in the development of management systems for sandy soils with low water storage capacities and to climates characterized by alternate periods of rainfall excesses and deficiencies. The objective is to schedule irrigation (time and amount) to maximize evapotranspirational use of irrigation and rainfall while minimizing leaching loss of water, fertilizers, and pesticides during the crop-growing season. A near ideal water management result would be: (1) a soil water profile near full storage at planting and about 50% depleted over a deep root zone at harvest, and (2) a crop-season rainfall and irrigation distribution pattern such that plants were never stressed and no drainage occurred below the root zone. The ideal is not possible, given the real-world conditions of rainfall uncertainties and low water-storage capacity of sandy soils. However, economic and resource factors will make the achievement of improved water management practices a continuing goal.

Humid region conditions we have just described suggest a water management scheme as follows: (1) irrigation before the crop shows visible water stress (wilting), and (2) application of an amount of water which does not completely restore the water-depleted root zone. This scheme is designed to assure a water supply equal to the *ET* demand of the atmosphere and, at the same time, to allow the capture of more rainfall than would be the case if the entire root zone was restored to capacity. It is not easy to accomplish this management objective, and much current research deals with this problem. However, the following example calculations demonstrate the principles involved and, in particular, the use of estimated *ET* and soil water characteristic data.

The example is for central Florida during an intermittent drought in May and June. The needed daily *ET* estimates are calculated from the monthly values of ET_p ($\alpha = 0.05$, $k_1 = 0.7$) for Lakeland (Table 3). The following soil water profile data were used: maximum water storage in the root zone, 9 cm; stored water not readily available to plants, 2 cm; water content available to plant, $9 - 2 = 7$ cm. It is assumed that a depletion of up to 55% of the available water supply (4 cm in this case) would not cause plant water stress. Also, assume that a 2-cm irrigation can be made on the day when a water need is calculated.

The water management plan contains two scheduling scenarios: (1) the initial irrigation after depletion from a full soil water profile, and (2) subsequent irrigations in a continuing drought.

May 1 — Assume a full soil profile (7 cm of available water); *ET* = 0.445 cm/day during May; negligible drainage.

10 — *Initial irrigation*, 2 cm; 4 cm of water have been depleted by 9 days of *ET*, and the irrigation leaves 2 cm of storage unfilled.

14 — *Subsequent irrigation*, 2 cm; estimated *ET* (4 days) is 1.8 cm or nearly equal the 2-cm May 10 irrigation.