

CLOVER AS A FERTILIZER

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All practical and observant farmers know that the producing power of soils is steadily reduced when successive crops are grown and no adequate return of manure or other fertilizer made. It is also generally known that this exhaustion of fertility is more rapid when no regular system of rotation is followed. Why is this? The reasons are these: First, there is the withdrawal of plant food by the growing crops; and second, the gradual loss of humus or organic matter, which brings about an unfavourable condition of the soil. We hope to show in this bulletin that the growing and ploughing under of clover may be employed to lessen or prevent these effects of wasteful farming.

LOSS OF PLANT FOOD.

Plants take the food necessary for their maintenance and growth from two sources—the air and the soil. Hence, every crop harvested must lessen the store of plant food in the soil and leave it more or less impoverished. The elements thus withdrawn are chiefly nitrogen, phosphoric acid, potash and lime. These are found in large proportions in most soils, where they exist in two conditions—soluble or readily available, and insoluble and hence unavailable. Only a small percentage of the total amount of plant food in a soil exists in the more soluble and valuable form; much the larger part is locked up, and hence is of no immediate value to growing crops. By the practice of good methods of cultivation, such as are usually followed by the industrious farmer, portions of the insoluble plant food are gradually changed into soluble and available material. Where no systematic efforts are made to maintain the fertility of the land, and where there is also a neglect of cultivation, the small proportion of plant food existing in soluble forms in the soil is soon so far exhausted that satisfactory crops cannot be grown, and such land is often regarded as worn out and useless. The fact is that usually it is only the soluble plant food which is exhausted; the larger portion, in insoluble form, is still ready to respond to good farming, by which it may be gradually brought to such condition as will result in profitable returns.

LARGE STORES OF FERTILITY IN THE SOIL.

It has been estimated from the results of many analyses that good average agricultural lands in Europe contain of these important elements of fertility, in each acre of soil a foot deep, about the following proportions:—Nitrogen, 3,500 lbs. or more; phosphoric acid, from 3,000 to 6,000 lbs.; and potash, 5,000 to 8,000 lbs. Analyses made at the Experimental