SOIL TESTING METHODS AND APPARATUS DESIGNED FOR ECONOMY IN TIME AND LABOR

E. W. Constable and I. E. Miles

Soil testing for plant food deficiencies is seasonal in demand. To be true, there is some testing done at all seasons, considerable in the fall, but by far the bulk of the work is done during the spring months. If the testing and subsequent fertilizer recommendations are to be of value for the current crops, the laboratory work must proceed very rapidly and without sacrifice in accuracy of methods. It was with this in mind that an effort was made to economize labor and time by means of improved technics and equipment.

In view of economy and facility, the design of specialized equipment includes, as far as possible, the adaptation of commonly available materials. In part, a type of application previously employed in these laboratories with appreciable economy (1) is followed.

METHODS AND EQUIPMENT

SOIL SAMPLES

Soil samples are received in a preparation room. After numbering and recording essential information, they are emptied into shallow, 10 by 10 inch baking pans for partial drying. Following this, all lumps are crushed, the samples put through a 2-mm, round-hole screen, and then returned to the original containers. Here, as well as in transportation, proper containers play an important part.

In proper containers samples retain considerable moisture for several days and in this state more nearly approximate field conditions; consequently, classification as to series, texture, drainage, etc., is facilitated. Also, one size and shape of container permits the systematizing of laboratory equipment.

A pint size, breakdown type, waxed, cardboard container was adopted (Fig. 1). The flap of the container is left unwaxed so as to permit writing upon it for the purpose of identification. On this flap space is provided for the farmer’s name, the number or name of the field, and a laboratory number. All other external parts and all of the inside of the carton are waxed so as to retain the moisture of the soil. Instructions for collecting the soil samples are printed on the outside. In setting up the containers for use the top and bottom flaps are locked together by hooked tongues inserted into suitable slits. Pressure exerted from within the container serves to hold lock securely.

A collapsible mailing carton was also devised which holds six of the individual containers or sufficient samples for three fields, in-