

Saltgrass could be new turf variety

Native grass tolerates drought, salt, traffic

By Susan McGinley



Susan McGinley

Saltgrass plot in foreground

KARSTEN TURFGRASS FACILITY

The Karsten Turfgrass Facility, located at the Campus Agricultural Center in Tucson, focuses on the study of turf varieties and their growth requirements in dry climates. The site features six acres of turfgrass research plots, two weighing lysimeters, (soil water measurement tanks installed underground), a greenhouse, and a building with an analytical laboratory, growth chamber room, conference center and repair shop.

Different species of grass are grown and evaluated for adaptation to desert conditions. These grasses range from commercially available cultivars to experimental grasses which are observed for turfgrass qualities and stress tolerant attributes. One such grass is saltgrass, which can tolerate salt levels between ½ to 1½ times that of sea water.

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Vivid green lawns can exact a high price in Arizona: they tend to guzzle a lot of expensive water because of our desert climate and harsh soil. Although Bermuda grass may handle the heat, it still needs regular irrigations and doesn't tolerate excessively high salt conditions.

Looking for an alternative, University of Arizona researchers in the College of

Agriculture and Life Sciences began collecting native saltgrass plants from open areas in Colorado in 1995, and have been testing them for possible turf cultivation in Arizona.

"We got interested in this grass because it grows in areas that only get periodic water," says David Kopec, a professor in the UA Department of Plant Sciences. "It grows in dry, salty soils and tolerates salty water. We grow it at the college farm with well water and it does fine."

Saltgrass, in the genus *Distichlis*, includes two species: a seashore type characteristically found along the east and west U.S. coasts, and an inland type that grows in scattered dry areas in central California, Arizona, Colorado, Nevada and Utah.

"Both are very salt-tolerant," Kopec says. "They have deep underground rhizomes, deeper than Bermuda. They are found where there is runoff water, in saline soils. They are often the only grass growing there." Like Bermuda, inland saltgrass is a warm-season grass that goes dormant in the winter, but it's slower growing than Bermuda, and could be more invasive. It doesn't need mechanical aeration because it lacks the stolons that make thatch. Instead, multiple stems shoot straight out of the ground.

Kopec collected more than 200 individual inland saltgrass specimens in Colorado in 1995, and brought them back to the UA Karsten Turfgrass Center (see sidebar), where he conducted greenhouse trials on them in 1996 and 1997. He mowed the individual plants three times per week to find out which could tolerate mowing and would thus be suitable for lawns. He and his team then selected the best types and planted them outdoors in replicated plots in 1998.

After treating them just like turf for three years, the researchers identified seven or eight plants out of the original collection that would fit the bill as true lawn types, according to Kopec. These plants had a good, green color, high shoot density, were softer to the touch, and covered the soil completely under mowing stress. Each was an individual genetic type.

Between 1998 and 2001, Kopec noted that these plants survived for four to six weeks each summer without any irrigation at all, although some did lose color. "It would be a big improvement to have a grass that needs very little watering," he says. "A standard lawn of Bermuda grass needs more frequent irrigation than the *Distichlis*, and the water quality has to be better. Other grasses would struggle on the amount and type of water that saltgrass survives on."

Kopec plans to patent the better plant types through the UA and thus is looking at ways to protect the germplasm. The cultivars don't have names yet, just experimental designations. He is cooperating on this project with researchers from Colorado State University, who are studying ways to propagate these plants from both seed and sod. In about five years he hopes a public variety will be available.

While collecting other specimens to test, Kopec found new saltgrass types growing undetected on golf greens, tees and fairways. "And in Fredonia, Arizona, I found a plant growing in a restaurant parking lot where trucks were driving over it," Kopec says. "I took it back to the greenhouse and grew it out. It was so vigorous it practically turned into a pine tree."

In his field trials Kopec is running more tests to find out how to manage saltgrass as a lawn, including its tolerance to increased mowing and different mowing heights, to increased traffic stress, and to pesticides (although it doesn't appear to be susceptible to many insect pests). The toughest specimens will be planted later in "really bad spots" to see how well they do. One thing he's already figured out, though, is how to handle the weeds. "That's easy," he says. "We just throw salt on the plots." W