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TOBACCO SOILS, ROTATIONS, FERTILIZERS.

H. A. FREEMAN, M.S., *Tobacco Inspector.*

SCOPE OF THE WORK—METHODS.

In 1916, in response to many inquiries, and on account of a serious lack of data regarding the physical and chemical nature and composition of Canadian tobacco soils, as well as a lack of data regarding their correlation, fertilizer needs, to a great extent, it was proposed to investigate the soils of Canada now producing tobacco and any proposed tobacco soils, in order to secure this information. These investigations are being conducted on the flue-cured, White Burley, and Quebec cigar tobacco lands. A large number of samples are taken over the entire area, as an isolated soil analysis is seldom satisfactory because there is no standard of comparison. We get the bulk of our knowledge by comparison, and for this reason extensive and general analyses of all tobacco soils in Canada are being made. Such a system will give general standards that will be valuable in every comparison.

Soil samples are taken according to the method of the Official Agricultural Chemists bulletin 107, Bureau of Chemistry (1). Physical analyses are made the basis of the survey, and the method used is that given in bulletin 84, Bureau of Soils, United States Department of Agriculture (2). The methods used in the chemical analyses are given as official by the Association of Official Agricultural Chemists (3). Inquiry and observation are made on fields showing better adaptability than other fields of apparently the same nature.

GENERAL DISCUSSION.

Since the investigation of soils during the last fifteen years have shown the distribution of crops to be so dependent upon physical characteristics of soils and upon climate, it is readily seen that data regarding this phase of the soil are very necessary if we are to advise with very much accuracy regarding soil questions. The physical analysis is recommended as most valuable for soil survey work. In fact it should form the basis of the survey because it alone takes account of those physical functions—the regulation of the water supply, and therefore the temperature, the air supply, ease of cultivation, and crop adaptation—that play so large a part in determining the value of the soil for the production of any crop.

The tobacco plant probably more than any other is localized according to climate and soil. Each distinct soil formation, aided by climatic conditions, gives peculiar qualities to the cured tobacco leaf as to texture, flavour, colour, and special fitness for varied uses, and for different markets. The same soil often has the capacity of producing imperfectly all the classes of tobacco, but such soil is not found to be favourable for yielding the highest excellence in any of the classes. So controlling is the character of the soil that one part of a farm may produce the finest grade of tobacco, and the other part will grow only the commonest article.

The Bureau of Soils of the United States Department of Agriculture (4) have shown very conclusively that it is possible to locate a soil that is adapted to the pro-