

variety will tolerate a Minnesota winter or a Washington, D.C., summer as well as a good bluegrass.

The new turf-type perennial ryegrass such as Manhattan, NK100 and Pelo are a considerable improvement over Common perennial ryegrass in their various turf characteristics. In fact, many people fail to recognize them as ryegrasses. They are finer leaved, more attractive, denser, lower-growing, more persistent, and have better turf-forming properties. They are quick and easy to establish and will grow on a wide range of soil types. The new ryegrasses are normally easier to mow than common perennial ryegrasses, but they can be very difficult at times. Frequent cutting and a sharp mower helps maintain top quality. The improved ryegrasses have generally done very well on the sandy coastal plain soils of Long Island. Further research and experience is needed to fully assess their specific usefulness in other areas. A good bluegrass variety should normally be included in any ryegrass mixture.

**NK100** perennial ryegrass originated primarily from plants surviving for many years in old pastures of the British Isles. These plants were crossed with common perennial ryegrass from

Oregon. Plants with good persistence, a leafy growth habit, good turf quality and an attractive, bright, medium dark green color were selected from these crosses to develop NK100. This variety has been very successful on Long Island with many stands persisting for over 10 years.

**PELO** perennial ryegrass was developed in the Netherlands. This variety has an attractive, bright, moderately light green color. It is leafy and has shown comparatively good resistance to rust and Fusarium snow mold.

**MANHATTAN** perennial ryegrass was recently released by Rutgers University. Most of the parental plants of Manhattan were selected from old turf areas in Central Park located on Manhattan Island in New York City. Manhattan has an attractive, rich, moderately dark green color. It produces a turf of finer texture, greater density and a somewhat slower rate of vertical growth than other available ryegrass varieties.

**NORLEA** perennial ryegrass is a moderately short-lived variety developed in Canada. It is attractive, leafy and moderately low growing. This variety can be very useful as a nurse or companion grass if quality seed not contaminated with annual ryegrass is used.

## Warm Season Grasses

### We Should Know About

by **JAMES B. MONCRIEF**, Director, Southern Region, USGA Green Section

#### **BERMUDAGRASSES** (*Cynodon dactylon*)

The search for superior bermudagrasses is continuing both by selecting from old turfgrass areas, and developing new crosses. Many strains of turf-type bermudas have been collected by Dr. Wayne Huffine and Associates, with the most recent releases from Tifton, Ga. Yet with all these numbers, the perfect specimen is still being sought.

The latest is Tifdwarf. Released in April, 1965, it is being used in most new plantings even though it turns a purplish color during cold weather. Height of mowing will affect this condition. In most areas other than in south Florida it should be overseeded.

Tifdwarf will make an excellent putting surface if it is managed properly, although and some

high handicappers say it makes too fast a putting surface. It forms a tight turf, is a low-growing prostrate type of grass that has a wide range of maintenance levels. It was first sold as a low maintenance level grass, but the best putting surface is achieved when it receives 1½ to 2½ pounds of nitrogen per 1,000 square feet per month using a 4-1-2 ratio.

Because tifdwarf is sensitive to some chemicals, it is advisable to grow healthy turf to minimize weeds. Sod webworms will leave other grasses in preference to Tifdwarf. The grass has a very dark green appearance which attracts the adult stage of this insect.

In summary, Tifdwarf gives an outstanding performance during warm weather and a poor one during cold weather.

Tifgreen, released in 1956, is not a new grass, but it is still used very much on greens.

Two of the best fairway grasses in the South, although not new, are Tifway and Ormond. Tifway was released for fairways and tees. It is a stiff grass with a deep green color. In the West, it has a tendency to thatch, but in the South, it has made an excellent playing turf where adapted.

Santa Ana bermuda was released in California in 1966 by Dr. Victor Youngner. It is smog resistant and has proven to be salt tolerant. It should be good for tees and areas where wear resistance is necessary.

Newer bermuda selections are showing much promise, but they are not yet ready to be released for general use; however, P-16 should be in general use soon.

### **ZOYSIAGRASSES (*Zoysia japonica*)**

Zoysia is used mostly on home lawns in the South and very little is seen on golf courses. Occasionally we find it sodded around the edges of bunkers to reduce trimming requirements. This has not always proven satisfactory because bermudagrass frequently will overrun the zoysia when bermudagrass maintenance is favored.

Florida University has more than 90 selections of zoysias, and most of the F-1 hybrids have been established in single plots. The selection F-2-108 japonica type is a rapidly growing variety, relatively free of problems. There is no doubt that more zoysia will be used in the future.

The zoysias are most resistant to injury from disease and insects, and they are also more cold-tolerant than most warm season grasses. Slow coverage has been one of the main disadvantages. However, a variety called Midwest is a relatively fast-growing type.

### **ST. AUGUSTINEGRASS (*Stenotaphrum secundatum*)**

There's a new problem on St. Augustine called SAD; St. Augustine Decline. First noted in South Texas, it has been found to be caused by a virus. If the chinch bugs continue their western migration from Florida and SAD virus continues to spread eastward from Texas, St. Augustine research will be challenged. Several strains are now showing a tolerance or resistance to the virus, and work is underway to develop and screen strains for resistance.

The arsonates are very toxic to St. Augustine-grass. They discolor it greatly but the grass recovers in most cases, except where the rate exceeds four times normal.

The main disadvantages of St. Augustine are its susceptibility to chinch bugs, diseases, (particularly brown patch), and more recently a virus.

The advantages of St. Augustine is rapid growth and shade tolerance.

### **CENTIPEDEGRASS (*Eremochloa ophiuroides*)**

Centipede is used very little on golf courses and found only on fairways or in roughs. It is a coarse grass used mainly for its low maintenance requirements.

Oaklawn and Tennessee Hardy are the most satisfactory varieties because of their cold tolerance.

Florida University (Dr. G. C. Horn) has 12 centipede grasses that have been selected and are believed superior. There should be much to look forward to in future centipede selections.

Brown patch disease is very active on centipede and hard to control in some areas of Florida.

*New grasses are in production and seed growers are interested in quality as well as quantity.*

