

a small amount of potash in solution, they recovered.

It is a very serious situation on some of our golf courses where waterlogged soils exist.

It is, therefore, quite clear that there are many difficulties associated with poor aeration, which makes it difficult for the greenkeeper to maintain high quality turf. The poor aeration may be due to the use of heavy clay soils on the surface, which are easily compacted or leveled, making them impervious to water.

Such a condition has been found to prevail on some courses on the West Coast, even under high rainfall conditions. Such a compacted zone on the surface may prevent the absorption of water below the surface inch or two of soil; this means that you have a saturated surface layer of soil quickly drying out after watering or a rain, with a reserve of water at greater depths.

This is a condition that frequently prevails on greens where you have those so-called dry spots. They are dry in spite of the heavy watering or rainfall.

Another condition resulting in poor aeration is a layer of very porous material close to the surface of the soil. This is one of the things that all of the soil scientists do not agree on, but I think it is one which

is very serious on many of our courses, is very serious on some athletic fields, and exists under other turf conditions.

We had the idea a few years ago that the way to maintain a good putting surface or a good turf area was to put a layer of sand, gravel, or some other material under our top soil. In many cases that top soil was put on only a few inches thick above the sand or gravel layer.

The thing that actually happens under those conditions, and is particularly serious on putting greens, where you are watering every day or every few days, or where you are dealing with a high rainfall region, is that the only water which will drain out of that surface soil layer is the free water. We have to get beyond the water holding capacity of that surface soil before the water will drain out of it. That simply means that the lower layer of that surface soil area is almost continuously saturated with water, particularly under putting green conditions.

In some cases where you have a layer only two or three inches deep, it means that you are going to have to water more frequently and you are going to have to keep that water supply just in that surface two inches. Grass will probably not be able to draw appreciably on the water which is in the lower soil depths, because



NEW EXPERIMENTAL PUTTING GREEN AT UNIV. OF MASS.

On May 23, an experimental practice putting green with nine holes was opened for play by Homer C. Darling of Juniper Hill Golf Course, President of the Mass. Section of the New England Turf Association, and Dr. Dale Sieling, Head of the Department of Agronomy. As part of a comprehensive turf research project now being conducted at the University of Massachusetts, the putting green is designed for experiments with bent grasses under playing conditions. Over 1000 rounds were played on the green by faculty and students on the week-end following opening. (L to R) L. S. Dickinson, director of the project; L. R. Parkinson, pres., Amherst GC; Homer C. Darling, pres., Mass. section, New England Turf Assn.; and Geoffrey Cornish, ass't to Prof. Dickinson.