

Sprinkling the Fairway

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During the last four years Minneapolis and vicinity have suffered from excessive drought, the rainfall for these years being far below normal. Summer after summer the fairways of the Minikahda Club have been in good condition at the beginning of the season, but when the spring rains were over they have turned brown and hard under the heat of midsummer, thus detracting greatly from the pleasure of playing and the beauty of the course. The high ridges have burned to a crisp and the grass faded away; the lower areas have naturally kept in better condition. A few scattering showers gave only temporary and partial relief. During all this time it was very apparent that the weeds were thriving and spreading and the good grasses being gradually driven out. The question naturally was, "What can be done to alleviate this condition?" Some of our club members most interested, claimed that the soil, which is well suited to grow good grasses, was being impoverished by constant cutting over a period of twenty-five years, and that the remedy was top-dressing and intensive fertilizing.

To test this theory, in the fall of 1922 we spent a large amount of

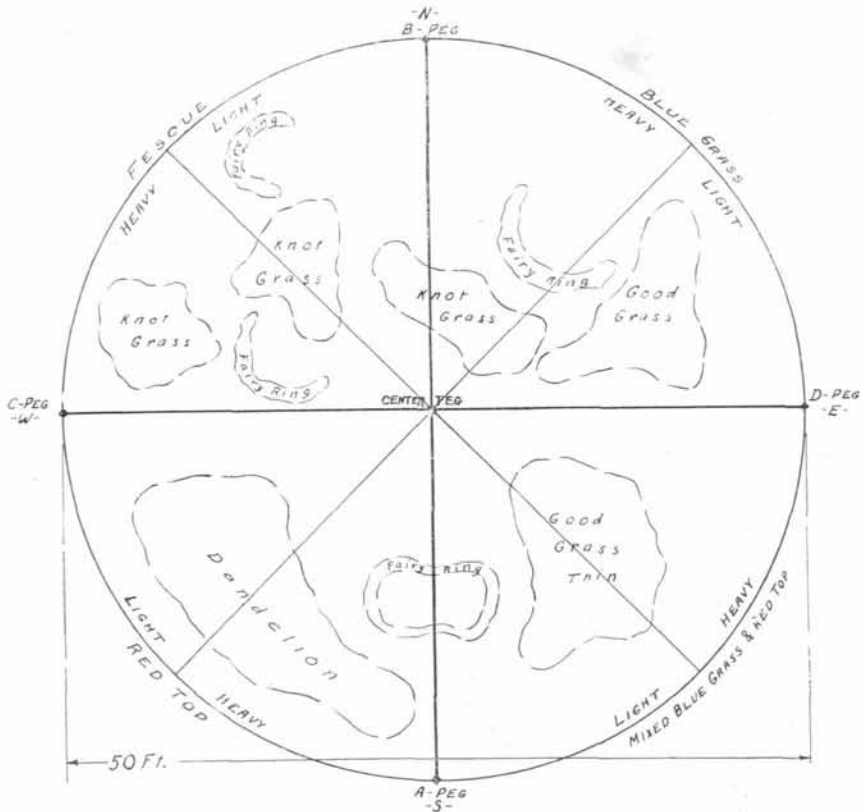
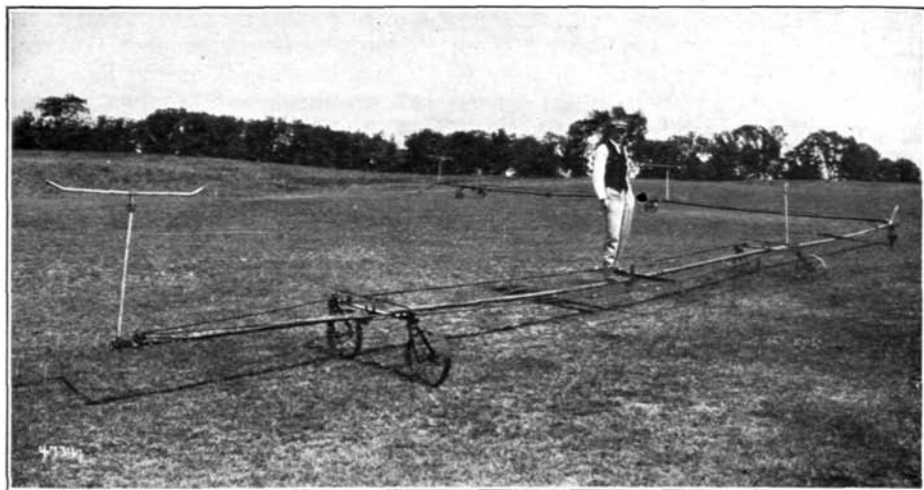


Diagram of fairway test plot.

money in top-dressing and seeding, and spread hundreds of loads of good rotted manure over the worst areas. The results were partially successful. Considerable improvement was seen in the late fall and early spring, but when the drought came in the early summer of this year (1923), we apparently lost all that we had gained, the new, young, delicate stand of grass fading away before the heat of the summer sun.

In April of this year I decided to determine by actual experiment what water and seed would do, my theory being that if we could maintain beautiful putting greens with seed and judicious watering, there was no reason why we could not maintain beautiful fairways by the same method. I selected for the experiment the worst piece of fairway I could find on the entire course. A circular area 50 feet in diameter was marked out with a tennis marker, a stake driven into the center, and the area divided into quarters, each quarter then being subdivided into halves, as indicated



"Sea Serpent" fairway sprinkler.

by the accompanying diagram. In the first quarter we sowed red fescue; in the second quarter we sowed redtop; in the third quarter we sowed bluegrass, and in the fourth quarter we sowed a mixture of 40 per cent bluegrass and 60 per cent redtop. In the subdivision of each quarter we sowed one-half at the rate of 100 pounds to the acre and the other half at the rate of 200 pounds to the acre.

On the first day of May we started watering this area. A rotary sprinkler was placed on the center peg at seven o'clock in the morning each day and was kept running for one hour. This was continued during the months of May, June, and July. The results were marvelous. In thirty days the area stood out from the rest of the fairways as though it had been painted a beautiful emerald green. The seedlings began to appear thick, strong, and healthy. We cut the experimental area with a power-mower, in the same manner as the surrounding fairway was cut. By the middle of July the new grass and the old grass inside the circle had grown to such a degree that they had practically driven out the weeds and dandelions, the fairy rings were all filled with a mat of good grass, and the entire area formed an almost perfect lie for a golf ball. As to which is the best of the four kinds of seed mixture for our conditions, we can not really tell

until next spring, after we have gone through the winter, but at the present time we can not see any difference; they are all strong, thick, and healthy; neither can we see any difference in the regular seeding and the double-quantity seeding.

With this demonstration available, the matter of installing an apparatus to water the entire fairways was placed before the Board of Governors of the Club, an estimate of the cost was submitted, and they authorized the undertaking. Various methods were investigated, and after a two-weeks period of experimenting the "Sea Serpent," as the boys called the apparatus, was developed, as shown in the accompanying illustration.

Each machine is made in two sections, in equal lengths of 53 feet; each section is made of 1½-inch pipe and is carried on two trucks with wheels to caster, and the two sections are connected by heavy hose with a single caster-wheel for support. The hose connection allows the two sections to be placed at any angle to fit narrow places on the fairway or when passing around bunkers, and is flexible enough to fit any uneven fairway. Each machine is equipped with 4 rotary sprinkler-heads and will cover an area 160 feet across the fairway by 60 feet lengthwise of the fairway. Side mains of 1½-inch pipe are laid lengthwise of the fairway in the rough, with 1½-inch hose outlets every 250 feet. Each machine is equipped with 150 feet of 1½-inch hose. The machines are well trussed, and on account of the caster-wheels can be pulled from either end through gates and around trees when passing from one fairway to another or across roads or bridges.

By September 1 we had four machines in operation, and they ran every day in September. The results have far exceeded our expectations. Our fairways have been restored to their former excellence. The seed planted last fall and this spring, much of which had apparently laid dormant, is all coming up, thick and healthy in appearance. The seedlings are driving out the knot-weed, dandelions, and other weeds, and the fairy rings are all filling.

Now, the first question asked is, "What did it cost?" Four machines with hose and side piping necessary have been installed for \$2,500. Of course an adequate water supply with good sized mains is essential. We have a 4-inch main running through the center of the course with branch lines reducing to 3 inches and then to 2½ inches, reaching every putting green, and by tapping this original system at the most advantageous points we found that comparatively a small amount of new 1½-inch pipe was necessary.

We have 35 pounds pressure at the extreme end of each run, and this is sufficient to operate the apparatus satisfactorily. It takes the same quantity of water to supply the fairway, watering during the daytime, as it takes to supply the putting green watering at night. We sprinkle the fairways in the daytime and the putting greens at night, and approximately the same number of rotary sprinklers are in operation during each period. The cost of operation is comparatively small. We pump by electricity, and the current costs about \$3 a day; one man at \$4 a day will tend 4 machines; and as we pump our water from a lake adjacent to our own premises, we have no expense for water.

I have prepared this article for the benefit of those of my fellow golfers who have, no doubt, suffered as we have in attempting to overcome the difficulties incident to climatic conditions over which we have no control. From now on at Minikahda Club we shall make our own rain and make it with certainty when we need it.