A SIMPLIFIED MIXING TECHNIQUE IN MAKING MECHANICAL SOIL ANALYSES

IN BOTH the hydrometer and pipette methods for making mechanical analyses of soils some difficulty is encountered by most workers when inverting sedimentation tubes in mixing soil suspensions. An improvement is suggested.

By placing a polyethylene plastic drinking cup in the end of the tube, in lieu of the palm of the hand, solution losses can be reduced to a minimum. In addition, the mixing can be accomplished with a minimum of effort.

The flexible polyethylene plastic drinking cup is conical, will not break the tube, and will fit any size tube normally used. It can be purchased in any variety, hardware, or grocery store.—H. A. Vollbrecht, Soils Department, Michigan State College, East Lansing.

FOLIAGE APPLICATIONS OF UREA SOLUTIONS TO GRAIN AND FORAGE CROPS

DURING recent years, the practice of applying fertilizer solutions directly to the foliage of agricultural plants has received increasing attention. A number of crops have responded well to this method of fertilization, while others have been severely damaged by even small applications of fertilizer solutions.

In 1951, an investigation was initiated to determine the tolerance of corn, wheat, bromegrass and alfalfa to foliage applications of urea solutions. Solution concentrations sprayed on the crops ranged from 100 pounds of urea per 500 gallons of water to 800 pounds of urea per 100 gallons of water, the latter solution being nearly saturated. Foliar applications of the urea solutions were made with ground equipment in the case of bromegrass, aerial equipment in the case of wheat, and both ground and aerial equipment in the case of corn and alfalfa. The solutions were applied as coarse and fine sprays.

Applications of nearly saturated solutions of urea to wheat in the blossom stage, at rates up to 60 pounds of nitrogen per acre, resulted in no apparent injury to the plants. As high as 176 pounds of nitrogen per acre, in the form of urea, was sprayed on bromegrass without detrimental effects to the plants. However, in the case of alfalfa, slight marginal burning of the leaves resulted from the foliar application of the nearly saturated urea solution in a fine spray at 20 pounds of nitrogen per acre. The degree of burning of leaf margins increased progressively with the application of 40 and 60 pounds of nitrogen per acre to the alfalfa. Burning of the leaves was also increased with the use of coarse sprays.

Within 10 days, the white, necrotic portion of the leaf margin (meristematic tissue) sloughed off and active growth was resumed. Corn was extremely sensitive to the effect of droplet size with the application of the nearly saturated urea solution. An application of 20 pounds of nitrogen per acre resulted in no burning where a fine spray was used, and slight burning of the leaf margin where a coarse spray was used. Burning of the leaf margin area increased with the application of 40 pounds of nitrogen. At this rate, there was also some burning of the tissue between the veins of the leaves. This lesion type of damage, sur-

round by normal tissue, persisted. A split application of the urea solutions at two week intervals greatly reduced the amount of burning of the corn leaves. At all rates, foliar applications of the urea solutions to corn produced more burning when coarse sprays were used than when fine sprays were used.—Leon Chesnin and Neal Shafer, Department of Agronomy, University of Nebraska Agr. Exp. Sta., Lincoln, Nebr.

AN EFFICIENT SCARIFIER FOR SMALL LOTS OF LEGUME SEED

SCARIFICATION has been found to be necessary to obtain a high percent of germination in several of our important small-seeded legumes such as white clover, sweet clover and birdsfoot trefoil. This is especially important in a breeding program where frequently only small quantities of seed are available.

Several types of scarifiers have been used, but many of them have been expensive from the standpoint of construction or operation. The scarifier described here, which has been used by the New Hampshire Station for several years, is inexpensive, simple to operate, and efficient for small samples of seed. It is suitable for scarification of sufficient seed for spaced plantings or for small plots.

The scarifier, shown in figure 1 was made from an ordinary drink mixer. The regular stirrer was replaced by a small paddle, 1 1/2 inches wide by 2 inches long, made of 35 mesh screen wire. The paddle was soldered to the shaft, and the edges of the wire were soldered to prevent fraying. A hole was punched in the jar lid for the shaft. Seed is placed in a cylindrical container made of No. 1 emery cloth which fits tightly inside the pint jar.

Different degrees of scarification may be obtained by running the mixer for varying lengths of time. Good scarification has been obtained for 100–200 white clover seeds by operating approximately 8 to 10 seconds.—P. T. Blood and G. M. Dunn, Assistant Professors of Agronomy, University of New Hampshire, Durham, N. H.