

it should be sufficient to induce deep cultivation on the red and clay lands, which will also, partially supply the latter deficiencies. The composition of these soils points out the manures best adapted for them. These are the Schuylkill, Wrightsville, or New York lime and bone dust, or guano. Lime devoid of magnesia, will increase the growth of crops on these soils, yet it will never act as well as those which contain it, because, by the latter, both lime and magnesia, two deficiencies instead of one, are supplied.

They should be ploughed deep, but not more than two inches of the clay should be turned up in one rotation. This should be done in the fall, that it may be subject to the action of the winter's frost, and to the influence of the weather for a long time.

For the reason that these soils differ very much as to the quantity of their necessary constituents, and of course in the quantity of manures which should be applied, I have not given any of their analyses in this report.

Those which I made have been given to the owners of the soil, and the necessary manures, both as to kind and quality, indicated at the same time.

I have, moreover, given all the information which I possess in regard to them, to their owners, through conversations and lectures. At present, gypsum would act well on these soils—when, however, they have a large admixture of the per oxide of iron and alumina, by means of deep ploughing, the benefits of this will be questionable.

The rules which I have laid down, aided by observations of the effects of the specified manure, will aid greatly in their successful cultivation. These lands, from the facility with which they are improved, are very valuable. Though at present they may be cheaply purchased, yet, in a few years, when their worth become better known, they will command a very high price. Indeed, at present, they are rapidly increasing in value.

BLACK GUM SWAMP SOILS.

These are characterised by their black color, light porous texture, and the large quantity of vegetable matter which they contain. They are very productive in corn, but wheat does not flourish on them, owing to their porous texture. This class of soils is most generally found in bottom lands, and, when at all moist, should be drained.

The best application for them, is unslacked magnesian lime, for even when a fair proportion of lime is found on analysis, yet lime will act on them, as the substances necessary for plants are held by the vegetable matter, which cannot be yielded until it is decomposed: quick lime affects this very readily, and should be applied for every rotation as long as a large quantity of vegetable matter can be recognized. From twenty to forty bushels applied every year, will insure, for a number years, *very* large crops of corn, and, when the texture of the soil will allow, large crops of wheat will be produced. These soils are generally quite fertile,