
ACTI-DIONE® was here
...but not here

Use ACTI-DIONE® on Tees Greens Fairways

The unretouched photographs on the opposite page were taken the same day at golf courses less than 40 miles apart. The relative conditions of the two courses show what a difference diseases can make.

When you invest up to $50,000 a year in fertilizer weed control, water and management practices (verticutting, aerifying, mowing and the labor they require), your investment deserves the protection of a complete disease control program.

Many superintendents have discovered fairway disease control programs actually pay their own way by keeping golfers happier and by eliminating the problems and costs which arise when fairway turf is lost. The increased play from growing numbers of golfers is too much of a challenge for anything less than healthy turf.

The same basic principles and practices used to control disease on the greens apply to tees and fairways, even though the level of control on fairways is not so critical as that required on greens.

Although Acti-Dione turf fungicides can eradicate many turf diseases, prevention is always less expensive than cure. You should start your fairway spray program in the spring as soon as possible after the first mowing and continue the program on a scheduled basis—usually an interval of 21 to 30 days.

TUCO has both the proven products and the experienced personnel to help you in your scientific turf management program. Just a call will put one of our highly trained and expert field representatives to work explaining how you can maintain healthy tees, greens and fairways.

THESE PROVEN TURF FUNGICIDES HELP PREVENT OR ERADICATE

- ☐ Leafspot
- ☐ Dollarspot
- ☐ Melting-out
- ☐ Fading-out
- ☐ Going-out
- ☐ Brown patch
- ☐ Pink patch
- ☐ Rust
- ☐ Powdery mildew
- ☐ Pythium

Your golf course looks better and plays better when you have healthy turf

BEFORE USING ANY PESTICIDE **STOP** READ THE LABEL

TUCO Division, The Upjohn Company, Kalamazoo, Michigan 49001

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There is!

. . . and more economical too.

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For control of annual weed-grasses in turf use **Balan®** . . . another member of Elanco's weed control crew.

You just can't find better or more reliable workers anywhere . . . at least, not at the price!

Elanco Products Company, a division of Eli Lilly and Company, Dept. E-455, Indianapolis, Ind. 46206, U.S.A.

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Special for This Issue

Regular Features

The Cover

What better way is there to kick off the annual turf issue than by reporting the story behind a new commercial strain of grass — Pennstar Kentucky Bluegrass? That's the grass on the cover. The man is Dr. Joe Duich of Pennsylvania State University who has put 15 years of research effort into its development. The cover feature, beginning on page 8, describes the variety's characteristics. Summed up, Dr. Duich says it is "perhaps the best single all-around turfgrass variety available in the United States today."

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The Golden Rule as Applied to the Environment

BEFORE A FINGER IS LIFTED to change the environment . . . Let us require of *all* people who wish to change it, comparable scientific evidence in support of a need for change, comparable documentation of possible effects of the change—including expected benefits—as have been required of those who have made the environment what it is today.

It's a reasonable demand, we believe. Such an "environmental Golden Rule" would force proponents of change to consider the *total* environment. It would force an evaluation of the benefit-risk equation. We believe better solutions to our problems would result.

Such a Golden Rule adaptation would prevent an outcome described by sanitary engineering consultant John E. Kinney, speaking at the National Pest Control Association meeting recently. "Under the spell of the panicmonger," he said, "the citizenry could surrender all authority in decision making on the environment to those whose regulations would not permit a use and only then learn the surrender had actually jeopardized health, food, and pleasure and had not guaranteed protection."

"Protect the environment" has become an excuse for all sorts of crusades for glory and power, Kinney says. A characteristic of the self-interest crusader that distinguishes him from the real environmentalist, he believes, is the crusader's failure to complete the sentence.

"Protect the environment from what? Or for what? Or for whom? Or from whom?"

Normal human reaction to a major problem, Kinney continues, is first that of apathy, then overreaction, then a return to apathy.

The danger concerns the type of legislation that occurs during the overreaction period. Rarely is there an admission of error on the part of those who call for action or on the part of those who pass legislation, Kinney says. Instead, the finger of blame will be pointed in another direction and more legislation offered as the panacea.

"We have entered a new, in some respects, ominous, but perhaps necessary era in the consideration of pesticides in this country," said Bernard Lorant, a pesticide consultant and former vice-president of research and development for Velsicol Chemical Corporation. "I call it the legal era."

Explaining, as he addressed the Ohio Turfgrass Conference in December, "the new era is when scientific questions will be settled by formal, adversary proceedings in the courts of our land, or in quasi-judicial arenas.

"More frequently, questions of efficacy and safety for pesticides will be decided by lay judges. That the pendulum will swing too far on the ecology side, to the detriment of all, seems likely."

Your call to "jury duty" is clear and urgent. The National Agricultural Chemicals Association has a new pamphlet that will help prepare you for the role you must play in preserving and improving the environment in favor of man. The booklet is called "Sound Off" and describes how laws are made. It explains the procedural route bills follow on the way to becoming law. There is discussion of preparation and presentation of testimony, of witness selection, and on letter writing. (For copies, write NACA, 1155 Fifteenth St., N.W., Washington, D.C. 20005.)

Finally, though, it is you who use pesticides who must be the cross-examiner when "cases" arise in your area of influence. You must bring the questions in the open and must demand the answers that separate the self-interest crusaders from the real environmentalists.

You must demand answers in the same depth from those who would take away your tools as have been demanded of those who provide you the tools of your livelihood.

What wisdom there is in that rule . . . the Golden One!

Gene Ingalsbe

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The Story Behind

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.

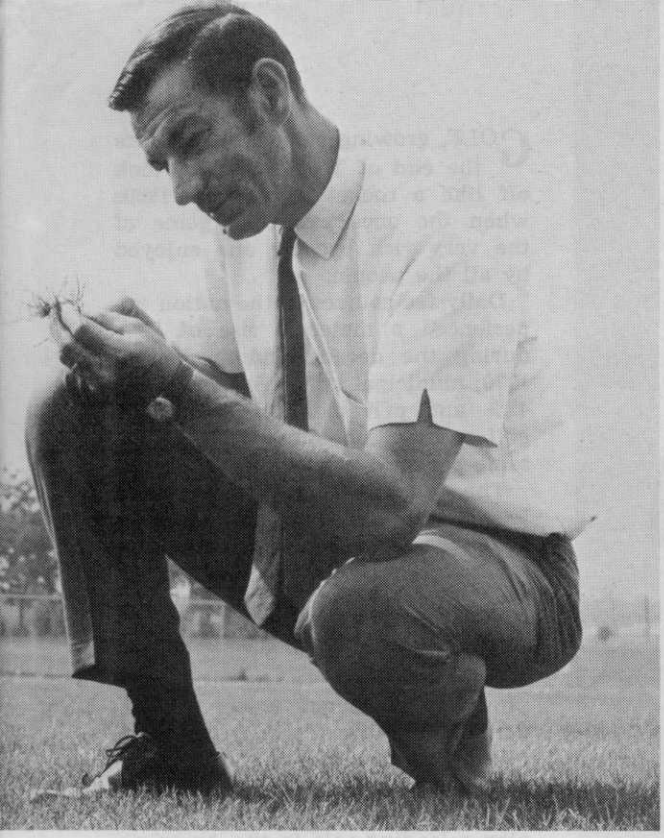
Dr. Duich is particularly interested in turf management and conducts a winter term course for professionals in the field — some of them numbered among the many golf course superintendents who learned their trade as Penn State students under Dr. Duich's tutelage.

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.

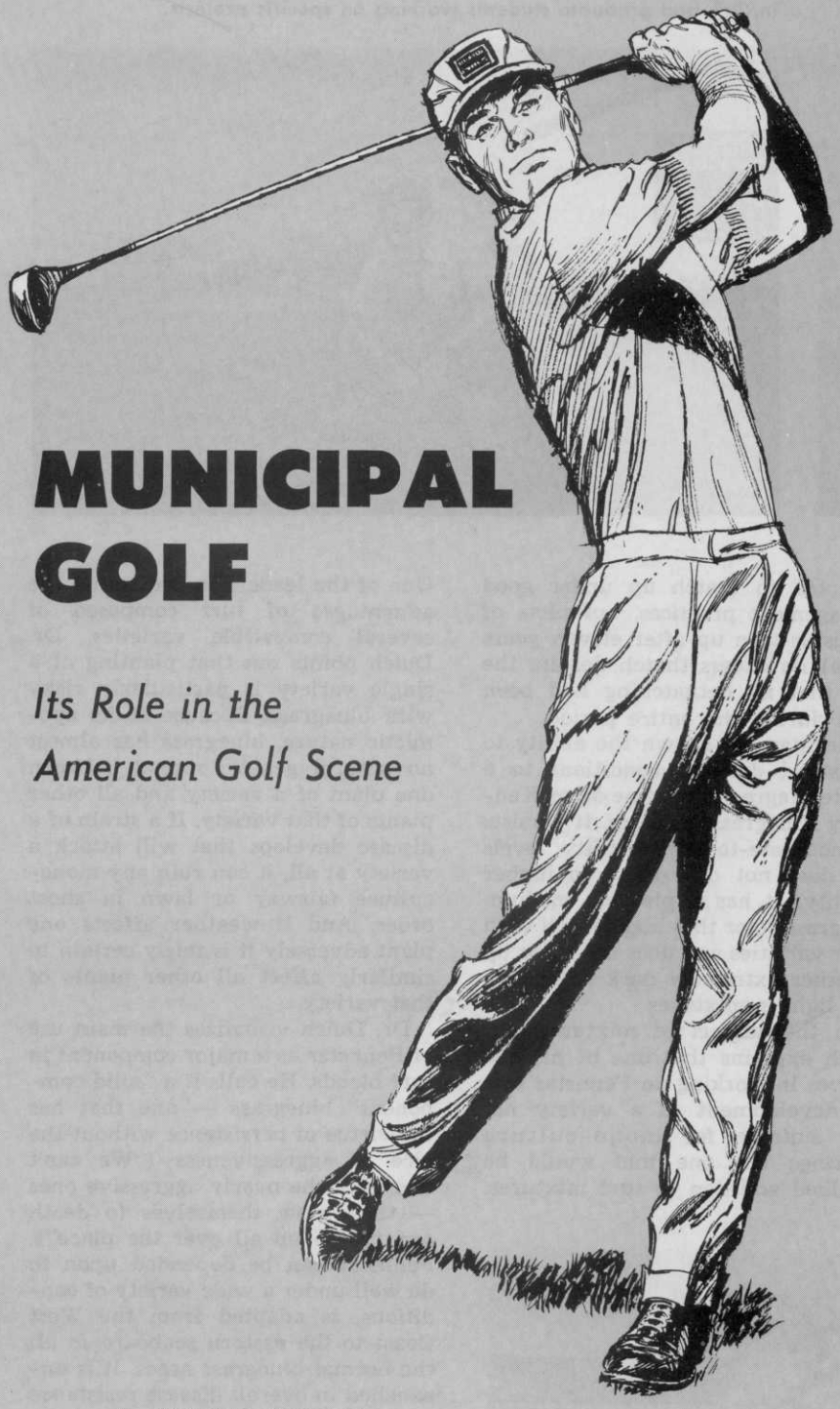
On the subject of mixtures, Dr. Duich explains that one of his objectives in working on Pennstar was the development of a variety not only suitable for mono-culture plantings but one that would be a valued addition to turf mixtures.

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 monoculture 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.



MUNICIPAL GOLF

Its Role in the American Golf Scene

By HARRY C. ECKHOFF
Facility Development Consultant
National Golf Foundation

* This presentation by Mr. Eckhoff was made at the Ohio Parks and Recreation Association annual convention recently in Cincinnati. The golf outlook article was prepared additionally for WEEDS TREES and TURF.

GOLF, growing steadily ever since the end of World War II, took off like a rocket during the 1960s when the once exclusive game of the very rich became one enjoyed by all the people.

Daily fee courses in the nation experienced a meteoric rise of 85% during the decade ending Jan. 1, 1970; municipal operations increased 42% and private clubs 38%. New golf course openings during the same period averaged 354 a year.

The combination of increased leisure time, income and mobility has made recreation the fourth largest and fastest growing industry in the United States today. And golf has become the nation's fastest growing competitive outdoor sport. Alert American communities are providing more and better municipal golf facilities for their residents.

While municipal golf courses comprise only about 13% of the nation's 10,000-plus golfing facilities, they do play a leading role in the American golf scene. NGF's studies reveal that municipal courses (city, county or state operated) handle about 45% of the country's golf play.

This is believable when many cities report from 60,000 to 100,000-plus rounds played annually on each of their 18-hole layouts. A recent sampling survey shows an average of 53,194 rounds for the almost 100 facilities reporting. The sampling includes both large cities and small towns.

About 60% of the nation's 1300 municipal golf operations are located in 13 states. California leads with 122. Others high on the list are Texas, 102; Illinois, 82; New York, 78; and Indiana, 54. Minnesota, Ohio, Wisconsin and Florida each have 40 or more.

How do municipal golf courses operate? What are their policies on green fees, season rates, advance reservations, use of powered cars? And what special programs have some initiated that have proved popular and successful? Recent contact with some of the nation's outstanding municipal golf operations reveals some interesting trends.

Bethpage Park Golf Complex

Bethpage, located in the central part of Long Island about 40 miles east of New York City, is often referred to as the most complete municipal golf plant in the world. Operated by the Bethpage State Park Authority, it has five 18-hole regulation length golf courses all operating from the same clubhouse. Once you tee off, the next time you are back at the clubhouse is after