

Weather Plays Major Part in Turf Loss

By Professors J.M. Vargas Jr. and P.E. Rieke
Michigan State University

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Professors Rieke and Vargas speak to the problems the difficult summer of 1995 made for golf courses in Michigan. There is probably more truth to the old saw "misery likes company" than I'd like to admit. This well written article is evidence that the tough summer weather went beyond our borders.

Mike Morris is the golf course superintendent at Crystal Downs near Frankfort, Michigan. Tuck Tate is a member at Crystal Downs (green committee member, too), and the course is a treasure that was designed by Allister Mackenzie. Frankfort is the summer home of former USGA Green Section National Director Bill Bengeyfield; he owns the Frankfort Golf Club. And Cheryl Lehmann Miller spent her childhood in that small town, across the lake from Door county.

So read what went on in Michigan last summer. If you enjoy the article, tell that to Paul Rieke when you see him at the Symposium!

Having visited many courses where turf loss occurred, we decided to write this informational letter to try and put this summer into perspective.

Weather has been a major contributing factor to turf loss this year. The spring was cool and cloudy. Because of the lack of sunlight, the grass did not build up carbohydrates during this period and it was not very hardy as we moved into the dry, hot weather of early June. Golf courses in Michigan are fortunate that in most summers, we are blessed with cool night time temperatures, which allow the turfgrass plants to recover from the heat of the day. However, every so often we experience summers with

warm night time temperatures like this past summer and the one that occurred in 1988. Turfgrass plants have little chance to recover when night time temperatures stay above 70 degrees F. Turfgrasses surviving under such conditions have very poor root systems and are susceptible to many stresses.

Plants cool themselves through a process known as transpiration. During this process, the plants cool themselves through the release of moisture. The process works best under conditions of low humidity and good air movement. In the drought year of 1988, even though the temperatures may have been higher than this summer, the humidity was lower which allowed the plants to cool themselves more efficiently through transpiration. This was not the case this year. In addition to the humidity, the warm temperatures caused soil temperatures to reach 96 - 99 degrees F at a 2" depth. Cool season grasses don't tolerate high temperatures in the root zone. Turf was lost due to the combination of high temperatures and humidity causing the turf to overheat and die.

The turf lost from conditions of high humidity and temperature are most evident in areas of limited air movement, usually greens, tees or fairways surrounded by trees. Trees, unfortunately, become sacred cows on many

golf courses. Removing them is often impossible because of the way members have come to love them. That should be kept in mind when the question of tree removal arises. What is the primary purpose for having the golf course? Is it to play golf on healthy turf or for hiking among the trees or picnics, etc.? If the primary purpose of a golf course is for playing golf on healthy turf, then tree removal should be an easy decision. Installing fans will help compensate for lack of

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air movement, but they will not alleviate the shade factor or the tree's roots competing with the turf for nutrients or water.

We see very few problems with Pythium blight or brown patch diseases in Michigan most summers. This season both diseases in Michigan were a problem from the beginning of July through mid-August. Since most golf courses don't normally budget for such diseases, I would assume most golf courses have exceeded their chemical budgets.

As bad a year as we were having, most golf courses held their turf through the heat during the early summer when the weather was dry and relative humidity was relatively low. Then the heavy rains occurred which pushed the oxygen out of the root zone. The combination of low oxygen and high soil temperatures caused death of turf roots. Without roots the turf cannot long survive. Poor drainage was a major factor in much of the turf loss. Because of poor drainage, turf roots sat in the hot

soil without oxygen, speeding up root loss. Poorly drained areas are very evident and point out where improvement in drainage is needed. Poorly designed irrigation systems may also have contributed to the excess water problems.

As a result of the unrelenting high temperatures and humidity, the grass not only had few roots, but it was very succulent. It was very susceptible to traffic injury, ball marks and spike injury. This also made the grass susceptible to wilting when the weather turned dry in late August. Being so succulent, it did not adjust well to the high sunlight intensity and warm, dry winds.

Hopefully, we will not have another summer like this one for many years. The only good news out of the summer is that it has allowed many golf courses to identify their problem areas, including the need for improved drainage or irrigation systems. These areas can be corrected so that if a season like this occurs again, turf loss can be minimized. ♣

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