

PROGRESS

Turf takes a stand



Advances in breeding, equipment and pesticides get the credit for today's better turf.

Turfgrass technology has progressed dramatically over the years, say turfgrass scientists from around the country, and the result is stronger grass that is denser, more uniform, more colorful and more attractive. And that's just the beginning.

In the 1960s, Kentucky bluegrass and fine fescues were the only turfgrass games in town, says Peter Landschoot, Ph.D., professor of turfgrass science at Penn State University.

Back then, Kentucky bluegrass was prone to leaf spot and was not very resistant to disease. Today, bluegrass is drastically more disease resistant.

Advances in turfgrass breeding happened largely due to the efforts of retired Rutgers University turfgrass professor and breeder Reed Funk, Ph.D., say Landschoot and Funk's Rutgers colleague William Meyer, Ph.D.

"I really think that the most important thing discovered was the work that Funk started here in 1960, where he proved you could go through cycles of improvement on cool season grasses and make an improvement in them every year," says Meyer, professor of Plant Biology and Pathology and director of turfgrass breeding at Rutgers.

When Funk and his students discovered in the 1970s that flowers of all Kentucky bluegrass open after midnight, a new era dawned on turfgrass breeding.

"Dr. Funk and his students found out if they sprinkled pollen from one bluegrass onto another they could make hybrids," Meyer says. "That was a phenomenal discovery. And today all the new varieties that are performing

well evolved from making hybrids in that greenhouse."

Major strides also have been made in ryegrass and tall fescue. "The first improved perennial ryegrasses were Manhattan and Pennfine perennial ryegrasses, and now we have over two hundred perennial ryegrasses," Landschoot marvels.

Ryegrass is a prime example of higher turf quality today, in disease resistance, uniformity, color, mowing quality, texture, density and brightness, says Meyer.

When Meyer started at Rutgers, he recalls, bluegrass constituted two-thirds of the turfgrass market. Then ryegrass came along in the early 1970s and trumped Kentucky bluegrass's popularity, thanks to its quick establishment and wear tolerance.

Even with ryegrass's popularity, in many areas today tall fescue reigns, especially in the South. The first improved tall fescue emerged in 1980, Meyer says. It was called Rebel.

"Before that," he says, "there were a couple hundred million pounds of Kentucky 31 in the 1940s, a forage type grass that has one redeeming quality: It's cheap."

Tall fescue is popular, Meyer says, because "it comes up fast. It has a rooting system that's three to four feet deep, so it uses more of the water resources in the ground."

Whereas tall fescue traditionally was a coarse yellow pasture grass used for ground cover along highways, once

it was accepted for use on lawns and sports fields, Landschoot says, breeders began to seek ways to produce finer textured tall fescue that were darker green and appealed to homeowners.

In the past, says turf expert Clark Throssell, Ph.D., there was an emphasis on turf aesthetics. Now that they've been mastered, the challenge is to make turf even more drought tolerant and disease resistant, he says.

Giant leaps also have been made in pesticide formulation, experts say. "The pesticides we use are much safer than the ones of 30 or 50 years ago and are applied at much lower rates," says Karl Danneberger, Ph.D., professor of horticulture and crop science at The Ohio State University.

In the '50s and '60s, chlordane was used, and it contained arsenic, he says. "There've been huge improvements since the days of mercuries and arsenics, which were used until the '70s. Now we have much cleaner products and much lower rates."

Just as advances in breeding and pesticides have shaped today's turfgrass formulation, so has technology such as aerators, seeders and mowers.

Together with improved breeding science, better equipment engineering accounts for about 50 percent of the advances made, says Landschoot.

"It's impossible to transport yourself back to those early days," Landschoot says. "Once in a while I think, 'Oh my God, that's what we had to deal with back then.'"