LEAF-BURN OF TOBACCO AS INFLUENCED BY CONTENT OF POTASSIUM, NITROGEN, AND CHLORINE

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THE property of holding fire by tobacco has been emphasized by many investigators as an important characteristic of good cigar tobacco. In Wisconsin this property has received increasing emphasis in recent years and is reflected in the willingness of buyers to pay higher prices for the better burning crops. An investigation of certain phases of this problem has been in progress at the Wisconsin Agricultural Experiment Station for several years and the results of some of these studies have been published (6). Some of the more important factors involved have been recognized for many years, but there still exists an urgent need for an evaluation of these factors in terms of the chemical composition of the leaf and in relation to the character of the soil on which tobacco is grown.

Schloesing in 1860 (11) was perhaps the first investigator to show clearly the beneficial influence of the potassium content upon leaf-burn of tobacco. Somewhat later Nessler (9) obtained considerable evidence to show that the content of chlorides in the leaf was definitely harmful to this quality. These early findings have since been substantiated by most investigators in this field. Anderson, et al. (10) found that, in addition to these two constituents, the nitrogen content was another important factor. Results obtained by them indicated that all forms of nitrogenous compounds, with the exception of the nitrate, were detrimental to the leaf-burn of tobacco. Other factors influencing leaf-burn have been suggested. These include the beneficial influence of the development of "grain" in the leaf (10) and the presence in the leaf of certain iron salts (4). High contents of magnesium (1) and phosphorus (7) are believed to be detrimental. Certain strains of tobacco have been reported inferior as regards leaf-burn (12), although at the Wisconsin Station (6) no significant and consistent variations in this quality between strains have been found.

Because a considerable number of factors are involved in the leaf-burn of tobacco, a certain amount of confusion has arisen concerning their relative importance. In this connection it is not only of prime importance to know whether a given factor exerts a beneficial or detrimental influence on leaf-burn, but also there is a great need for a quantitative expression of the influence of the major factors involved. An attempt was made, therefore, in this study to determine the de-