AN EASY PULLING SOIL AUGER

Soil and water conservation practices require know-how and much field work. Manual soil sampling is a menial task needed in soil surveys and engineering borings. The pulling of a soil auger while sampling subsoils has resulted in many injuries and strained backs. Technicians in Ohio employed by the U.S.D.A. Soil Conservation Service have designed and developed a mechanized soil auger that will eliminate some of these pulling problems, especially for the deeper samplings.

Illustrated here is the soil auger that has been mechanized by means of a simple pressure plate mounted on a left-hand threaded soil auger shaft. The stages shown in figure 1 are: left, the simple adjustment of the pressure plate to the desired depth of sampling; center, boring to the depth of the pressure plate by turning to the right; and right, continued turning to the right breaks the auger loose from the ground.

The construction is such that strength, weight, and thread clogging are not problems. Standard fittings permit changing soil auger bits, and adding extension lengths for deeper borings.

There are many soils, especially those with tight subsoils, in which an auger of this type would be of value in assisting manual soil sampling work.

Specifications are as follows:

- Weight—Approximately 4 lbs., 3 oz.
- Length—Overall, 43 in.
- Soil Auger Bit—1½ in. dia.—standard equipment.
- Fittings—Both fittings, at the handle and at the base of the threaded shaft are standard ½ in. threaded, male and female.

There is no need for extended stopping to facilitate the necessary rotary movement required in emasculation. If this method is not used for mass emasculation it is suggested that the method described by Stephens et al.² for mass emasculation be used.

The instrument can be easily made from plastic, close-grained wood, or other similar material. The overall length (figure 1) is approximately 17 cm. The "Handle" is rounded to facilitate the necessary rotary movement required in emasculation. The point is spatula-like with rounded edges just sharp enough to open the glumes with ease.

Emasculation is accomplished by opening the glumes of the spikelet (figure 2) and applying pressure at the bottom of the anthers through the palea by rotating the instrument (figure 3). The anthers immediately slip from the lemma and palea unbroken, and emasculation is completed.

H. B. Harris, Assistant Agronomist, Georgia Experiment Station, Experiment, Ga.