

# We Changed Our Greens to Bent Without Closing the Course

By HENRY McKEEN, JR.

**N**EARLY EVERY course at some time is up against the problem of replacing a green or two or by inculcating a better grass strain on greens where existing growth has gone bad. This is particularly true of older courses whose greens were built before the best strains of green-grass were developed, and as well in some newer ones where foolish attempts to save money were made, resulting in poor original planting. It is to those green-chairmen and greenkeepers who have such problems that this article is particularly directed.

My own club, in Pennsylvania, presented both of these situations when the green-chairmanship was wished on me. Most of our greens were built and planted over thirty years ago. Bents and other fine grasses were then practically unknown. As far as could be ascertained from fragmentary old records and by consultation with some of the older players, the original planting had been fescue and redtop.

Redtop makes a nice surface for a year or two, but later coarsens and soon disappears, crowded out by hardier growth. It is an excellent grass to sow in mixture with seed bents as a "nurse," or in sparse stolen plantings as a filler. Fescue also gives a fair temporary surface, but does not stand up well in summer season and has a tendency to "bunch" in circular patches as does velvet bent in mixed bent plantings. Velvet patches are uniform and smooth and do no harm to surface, but we found the fescue bunches objectionable as they usually are tougher and higher than surrounding areas. If fescue is kept close clipped it loses its sturdiness particularly in hot weather, and inferior strains gradually eliminate even growth, leaving the patches referred to.

In addition to bad grass our greens were improperly built both as to soil structure and as to drainage. The grass was about 50% poa annua, 10% fescue, 10% bent (no one knows why), 10% clover and 20% what-have-you. That was about the pro-

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This article is not written to discuss all of the types of grass suitable for putting greens. For those about to build a new course or to completely rebuild an existing one, a wise plan is to visit State Agricultural or Green Section Experimental Plots. There can be seen in actual growth the various more successful types of fine grass, and choice can be made of the strain which has the greatest appeal.

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portion in the spring. At crab grass season cut all of the above in half and add 50% crab grass. The reader can see why no one in our club was anxious to be green-chairman!

Obviously the easiest thing to have done would have been to plow up all 18 greens and start over. Such action would have closed the course for at least a year, perhaps longer. After a very careful analysis, backed by independent outside advice, a definite rehabilitation plan was evolved, to extend over a period of several years. Several of the worst greens which needed complete reconstruction were plowed up, rebuilt and re-planted. By a change in fertilization and upkeep program the others were improved so they were at least playable. Four or five of the best we figured could stay as they were structurally if it were possible to get some better grass on them. How we succeeded in this will later appear.

## New Greens Without Plowing

When an entire green or two goes bad it will usually be found that the fault does not lie with the grass on it, but rather with soil structure or drainage. Obviously the remedy is a correction of the structural fault. When all greens start to go bad the first thing to check is their fertilization and care. Not finding the trouble there, look next into soil structure and drainage and finally into grass strain itself.

Having ascertained that our grass, soil and everything else was wrong we were

in a position where heroic measures were called for. After passing on and approving our definite policy, we then had to decide how best to do it with the least interruption of play. And then came the momentous question of the type of grass to use.

### Choosing Grass to Use

There are many types of grass fine enough for use on a putting green. A most important question is wearing ability. Obviously a grass which will bruise easily and die is not suitable, no matter how fine and silky. The present-day golfer demands a good-looking green, well kept and of a pleasing color and soft "feel." This rules out some of the sturdier types. This appearance must be kept as nearly perfect as possible during the whole time of play, the greater part of which falls within nature's dormant season. This makes it impossible in some climates to use certain types of otherwise excellent grasses. And in our particular case we had to bear in mind that we needed a grass for entire planting of some greens and also one which we could successfully incorporate in existing grass on other greens.

After considerable study we narrowed our initial choice to two seed strains, seaside and mixed German bent, and one stolon type, the Washington strain.

In my opinion, seaside and Washington are much alike in appearance. Both are creeping bents of pleasing color. Mixed German is also a very satisfactory grass. Some people object to it because being a mixture it presents to close view a rather spotty appearance, particularly if there is a considerable percentage of velvet bent in it. Its champions claim that its mixed strain helps to keep condition in summer, as in a mixture only certain plants are dormant at any given time.

By careful tryout we finally chose the stolon type Washington as most likely to fill our requirements. Using this for our new greens we could as well incorporate stolons in existing greens, thus, in time, making the renovated and the new greens all of the same strain, texture and appearance. We were distinctly unsuccessful in attempts to get any great amount of new strain seed growth on established greens. The hardy plants already there gave very little opportunity for any appreciable percentage of the new seeding to grow.

Having determined on the type of grass best suited to our use, the next problem was how to make the change with the least inconvenience to play. Several of the greens were so bad that it was no hardship to use temporary greens. These we plowed up and built structurally correct early in the fall, planting during growing weather. By the following Decoration Day they were in excellent condition.

### Play Continued During Change

Those greens on which we wished only to change strain received their first treatment at this time also. Our method was as follows:

We lined the green with cord (as is customary in weeding) spaced a foot apart. With curved edging tools incisions were made along these lines. The tool was worked from side to side before withdrawing so there remained a sizable gap. Following each workman cutting the soil was another with a bucket of fine loam in which was mixed a small amount of balanced fertilizer. His duty was to fill the cut to about one-quarter inch of the surface. Immediately following him was a third workman with a basket of fresh-cut long stolons and a bucket of loam. His job was to string the stolons along the incisions and cover with loam, stepping on the plantings as he went along to firm down.

We found long cut stolons better in growth than short cut ones, although a little more difficult to distribute. We learned, too, that a sparse planting is better than too thick. It is advisable also to permit some of the stolons to protrude above the surface. We found it well also to do only half of a green at a time so as to permit rolling and thorough wetting down before stolons could dry out. Before cutting the incisions, the green was cut very close—as close as possible without scalping—and not cut again for a week. This gave an opportunity for stolon growth to begin without danger of disruption by blades of the mower. Members were requested not to pull up the protruding stolon ends—otherwise some of those fussy boys who are looking for fly-specks and bee-buttons that might deflect a putt would surely have pulled them out.

After a week's omission of cutting, blades should be set high and grass kept longer than normal until growth is apparent from the stolon planting. The

green should be kept moist (not wet) at all times just as in other stolon planting, or the new grass will burn up. In two to three weeks' time—often less—new grass growth should show clearly along the incision lines, the marks themselves having disappeared within a few days. Play was not interrupted except for the days of planting, but because grass was allowed to grow longer and no topdressing done, the putting surface naturally was not at normal smoothness. Topdressing cannot safely be applied, as stolons are apt to be dislodged. As soon as actual growth is observed, the green may again be cut to usual length, topdressed and cared for in the usual way. It is well to be careful that the green does not get really dry even after new plants show until they are well developed.

### Change Completed in Three Years

By the following summer our thin plantings spread to ribbons of solid bent, each about two inches wide, crowding out the poa annua and coarser grasses. In another year they almost joined, and by next year will have completely covered the surface. If through soil composition or greater resistance of established grasses new growth does not gain as rapidly as might be expected, incisions and plantings could be made the year following, making same at right angles to the original rows. As an aid to elimination of coarser grasses we changed our fertilizing program so as to more greatly acidify the soil, and gave a bit more superphos than our usual practice to encourage dense and hardy new root growth.

### Where Sodding Was Needed

Our program called for sodding the remaining greens, to avoid the long period of shutdown required where plowing and re-sowing is done. This sounds like a tremendous undertaking; actually, it was not. We carefully planned in advance and determined to sod six greens, taking two seasons to do it—three greens each year.

We then figured the required total square yardage of each group of three and added 20 per cent for possible errors or for parts of sod not perfect. An area of the size of the three greens and the one-fifth excess was plowed up in the rough and kept carefully cultivated to eliminate weed growth. An overhead oscillating water system was erected at small cost (we will use it later in our repair turf-nursery) and

deep furrows dug around to the plot to check surface wash and possible washing in of weed seeds. For ten feet on all sides the high grass was kept cut close to minimize danger of wind-blown seeds. After the period of cultivation, the top two inches of soil were hand screened to remove all sizable stones. Other than this no particular attention was given to the soil, either for fertility or for drainage. We figured that artificial fertilization would take care of necessary nutriment and that drainage, even if not proper, would do little harm in the short time the sod would be there.

In such a sod nursery, planted in the fall and not to be used until the following autumn and when transplanted not to be actually treated under putting green requirements until the following spring, it is not necessary to take the meticulous care called for under playing conditions. To encourage hardy development ours was allowed to grow to almost fairway length, great care being taken to keep weed-free and to prevent excessive graining. Several weeks before transplanting time it was kept strenuously raked and brushed and gradually cut closer. If sod is to be laid for early play the conditioning and closer cutting would have to be started earlier.

### Preparing Green for Sod

A few days before sodding time the old green was stripped of its turf. Soil structure, drainage and contour were changed as required, bearing in mind that the finished surface would be 1½ inches higher than soil green level because of the thickness of the sod to be laid. Then 25 lbs. per 1,000 sq. ft. of a fertilizer containing considerable superphos and a large percentage of slow acting ingredients was well worked into the top inch of soil. The whole surface was then wet down, heavily rolled and, when well dried out, roughed with rakes as if about to be seeded.

Then, and only then, was the sod in the nursery cut. And never more at any one time than could be immediately laid. We found that pieces 3 ft. by 1 ft. and 1½ ins. thick permitted easiest handling and least chance of breakage. To make certain of even thickness (most important) we built a receiving board 36x12 ins. inside with 1½-in. flanges on three sides. Pieces were laid root-side up in this receptacle and an old scythe blade, detached from its handle, smoothed each piece to exact thickness and cut ends square.

In laying, we first firmly pegged 1½-in. heavy planks along the center of the green from front to back. The first row of sod pieces were laid with their sides pressing firmly against one side of this support. We built out to the edge of the green, after which the finished half was treated with topsoil as later noted and lightly tamped and watered. Then the planks were removed and, beginning where the planks were, the other half was built out to the edge.

Great care should be taken that no workman walk on the new sod while it is being laid or after laying until it is well settled and growing. By this plan all workmen on the green and all materials always transverse only an unsodded area, walking on broad planks laid for the purpose.

It is best to stagger the pieces so there are no long junction cracks, and take particular care not to topdress heavily until the new grass has actually started to grow. Just enough topdressing at first to fill up any little cracks between the sod pieces; this is best applied by hand from a bucket, first laying a gangway of wide board where necessary to walk. While applying soil the sod pieces can be lightly tamped where required, the workman always on the board. Threaten to fire the first man to walk on the sod, and do it. It will have a salutary effect and save you much conditioning trouble.

Too heavy topdressing is very apt to smother at the joints or in slight depressions, more particularly as it is advisable to keep the green fairly moist until growth begins. This should occur in a few days with healthy sod. The fertilizer already placed well under soil will encourage root growth searching for hidden nourishment. No further fertilizing is required for the balance of the growing year for fall sodding.

As soon as plants start to grow the usual cutting, topdressing and rolling can be begun. Do not roll before this period as rolling necessitates walking on the sod which should be avoided until firm growth has started. In a week's time, if the laying has been properly done, play can commence. Naturally the surface will not be perfect. The longer it is possible to delay play and to continue conditioning the new surface, the more pleased golfers will be with it when they finally play on it. There is, however, no harm in use, once the root system has taken hold, which will be evi-

denced by marked growth of leaf system.

This narrative is simply the tale of what has been accomplished in a Pennsylvania "small town club" under the writer's supervision at surprisingly small cost and with complete success. It would seem that the same technique might have equal success elsewhere. The author will gladly give more complete detail of this or of other plans outlined in previous articles in GOLFDOM, hoping thereby to perhaps ameliorate some of the terrors of the world's most thankless job—that of the green-chairman!

## MODERNISTIC SHOP

Crystal Lake at St. Louis  
Has Unique Building  
for the Pro

**T**HAT tricky style of architecture used so effectively at the Century of Progress exposition at Chicago is employed in the golf field for the first time at the new pro shop of the Crystal Lake GC at St. Louis, Mo.

The shop is located at the first tee, across the road from the clubhouse. Ex-



terior is of stucco and will be a particularly attractive place when the landscaping is completed.

Interior of the shop has sheet-rock walls and ceiling. The walls are lemon-colored and the ceiling resembles aluminum. Window sashes are trimmed in black and red. The lighting fixture in the center of the shop is strikingly modernistic. The door is painted with aluminum paint.

In the rear of the shop are living quarters for the pro.

**K**EEP a daily diary of each green's treatment. It eliminates guesswork when you want to know when and why a green was treated and how much material was used. Be sure to make entries indicating how the green responded to the treatments.