Simultaneous Determinations of Calcium, Potassium, Magnesium, and Phosphorous in Soil Electrodialyzates by Autoanalysis

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For more than a century, soil and plant scientists have sought more rapid and accurate chemical procedures for the quantitative estimation of essential plant nutrients in soil extracts.

During the early period from 1845 to 1906, Daubeny (4), Liebig (12), Hilgard (9), and Dyer (6) made valuable contributions in the field of soil analysis. Since 1925, Spurway (18), Truog (20), Morgan (14), Hester and Blume (8), Thornton (19), Bray and Kurtz (2), Purvis and Hanna (17), and others have made important contributions in the development of soil test methods and in a partial correlation of these methods with plant response under various soil conditions.

The use of rapid microchemical soil tests to determine readily soluble plant nutrient elements in soils for estimating fertilizer needs and diagnosing plant deficiencies has increased greatly in the United States during the past two decades. The National Soil Test Work Group (16) reported that in 1950 more than a million soil samples, exclusive of commercial laboratory samples, were analyzed in the U.S. During the past 5 years, it is estimated that over two million soil samples were tested annually in this country. There is little reason to doubt that the number of soil samples tested annually in the U.S. will continue to increase as more and more farmers, nurserymen, turfmen, landscapers, and home owners take advantage of the soil testing services offered by public and private laboratories throughout the coun-

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