Turfgrass is grown primarily for its appearance, to provide attractive surroundings which will have a pleasing color and texture. It also provides a cover and protective blanket for the stability and retention of soil subject to heavy recreational and athletic use. Like all growing plants, turfgrass requires water.

To retain its desirable characteristics, turfgrass must be irrigated in the drier parts of the country, in some places throughout much of the year. Irrigation has proved to be desirable during dry periods which occur unpredictably even in humid areas. Athletic use of turf requires not only a pleasing appearance and stability, but also a relatively standard consistency which will provide for predictable reaction between the ground and the ball used or feet of the players. Irrigation helps maintain this consistency.

II. Soil Water Relations

A. Water Retention

Soil consists of solid particles and the spaces between them which are called pores. Coarse, medium, and fine solid particles are known as sand, silt, and clay, respectively. Soils on which turfgrasses are grown may contain an amount of pores ranging from 40 to 55% of the total soil volume. These pores hold the water and air that are necessary for grass roots.

Water is held in the soil pores by attraction between the water molecules and the surfaces of the solid particles. At a low water content, water is spread as a thin film over the surfaces of all the soil particles. The thickness of the film is dependent upon the amount of water present and the total surface area of the soil particles. Medium textured (loam) soils have a greater particle surface area than coarse textured (sandy) soils so that a given amount of water is spread in thinner films.

When the water films are thin, water molecules are very close to the particle surfaces and are held tightly. The security with which water is