

RECOMMENDATIONS

Tillage of this soil will never present a serious problem due to its crumbly, granular texture and open structure. Unless the subsoil comes close to the surface, there will be no occasion for deep-plowing. However, where there is opportunity of incorporating more sand, silt or clay with the surface soil by deep-plowing, this is advisable.

For the seeding of small grains and grasses, rolling the soil in the preparation of the seed-bed will prove beneficial. In such soil there is a tendency for the capillarity to be broken because of a lack of compactness. For corn this fact will not prove of so much consequence as for small grains and grasses. Rolling will, of course, compact the soil. There will be no serious danger of losing moisture by this compacting of the seed-bed for the soil has a natural tendency to form a dust-mulch and, moreover, is well supplied with moisture.

In the care of the corn crop, only sufficient tillage to destroy the weeds will be advisable.

In fact, a saving in labor expense is possible in this particular. Constant cultivation to keep a dust-mulch is unnecessary and uneconomical.

For building up the soil in the mineral elements of plant food, Phosphorus can be restored most economically in the form of finely ground raw rock phosphate. Such phosphate is usually guaranteed to contain about 14% of Phosphorus and to be so ground that 95% of it will pass through a sieve containing 100 meshes per linear inch. The value of rock phosphate depends upon its percent of Phosphorus, the fineness of grinding, and the presence of the soil of sufficient Organic Matter.

Fourteen percent phosphate contains 280 pounds of the element, Phosphorus, in one ton. Loss by leaching is insignificant and loss by evaporation is nihil. In applying phosphate, then, one is directly adding to the capital fertility of the soil.

The availability of Phosphorus -- which in rock phosphate is in an insoluble and unavailable compound -- depends upon the fineness of grinding

and the decomposition of Organic Matter. Finely ground phosphate is most thoroughly incorporated with the soil and decaying Organic Matter changes the insoluble Calcium Phosphate to a soluble form.

The soil contains large quantities of Organic Matter which will liberate the Phosphorus contained in raw rock. Should the application of Phosphorus be delayed until crop yields show its deficiency, it would be advisable to then apply steamed bonemeal at the rate of 200 lbs per acre for the immediate crops.

Spreading may be done at any time of year most convenient but it will be better not to apply phosphate and limestone together.

Potassium may be restored from any of the following sources:

Potassium Sulphate containing	42%	Potassium
Potassium Chloride	"	42%
Kainit	"	10%
Hardwood Ashes	"	5%

With the exception of the ashes, at present due to

the war, these sources are unavailable so that the application of corn stalks, strawy manure, and small grain straw will have to be made as substitutes. The following table shows the pounds of Potassium contained in a ton of ordinary farm produce:

Corn Stalks	18
Oat straw	25
Rye straw	17
Soy Bean straw	22
Horse manure	9.6
Hog manure	5.3

It must be understood, however, that the addition of Potassium in any of these forms is not an addition to the capital fertility of the soil. Potassium in the sulphate, chloride, kainit, or wood ashes is in a soluble form and easily lost by leaching. For this reason only sufficient quantities for immediate crops should be applied. Best results have been obtained with applications of 200 pounds of the chloride or sulphate and 600 pounds of kainit per acre.

Addition to the capital fertility of the soil in Calcium and Magnesium may be made in applica-

tions of Dolomitic Limestone. Such limestone contains both Calcium and Magnesium. Such limestone will not be seriously lost by leaching. Kainit also contains some 8% or 9% of Magnesium but in a soluble form.

Whether the application of limestone will pay in the cultivation of corn is a mooted question which should be answered by experiment. Unquestionably the growth of legumes will be benefited after the effect of the ashes has been dissipated.

Marl varies very materially in the amount of pure limestone (Calcium Carbonate) that it contains. No average can be struck for it varies from 10 or 12% to 95% of Calcium Carbonate. If available in this section, it will undoubtedly be most economical to use this form of limestone. Probably it will not contain Magnesium in any large quantity but this could be determined by analysis.

The restoration of Nitrogen will probably never be necessary and the growing of legumes will be for the purpose of balancing the ration of the stock

rather than for any soil benefit.

Carbon, Hydrogen, and Oxygen will be abundantly supplied by the air and water.

Not only because this farm will be largely devoted to the raising of hogs but also because of the adaptability of the soil, almost continuous corn and hay will best be grown. Corn may be kept upon the land as long as no injurious results from insects result. Aside from such physical reasons as insects, diseases, or the desire to put in a cultivated crop, there will be no occasion for rotation.

Although this soil is adopted to trucking - celery, mint, onions, etc. - it seems more advisable for the present at least to maintain extensive farming operations in staple crops. Intensive farming would only be advisable after the land was well settled where the labor supply would be furnished by families upon the land.