

A USEFUL SOIL SAMPLING TUBE

Various soil sampling devices have been used by the authors in soil moisture studies in the Mareeba-Dimbulah area of North Queensland. Samplers of the tube type have been found to offer certain advantages over the auger type, firstly because the depth from which the sample is obtained can be more accurately controlled with a tube, and secondly because samples can be obtained in close proximity to a growing plant, as no turning action is required.

This note describes a useful, inexpensive soil sampling tube which operates very satisfactorily on the soil types encountered.

The sampler is constructed from 16-gauge mild steel drawn tubing with an internal diameter of $1\frac{1}{8}$ in. The tubing is cut with pipe-cutters which leave the cutting tip with a slight inward taper. This taper disappears with use but is not essential for the satisfactory operation of the sampler. The cutting edge can be touched up as required. A collar 5-6 in. in length is welded to the top of the tube to form a driving head and to prevent burring. Two $\frac{1}{2}$ in. mild steel handles 6 in. long are welded to the collar and reinforced with steel plates. Depth intervals can be marked off by making a shallow cut with the pipe-cutters.

Two tubes which can be used to sample to a depth of 120 cm (4 ft) are illustrated in Figure 1, together with a standard Veihmeyer tube for comparison.

The sampler can be pushed in quite easily when the soil is approaching field capacity. As the soil dries out, a wooden mallet is used for driving the tube into the soil. With experience the operator can feel large rocks or roots and thus prevent damage to the cutting tip.

Little trouble has been experienced in extracting the tube. The sample cores readily even on dry sandy soils and the straight walls of the cylinder prevent core loss by suction, such as sometimes occurs on these soil types with the standard Veihmeyer tube.

It has been found that 10 cm (4 in.) is a convenient operating depth. A sample of this size fills a 4 oz pomade jar and provides 120-180 g of oven-dry soil. The authors consider that the sampler described gives a more representative sample than a Veihmeyer tube.

As with other tube samplers, there is always some contamination at the top of the sample, but this can be separated quite easily from the required sample.

Using this soil sampling tube, two men can extract 10 cm samples to a depth of 90 cm at six positions within an area of 30-40 sq. yd. in approximately 60 min. In a tobacco irrigation trial it is possible to sample a chain row at six positions to a depth of 60 cm in 10 cm increments in 30 min.

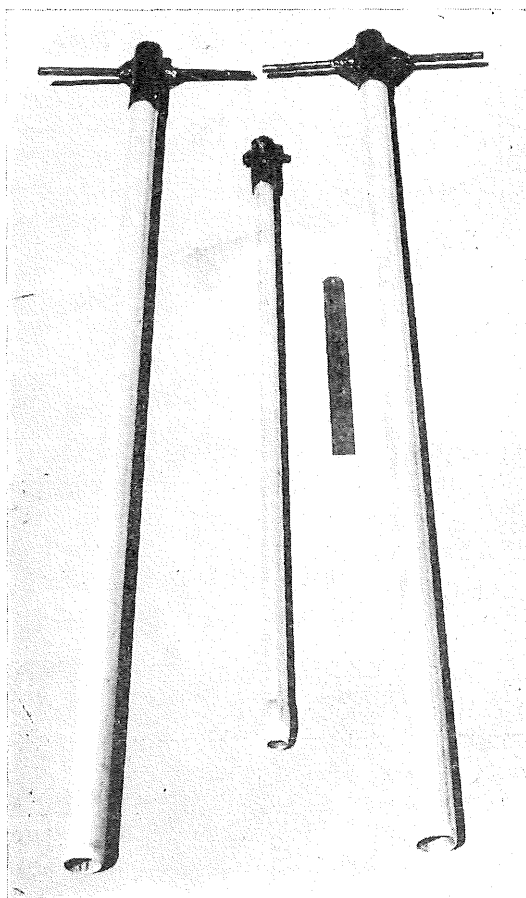


Fig. 1.—Soil sampling tubes of the type described and a standard Veihmeyer tube.

The tube has operated satisfactorily in soils covering the following range of mechanical analyses:

Coarse Sand %	Fine Sand %	Silt %	Clay %	Texture
8	51	12	29	clay loam
12	60	19	9	loam
31	60	5	4	loamy sand
78	19	2	1	sand

The sampler has been particularly useful in moisture studies on the light sandy soils of the Mareeba-Dimbulah area and should prove useful on similar soil types.

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