

Arizona's Grass is Greener

Practical Impacts Delivered from The University of Arizona Turfgrass Research and Extension Program

<http://turf.arizona.edu>

Turf Variety Trials

The challenges of Arizona's climate have led researchers to investigate the management and stress tolerance of turfgrasses for arid and semi-arid regions. Heat, salinity, and drought stress tolerance are of particular concern.

➤ **NTEP Trials** - The National Turfgrass Evaluation Program (NTEP) sponsors identical field trials in strategic locations across the country. The Karsten Turfgrass Research Facility contributes to NTEP by determining the adaptability of cultivars to southwest desert conditions. Turfgrass quality characteristics such as color, density, smoothness, uniformity, vigor, and pest and disease resistance are evaluated. Current studies include bermudagrasses and zoysiagrasses for greens and fairways and seashore paspalums on greens.

➤ **New Grasses for Desert Turf** - The University of Arizona is pioneering the development of **saltgrass** as a turfgrass species. Saltgrass can grow with water that has half the salt concentration of ocean water. Deep roots allow saltgrass to maintain good quality for up to two weeks between irrigations during the summer. Saltgrass grows well under extremely poor soil conditions and can tolerate traffic. **Seashore paspalum** is another salt-tolerant turfgrass being utilized in many maintained turf settings, including golf courses and sports fields. Karsten Turfgrass Research Facility studies include cultural management, overseeding and deficit irrigation. **Curly mesquite** is a North American native species that is being investigated for its minimal inputs and utility as a turfgrass. Ongoing research is comparing the performance of saltgrass, seashore paspalum, and curly mesquite against standard bermudagrasses for water use, fertility, and maintenance requirements.

Fall Overseeding/Spring Transition

Winter turfgrass is overseeded in the early fall season when bermudagrass becomes dormant. In the spring, bermudagrass transitions back for the summer. Cool season grasses, such as perennial ryegrass, roughstalk bluegrass, and fine fescues are being evaluated at the Karsten Turfgrass Research Facility for their performance.

➤ **Overseeding Research** - The optimum amount of perennial ryegrass seed planted in the fall was determined for bermudagrass fairways on golf courses. Excessive amounts of seed can result in poor bermudagrass transition the following season. Not using enough seed took longer to establish a desirable winter turf.

➤ **Herbicides to Aid Transition** - Several new herbicides have been tested, compared, and proven useful in eliminating winter ryegrass from bermudagrass that is beginning to grow in the spring. Rates and timings of application have been refined to provide a more seamless spring transition.

Water Issues

Water quantity and quality are critical issues in our desert environment. Regulatory constraints, drought conditions, and water re-use contribute to suboptimal growing conditions for turfgrasses.

➤ **Irrigation Efficiency** - University of Arizona researchers developed procedures for estimating turfgrass consumptive use by utilizing weather-based estimates of evaporative demand. Turfgrass consumptive use publications are now available for several Arizona locations for planning and management of turf facilities and to address regulatory concerns. Researchers recently completed deficit irrigation experiments that documented the minimum amount of water required to maintain acceptable bermudagrass golf fairways – the data may become invaluable if water supplies diminish due to the ongoing drought. Experiments have documented the accelerated rate of water use along the perimeters of fairways surrounded by desert and have examined water losses due to spray evaporation.

➤ **AZMET** - The Arizona Meteorological Network uses weather stations throughout the state to collect data that enables the generation of turf water use estimates that are daily via email or the internet. Long-term data sets collected by AZMET, many more than 25 years in length, are available to address regulatory issues and the potential impacts of drought and climate variability/change.

➤ **Salinity** - The accumulation of salts in soil, a problem resulting from effluent or reclaimed water use or extended periods of deficit irrigation, is being studied by University of Arizona researchers to improve conditions so that turfgrasses can be grown to meet the quality demands of golf courses, sports fields, and landscapes. A current experiment studies the effects of tillage and application of soil amendments to correct poor grass growing soil conditions caused by sodium and salt accumulation.

Pest Management

Turf managers battle many biological pests and try to integrate all economical and environmentally compatible practices to reduce their detrimental effects.

➤ **Insects** - Key insect pests have been identified and monitoring techniques adopted by turf managers provide the critical decision-making information for initiating control measures. Proper timing of insecticide applications was refined after research determined when masked chafers, a key pest, were most susceptible. Beetle and grub populations were identified as unique to the low desert region of Arizona.

➤ **Diseases** - University of Arizona researchers identified and then determined practical solutions against the destructive turf disease, "Rapid Blight." This once ruinous turf-devastating nightmare, is now easier to avoid by planting appropriate types of grasses and using effective chemicals based on University of Arizona research.

➤ **Weeds** - Common turf weeds like *Poa annua*, nutsedge, crabgrass, cupgrass, goosegrass, clovers, and other hard to control weeds are eliminated in a more timely and efficient manner by using improved chemical and cultural control practices perfected by collaborations between University and industry professionals.

Technology Transfer

University of Arizona researchers continually provide professional improvement education opportunities for turf managers to obtain and maintain certifications and licenses. Research findings are delivered through seminars, field days, short courses, the website, and Annual Desert Turfgrass School.