

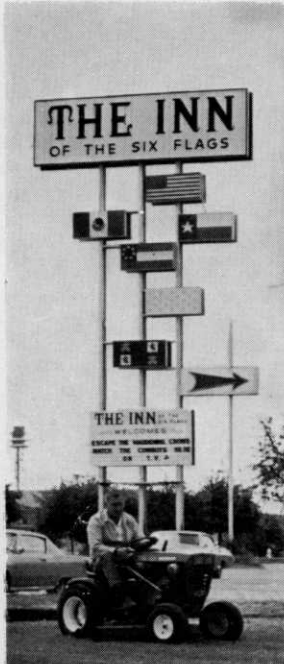


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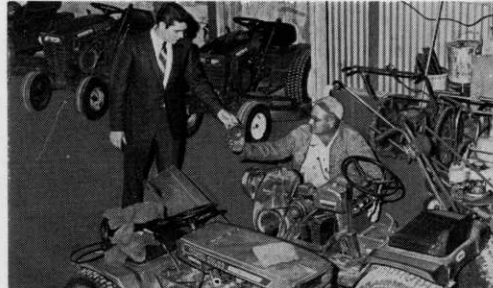
# Looking after 6,600 acres and 15,000 visitors a day

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Supervisor Fowler adds: "Out here garden tractors have to crawl like a snail one hour, run like a thoroughbred the next, and be able to take it hour after hour; the automatic shift on those Wheel Horses clinched it for us." If you have a lot of greenery to groom and keep green, write the pick of the pros: Wheel Horse Professional Services, 515 West Ireland, South Bend, Indiana 46614.



Landscape Supervisor Cotton Fowler near parking area of inn which has 308 rooms, five swimming pools, two golf courses.



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Fowler trims front lawn of Great Southwest golf club. Wheel Horse tractors "cut mowing time around trees and bushes in half", according to landscape supervisor.

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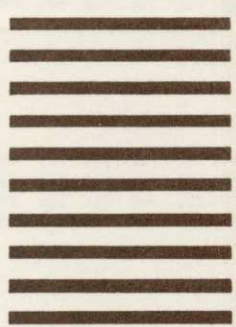
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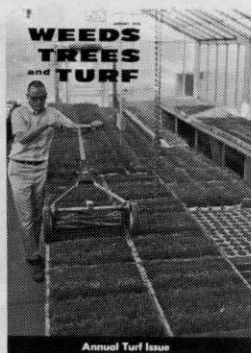
<b>Kentucky Bluegrass: Turfgrass Par Excellence</b> .....	6
<i>Dr. Robert Schery, director of the Lawn Institute, reviews some of the characteristics of bluegrass to set the tone for this special issue on turf.</i>	
<b>A Big Turf Show and What Goes On</b> .....	8
<i>Selected for feature treatment this issue is one of the fastest growing turf conferences and shows. It's sponsored by four Ohio groups and may be the biggest of its kind.</i>	
<b>Turf Management by Ear</b> .....	16
<i>That's how Jack Hart says he runs the NCR golf course at Dayton, Ohio. It must work. The PGA was played there in '69.</i>	
<b>Perlite Is Carrier for Fertilizer Process</b> .....	20
<i>Georgia Institute of Technology and the Perlite Institute developed the process for manufacturing bulk-blended fertilizer.</i>	
<b>How to Control the Cooley Spruce Gall Aphid</b> .....	27
<i>J. L. Saunders, Washington State entomologist, offers advice on this tree pest.</i>	
<b>Land of the Tree Giants</b> .....	28
<i>Grover Brinkman writes about legislation that set aside parks to preserve the coastal redwoods.</i>	

## Regular Features

Editorial: <i>That Frightful Imaginary Danger</i> .....	4
Industry News: <i>NAAA annual convention report</i> .....	30
New Products .....	36
Sod Industry Section: <i>How to start a zoysia turf nursery</i> .....	34
Industry People on the Move .....	38
Insect Report .....	41
Trimmings: <i>The Judgment Tree</i> .....	42
Meeting Dates .....	43
Classifieds .....	43
Advertisers' Index .....	43

## The Cover

Growing grass can be confusing. It's pampered, fed and watered at great expense. Result: It grows fast, then needs to be mowed — at great expense. Now, many companies are looking for ways — at no small expense — to keep it from growing so fast. O. M. Scotts & Sons, Marysville, Ohio, devotes an entire greenhouse to growth retardant research. The cover suggests that in the greenhouse, at least, Scotts has the grass where it can be handled with a hand mower again, as Richard J. Schneider of Scotts research demonstrates. He's mowing boxes of turf varieties, each containing Windsor, tall fescue, Merion, bentgrass and Park bluegrass. So far, Scotts has found one regulator that gives good control up to six weeks.



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## That Frightful Imaginary Danger



Senator Allen Ellender  
Louisiana

"Whether danger actually exists is sometimes beside the point." Concerning pesticide pollution, "the face is *people think it does.*"

Sen. Allen Ellender of Louisiana made this ominous observation at the third annual meeting of the National Aerial Applicators Association. This is the problem the chemical industry must face up to and solve, he indicated.

At the same time in Washington, D.C., the noose was being yanked tight on DDT. And observed another speaker at the NAAA meeting bitterly, "The only thing DDT hasn't been blamed for is causing pregnancy."

What's additionally disturbing about the public attitude right now about pesticides, Ellender continued, is that the people who know least about the problem, or think they have no economic stake in its solution, shout the loudest.

Like all of us, they're concerned with safety and when they feel unsafe they want to do something about it. "Security is one of the foremost psychological needs of mankind," he explained. "What's important is that some danger is real and some danger is imagined. Sometimes imagined dangers can be more serious, for men are moved

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as much by myth as they are by logical reasoning.”

Awareness of a problem often breeds emotionalism, he said. The public has become acutely aware of pollution (of all kinds), said Ellender, principally for two reasons: (1) development of machines capable of measuring substances considered pollutive at minimum levels previously unheard of; and (2) dramatization by news media, particularly television, of incidents in which facts were occasionally exaggerated and sometimes downright erroneous.

Ellender cited a recent example in his own state that produced calls to his office. The news report was about a huge fish kill in Terrebone Bay, presumably from pesticides. In truth, a fishing boat had run aground and to lighten its load in order to float, the crew had dumped the day's catch of fish—already dead—overboard.

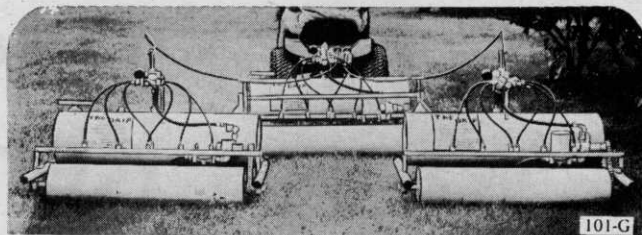
But as is true in so many cases, the Senator stated, “the damage was already done.”

“It is the responsibility of reasonable men to keep things in perspective,” said Ellender.

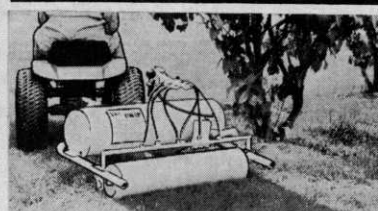
“Make no mistake about it,” he cautioned, “I am not saying that danger from the widespread use of persistent agricultural chemicals is non-existent. What I am saying is that the worst teeth of this dragon can be pulled by training and by the use of wise methods of applications.”

Ellender commended NAAA for choosing safety as its theme. He said he was particularly encouraged by the concern for additional pesticide safety on the part of industry and associations such as NAAA.

“While government can lead the way, as it must do on occasion,” he added, “in the final analysis real progress depends upon the wholehearted cooperation of those who produce, develop and find use of our natural wealth and resources.”



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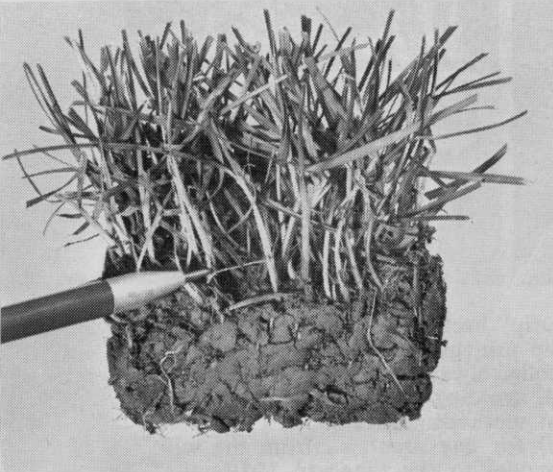
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# Kentucky Bluegrass:



One of the elite, dense varieties of Kentucky Bluegrass is Fylking. It's shown above mowed at 1½ inches. Note very little thatch where pencil points, an advantage with species spreading by rhizome rather than by stolons. This grass is three years from seed. (Lawn Institute photo)

By DR. ROBERT W. SCHERY,  
Director of the Lawn Institute  
Marysville, Ohio

**I**T HAS BEEN several years since Kentucky bluegrass, *Poa pratensis*, was reviewed in Weeds, Trees and Turf as the first grass in a series of turfgrass portraits. An updating is timely for this turf issue.

Kentucky bluegrass not only remains the prime favorite for lawn seeding and sod from border state latitudes northward, but interest in it has intensified both domestically and in Europe. Skillful breeding has given a host of new cultivars, some already available commercially, others still in the testing and developmental stages. Many new, elite varieties for specialized use have now joined traditional, carefree types (which have also been perfected as varieties, viz. Arboretum, Kenblue, Park, etc.). An exciting decade lies ahead for Kentucky bluegrass enthusiasts.

#### A Bit of History

Bluegrass appears to have received first recorded mention by the Greeks, in southeastern Europe before Christian times. Perhaps primitive "diploid" forms could still be found in the mountains there (as is the case with many cultivated plants)? Records from the Middle Ages show the plant (not to be named *Poa pratensis* until 1753) widespread throughout Europe, undoubtedly in many of its present polyploid forms. Most likely it spread to the New World with early European colonization, the seed probably a chance component of shipboard hay and cattle bedding. Before the American Revolution it was reliably identified on the North American east coast, and especially in the St. Lawrence valley.

Evidence suggests that the French missionaries carried *Poa pratensis* to the Great Lakes country, and so far south as the Ohio River valley, before 1700. It grew superlatively on the phosphatic soils of north central Kentucky, where it supported in the Lexington area the first "civilization" of the white man west of the mountains. Called "June grass" and many other common names during its early years in North America, Kentucky bluegrass became identified with the state of Kentucky sometime between about 1830 and 1850. Gradually "Kentucky bluegrass"

came to be accepted for the species, and the name has stuck ever since.

Today Kentucky bluegrass is still recognized as an excellent pasture species, but even more as the premier species for lawn, recreational, roadside, and industrial turfs, even so far south as the mountains of Arizona and Alabama-Georgia. In Europe, too, it is gaining favor for fine turf, even though the milder, rainier climate there and the custom of close-mowing has tended to favor other species. In North America more bluegrass plants grow on more high priced land than is likely the case with any agricultural crop from corn on down.

#### Bluegrass Traits

Kentucky bluegrass is noteworthy not only for its graceful foliage that mows exceedingly well, but for its ability to spread by underground stems called rhizomes. By this means a single bluegrass plant can eventually colonize many square feet of ground, and of course this constitutes a built-in system for thickening up turf that has thinned for any reason.

Kentucky bluegrass can withstand drought, cold and abuse well, reviving even after seeming to have been completely wiped out. Although it prefers fertile, friable soils, it is a reasonably tolerant species that requires little pampering. Many of the traditional varieties get along quite well with no attention other than mowing, if planted to reasonably good soil. Bluegrass withstands moderate shade well, and the usual pesticides. Some of the newer selections such as Fylking and Pennstar can be mowed so low as ½ inch (traditional varieties are best mowed 1½ inches or taller). The foliage texture is first-rate, its color deep and not at all garish.

#### Growth Pattern

Kentucky bluegrass responds excellently to coolish weather—temperatures such as are normal in northerly states during September and October. Judging from performance in the deserts of southern California, bluegrass can withstand fairly high daytime temperatures, too, if the nights cool down (as they do from ra-



# Turfgrass Par Excellence

diation in the clear atmosphere of the desert). Kept for long periods at temperatures much above 80° F, most Kentucky bluegrass cultivars exhaust accumulated food reserves, thus weakening the plant. But between freezing and about 80° F bluegrass is strongly accumulative; it builds up carbohydrates quite markedly in autumn. Reserves are drawn down in spring in order to foster the exuberant flush of new growth occurring then.

Bluegrass begins to green as soon as the weather warms in spring. During hot, dry weather of summer, growth slows and a degree of dormancy often sets in (which can be counteracted to a great degree by irrigation and fertilization). With onset of cooler weather in early autumn growth is rampant again, but in response to declining day lengths it is of a short, consolidative nature, with many stocky, tight tillers.

## Maintenance

Both high-maintenance and low-maintenance groups of bluegrass varieties now seem shaping up. Most of the new selections have followed Merion's lead, and are bred for select, high-quality turf that is fertilized regularly and watered during drought. Fylking, Merion, Pennstar and most of the new hybrids profit from at least 4 pounds of elemental nitrogen (N) annually per thousand square feet (M), and are sometimes provided as much as 12. In cool weather bluegrass can withstand heavy feedings, but ordinarily it is well not to apply more than 1 lb. N/M at a time, and only about a half pound in warm weather.

As noted, mowing of the traditional varieties should be relatively tall, but newer varieties have been selected for low growth and withstand quite low clipping. With any turfgrass it is best not to scalp the lawn by mowing short suddenly; never remove more than half to one-third of the green leaf at a single mowing.

Although bluegrass is tolerant of a wide range of soils and pH, it performs best on well-drained land that is not compacted. Fertilization should match the soil.

Irrigation is increasingly practiced

on fine turf, with both favorable and unfavorable effects. Judicious watering keeps a bluegrass lawn green when it might turn brown from drought, but in hot weather it may confer greater benefit to certain weeds than to the bluegrass (especially if excessively done). When bluegrass sod is not let dry out almost to the wilting point occasionally, such difficult weeds as annual bluegrass, crabgrass and nutsedge often become troublesome.

Fortunately, bluegrass is very tolerant of conventional lawn herbicides applied at recommended rate.

## Propagation

Tenacity of bluegrass, and its ability to spread by rhizomes, permits it propagation by plugs (biscuits of sod), or as sod itself. But seeding is simpler, more economical.

Nearly 40 million pounds of Kentucky bluegrass is marketed annually, each pound of which contains about two million seeds, potentially 80 trillion plants.

Sophisticated turfmen and many sod growers plant but a single type of bluegrass. However, experience has shown that blending several bluegrasses, or bluegrass varieties with fine fescues, creates a more widely adapted turf less likely to suffer serious decimation.

Kentucky bluegrass is highly apomictic, meaning that the seed mostly comes true to the parent type and is not affected by sexual crossing.

## Bluegrass Varieties

The list of bluegrass varieties is increasing almost daily; it is difficult to keep track of the names alone, much less have experience with the cultivars over a range of conditions.

Table I lists those varieties which are commercially procurable as this is written, or promised soon: they are categorized as elite, especially attractive varieties for highly maintained lawns; as self-reliant varieties for less-tended turf and acreage sowings; and as an "intermediate" group which doesn't fit neatly into either category.

Kenblue is especially interesting as an "old-fashioned," genetically

mixed line tracing back to the first bluegrass in Kentucky mentioned in the section on history. Of course any of these bluegrasses can provide a first-rate turf if given suitable growing conditions. By-and-large those in the elite category should be more closely mowed, more heavily fertilized, and be provided supplementary attentions such as occasional removal of thatch; the self-reliant types should be mowed tall, and though responding well to fertilization survive without much (and may actually resent feeding in hot weather).

Table II lists some of the additional bluegrass varieties under test, not all of which will necessarily reach the market-place. A number of these are of European origin. Still others under test privately have not received a varietal name, and are known only by code number.

If one were to hazard a guess, many of the favorite bluegrasses for the 1970s will arise from this pool of coded selections.

### Table I. Proved Kentucky bluegrass varieties, commercially available or pending.

ELITE CULTIVARS for well-tended lawns: Fylking, Merion, Pennstar, Warren vegetative selections.

SELF-RELIANT TYPES for acreage and turf receiving only moderate attention: Arboretum, Delta, Kenblue, Natural common, Park.

INTERMEDIATE VARIETIES: Cougar, Newport, Prato, Primo, Sodco, Windsor.

### Table II. Examples of less familiar Kentucky bluegrass cultivars not included in Table I, and varieties under test but not yet available.

Adorno, Arista, Atlas, Baron, \*Belturf, Campus, Captan, Delft, Fjord, Fusa, \*Geary, Golf, Nike, \*Nudwarf, \*Nugget, \*Palouse, \*Silverblue, Skandia, Sydspout, Southport, \*Troy, Zwartberg, diverse selections known by code designations only.

\* signifies domestic selections.



# A Big Turf Show And What Goes On

**F**OR A THREE-YEAR-OLD, it's making some pretty bold claims to bigness.

But then the Ohio Turfgrass Conference as supporting evidence offers its attendance of 1,050, raising the question: Is there another similar gathering any larger?

The latest measurement of the Ohio group's growth came Dec. 1-3 in Cleveland. Twenty-two papers were presented; 71 companies occupied 130 booths set up in the main ballroom and an adjacent room half as large in the Sheraton-Cleveland Hotel.

Sponsors were four-fold: The Ohio Cooperative Extension Service, Ohio State University, Ohio Agricultural Research and Development Center, and the Ohio Turfgrass Foundation.

Subject matter for the three days was categorized under five headings: Turf varieties and mixtures;

turfgrass diseases; soil factors; weed control; and grounds beautification. A report on the weed control section will be carried in the February special issue on weed control. A capsule of other information presented follows:

## **Turf varieties and mixtures**

"Temporary grass mixtures are, for the most part, not desirable and used only when quick cover is necessary," stated agronomist Merle H. Niehaus from the Wooster research and development center. On the other hand, he added, "Permanent mixtures can be used to increase turf tolerance to certain pests and particularly to increase shade tolerance."

Fast-growing short-lived species,

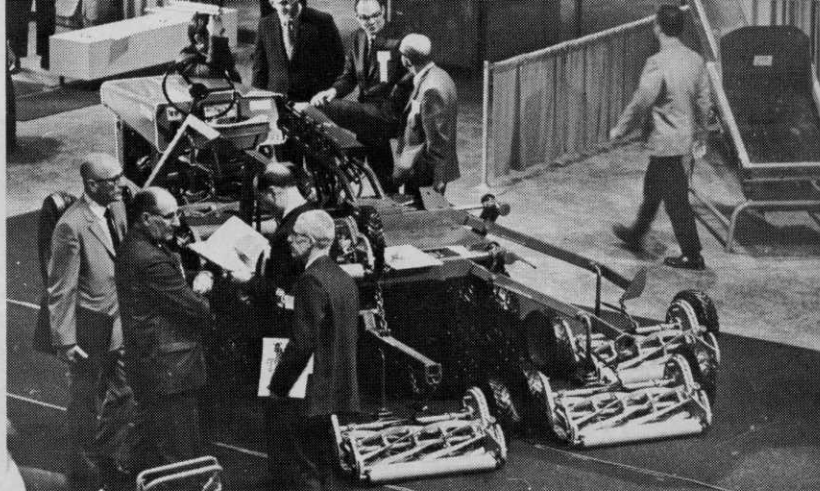


You're looking at a portion of the banquet crowd and about a third of the exhibit area of the Ohio Turfgrass Conference and Show. The event is becoming one of the largest in the country on vegetation management.









## On the Exhibit Floor



rather than acting as a "nurse crop" for slower-growing, long-lived species, can actually suppress the growth of the latter desired species, he said.

A desirable permanent mixture is bluegrass and red fescue. Bluegrass will dominate the sunny portion of the area; the red fescue, the shady portion. In Wooster tests, this mixture produced a complete sod more rapidly than either alone, he reported.

For hard-use areas, such as playgrounds on athletic fields, Niehaus advised pure tall fescue over bluegrass/tall fescue. In high levels of management, the bluegrass will dominate, he said.

Short-term data indicate that bluegrass and new turf-type perennial ryegrass look promising as a mixture to provide quick cover and a high degree of tolerance to many turf diseases.

Dr. C. R. Funk reported these conclusions from Rutgers research of bluegrass blends under various management conditions:

1. Observed performance of a blend has never significantly exceeded the performance of the best component variety.

2. Blending of varieties with contrasting leaf widths has produced attractive turf.

3. Newport has proved to be a poor competitor in mixtures with Merion, Pennstar and Fylking.

4. Merion has been too competitive, in relation to other available varieties to make it an ideal component of a permanent blend. At the end of three years, Merion comprised more than 94% of the turf in all mixtures seeded to either 25% or 50% Merion.

5. Blends of resistant and susceptible varieties showed considerably less damage from leaf spot than the average performance of the components grown separately.

6. Stripe smut did not influence competitive ability until it became severe.

"Data suggests that the best multipurpose bluegrass varieties," Funk concluded, "will be blends of compatible, low-growing, disease-resistant bluegrasses tailored to complement each other. Outstanding single-component varieties will continue to be used for special purposes."

All the while that one of the most enviable records in college football was being built, research was going on under the trampling feet of Ohio State University football players and their usually vanquished opponents. Among those watching the turf, perhaps as much

as they watched the players, was Dr. Robert W. Miller. He reported on findings of research that began with the renovation of the Ohio State field at Columbus in 1961.

A 90% tall fescue/10% Kentucky bluegrass was seeded in April of 1962. During the first playing season, tall fescue dominated, he said. Then the fescue dwindled to 25% in the 1963 season and disappeared entirely by the 1964 season.

Research was begun to find out what happened to the fescue. Merion, Delta and Newport bluegrass were mixed with fescue. Factors of fertility, seeding rate, mowing height, water and no water were evaluated.

Dr. Miller reported these conclusions:

1. A turfgrass mixture of tall fescue and Kentucky bluegrass will gradually change to bluegrass when highly managed in a climate similar to that of central Ohio.

2. The increasing dominance of bluegrass results in part from differential winter injury to the two species.

3. To maintain a minimum shift to bluegrass, use no more than 3 lbs. of nitrogen per 1,000 sq. ft. per year and mow at a two-inch height.

While perhaps more than half of the golf courses in the northern part