THE VALUE OF COVER CROPS IN CONTINUOUS CORN CULTURE

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The use of cover crops for the purpose of conserving soil fertility, whenever possible, is becoming a general practice on the better managed farms in Rhode Island as well as in many other localities. Specific evidence on the value of such practice over a considerable period of time is, however, not so plentiful. Results obtained with nonlegume cover crops have sometimes been contradictory. The purpose of this paper is to present some results from a long-continued experiment with rye and clover cover crops in continuous corn culture at the Rhode Island Agricultural Experiment Station.

Pieters has reviewed the literature on green manuring for various crops and with the use of different green manure and cover crops. Generally, very beneficial results have been obtained from legume green manure crops. Nonlegume crops, especially rye, have not always been of benefit to certain succeeding crops. In several instances the results reported showed a detrimental effect of a rye cover or green manure crop on a succeeding crop of corn.

More recently, Sprague has reported results obtained with seven different green manure crops used with continuous corn over a 5-year period. The legume green manure crops used showed beneficial effects on the succeeding corn crops, but no increase in yield over the check plat was obtained from the use of wheat or rye.

DESCRIPTION OF EXPERIMENT

The experiment in continuous corn culture was begun in 1894. The purpose, as stated in an early bulletin from the Rhode Island Station, was to determine the "feasibility of attempting to grow corn or other plants continuously upon the same land without the introduction of intermediate crops or the use of farm manures, the sole dependence for the maintenance of fertility to be placed upon commercial fertilizers". This experiment was continued until 1933 under this plan. The area included consisted of 1 acre of land. The soil is classified as Bridgehampton very fine sandy loam, is underlain by gravel, and is well drained.

In 1898 this acre was divided into four equal parts for the purpose of comparing legume and nonlegume cover crops with no cover crop. Two sections, 2 and 4, were left without cover crops; one section, 3, had rye sown in the corn at the last cultivation and another section, 1, had a legume cover crop seeded at the same time.

In 1915 the test was modified in that the amount of nitrogen applied in the fertilizer was considerably increased on all sections except the one seeded annually to a legume cover crop.

In 1922 another change was made in that on section 4 the ears were husked from the standing corn and the stalks later plowed under. For three years previous to

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