, county Extension agents, and others. Topics included soil testing, salinity-vs-sodicity identification, soils management, and saline-tolerant trees/shrubs.

Impacts

A total of 58 people attended the workshops in 2017 and 22 in 2018. Participants rated their own knowledge of saline soils and shrubs before and after the workshops, using a 5-point scale. In each year, their ratings increased more than 1 point following the workshops, going from 2.9 to 4.0 (2017) and 2.6 to 3.9 (2018).

When asked if the various sub-topics were relevant to their needs, the overwhelming response was 'Yes'. Using the same 5-point scale, the lowest rating on the sub-topics was 4.25. Additionally, a number of second-year participants indicated that they've already begun to utilize the information they gained in the first-year workshop (see below).

Feedback

In 2018, we asked 'repeat' participants at the workshops, what items from the previous year's training have they begun to implement in their work:

I will utilize this with both farmers & homeowners. I'd be more interested in learning about the shrub salinity research they conduct.

-Carrington workshop participant (2018)

"Yes, to determine the salts in the soils for a tree planting." "Really looking at your soils & sometimes you may have to change tree species."

-Minot workshop participants (2018)

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