MOIST-SCALE—A WAY TO IRRIGATE ACCORDING TO A PLANT'S NEEDS

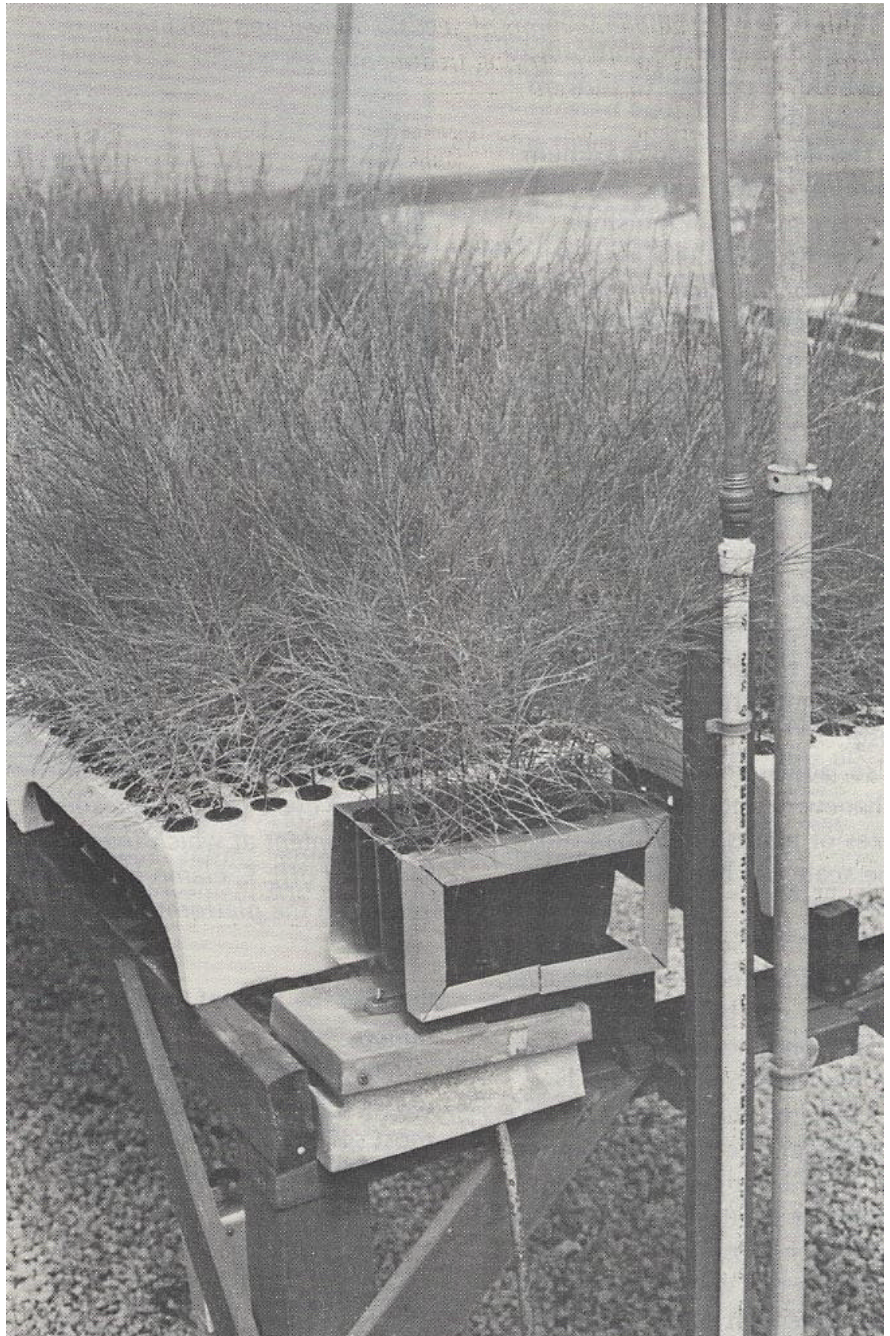An automatic device for watering at the right time and in the right amount.

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For optimum growth and development in the nursery, tree seedlings must be watered at the right time and in the right amounts. Irrigation control should be determined by what a seedling needs rather than by what a timer can do. In an attempt to water according to a plant's needs, some forest nurseries weigh potted plants at regular intervals. When weight reaches a critical level because of moisture loss, the plants are watered. This practice requires manual labor. A manually operated system is more likely to withhold water from plants until moisture stress is severe than is an automatically controlled system.

I have found the Moist-Scale[1] to be a practical way of irrigating plants according to their needs (figure 1). The Moist-Scale turns the irrigation system on or off, depending upon the weight of water within the plant container. If there is enough water, the movable platform (figure 2 *A*) is down, and therefore the switch (figure 2 *B*) is closed. When moisture is lost from the container because of evapotranspiration, the platform becomes lighter and gradually rises until it releases the switch. Water flows until the

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[1]Trade name is mentioned solely for information. Moist-Scales are manufactured by Chapin Watermatic Inc., 368 N. Colorado Avenue, Watertown, N. Y. No endorsement by the U. S. Department of Agriculture is implied.

Figure 1—*Frequency and amount of water applied to seedlings are controlled automatically by the Moist-Scale.*

plant-soil-water complex is heavy enough to cause the platform to move down enough to turn off the switch.

The minimum and maximum amounts of soil water are easily set. The minimum moisture desired is set by moving the pointer on the side of the Moist-Scale platform to the desired amount of water to be lost between waterings (figure 2 *C*). The maximum moisture point is set by turning the base wing nut clockwise until the Moist-Scale unit turns the water on, then turning the wing nut control clockwise until the water is shut off (figure 2 *D*). As plants grow and become heavier, the minimum and maximum moisture points must be reset.

Also, adjustments must be made whenever containers, media, or sizes of plants other than those the scale has been set for are used.

The Moist-Scale is designed for use with potted plants. However, adapters can be made so that small containers can be placed on the Moist-Scale (figure 1).

Plants on the Moist-Scale should receive the same amount of water as adjacent seedlings. Adjacent plants, however, should not touch those on the Moist-Scale, as this will interfere with the movement of the platform. The top of the containers on the Moist-Scale should be the same
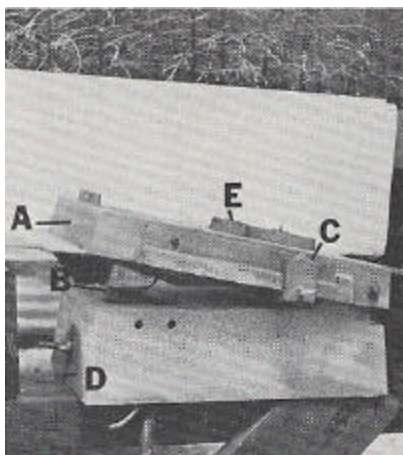
Figure 2.—A, Movable platform on which plants rest; **B**, *electrical switch that controls on-off of the irrigation system;* **C**, *pointer is set to the desired number of ounces of water to be lost between waterings*; **D**, *wing nut is adjusted to control the wettest time of the watering cycle (that is, the soil/water content at which the water is turned off);* **E**, *clamp holds the plants on the platform in place.*

level as the tops of adjacent containers.

The Moist-Scale is designed for use in a 24-volt system, as are most solenoid valves, so it can easily be wired into the valve-control system.