

Green World



AN INDUSTRYWIDE PUBLICATION OF THE NEW JERSEY TURFGRASS ASSOCIATION

Volume 1, Number 2

May, 1971

New Varieties of Kentucky Bluegrass

C. Reed Funk
and Mohamed K. Ahmed

The increasing awareness of the importance of turfgrass in enhancing the quality of our environment has led to a renewed interest in the genetic improvement of Kentucky bluegrass. This effort is leading to the development and release of a number of improved varieties. Many of these should be of value for improving New Jersey turf as we learn more of their area of adaptation and particular management requirements.

Pennstar Kentucky bluegrass was recently released by Pennsylvania State University. It is quite similar in appearance, disease reaction and seasonal growth cycle to Fylking. Good resistance to both stripe smut and the *Helminthosporium* leaf spot and crown rot disease gives Pennstar a considerable advantage over many of the bluegrass varieties in current use. Pennstar is also moderately resistant to current races of leaf and stem rust but is moderately susceptible to dollar spot, *Fusarium* and powdery mildew. This variety produces an attractive, dense, moderately low-growing turf of a rather fine texture. This leafy appearance is maintained throughout May and June when many other bluegrass varieties become quite stemmy producing seedheads and unwanted pollen. Abundant rhizome production results in a strong, tightly knit sod. An attractive, rich, moderately dark green color is developed in early spring which is maintained into late fall. This color persists even under moderately adverse growing conditions such as low fertility and incipient drought. The rather decumbent growth habit and improved disease resistance of Pennstar allows it to tolerate moderately close mowing. However, it should be pointed out that excessively close mowing places considerable stress on any bluegrass and weakens its ability to resist disease and prevent weed inva-

sion. The rather fine leaves of Pennstar tend to bend over, especially at higher cutting heights. Thus a neater appearance will be achieved with frequent, moderately close mowing. Pennstar has performed well in mixtures with other bluegrass varieties as well as with the improved varieties of fine fescue and perennial ryegrass. A moderate amount of seed is presently being sold.

Sodco Kentucky bluegrass is a blend of Anheuser and three other bluegrass selections similar in growth habit and general appearance. This variety, developed at Purdue University, has a rich, dark green color, wide leaves and a rather decumbent growth habit with a moderately slow rate of vertical growth. It is tolerant of rather close mowing and has a firm texture and stiff leaves. An adequate fertility level is required to provide good density. Sodco has good resistance to leaf spot, stripe smut and powdery mildew. Even though Sodco is a blend of four bluegrasses, it may be advisable to mix it with other bluegrass varieties for quicker establishment and wider adaptation. Such blends may show a variation in leaf width.

Warren's A-20 Kentucky bluegrass has better disease resistance than any other bluegrass variety on the market. It has good to excellent resistance to leaf spot, stripe smut, powdery mildew and leaf rust and moderately good resistance to *Fusarium roseum*. Moderate susceptibility to stem rust in the Midwest and stripe rust on the West Coast has been observed. Turf produced by this variety is attractive, dense, leafy, upright, of medium leaf width and has a pleasing, moderately dark green color. Compared with most other bluegrasses, A-20 has a rather stiff leaf. It also shows good recovery from rhizomes after divot removal or sod cutting. Warren's A-20 will tolerate close mowing. Unfortunately, this elite variety will not reproduce true from seed and must be propagated vegetatively like Zoysia. Sod and plugs

are presently being sold in many areas.

Warren's A-34 Kentucky bluegrass is a vigorous variety with somewhat better shade tolerance than other bluegrasses currently available. When maintained at a 2-inch mowing height, it will tolerate shade up to 65 per cent of the daylight hours during the tree leafing period. Warren's A-34 also does moderately well in full sun, producing a dense, medium green turf with moderately good resistance to leaf spot, stripe smut, powdery mildew and rust.

Nugget Kentucky bluegrass is the most distinctive variety presently being increased for commercial use. Limited amounts of seed should be available following the 1971 harvest. Nugget was found in an old turf growing in Hope, Alaska. This variety produces a very dense, compact, rather low-growing turf which can be extremely attractive, especially in mid-to-late spring. Nugget has good to excellent resistance to leaf spot, powdery mildew and current races of leaf rust. Unfortunately, it appears to be very susceptible to stem rust, dollar spot and aphids. This variety appears to have good tolerance of close mowing and moderate shade when free of disease and insect damage. Nugget is very slow to start growing in the spring and has very poor early spring color in temperate climates.

Baron Kentucky bluegrass is a new variety developed in Holland. It has shown promise of good performance in tests in Northern Europe and Rhode Island. Unfortunately, it has not been widely tested for turf performance in other parts of the United States. Baron has rather broad leaves, a moderately low-growing, turf-type growth habit and a medium dark green color. The variety appears to have moderately good resistance to *Helminthosporium* leaf spot and melting-out. Seed of Baron should be generally available following the 1971 harvest.

Sydsport Kentucky bluegrass was developed in Sweden where it is reported to have good tolerance of the

wear and tear received on athletic fields. Sydsport has rather wide leaves and can produce a rather dense, tight sod of a medium green color. It has moderately good leaf spot resistance but susceptibility to dollar spot has been noted in some tests in the United States. Seed is presently being produced for the European market and may be sold in this country if test results continue favorable.

Nassau Kentucky bluegrass (formerly NJE P-69) is a moderately low-growing, turf-type bluegrass with a very attractive, rich, dark green color which is maintained throughout the entire growing season. It has good density and vigor and has shown good or moderately good resistance to leaf spot, stripe smut, leaf rust and dollar spot. *Nassau* is a hybrid between a fairway selection from the Bellevue Country Club and *Belturf*. Seed of this elite new variety should be available in moderate amounts following the 1972 harvest.

NJE P-106 Kentucky bluegrass is a hybrid between the selection from Bellevue Country Club and *Pennstar*. This moderately low-growing, turf-type variety has good resistance to leaf spot, stripe smut and leaf rust. It has a beautiful, bright, rather dark green color and becomes green very early in the spring.

Bluegrass Varietal Blends

Turfgrass is grown on a wider range of soil, environmental and use situations than any other plant species. We want our turfgrass plantings to be permanent and durable as well as attractive and easy-to-maintain. All varieties can be expected to show some weaknesses as plantings become aged. This has caused many turf workers to recommend the use of properly chosen varietal blends. It is hoped that the weaknesses of one variety will be covered up by the complementary strengths of another variety.

Research has demonstrated the value of including varieties such as *Pennstar* or *Fylking* which have resistance to both leaf spot and stripe smut in all mixtures used to produce quality turf. In tests where *Merion* had been badly damaged by stripe smut, adjacent plots seeded to *Pennstar* or *Fylking* either alone or in mixtures with *Merion* produced good turf. The standard common types such as *Park*, *Delta* and *Kenblue* may well be included in mixtures for turf which is mowed high and not fertilized heavily. Where turf is cut closely and a leafier turf is desired these varieties will not perform nearly as well as many of the new, improved varieties. *Newport* generally behaves

as a rather short-lived variety under New Jersey conditions and should be used only in mixtures with more persistent components. *Merion* Kentucky bluegrass is still a very useful Kentucky bluegrass for our region because of its performance record and availability of its seed. It may be included in most seedings of Kentucky bluegrass except where shade occurs.

"Some Chatter About The Maintenance Turfed Areas"

A manager is charged with the responsibility of looking for new innovations, new methods, new procedures, new materials, in order to operate more efficiently without giving up any quality. Therefore, he is constantly evaluating operations done, and searching for ways that may improve the operation.

In my opinion, the single most important item in maintaining turf is the mowing operation.

In order to relieve this costly operation, considerable acreage has been allowed to naturalize, and seedlings have been planted to speed up the naturalization. In addition, some low growing ground covers that will look attractive, stabilize the soil and yet do not require mowing have been planted on steep slopes. Also, new varieties of grasses are becoming popular and their substitution in present seed mixtures has a real potential. Chemical control programs have been established. These chemicals suppress the grasses so that the frequency of mowing may be reduced.

The Turnpike uses a "team" concept of mowing. Seven teams are employed consisting of: two tractors equipped with 7-8' P.T.O. flail mowers, three tractors each equipped with high speed flail mowers, two trimming mowers (rotary), one supply or maintenance vehicle, and one truck for the transportation of operating personnel. Each team consists of seven operating personnel, and one team leader; and they are responsible to mow approximately 20-26 miles of right-of-way (including interchanges and service areas). A complete round requires approximately fourteen working days. Everything appears to be covered, but still there are other approaches that appear worth trying.

Substituting boom mounted mowers to replace the hand trimmers; this unit may be suspended over the guard rail to mow that area 3-4 feet behind the rail. It may also be used to mow waterways and swales that are difficult for conventional mowers to handle.

Another possible substitution that

appears worth trying is a small four-wheel drive truck mounted with hydraulic mowers. We have seen such units and have had the opportunity to work with one on a trial basis. This has many advantages.

1. By employing two per team, there is no need to supply a team with two service trucks. In highway mowing, it is a safety measure to have a vehicle standing by; in case of injury, the injured person may be transported for treatment as soon as possible.

2. Mowing teams travel to and from working site to the Maintenance Districts, and these units may be serviced in the Maintenance area rather than in the field.

3. There is a higher rate of productivity due to a faster mowing speed. Observations have shown that the mowing unit travels at 5 M.P.H. contrasted to 1 to 1½ M.P.H. with tractor drawn equipment. (I believe this is due to "driver comfort.")

4. This unit is effective on flat terrain, but it is questionable on slopes of 2 on 1. It would be necessary to hold one tractor with P.T.O. equipment for slope work. It does appear that one small truck will replace two tractors.

5. Because the operator is sheltered from the weather, an operation can be conducted on days when you are experiencing "drizzle" or light rain.

6. Another advantage worth considering is the possibility of "air-conditioning." During the summer months, it can be rather tiresome riding a tractor eight hours a day. We experience "freak" accidents that put equipment out of service; also, men stretching breaks, etc. These things can be quite costly. A small investment to air-condition the vehicle just might pay dividends.

Basically, this type of operation would reduce the mowing team from seven men to four; release two service trucks for service in other operations; eliminate two trimming mowers; reduce the team from five pieces of automotive mowers to four pieces of automotive equipment.

Well, this is idle chatter, so permit me to speculate; I cannot prove a thing, although I hope to try during the season of 1971 (on a limited scale, of course).

David G. Grimm,
Horticulturist
New Jersey Turnpike Authority

ARTICLES WANTED

Send to: Box 123
Caldwell, N. J. 07006

Turfgrass Fertilization And Ecology of The 1970's

It is difficult in this modern, high-speed world to establish and maintain the proper contacts needed to improve knowledge of a relatively specialized side of agriculture such as the growing of high quality turfgrass. However, my company and the rest of the fertilizer industry, who look at the newly-formed New Jersey Turfgrass Association from the fertilizer supplier's viewpoint, are pleased to be charter members of the Association. This organization has been wise in blending the vital interests of large commercial sod growers, golf course superintendents, landscapers, proud homeowners, other turf growers, the commercial seedsmen, plant food producers, and pesticide suppliers with the knowledge and research available from the colleges of agriculture.

I believe it is important to note that the title indicates this association is a *New Jersey* association with the intent to concentrate on our immediate, local problems, although research and experience from other states are certain to be assessed by all. In turn, the membership is open to anyone outside of New Jersey, and I would hope that any turfgrass knowledge the organization obtains would be available to anyone whom it might help. The fact that the association is to operate in an area with the myriad of environment problems caused by millions of residents and workers with the nearly saturated population density of New Jersey is no small challenge. It is a source of considerable satisfaction to point with professional pride to the many benefits to the urban and rural landscapes afforded by broad expanses of turfgrass performing their triple roles of oxygenation of the atmosphere, prevention of erosion, and the beautification of the Garden State. Yet, it is a fact that many residents of New Jersey have not been made aware of the effort necessary to grow and improve these desirable turfgrasses. With more and more of the population exposed only to the concrete colossus of the shopping mall, it would seem natural that the air and ground purification performance of turfgrass is being forgotten. Some of the new shopping centers are quite attractive, and I admire adequate parking space, but I have never considered blacktop or asphalt aesthetically satisfying, much less a boon to my breathing.

The efficiency of a turfgrass sod in scrubbing refuse chemicals (many serve as plant nutrients) out of the environment has not been properly emphasized. While fertilizer manufacturers are steadily striving to find the

most advantageous balance of nitrogen forms—nitrate, ammoniacal, urea, urea-formaldehyde, or natural organic—that may be fed to turf with the least sudden shock or stimulation and with the least amount of labor involved in application, it is still surprising and fortuitous that turf has always been able to hold and/or utilize many relatively undesirable ratios of nitrogen, phosphorus, potash and combinations of chemicals. This appears to be one of the reasons turfgrasses are efficient scrubbers. Possibly more drainage waters should be spread over grass areas as an attractive alternative to the present dumping or disposing of such water.

In view of the valuable role of grasses, the New Jersey Turfgrass Association should promote to agencies such as the State Environmental Protection Department its willingness to advise and assist in use of turf in maintaining a proper ratio of closed (paved) area to open (turf or landscaped) area for some of the most congested cities of the state. Certainly, it would seem only logical to indicate to the Environmental Protection Department what materials are regarded as essential to the maintenance of healthy turf and what steps could be taken to insure the proper handling and application of these materials. I am sure there is no large popular bloc of "anti-turf" agitation, but certainly much can be done to ease the future picture by proper education and sensible regulation. In this regard I am reminded of the recent successful cooperation of regulatory groups, consumer groups, and commercial interests in passing a new fertilizer control law.

Oregon Growers Faced With New Cultural Practices As Environmental Oriented Legislature Meets

Contributed by Peter Loft

Oregon seed growers are being plagued with a host of environmental bills as the legislature swings into mid-session. The majority of the bills aim at setting a date for ending the cultural practice of burning grass seed straw left in the fields following harvest. Second on the list of legislative importance is the effort to repeal the agricultural exemption, which is now in the statutes, to prevent the Environmental Quality Commission from declaring an outright ban on field burning.

The Oregon Seed Council, representing growers at the legislature, has asked the Senate Environmental Committee to tie legislation to the perfecting of a mobile field incinerator now

being built at Oregon State University. The college engineers have developed a concept of burning straw on the ground with a simplified machine which can be tractor drawn and designed to be built in farm shops. Such a solution, the seed council contends, would keep the \$30 million grass seed industry in business and, at the same time, improve the environment as the machines become available. Some legislators have pushed for a phase-out date for open field burning and several bills mention the 1973 year as a likely goal.

Research in straw usage is also being researched at OSU and to date the findings show a good quality paper can be made from the million tons of straw produced annually. Seed growers contend the straw should be so utilized to help save our depleting forest lands. Since Oregon is principally a timber state the suggestion of making paper from straw rather than wood has not found enthusiastic backing.

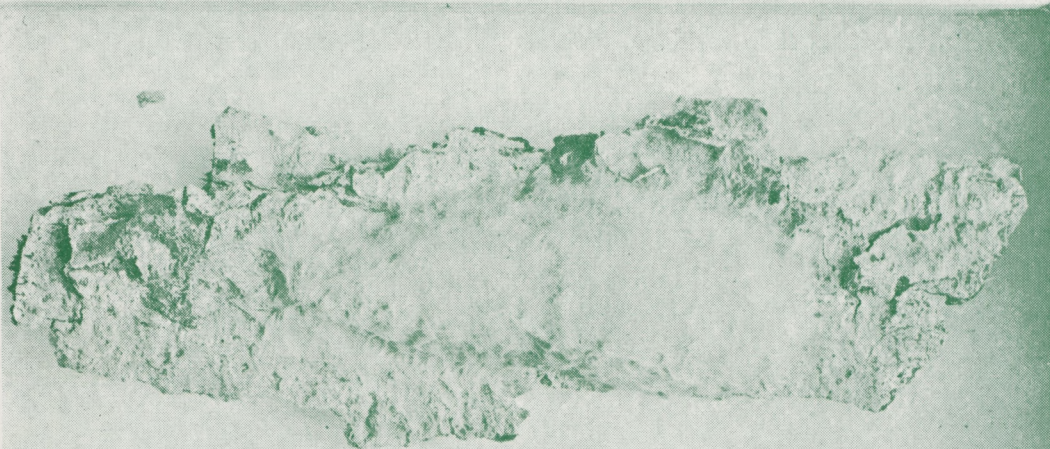
A new cubing process for straw is also showing promise to make the residue more easily flowable for handling. Some interest has been shown by Japanese industrialists for use in paper making, animal feeds and other fiber usage.

Oregon's Willamette Valley currently produces over 260,000 acres of grass seed plus an additional 300,000 acres of small grains. Grass fields burned last year are estimated at 230,000 acres plus some 25,000 acres of cereal crops burned. Burning has been a standard cultural practice since the early 1940s when it was discovered burning the crop residue destroyed weed seeds, certain diseases uncontrollable by chemicals and as a means of shocking the plant into greater seed production.

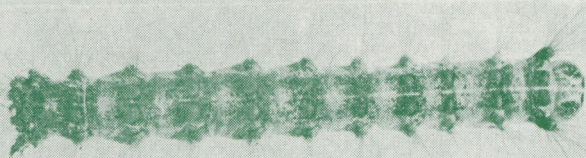
The past year the seed council inaugurated a smoke management program in cooperation with the state's fire chiefs and the Department of Environmental Quality. The purpose of the program was to allow burning only when the weather conditions were such the smoke would be wafted from the valley and away from the populated areas. An airplane was provided the DEQ meteorologist, at his request, to watch smoke plumes and to test inversion layers prior to release of burning permits. The program was a success and there was a great improvement in the atmospheric visual conditions over the previous year when growers were not involved with the state agencies in managing the smoke.

The grass fields are burned between July 1 and the end of August on days selected by the Department of Environmental Quality.

GYPSY MOTH



EGG
CLUSTER



LARVA



MALE PUPA
AND MOTH



FEMALE PUPA
AND MOTH

The picture you see here will help you to identify a plant pest which was of little consequence in New Jersey in 1966. However, in 1971, just five years later, estimates by authorities suggest that over 200,000 acres of New Jersey woodlands are in danger of being defoliated by the Gypsy Moth.

The larva which causes the damage and may be found from late April to early July grows to 1½-2½ inches long. It can be readily identified by the pairs of red and blue dots on its back. The adult stage is present from late July to early August. Male moths have slender brown bodies and brown wings irregularly crossed with dark lines. The wingspread is about 1½ inches. The female moth with her 2½ inch wingspread does not fly. Her body is heavy and stout and her wings are white crossed with dark lines. Egg masses are buff colored and about one inch long by ½ inch wide. This stage may be found in late summer, fall and winter attached to rocks, trees or shaded objects.

If you spot any signs of Gypsy Moth in your area, you are requested to immediately notify your local Agricultural Extension office.