SPORTS FIELD IRRIGATION

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It is almost impossible to maintain high quality sports fields in Kentucky without irrigation. Our average rainfall during the summer is almost 1 inch er week and that is sufficient for most turf. The problem is that we may go several weeks without significant rainfall and, during that time, the turf suffers. Because of heavy use of most fields, irrigation is also needed to produce FAST GRASS. We seldom allow more than one season during the year for grass to develop or recover. Obtaining quality in such a short period almost always requires irrigation.

IRRIGATION METHOD

Certainly one can water a portion of a field by hand, with lawn spinners, with a traveler, or even with a portable aluminum pipe system. However, seldom can you apply water often enough with these methods and it is impossible to supply the water uniformly. Many new fields are now being watered with large water guns, placed off the playing surface. These are manual systems that require physically changing the gun location after each portion of the field is irrigated. These guns require fairly large piping and excellent pressure to operate properly. The advantage of the water gun over an automatic pop-up system is that there is no piping required within the field and you have no underground pop-up sprinklers that have to be avoided when you aerate a field. An automatic pop-up irrigation system is certainly the most convenient method and it allows best uniformity when watering. The small pop-up sprinklers designed for sports fields should not be a hazard to players and they are easily repaired. The automatic clock, that can regulate watering for any time of the day or week, is a major benefit to this system.

OTHER USES FOR IRRIGATION

Irrigation is more than just supplying water to improve turf growth. Some handy and important uses are to:

1. irrigate an entire field after making application of a soluble farm-type fertilizer. The cheap, farm-type fertilizer can cause foliar burn to the turf if applied during hot weather. Irrigation after application minimizes the problem and helps the fertilizer to begin feeding the turf immediately.

2. irrigate with respect to a pesticide application.
a. Although the risk to players after a pesticide application is negligible if the pesticide label directions are closely followed, being able to water soon after some applications is often considered an extra precaution.

b. Obtain maximum herbicide efficacy. Broadleaf weed and crabgrass post-emergence herbicides work best if you have good soil moisture prior to application. On the other hand, a crabgrass pre-emergence herbicide works best if watered in immediately after application. To be effective, white grub control insecticides MUST be watered in immediately after application.

3. reduce surface hardness caused by heavy field use. Even with good grass, a hard surface causes increased problems with shin splints, and increased risk of shoulder and knee injuries. Keeping the field somewhat moist (not extremely wet) will greatly reduce the problem.

4. Cool the surface. The surface of a dry turf may reach temperatures well above 120°F during hot, late-summer days. The same, well-irrigated turf may only reach a temperature of 90-95°F. This certainly reduces stress upon players relative to heat exhaustion, fatigue, etc.

5. Establish new grass from seed in early spring, or from bermuda seed or sprigs in early summer. It is MOST IMPORTANT that the surface remain very moist during the establishment period. With seed, this may require a light irrigation two or three times per day on bright, windy, sunny days. When establishing sprigs, allowing the irrigation to run about 10 minutes eery two hours for the first week or so will assure great establishment of sprigs. If you let new sprigs dry out, they die!

6. Wet an infield or baselines just prior to a game to reduce dust and improve traction. Soil type will dictate the amount needed to provide a firm but softer surface that will not dust or blow. Being able to apply water just hours before a game is often necessary.

IRRIGATION SCHEDULING/TIMING FOR GOOD TURF MAINTENANCE
It is unfortunate that most fields are greatly under-watered when depending upon manual irrigation and often over-watered when irrigated with an automatic system. Consider the following as guideline to maintenance irrigation:

Don’t irrigate unless the turf needs it. Do not set the automatic system to irrigate every day, or three times per week, etc. If you do, the field is almost always over-watered. Over-watering causes problems such as:

(a) Lush turf with little tolerance to heavy traffic.
(b) Wet soil surface that is easily compacted by play or by mowing equipment.
(c) Many more weed problems such as nutsedge, crabgrass, and knotweed.
(d) Increased leaching of nutrients. In addition to leaching, when a soil becomes saturated nitrogen is lost into the air through denitrification.
(e) Over-irrigation causes bermudagrass to produce few underground rhizomes. These are very important in helping bermuda escape winterkill.

HOW OFTEN TO IRRIGATE?
Check the field every day or so during the summer. When it becomes very dry, irrigate at that time or set the automatic clock to irrigate one time the following morning (if rainfall is not in the forecast). You can check the field with a soil probe or even a screwdriver. A dry soil is hard to penetrate and a wet soil is easy to penetrate. The advantage of a soil probe is that you can bring up a 3-4" plug. If the top inch or so is dry, but there appears to be good moisture in the next 3 inches or so, irrigation can often be delayed.

Cool season grasses such as tall fescue, Kentucky bluegrass and perennial ryegrass utilize water less efficiently and thus dry the field out much faster than bermudagrass. With insufficient moisture, these cool season grasses also suffer much more than bermudagrass because of high temperatures that result with low evapotranspiration (evaporative cooling). Bermudagrass can maintain decent to high quality for several days and maybe several weeks of heat and drought.

If you cannot observe a field every few days and the weather is extremely hot, then consider setting the automatic system to irrigate about 1 times per week for bermudagrass and 2 times per week for tall fescue, perennial ryegrass or Kentucky bluegrass. But remember, if it rains, you not only waste considerable water but you also risk other problems as outlined earlier. An inexpensive rain shut-off valve is a handy add-on for an automatic system that cannot be constantly monitored.

TIME-OF-DAY
You can irrigate any time of day; however, early morning watering has several advantages:

(1) Much less evaporative loss of water than when added during the heat of the day.
(2) When water is supplied by a municipal system, the water pressure is always better during early morning when the residential demand for water is lower.
(3) If a disease happens to be present, the early morning water helps knock off the dew and guttation fluid from the leaves, thus causing the leaves to dry 2-3 hours quicker. This greatly reduces disease pressure.

HOW MUCH TO APPLY
For most soils, about 2/3 inches of water is required to properly wet the surface 4 inches of soil (where a majority of the roots are located). With most automatic systems, it may require irrigating one hour or more for each sprinkler zone in order to apply 2/3 inches of water. You can check the rate of irrigation by distributing small containers, pie pans, cups, etc. around the field before irrigation.