DO YOUR ATHLETIC FIELDS NEED TURF BLANKETS?

Jim Hermann, CSFM*

Give your turf a jump-start in the early spring by installing turf blankets. Understanding the principles involved in soil temperature manipulation is a key component in getting the most benefit out of your turf blankets.

The basic concept behind utilization of turf blankets is to increase average soil temperatures beneath the blanket at an accelerated rate as compared to uncovered turf areas. This increase in soil temperature stimulates an earlier growth response in the turf.

Soil surface temperatures respond closely to what could be called the temperature budget. If more heat is gained in the soil than is lost there is a net rise in temperature. If more heat is lost from the soil than is gained there is a net loss in temperature. There are two major recurring heat cycles that have the greatest affect on soil surface temperature: *diurnal* and *annual*. We are all very familiar with both of these cycles although many of us have not been formally introduced.

The *diurnal* cycle or period consists of the daytime warming and nighttime cooling of the soil throughout the year. This warming and cooling of the soil is stimulated by variations in radiation from the sun. The sun comes up during the day and it warms up. The sun goes down at night and it cools down.

The *annual* cycle or period is the result of seasonal changes in temperature due to seasonal variations in the sun's radiation. Basically, in our area there is an increase in radiation from the sun, which starts after December 22nd, "winter solstice". This is the shortest day of the year. This is the day with the least amount of daylight for the entire year. After the winter solstice, the sun's radiation increases and soon begins to provide enough energy to start to warm the soil surface. Although these increases start in December, the effects are not really noticeable until mid to late February. This is the time of year when daytime temperatures typically rise above freezing and nighttime temperatures fall below freezing. Turf blankets should be installed by this period in time to achieve the greatest benefit both in the root development and lateral growth of the turf. This warming trend continues for the next six months or so until the sun's radiation begins to decrease. The reverse then holds for the half-year summer to winter solstice. What does all this have to do with the use of turf blankets?

The function of a turf blanket is to allow for the increase in soil temperature due to the increase in the sun's radiation. This is accomplished while minimizing temperature losses caused by lower nighttime temperatures. In effect you are maximizing the positive temperature gains provided by the *annual* or yearly cycle and minimizing the temperature losses caused by the *diurnal* or daily cycle. The soil temperature increases and maintains relative warmth. This principle allows for earlier warming of the soil and therefore earlier turf growth response. Based on results I have witnessed, you can gain two to three weeks of early turf development by using turf blankets in this manner.

I have a few warnings and considerations when utilizing turf blankets for early spring turf stimulation:

1. Turf blankets may be applied anytime from November to March. I aerate, seed, fertilize, sometimes topdress and apply fungicide before putting down the blankets. To insure that the stakes hold, use 8.—inch nails with washers. You will have to go around once a month and pound them down as the ground heaves. Starting in February (once the snow is gone), check under your blankets at least once a week. Note that the turf will not be strong enough to play on for at least a week after removing the blankets but it is well worth waiting for.
2. When covering the turf in this manner you increase the risk of snow mold similar to the increased risk involved with prolonged snow cover. Turf maintained at a higher level of fertility such as that receiving late season fertilization is more susceptible to snow mold. A preventive fungicide application may be warranted. Previous problems with snow mold should be considered when making this decision. If you have never had snow mold, a preventive fungicide application may not be justified. Blankets should be removed periodically to inspect for snow mold.
3. Caution should be exercised when removing turf blankets in the spring. Blankets should be removed during the day to accomplish mowing and replaced at night until the threat of frost is passed, in an attempt to acclimate the turf to normal seasonal temperatures and minimize turf damage. Late frost on sensitive turf can burn the leaf tissue and counter act early gains in turf development. Although a minor setback, turf generally recovers from frost burn with little or no long lasting ill affects.
4. Be prepared to initiate your mowing program earlier than usual and as always follow the 1/3 rule, never to remove more than 1/3 the leaf at any one time.
5. Not every turf blanket is made the same. Do your homework. Some can be cut to your specifications. Some have grommets for your nails while others sew their edges. They are made of different material. Check the warranties. Some do work better than others.
6. Last but not least, turf blankets are nothing more than a tool. When used in conjunction with an effective turf management program, turf blankets can enhance benefits realized from that program. That program should include but not be limited to:
   (a) Periodic soil testing
   (b) Effective nutrient management through a site specific fertility program based on soil test results
   (c) Aeration a minimum of two to three times a year
   (d) Proper mowing management

Reference

Marshall, T.J., J.W. Holmes, and C.W. Rose. 1999. Soil Physics. Cambridge University Press, Cambridge, MA.

** Jim Hermann is a Certified Sports Field Manager (CSFM); President, Total Control Inc.; and Board Member, SFMANJ*

DID YOU KNOW?

The turf course at Monmouth Park Racetrack has four movable rail positions (inside rail, 12.0-ft., 24.0-ft., and 36.0-ft.,) to manage turfgrass damage caused by thoroughbred racing.