THE VALUE OF LEGUMES AS SOIL IMPROVERS

Few leguminous crops have been studied so thoroughly and over so long a period that data are available to show definitely what can be expected from them, either as to their effect on the maintenance of soil nitrogen, or as to their influence on the yield of succeeding crops.

Results from experiments conducted for the past eighteen years by the Tennessee experiment station show that either cowpeas or soybeans, when the crop is harvested for hay, usually exercise little influence on the crop following and are, in this respect, not comparable with red clover, alfalfa, or the like. In fact, strong evidence was obtained that a vigorous perennial grass, unaided by clover, is much better for the maintenance of soil fertility than either of these summer legumes. In a rotation of cowpeas and wheat on a fertile loam both crops being grown each year, that is, cowpeas in summer and wheat in winter, the turning under of the cowpea crop every year for the eighteen years has not maintained the soil supply of nitrogen and the yield of wheat has fallen off. In a cropping system of cowpeas one year and corn the next, continued for the same length of time (18 years), the turning under of the cowpea crop each year as grown was not sufficient to prevent a steady and decided decrease in the yield of corn. Where the cowpea crop was removed as hay the decreased yields of both wheat and corn were much more in evidence than where the crops were turned under as might be expected. These series of experiments, together with similar series continued from five to fourteen years in other parts of the state, have given important data on the influence of the cowpea crop on soil productivity, at least so far as loam soils of the character used are concerned. The question arises, however, would like results be obtained on either much lighter or much heavier types of soil? Another question is this, can the...