# OVERSEEDING
# Bermudagrass Greens for Championship Conditions

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

For golf, bermudagrass is king of the warm season grasses across the southern tier of the United States. From San Diego to St. Augustine it has no equal. Even as a putting surface, many golfers now believe the improved bermuda strains equal the putting qualities of bentgrass.

But one problem remains. The dormant or semi-dormant nature of bermudagrass during the winter playing season calls for overseeding. It is needed not only for winter color, but for a renewable playing surface through the dormant bermudagrass months as well. In fact, overseeding is one of the most important jobs for the southern golf course superintendent.

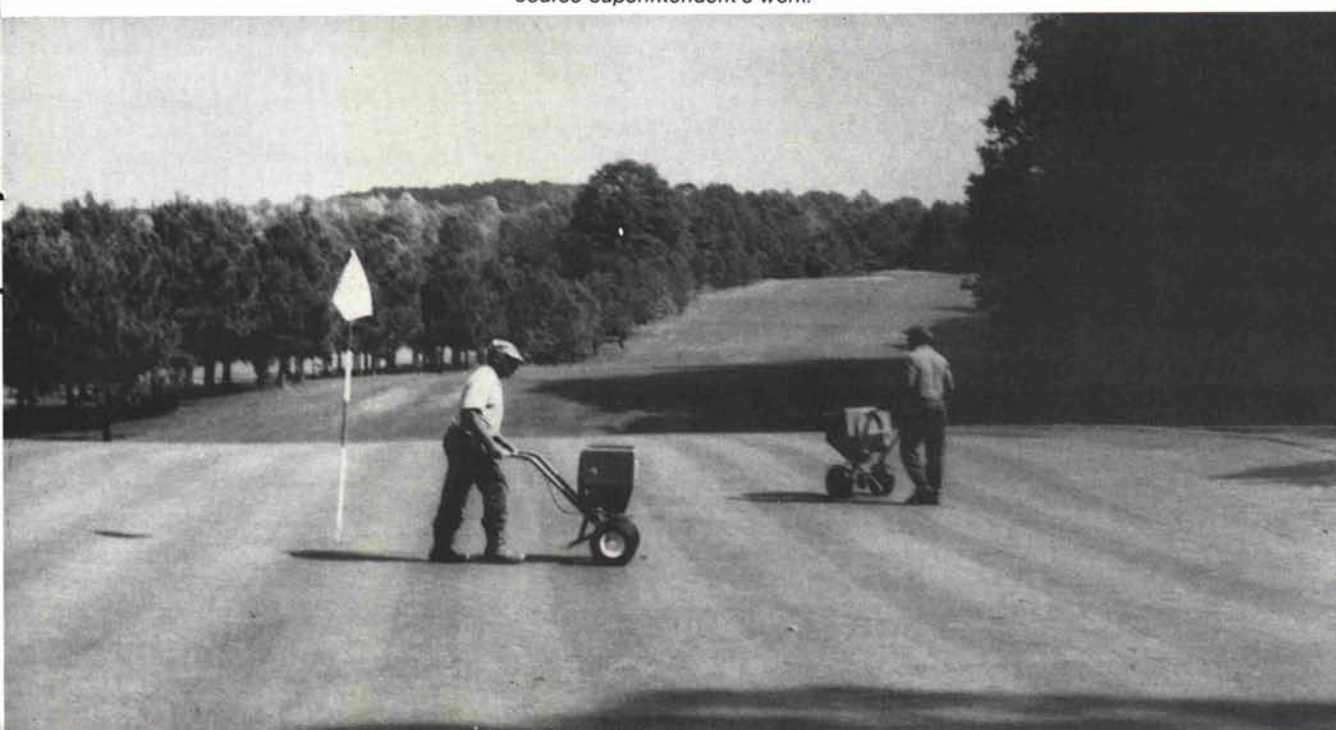
In extreme south Florida bermudagrass can survive without winter overseeding except under the most unusual weather conditions. Gibberillic acid has been tested and used to retain green color when severe cold fronts pass through this area. However, as one moves north, annual fall overseeding of bermudagrass becomes a necessity. If the grass is managed properly, there should be little difficulty in making the transition in the autumn from bermudagrass to the cool season grasses. The golfer should note very little difference in the putting surfaces of overseeded bermudagrass greens and bentgrass greens. The quality of the winter bermudagrass putting green will be determined by the selection of seed and how the greens are managed.

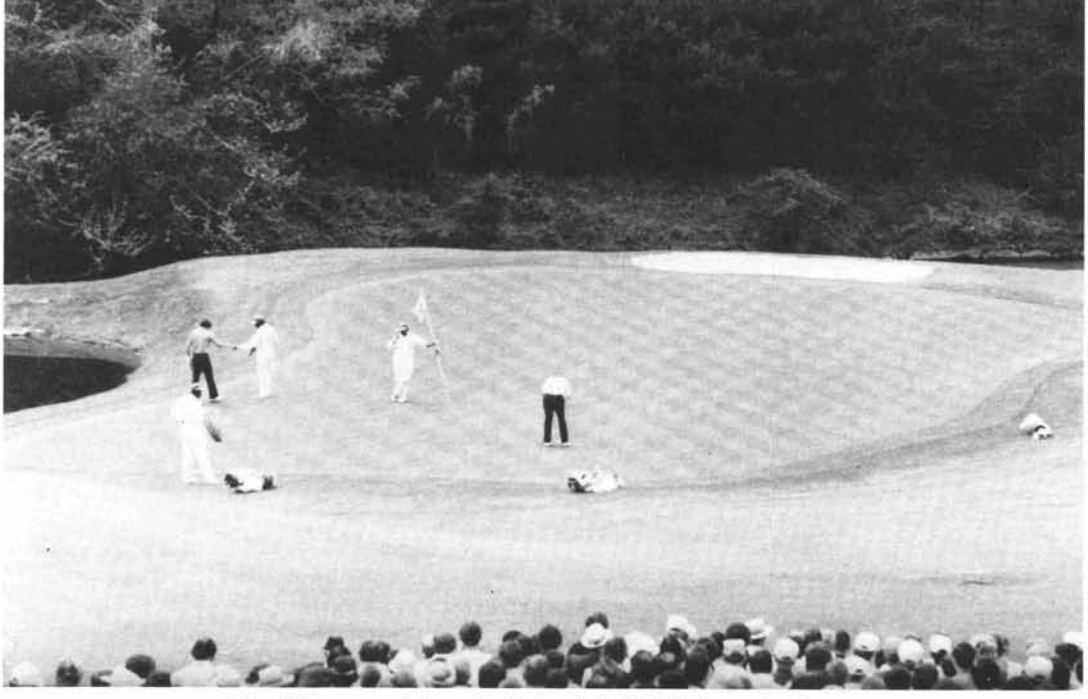
In the past, common ryegrass was used almost exclusively for overseeding greens for winter play but its spring transition period was a dreaded occurrence. Although it is still used on many courses today, improved ryegrass selections are now available and their use is increasing.

Much progress have been made during the past 10 to 15 years in selecting perennial ryegrasses, fine leaf fescues, bents, and bluegrasses for overseeding. These selections alone or in various combinations produce superior putting qualities and give a better transition in the spring with minimum disturbance to play.

The Milwaukee Sewerage Commission started out-field testing of seed selections and combinations on many golf courses in the early 1960s. Since then research has been done by private seed com-

*Overseeding bermudagrass greens—one of the most important requirements of the southern golf course superintendent's work.*





*The 11th green at Augusta National Golf Club, Augusta, Ga.*

panies, State and Federal turfgrass research centers throughout bermudagrass country. Extensive out-field testing on golf courses under varying traffic conditions has been one of the best ways to select grasses that give good performance under actual play. Seed production has become a larger and more scientific business with better selection of seed for better putting surfaces and transition on greens.

Some of the factors that have been considered in selecting grasses for overseeding bermuda putting surfaces are:

1. Wear resistant grasses, deeper green in color and the ability to withstand frequent low mowing to produce a true putting surface.
2. Fine leaf textured grasses that hold their color under low temperature ranges and minimize irregular roll of the ball in early stages of establishment.
3. Grasses that die back gradually in the spring so there is a gradual loss of the cool season grasses. Too rapid loss of a grass exposes bare areas before bermudagrass has time to fill in.
4. Selection of cool season grasses that are disease resistant or can be treated with fungicide for minimum loss of seedlings during establishment. Much progress has been made in treating seed with fungicides. Small grass seed is more difficult to treat than larger seed such as ryegrass. Farmers and vegetable growers have used fungicides for years to protect their expensive seed.
5. Uniformity of stand with no grain.

Ryegrasses emerge readily and produce a smooth putting surface within 3 to 5 weeks depending on the management of the green. The first cutting of new selections of perennial ryegrasses should be at about 5/16- or 3/8-inch. This will allow better root development. Gradually lower the cut to minimize irregular roll of the ball. Perennial ryegrasses are more cold tolerant, more disease resistant, and make a finer putting surface than domestic annual ryegrass. However, there can be a variation in the putting quality of perennial ryegrasses.

## BUY QUALITY SEED

There is a wide selection of seed mixtures now being used and they are giving excellent results. Seed quality is very important. Only quality seed should be purchased. The seed tag on label will include the variety, purity, weed content, and germination. By becoming familiar with the tag, the amount of pure live seed can be determined and this can mean the difference between a good or poor stand. To find the percentage of pure live seed, multiply purity by germination.

The label will also indicate the weeds to expect in the overseeding. *Poa annua* is considered a weed where bermudagrass is overseeded. Shepherd's purse, chickweed, watercress, and other are frequently found in overseeded greens.

The seed you select should be determined by the total rounds of golf, size of greens, location of golf course, and budget. A partial list of seed used for bermudagrass overseeding is listed alphabetically for reference. No endorsement is intended.

### Bentgrasses

Astoria, Emerald, Exeter, Holfior, Penncross, &

Seaside

**Fescues, fine leaf**

Atlanta, Banner, Barfalla, Cascade, Chewings, Dawson, Golfrood, Highlight, Jamestown, Koket, Pennlawn, Wintergreen

**Kentucky bluegrasses**

Baron, Common, Park, Prato, Primo, Vieta

**Perennial ryegrasses**

Barenze, Birdie, Citation, Compas, Derby, Diplomat, Epic, Eton, Game, Lamora, Linn, Loretta, Manhattan, NK 100, NK 200, Omega, Pennfine, Pelo, Splendor, Yorktown

**Poa trivialis**

Common or Roughstalk.

The seeds listed can be used alone or in combinations for superior putting greens.

Cultivars used alone on greens, pounds per 1,000 square feet:

| | |
|---|---|
| Perennial ryegrass | 30 to 40 |
| Annual ryegrass | 30 to 50 |
| Bentgrass | 3 to 5 |
| Fine fescues | 24 to 30 |
| *Poa trivialis* | 8 to 10 |

Seeding mixtures and pounds per 1,000 square feet:

| | |
|---|---|
| Perennial ryegrass & fine leaf fescue | 20-10 to 25-15 |
| Perennial ryegrass, fine leaf fescue, bent | 20-10-1 to 25-12-3 |
| Perennial ryegrass mixture, 2 to 3 cultivars | 30-40 |
| Bent, fine leaf fescue, bluegrass | 1-10-4 |
| Bent, fine leaf fescue, *Poa trivialis* | 1-10-6 |

When considering these rates, keep in mind, pure, live seed for best results.

## FACTORS AFFECTING A STAND

Several factors affect an early superior playing quality. Buy the best seed available, preferably treated with fungicide. The stand may be sparse if the greens are not seeded at the proper time and may cost more if the overseeding is not handled properly. Bermudagrass becomes very competitive with cool season seedlings if overseeding is accomplished too early and warm temperatures persist. Perennial ryegrasses produce additional stems and fill in voids under favorable growing conditions.

Get the seed down through the turf on the putting surface as close to the soil as possible. If there has been a weekly or bi-weekly light vertical mowing program prior to overseeding, drastic thinning of the grass at seeding time may not be necessary. You may also want to skip mowing for two to three days prior to overseeding. This will allow the seed to sink into the turf and to be covered with sterilized soil. Any cultivation of the green should be done about four weeks before seeding to prevent a spotted effect when the seeds sprout.

Date of seeding can vary very much from extreme southern to the farthest northern region where bermuda is used and greens are overseeded for winter play. Earlier overseeding will be done by September 15 and from north to south there will be a 15- to 20-day difference in seeding dates about every 150 to 250 miles. From the Atlantic to west Oklahoma and Texas, the following general seeding dates are suggested for comparison. There may be individual areas that differ. If a golf course is overseeded more than 9 months, use of bent should be considered. Use Interstate Highways going from

*Annual ryegrass seedlings overseeded at 40 lbs. per 1,000 square feet.*

east to west as guide lines:

| | |
|---|---|
| I-40 and south | September 15 to October 1 |
| I-20 and south | October 1 to October 15 |
| I-10 and south | October 15 to November 15 |
| I-4 and south | November 15 to January 1 |
| | or no overseeding. |

Many golf courses in extreme south Florida and south Texas do not overseed every year. Many golf courses in the upper south use temporary greens during the winter months, mulch the permanent greens with straw or cover them with black plastic to reduce winter kill.

HELPFUL CHEMICALS

Many fungicides are available to protect seedlings while they are becoming established and to assure a good putting surface. Throughout the winter season, stay on a preventive program to keep disease from becoming a problem. There should be enough material for at least two sprayings on inventory all the time.

There will be greater root development if the first mowing is from 5/16- to 3/8-inch. As soon as possible threafter, begin to lower the height of cut to minimize irregular roll of the ball. The fine leaf grasses reduce variation of roll of the ball.

The dreaded Pythium and dampening off diseases should not be a major problem if fungicides are applied at the proper time. Other diseases may also be a problem but with broad spectrum fungicides they should be kept under control. Ideal conditions for diseases to develop are created by the management requirements of greens.

During the first 10 to 15 days, management of water is very important. Seed should be kept damp by syringing four to five times a day to assure proper

# Maintaining and

**by STANLEY J. ZONTEK,** Northeastern Director, USGA Green Section

In today's modern golf course operation, simple economics have forced mechanization of just about every possible maintenance operation. The triplex putting green mower, mechanical sand trap rake, large hydraulic fairway cutting equipment illustrate the point. The quest is for ease, speed and efficiency. Why then discuss a maintenance operation that almost totally requires time-consuming and expensive hand labor; i.e., maintaining and defining a hazard? Well, it is because one should not lose sight of the fact that a golf course is not a sod farm! A golf course will ALWAYS require hand labor and has built into it features that are only maintainable by hand. One of the situations that require periodic hand maintenance for good looks and hazard defintion is the care and repair of ever-eroding sand bunker faces and lips.

## GENERAL TYPES OF BUNKERS

Many of the golf courses in this country have bunkers of the type depicted in Figure 1. They are basically of the design that have essentially flat sand with grass-covered mounts extending down to the sand. This picture from Colonia Country Club, Colonia, N.J., shows the new construction of several of these older but effective and aesthetically pleasing bunker types. As with any new construction, maintenance problems arising from eroding edges are some years away.

Such is not the case on many of the older courses in the country that have had bunkers of this type for many years and eroding banks and lips are indeed a problem that can only be dealt with by renovation or reconstruction.

Figure 2 illustrates the problem. Figure 3 shows what has been done at the Garden City Golf Club, Garden City, N.Y. The grass mound facing (Figure 2) shows the extent of the breakdown and erosion problem. The bunker in Figure 3 has been renovated. Needless to say, a big improvement in the appearance and playability has been made (how would

*Figure 1. Old style sand bunkers under construction.*

sprouting.

Over a period of years, pre-emergent chemicals have been used 45 to 60 days prior to overseeding to control weeds, mainly *Poa annua*, but some companies do not recommend their chemical for such practices. Perennial ryegrasses seem to tolerate the pre-emergent treatment better than bent, fine leaf fescue, or bluegrass.

Courses with greens overseeded from October through July 1 should consider renovating greens and using bent. Some resort courses are open for their season from December to May 1 and are on standby maintenance the remainder of the year. The program of overseeding will vary for those clubs open for 12 months of play. There are many variables that must be considered in bermudagrass overseeding. But the one goal of the superintendent to provide championship putting surfaces for the winter months never changes.

*Figure 2. Deteriorated face of old style bunker, a problem on many golf courses.*

# Defining A Hazard

*Figure 3. Renovation of the old style bunker grass slopes. Certainly an improvement over Figure 2.*

you like your ball resting between one of those tufts on the non-renovated mound?).

Problems of this sort may be found on many golf courses. How is the renovation work best accomplished? In this case, the bank was first stripped, removing the thin vegetation and any sand accumulation. Soil was added back to the desired grade and the area resodded. Depending on how the sod is laid, pegging it down may or may not be necessary.

This procedure sounds easy, but in reality it requires much hand labor to keep the areas good looking, playable and maintainable.

Figure 4 is an example of the second basic type of bunker construction . . . sand extending up a face. Some of the problems of this type of design are shown. Although aesthetically pleasing when well-maintained, this type of construction is expensive to sustain especially in areas prone to heavy rains. Rains will frequently wash out the steep sand faces, usually dirtying the sand, and require much hand labor to shovel or re-throw the sand back onto the face again. This style of bunker is also expensive in terms of raking. It does not adapt well to the mechanical sand rake. It requires more hand raking on the slopes than the flatter types.

The solution to the washing problem is not easy. It usually requires reconstruction or recontouring of the subsoil so the slope is less severe, or to reconstruct to reduce the actual sand face surface. Other than this, golf courses having this type of bunker, and liking it, must accept the higher maintenance required by this design.

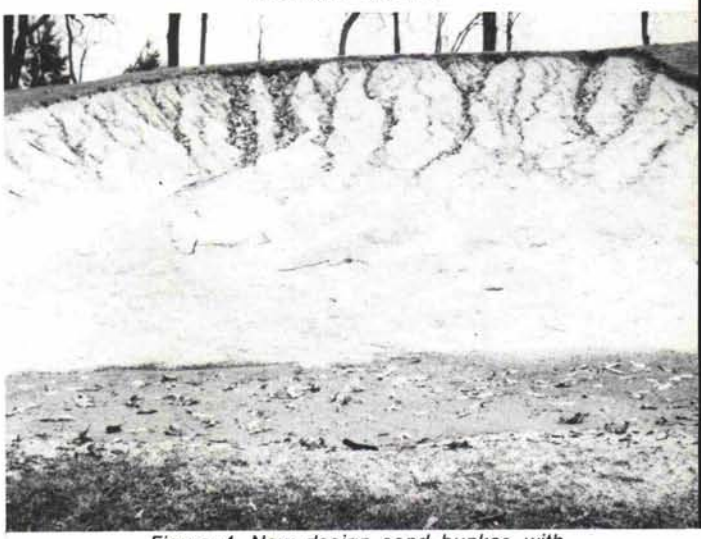


*Figure 4. New design sand bunker, with soil erosion problems.*