INFLUENCE OF CROPPING SYSTEMS ON ROOT-ROTS OF TOBACCO

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In view of the value of rotations in combating diseases and improving yields with other crops, experiments were begun at the Massachusetts Agricultural Experiment Station in 1923 to test different systems of cropping for tobacco. In the experimental scheme were included two types of rotation and five different methods of growing tobacco every year on the same land. The soil on which the experiments were conducted was a fine sandy loam typical of much of the tobacco soil of the Connecticut Valley. The plan of the experiments provided as nearly comparable conditions as possible for the different treatments.

THE CROPPING SYSTEMS

ANIMAL HUSBANDRY ROTATION

The animal husbandry rotation consisted of hay, tobacco, and corn with the tobacco always following the hay. It was not possible in this system of cropping to distinguish between the effects of hay and corn. Hence, another series of plats was laid out in which tobacco alternated with hay in one case and with corn in another. This allowed for the direct measurement of the effects of both hay and corn on the succeeding tobacco crop. The tobacco received fertilizer at the rate of 3,000 pounds per acre of a 5-4-5 mixture and in addition the manure equivalent of the hay and corn grown in the rotation. The hay and corn were fertilized respectively at the rate of 400 pounds of an 8-6-6 and 800 pounds of a 3-10-6 per acre.

MONEY CROP ROTATION

In contrast with the animal husbandry rotation a rotation known as the money crop rotation was introduced in which all the crops were sold, yielding no manure with which to supplement the fertilizer applied to the tobacco. This rotation consisted of onions, tobacco, and potatoes. With tobacco following onions, this rotation did not afford the distinction between the effects of potatoes and onions on tobacco that was desired. In another series of plats tobacco alternated with onions in one instance and potatoes in another, providing for the measurement of the direct effect of each of these crops on

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3The fertilizer formulas used here signify ratios of NH₃, P₂O₅, and K₂O, respectively.

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