

A Simple Mud Sampling Device

by JAMES H. BARKLEY
Department of Entomology
University of California
Riverside, Calif. 92502

Recent emphasis on the determination of pesticide residues and other pollutants in the environment has called attention to the need for a simple device for obtaining large numbers of mud samples from pond and lake bottoms. The apparatus described below was first used in sampling pond bottom mud for studies of Dursban residues (1).

MATERIALS

(see Fig. 1): All materials except the 2 3/8" O.D. plastic pipe are of galvanized iron. a = 1" x 1/2" reducer; b = 1/2" x 3" long nipple; c = 1/2" cross; d = 1/2" x 6" long nipples; e = 1/2" caps; f = 1/2" pipe; g = 1" x 1/2" bushing; h = 1" x 1" x 1/2" reducing tee; i = 1" close nipple; j = 2" x 1" reducer; k = 2" I.D. (2 3/8" O.D.) rigid plastic irrigation pipe cut into 6", 11" or other lengths as required.

ASSEMBLY

Figure 1 shows the assembled apparatus in detail. No pipe dope is used on the joints. The top and bottom bell reducers are turned on a lathe or ground to remove the inside threads to receive a number seven stopper in the top, and the plastic pipe in the bottom. The depth of relief for the larger reducer is about 1 1/8 inches at a diameter of 2 7/16 inches. Opposing holes are drilled 1/4 inch from the end of the larger reducer and tapped to take 5/16 inch bolts. These bolts are to fit into holes of 7/16 inch diameter, drilled in the tops of the plastic pipe sections thus holding the pipe firmly in place. The opposite ends of the plastic pipe sections are ground on the outside to form sharp cutting edges.

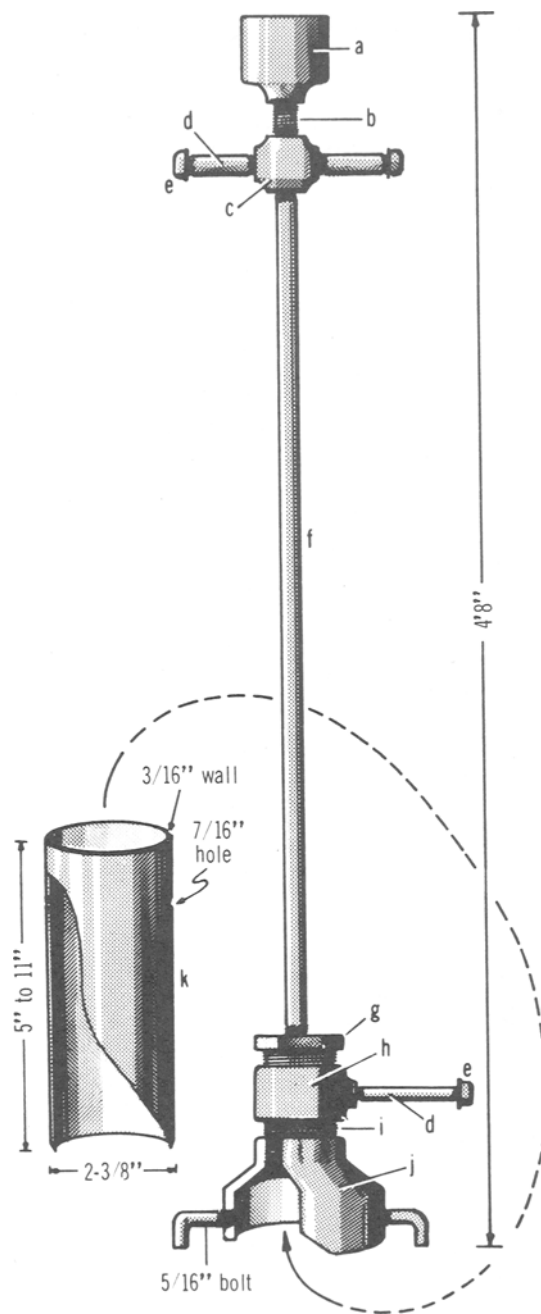


Fig. 1. Mud Sampling Device

SAMPLING PROCEDURE

A section of the plastic pipe is attached to the apparatus and forced into the mud using the top cross hand pieces and the lower foot bar to apply pressure. A stopper is placed in the top of the apparatus before withdrawing the tube so that the mud sample will be retained by vacuum. The entrapped water is allowed to drain out by removing one of the retainer bolts and the rubber stopper before disengaging the plastic pipe from the apparatus. The plastic pipe containing the mud sample is then removed, wrapped in foil, and frozen for storage. The plastic pipe will not crack upon freezing, and heating of the outside with hot water allows the block of frozen mud to be pushed out intact.

REFERENCE

1. HURLBERT, S. H., MULLA, M. S., KEITH, J. O., WESTLAKE, W. E., and DUSCH, M. E., J. Econ. Entomol. 63, 1 (1970)