

AN INEXPENSIVE SHALLOW WATER TABLE PROBE¹

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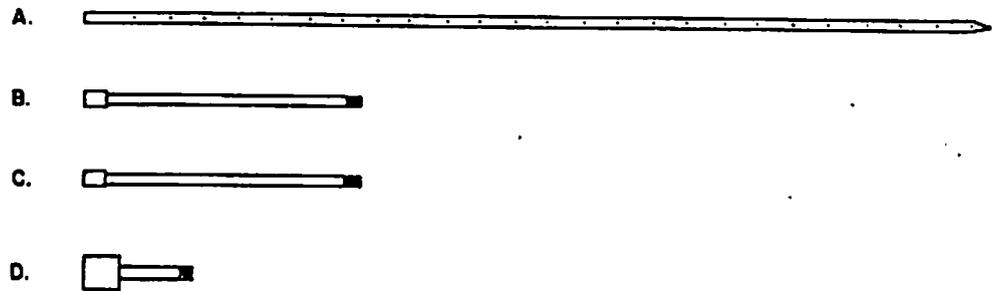
A method for rapidly determining shallow groundwater levels in sand and gravel profiles has been developed by the U.S. De-

partment of Agriculture, Agricultural Research Service, Soil and Water Conservation Research Division. By this method, an investigator can accurately determine depths to groundwater in a few minutes by direct measurement. Experiences have demonstrated that the unit works in locations

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WATER DEPTH PROBE



A. 13' LENGTH OF $\frac{3}{8}$ " DIAMETER STEEL ROD WITH HOLES EVERY 6" BEGINNING 3" FROM THE TIP.

B. & C. 4' LENGTH OF $\frac{3}{8}$ " DIAMETER STANDARD STEEL PIPE WITH COUPLING.

D. 1' LENGTH OF $\frac{3}{8}$ " DIAMETER STANDARD STEEL PIPE WITH BUTT WELDED 8 POUND RAM WEIGHT.

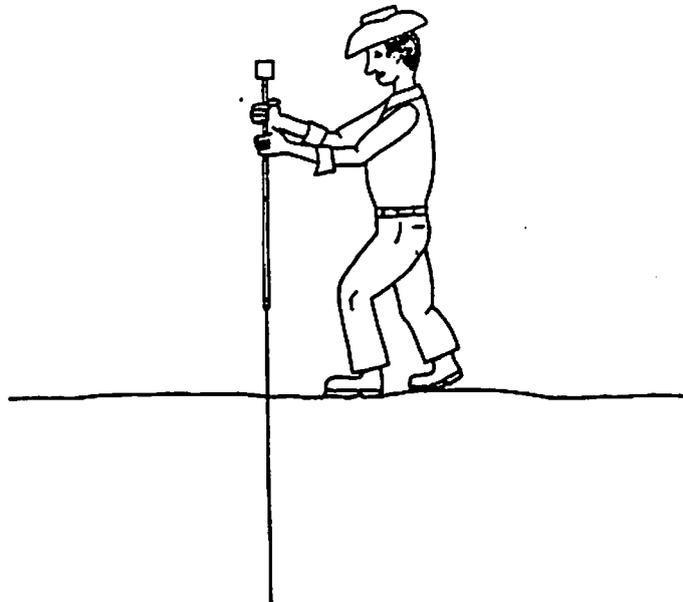


FIG. 1.—Instrument for determining shallow groundwater levels

where the water table is almost 12 feet beneath the surface.

The equipment required is simple, portable, and easily handled. It consists of a 13-foot-long, $\frac{3}{8}$ -inch-diameter steel rod and driving ram. The steel rod has $\frac{1}{8}$ -inch holes drilled through it at 6-inch intervals. The ram consists of a 5-8-pound steel weight butt-welded to a 1-foot length of $\frac{3}{8}$ -inch standard pipe with coupling. Ram extension rods consist of two 4-foot lengths of $\frac{3}{8}$ -inch pipe with couplings. Couplings are of an electrical conduit type so that connections can be made without using wrenches.

The rod is driven into the ground to its entire length with the driving ram and then extracted by hand using an attached C clamp for a grip. Upon extraction, the 6-

inch-interval holes in the rod are examined to see which is the uppermost hole that contains water. Because an index near the top of the rod is driven to ground level, the distance from the index to the nearest hole filled with water is the depth to groundwater. After a reading is taken and before another measurement is made, those holes containing water (and usually sand) are cleaned out with a wire so that the probe will dry out while in transit to the next location. Hole spacings in the probe may be varied according to the required accuracy of the survey (see fig. 1).

This system for measuring shallow depths to the water table was used successfully on two consumptive-use surveys along the major length of the Santa Ynez River in California.