

mental horticulture professor Dr. A.E. Dudeck: "Environmentally, I see it (a year-round bentgrass green) as unsound. (But) it is the Cadillac of putting surfaces and people seem to want it here."

A sensitive species

Bentgrass, coveted for its fast putting speed and fine, rolling texture, is also among the most sensitive species; responding both positively and negatively to fertilizers, pesticides, herbicides and fungicides—all necessary "toolbox" items in a warmer climate.

BENT AND BERMUDA, THE BASICS

Bentgrass:	Cold tolerance: Good to excellent Ideal growing conditions: 60-75 degrees F. More susceptible to disease in warmer climates
Bermudagrass:	Heat hardiness: Excellent Low temperature hardiness: Poor Drought resistance: Excellent Salt tolerance: Good Wear tolerance: Very good
Pest susceptibility:	Sod webworms, armyworms, mole crickets, bermudagrass mite, fruit fly

A warning against bentgrass greens by the IFAS

Year-round bentgrass greens in the Sunshine State pose difficulties and make the practice difficult, says a June, 1990 report from the Institute of Food and Agricultural Sciences, part of the Cooperative Extension Service at the University of Florida.

Researchers conclude in the four-page report that the institute "does not recommend the use of bentgrass as a year-round putting surface in this state." The recommendation comes after reviewing the species' reliance on precise water requirements as well as dependence on weed, disease, nematode and insect controls and other quality control concerns.

"Bentgrass in Florida, Some Important Considerations" combines the work of the Institute's L.B. McCarty, J.L. Cisar, A.E. Dudeck, T.E. Freeman, G.W. Simone and R.A. Dunn who collectively summarize that bentgrass in Florida "should be considered only as a temporary turf suitable for winter overseeding play."

The research team details that bentgrass grows best in air temperatures between 60 and 75 degrees and soil temperatures between 50 and 65. Many areas of Florida exceed these ranges and although direct-kill temperatures rarely are the isolated cause for failure, elevated temperatures do contribute to the plant's lowered capacity for photosynthesis, leading to diminished root development.

"While direct-kill soil temperatures are rarely achieved or maintained for long periods of time, soil temperatures above optimal for bentgrass does not efficiently

produce carbohydrates by photosynthesis," states the report, adding carbohydrate reserves become depleted and root growth declines.

Other cautionary notes:

- Exact water management—including application amounts and proper drainage—to deter wet wilt and algae layer growth is "the most important key to quality bentgrass production."

- 4 to 8 lbs. of slow-release nitrogen is recommended per 1,000 sq. ft.

- Iron is needed for color.

- Potassium and phosphorus levels are also important.

- Soil pH levels should hover between 5.5 and 6.5.

Bentgrass has a relatively low tolerance to most post-emergence herbicides, the report states, although pre-emergence products can be effective. When weeds strike, say researchers, hand removal is the only effective method once the turf has been established. Also, broadleaf herbicides can be used at half strength, but only at temperatures below 80 degrees.

Bentgrass is also more susceptible to disease in warmer climates because of its weakened condition in summer heat. Common fungi diseases for bentgrass include dollar spot, brown patch, helminthosporium, Southern blight (sclerotium), fairy wings and pythium.

Other difficulties cited in the report include nematodes, insect infestation, heat build-up, compaction, bermudagrass encroachment and traffic control.

If successfully established and maintained, bentgrass greens in warm climates can be chalked up as a status coup. Success singles out a course from others in the vicinity still with coarser, "slower," more yellow bermudagrass greens.

"But there have been as many failures as there have been people who have been able to pull it off. When you make that decision to go to bentgrass, you have made a serious commitment of time," warns Krans.

Ask Jim Simmons, superintendent at Shoal Creek Golf Course in Shoal Creek, Ala.

Twice the site of the PGA Championship (1984, 1990), the 18-hole Jack Nicklaus course has had Penncross bentgrass greens since 1980, although "the grass just didn't perform" in its first year, according to Simmons.

"The most important thing is to keep that grass growing constantly. If it just sits there, it will slowly fade out over the summer," says Simmons. Krans says Simmons is one superintendent who has consistently come up with formulas for success.

The course, which will expand to 27 holes in November, originally installed bentgrass under direct orders from Nicklaus. Although initially cautioned that bentgrass doesn't grow in the South, designers proceeded with the species, Simmons says, because Nicklaus insisted on only the best greens.

Fertilizer regimen essential

Soluble fertilizers are routinely applied, as is a fungicide, Simmons says. Routine supplements of iron and potassium have augmented the stay-green program as well.

"Those are the biggest things that helped our greens," says Simmons. His 17-member crew also overseeds greens every other year.

"When I first came down here, our