

The Golf Course at Bellerive

By **MARVIN H. FERGUSON**, Mid-Continent Director, USGA Green Section

The golf course of Bellerive Country Club in St. Louis, site of the Open Championship last month, is the youngest on which an Open has been played since World War II. Only a half dozen years ago what now is Bellerive was a farm.

Bellerive was built on a rolling piece of land, part of which could be characterized as upland and part lying along a creek which is still partially wooded. It is the kind of terrain upon which many interesting and challenging golf holes could be built. Such was the case at Bellerive. The noted golf course architect, Robert Trent Jones, made good use of terrain in forming a chain of holes each of which offers a different problem.

Bellerive's members enjoyed the advantage of living at one site while the new course was being built. Because the members could play a well-kept golf course at their former club site, there was no clamor to get the new course built and ready to play. This fact proved a decided advantage for A. "Gus" Schnatzmeyer, the golf course superintendent at that time. Schnatzmeyer and his crew anticipated the move and were able to develop excellent nurseries of planting stock of both grass and trees for the new site.

The greens at Bellerive are considerably larger than average, and are quite rolling in character. They were planted to a mixture of Arlington (C-1) and Congressional (C-19) bentgrass. This mechanical mixture of two distinct strains has worked quite well in the St. Louis area.

It is worth noting at this point that St. Louis is one of the most difficult spots in the United States to grow

golf course turf. Its' summers with round-the-clock high temperature and high humidity day after day provide excellent growing conditions for pathogenic fungi and many weed pests. On the other hand these conditions cause bentgrass roots to become short and the turf is consequently subject to wilt.

In this kind of environment the sturdy wear resistant and disease resistant qualities of Arlington (C-1) bent become quite important. But Arlington bent alone is not satisfactory as a putting green turf. The color is not especially pleasing and the grass tends to swirl and become grainy. For this reason the addition of Congressional (C-19) benefits the putting surface. Congressional is a beautiful bentgrass with a pleasing color. It is relatively free of grain. Thus the mixture of the two selections provides a turf in which the good qualities of each grass tend to compensate for the weaknesses of the other.

Mixture of Bents

The late Bill Glover, builder and superintendent of the Fairfax Country Club (now a part of Army-Navy Country Club near Washington, D.C.) must be credited with discovering the advantages of mixing these two grasses. They have been the basis of good turf on many a putting green in such difficult areas as St. Louis and Washington. Strangely, there is probably not a single green in existence planted to one of these grasses without the other.

Fairways and tees offered a different problem at Bellerive. For many years bluegrass was the basis for fairway turf in St. Louis. It still exists on some St. Louis fairways and it offers a

great many advantages. Most golfers, however, want closely cut fairways. Because of the weather problems of the area and the demands for close cutting, bluegrass has trouble surviving. Bluegrass is at its weakest period at the time when crabgrass (sometimes facetiously called "St. Louis bent") is thriving. Consequently, a great many clubs have turned to bermudagrass for the solution to fairway problems.

Bermudagrass will tolerate the close mowing that golfers demand and it is not particularly affected by crabgrass because it too thrives in warm humid weather. When the new course at Belle-rive was planted the green committee chose to use U-3 bermudagrass. It has proved to be a good choice. It has provided good playing conditions continuously.

U-3 bermudagrass is not, however, without its problems. In St. Louis bermudagrass is near its northern limit of adaptation. Often the difference in microclimate between a north and a south exposure on a slope can be equivalent to a distance of two or three hundred miles geographically. Therefore on some of Belle-rive's north slopes, bermudagrass does well to survive.

Added to weather difficulties is the scourge of the disease known as *spring dead spot*. The causal agent of this malady is as yet undetermined.

Annually, it causes large dead spots in bermuda turf. It apparently kills during the winter months when the bermudagrass is dormant. In spring these spots simply fail to grow. Hence the name spring dead spot.

In 1964, a new superintendent assumed the responsibilities of maintaining the Belle-rive golf course. Mr. Schnatzmeyer's successor was Ernie Schneider, who had earned an excellent reputation as a manager of bermudagrass in Evansville, Ind. and Louisville, Ky.

In a little more than a year Schneider used his energetic and talented management abilities to polish and groom the Belle-rive course to a point of excellent condition for the Open. But his troubles were numerous. He dealt with flooding on the lower part of the course; some greens were partially raised and recontoured. He experienced winterkill on some fairways and considerable areas of U-3 bermuda were replanted.

Several new tees were built, and Schneider's crew provided much of the labor for shaping and planting. Ponds were dredged out, new bridges built, the creek straightened and the abandoned creekbed was graded and planted. The bunkers were reworked and filled with new sand; areas along fairway edges were repaired and numerous

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"Turf Management" is a complete and authoritative book written by Professor H. Burton Musser and sponsored by the USGA. The author is Professor Emeritus of Agronomy at Pennsylvania State University.

erosion problems were checked.

In the conditioning, superintendent Schneider was aided by a green committee under the chairmanship of John Ferring, III which was dedicated to helping him get the job done. One member, Art Feuerbacher, manned the weed control spray rig and assumed the job of eliminating broadleaf weeds on the golf course.

The spectators and the golfers at the Open Championship may not have been overly aware of the excellence of the golf course, nor of the thought and the energy that were expended in

grooming the turf. It is characteristic, and rightly so, that the golfer seldom gives a great deal of thought to the course condition unless it is poor and he finds himself disadvantaged even after playing a fine shot. The condition at Bellerive is such that a golfer seldom finds a bad lie if his shot does not stray.

Thanks to the green committee, the maintenance crew, and especially to Gus Schnatzmeyer and Ernie Schneider, Bellerive represents a remarkable achievement—the result of a very great and talented effort.

Greens—Some Observations

By **JAMES L. HOLMES**, Mid-Western Agronomist, USGA Green Section

It is becoming increasingly apparent that loss of turf on putting greens is becoming less of a problem yearly, as more technical data is made available and golf course superintendents develop superior maintenance skills. At most clubs in the Mid-West, members can expect adequate putting surfaces at all times during the playing season. We have progressed considerably in construction methods of putting greens including design, soils, technical abilities, and know-how in using the information we have.

As a result of information derived from sound research and continuous observations, reputable and knowledgeable architects and builders now insist upon constructing greens so that adequate surface and sub-surface drainage is assured at all times. This drainage includes both water and air. In order to assure proper drainage, the relationship between capillary, non-capillary and total pore space must be properly determined for each specific soil used. Where greens have been constructed

with drainage principles protected, turf has developed well and observations indicate that it will be possible to maintain adequate putting surfaces at all times with a minimum of headaches. It has been determined that water infiltration rates between 1/2 and 1 inch per hour when the soil is compacted are optimal.

It is important to note that this infiltration rate must be assured even when soils are compacted. This is paramount because putting green compaction is an extremely serious problem and one which has caused the golf course superintendent considerable chagrin.

If one is to be assured of a proper infiltration rate or an infiltration rate which can be effectively controlled, a "perched" or "false" water table relationship is essential. In building to produce this phenomenon, one must be extremely careful that excess water is not held. If so, the infiltration principle is destroyed. Observations indicate that if one does not use the proper per-