



Tensiometers can determine the point at which soil saturation, field capacity and permanent wilting occurs within a particular soil profile.

METER ADVANTAGES MEASURE UP

Accurate soil moisture readings require the technical advantage gained from a variety of measuring devices.

by Jim Ware

The time-honored method of probing the upper soil layer to determine soil moisture is a superficial one. It is also of little use when assessing the actual behavior of water in a growing medium.

Realizing that no standard method of irrigation exists for every landscape, the identity of specific moisture requirements can become a critical component of a total plant care program.

The proper amount and frequency of irrigation is at least as important as

the other limiting factors in a landscape maintenance program. Homeowners and commercial accounts alike are apt to design irrigation practices according to "off-the-cuff" intuition rather than by optimum soil moisture requirements.

Even in the same region and under identical climatic conditions, soil moisture requirements can vary greatly between plant type, soil textures, surface slopes and the physical aspects of the site.

Moisture indicators have existed

for years, mostly in agriculture and plant research. These devices can be useful in lawn and landscape maintenance as an aid to plant problem diagnosis or to promote more efficient irrigation techniques.

There are basically two types of moisture indicators: those that respond to changing soil moisture with a resulting change in electrical con-

Meters are invaluable for mapping soil.

ductivity, and those that actually simulate a plant's ability to extract water from soil.

Electrical moisture meters are easier to install and use; however, they can be affected by high levels of soluble salts in soil and cannot respond to very low moisture levels. Nevertheless, they are used to spot check for the presence or absence of soil moisture.

Using tensiometers

Tensiometers (also called suction meters or irrometers), reflect the actual difficulty or ease by which a plant extracts soil moisture. When suction is high, soil drying and plant stress are indicated. At lower suctions, plants can easily obtain the necessary moisture.

The point at which soil saturation, field capacity and permanent wilting points occur within a particular soil can be quantitatively determined with the aid of tensiometers.

Following an irrigation, moisture meters can be used to measure the effects of evaporation, drainage and plant use on soil moisture.

A primary benefit of moisture meters is their ability to indicate the rate a soil dries within a specific water regime and under a particular environmental condition.

Future irrigation

Not only is this valuable for immediate determinations, but it facilitates the understanding of future irrigation needs. By extrapolation of readings, you can project when irrigation will be required.

Aside from indicating moisture thresholds, moisture meters can be used to indicate chronic over-irrigations and the potential for root rots, soil oxygen deprivation and excessive irrigation costs.

For larger areas of turfgrass and landscaping, moisture meters are valuable for mapping soils and soil



WE HAVE AN EDGE ON THE COMPETITION.

DIQUAT keeps your grounds looking trim.

Give your grounds a cleaner edge with DIQUAT, the fast-acting contact herbicide.

DIQUAT Herbicide gets rid of a broad spectrum of annual grasses and broadleaf weeds, usually within 24-48 hours, under almost any kind of weather conditions.

Because DIQUAT is a non-selective contact herbicide, it will burn back or control nearly anything green on which it's applied.

And, it stays where it's sprayed to leave a cleaner edge, unlike systemic products.

So, if your grounds, roadside or recreation area is looking a bit rough around the edges, keep them sharp all year round with DIQUAT.

DIQUAT Herbicide H/A

Avoid accidents. For safety, read the entire label, including precautionary statements. Use all chemicals only as directed.
Copyright © 1990 Valent U.S.A. Corporation. All rights reserved.



Circle No. 164 on Reader Inquiry Card

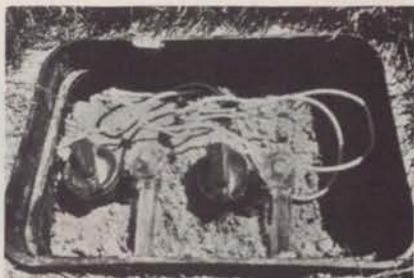
discrepancies as they pertain to moisture retention. Hot spots, slope variations and differences in plant demand can justify additional irrigation in order to maintain uniform turf development.

Landscape applications

Such information is useful when planning sprinkler system layouts and for determining the operation of a system as it would pertain to pattern distribution and cycle longevity and frequency.

Tensiometers are available in a variety of lengths and sizes to accommodate measurements in the rootzones of various plant species.

For deeper rooted trees and ornamentals, two meters placed in the upper and lower rootzones can monitor



Irrrometers are available in a variety of lengths and sizes. (Photos courtesy of Irrrometer Co., Riverside Cal.)

the zone of moisture control between the two measurement points and within the bulk of the root system's density. Except for very deeply rooted grasses, a single meter installation should suffice. It is also customary that meters be placed in areas that are more subject to rapid soil drying, such as sunny locations.

Plus and minus

The advantages of moisture meters are their diversity of uses, relatively low cost, portability and accuracy. A disadvantage is the need to frequently read and service tensiometers when measuring long-term moisture trends. Unattended meters are susceptible to theft or vandalism. However, the size of the account could justify this extra attention, and protective covers can be fashioned to protect above-ground components.

Considering the demand for higher plant quality—especially in light of increasing irrigation costs and the scarcity of water in some areas—using moisture measurements may well become a staple complement to lawn care operations of the future. **LM**

Jim Ware is a consulting agronomist based in Hobbs, New Mexico.