SOIL LIMING INVESTIGATIONS: VI. RESPONSE OF CRIMSON CLOVER TO BORON WITH AND WITHOUT LIME ON COASTAL PLAINS SOILS

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The value of winter legumes for soil improvement has been recognized for many years, especially in the Southeast where nitrogen and organic matter contents of soils are extremely low. There have been many attempts to establish winter legume programs by agricultural leaders in this section. Much progress has been made in Alabama on the use of winter legumes as shown by the fact that in 1940 more than 20 million pounds of seed were planted. Nearly all of the seed was purchased out of the state.

Winter legumes have not been as widely accepted and as successfully grown in the Southeast as the need warrants. The main reasons for this are that winter legumes have not consistently produced satisfactory yields, and that these crops often do not produce seed in sufficient amounts to warrant harvesting. Crimson clover is a winter legume that seeds abundantly in the Southeast wherever the crop can be grown successfully. It has not been a dependable crop, however, and its use is seldom recommended in the Lower Coastal Plains.

It is clear that for a successful winter legume program it is desirable to have a crop which can be depended upon both for successful vegetative yields and seed production. The purpose of this study was to determine the possible need for boron in combination with lime and fertilizers for growing crimson clover on Coastal Plains soils.

REVIEW OF LITERATURE

In a report made in 1898, Duggar (5) showed the possibility of growing relatively high yields of crimson clover where proper inoculation and fertilizers were used. He stated, "It is almost certain that crimson clover has failed more frequently and more completely than any other plant ever tested in Alabama". These failures were due, in his opinion, mainly to inoculation failures. Trials of crimson clover have been made in different sections of Alabama (3), but this crop has not been successfully grown year after year in the lower Coastal Plains as it has been in the northern part of the state.

Hollowell (6) states that crimson clover is the most important annual winter legume in the central section of the southeastern United States and points out that this crop has the distinct advantage of being a heavy producer of seed. It has been reported (1) that crimson clover is adapted to soils such as those of the Piedmont Plateau of Georgia which contain considerable amounts of clay. Crimson clover is well adapted to Tennessee conditions and is equal to red clover for soil improvement (8).

As far as known, there are no references in the literature to the requirements

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3Figures in parenthesis refer to "Literature Cited", p. 985.