

Search for salt tolerant grasses aims to improve roadside plantings

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Standing in a greenhouse at the University of Rhode Island, Rebecca Brown was smiling even though it appeared that something had gone terribly wrong. Almost all of the 16 species of grass she planted last February in hundreds of small pots were dead.

The associate professor of turf science wasn't surprised. That's because the pots had been sitting in increasingly saltier water for five months, and few varieties of grass can put up with that environment.

Her aim, with funding from the Rhode Island Department of Transportation, was to identify a salt tolerance limit for native and ornamental turf grasses in hopes of finding a variety that can be used along highways without being killed when roadway salt – mixed with melting snow – is splashed onto the grass.

"The grasses we use in our lawns and along the roads in Rhode Island aren't adapted to salt, and they don't adapt over time because we don't allow them to go to seed," Brown said. "And salt tolerant western grasses may not grow well here because our salinity is only seasonal -- in the winter the grass has to survive the road salt, but during the rest of the year salt isn't a factor because our soil doesn't hold the salt."

So she used an ebb and flow hydroponics system to pump salt water into trays of grass to ensure consistent salt levels, starting with 2,500 parts per million of salt in February and increasing it by 2,500 parts per million every other week. In June, when the trials ended and most of the grass

was dead, the salt concentration in the water was 22,000 parts per million, which is two-thirds the level of seawater.

Brown was pleased with the results. She pointed out a few tiny blades of green grass amidst the carnage, most from a variety of alkali grass that is known to be somewhat salt tolerant, as well as a couple samples of tufted hair grass and one red fescue.

"That one must have good genes," she said, "since none of the other fescues survived."

Her next step is to take the hardiest samples, plant them in the URI turf fields, collect their seeds, and through a process of selection develop a new variety of salt tolerant grass. Then she will test it again and evaluate how well it responds to mowing.

Brown said that the "salt zone" for Rhode Island highways is from 5 to 20 feet from the edge of the pavement, which is based on the distance that cars splash winter slush. It's for use in that zone that the Department of Transportation is seeking a better grass.

The department typically plants a mix of red fescue, perennial rye grass and Kentucky bluegrass along highways, but Brown said that rye and bluegrass grow poorly in roadside soils that are typically low in fertility. She also noted that most fescues are intolerant of salt.

While the research project is driven in part because the U.S Department of Transportation mandates the use of native grasses along roadways, Brown believes that the best alternative for Rhode Island will probably be an improved variety of red fescue – a plant which may have been introduced during colonial times – that she hopes to develop.

"It seems to do better than our native grasses," Brown said. "We should

just use it because it works."

Or, more appropriately, because it lives.

Source: University of Rhode Island

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