

Effects of Soil Fumigation on Cigar-Wrapper Tobacco and on Soil Nitrogen

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Nematode diseases have been for several years the most important diseases of cigar-wrapper tobacco¹ in Florida. There has long been a need for methods of control which would replace or supplement those already in use. Soil fumigation for the control of nematode diseases first appeared to have economic possibilities for tobacco shades when comparatively inexpensive fumigants were introduced.

Fumigation experiments conducted in 1946 gave promising results. Nematode diseases were controlled fairly well and yield was increased substantially and economically. Acceptance of fumigation by shade growers was rapid, with some 500 acres fumigated in 1947 and upwards of 4,000 acres, three-fourths or more of the crop in northern Florida and southwestern Georgia, in all succeeding years to date.

Two types of fumigant, dichloropropene-dichloropropane mixture and ethylene dibromide solution, were used in the 1946 tests. These two materials have received about equal attention in subsequent experimental work and in commercial usage.

It was noticed early that plants growing in fumigated soil were often darker green in color than those in untreated soil. This suggested that the availability of nitrogen in the soil was affected by fumigation.

Fumigation studies conducted during the seasons 1946 through 1949 have been concerned mainly with the choice between the two types of fumigant mentioned and with date of fumigation and, to a lesser extent, with rate of application and frequency of fumigation. Soil nitrogen analyses have been made and their relationship to the characteristics of the crop studied.

REVIEW OF LITERATURE

Carter (6)² in 1943 reported that the use of dichloropropene-dichloropropane gave "a very real measure of control" of the

¹ U. S. Type 62, "shade tobacco"; a field is referred to as a "shade."

² Italic figures in parentheses refer to Literature Cited in the back of this bulletin.