

and it is just as easy to contract large losses from their misuse as it is to obtain large profits from their right use. However, the fact that frequently profits may be doubled by their employment shows their possibilities. The nature and composition of fertilizers is a subject well worthy of the farmer's careful study. No farmer should employ fertilizers unless he has proven by experiment that by them he makes a profit.

It is usually much cheaper to buy the materials and mix them at home than to purchase a ready-made fertilizer. A summary of the results of some 10,000 fertilizer experiments in the United States has been made and it seems possible to draw a few general conclusions therefrom which might be of value. Of course it must be remarked that these conclusions are not true in each and every individual case.

1. That it is generally much more profitable to use complete fertilizers, i.e., those containing all three elements—nitrogen, phosphoric acid and potash.
2. That moderate applications only are advisable—say from 300 to 500 lbs. per acre.
3. That increased yields may follow the use of fertilizers on many classes of soils, even those considered rich.

It is usually easy to obtain considerable profit on such crops as potatoes, while fertilizers for such crops as grain, hay and corn require very careful study. The safest practice seems to be to fertilize the money crops in the rotation, allowing the other crops to benefit by the residues.

SOURCES OF PLANT FOOD.

Nitrogen—*Manure*, clover, tankage, nitrate of soda, sulphate of ammonia.

Phosphoric acid—*Manure*, acid phosphate, basic slag, bone.

Potash—*Manure*, sulphate of potash, muriate or potash and wood ashes.

The importance of *manure* in farm economy is now realized. It is the inevitable by-product of the properly conducted farm, just as bran and shorts and tankage are the by-products of manufacture. It is a surety that the manufacturer exacts full value from his by-products. Why not the farmer, the manufacturer of protein, fat and carbohydrates?

In order to establish a proper treatment and care of the land the crops are 'rotated.' In this way all parts of the farm get an equal chance. This also serves to produce the different kinds and amounts of crops as required for feeding, allows for proper manuring and cultivation, for alternation of crops with deep and shallow root systems, for using preceding crop residues, gathering nitrogen from the air, distributing farm labour, controlling weeds, &c., &c., &c.