

JOE DUICH and PENNSTAR



ATTRACTING WIDE attention among turf specialists is a promising new release of Penn State University called Pennstar Kentucky Bluegrass.

An improved variety with more than 15 years of testing behind it, Pennstar is reported to be outstanding for disease resistance and for its compatibility with other improved grasses in turf mixtures. It is not aggressive and will not crowd out other varieties. But neither will it allow itself to be crowded out by overly-aggressive varieties. With its ability to withstand low mowing, its resistance to disease and its ability to compete under lower fertility, Pennstar is able to hold its own against just about any competition.

Pennstar is unique in that its origins can be traced back directly to a commercial lot of Kentucky Bluegrass purchased in 1929 by Penn State University. It was a routine purchase at the time, and none of the participants had any inkling of what was to follow. They were far more interested in establishing a new project that had come to the school.

The year 1928 had been a particularly bad one for turfgrasses in the East. Many country clubs and home lawns were in terrible shape. The late turf pioneer Joseph Valentine, then superintendent of Ardmore Pennsylvania Merion Golf Club, led a delegation to the agricultural college situated in the center of Pennsylvania at State College. The group presented their turf problems to the president of the college and asked

for the same sort of help the college was giving farmers in the prevention of disease and the development of improved varieties and management techniques for their crops.

The school agreed to initiate a turf project, and enthusiasm for it grew to such an extent that it has since become one of the most respected and productive programs of its kind in the United States.

At about this time, a young fellow destined to play an important part in the University's turf work was born in another part of the state. Joseph Duich, now professor of turfgrass science at Penn State, first became interested in turf management and turf problems at the age of 14. This was during the Second World War, when labor was scarce. The greenskeeper of the golf course where young Joe caddied during the summer asked him to help keep up the greens and fairways. The work fascinated Joe, and his interest grew as his experience grew. While studying landscape architecture at Penn State, he tried to get into turf management courses taught by the late great Dr. H. B. Musser. He was told that agronomic courses were limited to those attending the school of agriculture. This led to a decision that changed his life's direction and has had equally far-reaching effects in the development of turf management and the introduction of new turf varieties. He decided to change his major to agronomy. After graduation, he continued to work under Dr. Musser and ultimately took charge

of the turf efforts at Penn State.

Dr. Duich is particularly interested in turf management and conducts a winter term course for professionals in the field — some of them numbered among the many golf course superintendents who learned their trade as Penn State students under Dr. Duich's tutelage.

Dr. Duich readily admits "My life is turf," yet for all his enthusiasm he is coolly detached in evaluating new varieties, mixtures and management techniques. He candidly says that the rapid development of interest in artificial turf simply represents "our failure" in properly educating people in the necessity of handling turf properly. He says, "Most people who work with turf, even those who know something about the varieties to use, have no idea of how to properly construct the physical base for a playing field that needs careful management."

Dr. Duich's work on Pennstar was directed toward the development of a variety with a "long haul" capability — a disease-resistant variety that is not overly aggressive nor temperamental in needs of fertility, mowing height or weather.

Pennstar tests indicate it fills the bill on all these counts. Pennstar performance has been tested since 1950 in a series of trials at Penn State (many of them still under way). In addition, turf specialists at other leading universities have made extensive tests of the variety under every type of condition.

Indications are that Pennstar is



Dr. Joseph Duich, professor of turfgrass science at Penn State, is the man responsible for the testing and introduction of Pennstar Kentucky Bluegrass. A nationally recognized expert in evaluating new varieties, mixtures and management techniques, Dr. Duich is assisted at Penn State by two full-time staff workers, two technicians, a plant pathologist specializing in turf, and graduate students working on specific projects.



highly resistant to all three of the most common diseases affecting Kentucky Bluegrasses:

—Stripe Smut (*Ustilago striiformis*) A unique disease that spreads internally and goes from one tiller to another, Stripe Smut shreds individual leaves as the spores pop out. The disease sporulates in May or June, causing great damage.

Rust (*Puccinia spp*) Pennstar is highly resistant to rust, especially during the establishment period when bluegrasses are ordinarily most susceptible.

—Leaf Spot (*Helminthosporium vagans*) Pennstar is highly or very resistant to most varieties of leaf spot. While it is true that most improved varieties of bluegrass demonstrate some resistance to this disease because of its frequency of occurrence (leaf spot is bad in four out of five years) Pennstar trials show significantly more resistance than some other varieties.

Pennstar is reported to establish well and resists fadeout under a wide variation in management. It is a turf-type bluegrass, referred to as low-growing or decumbent. With a leaf angle often close to 90° from vertical, it can tolerate a low mowing height and still retain a good leaf area. It will gradually replace common bluegrass under low mowing management.

An interesting characteristic of Pennstar is its ability to thrive year after year without producing any damaging quantities of thatch. Normally aggressive varieties can be

expected to thatch up under good management practices, but plots of Pennstar torn up after eleven years reveal no excess thatch despite the fact that no dethatching had been done during the entire period.

Pennstar has shown the ability to withstand drought conditions to a greater degree than some other Kentucky Bluegrass varieties. It persists at moderate-to-low fertility levels and does not over-react to higher fertility. It has a pleasing medium bluegrass color that blends well with other varieties and does not show up as either extremely dark or noticeably light in mixtures.

On the subject of mixtures, Dr. Duich explains that one of his objectives in working on Pennstar was the development of a variety not only suitable for mono-culture plantings but one that would be a valued addition to turf mixtures.



One of the leaders in promoting the advantages of turf composed of several compatible varieties, Dr. Duich points out that planting of a single variety is particularly risky with bluegrass. Because of its apomictic nature, bluegrass has almost no natural genetic spread between one plant of a variety and all other plants of that variety. If a strain of a disease develops that will attack a variety at all, it can ruin any mono-culture fairway or lawn in short order. And if weather affects one plant adversely it is fairly certain to similarly affect all other plants of that variety.

Dr. Duich visualizes the main use of Pennstar as a major component in turf blends. He calls it a "solid component" bluegrass — one that has the virtue of persistence without the vice of aggressiveness ("We can't live with the overly aggressive ones — they grow themselves to death and thatch up all over the place"). Pennstar can be depended upon to do well under a wide variety of conditions, is adapted from the West Coast to the eastern seaboard in all the normal bluegrass areas. It is unexcelled in overall disease resistance and will not fade out when mowed short or given limited fertility.

In short, according to one independent turf researcher, "I would say it is perhaps the best single all-around turfgrass variety available in the United States today."

Dr. Duich has found a way to take his work home with him and really enjoy it.