EFFECT OF AGE UPON THE ABSORPTION OF MINERAL NUTRIENTS BY SUGAR CANE UNDER FIELD CONDITIONS

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The mineral composition of sugar cane has been employed in Hawaii as an aid in determining the nutrient status of the soil. Conflicting views are held regarding the reliability of the method. It is the belief of the author that the method may lead to serious error unless the effects of other factors which influence the mineral composition of the cane plant are also known. It was the purpose of the phase of the investigation reported in Part I of this paper to determine the effect of one of these factors, namely age, upon the percentage composition of the cane plant.

Part II of this publication deals with an investigation of the changing demands which the growing cane crop makes upon the soil for mineral nutrients. Investigations by Stewart (11) and by the author (1) have shown that the absorption of mineral nutrients is much more rapid at certain periods in the life of the cane plant than at others. Knowledge of these demands at successive stages of growth would enable the agriculturist more nearly to adapt his program of fertilization to meet the needs of the crop. Moreover, if fertilization were largely withheld during periods of negligible absorption, losses of added nutrients by leaching should be reduced. The matter is of particular importance locally in those regions which are subject to an annual rainfall of 100 and occasionally 200 inches.

EXPERIMENTAL

The experimental plat consisted of approximately 1,000 running feet of cane in rows 5 feet apart. The variety of cane grown in the experiment, H 109, is extensively planted in the Islands and from it is produced nearly half of Hawaii's annual output of sugar. In order to avoid as far as possible any effect upon the

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2Assistant Chemist. The writer wishes to express his appreciation to Dr. Francis E. Hance, under whose direction this investigation was conducted, and to associates for helpful advice and criticism.
3Figures in parentheses refer to "Literature Cited", p. 886.