

runs off clear without the ammonia formerly contained in it, and that this power of soils, of retaining the ammonia, has to be attributed to the presence of portions of double silicates in them. This power of soil comes here into action, and it is plain in itself that its effect on the guano will be the more thorough and full the more uniformly the guano has been distributed throughout its mass. In order to attain this object, it may be advisable to mix the guano, previous to its application, with a suitable quantity of soil, (about double its weight,) especially in the case when the quantity of Peruvian guano to be used is too small to allow its uniform distribution over the surface of the acre to be manured. The soil best adapted for this purpose should be a loose, loamy one, and rich in humus, so as to secure to it a specific gravity, not exceeding that of the guano to be mixed with it; a perfect mixture of two substances being possible only when they are of equal specific gravity, and only in this case they will not separate from each other when being sown.

The second point to which I shall direct the attention of farmers, is to the quantity of guano which should be applied per acre, my own practical observation, as well as that of many others who followed my advice, has decided that it should not go beyond two hundred pounds, but may for many soils, according to their degree of stiffness, fall short of one hundred pounds.●

It has ever been my endeavor to diffuse amongst farmers the true philosophy of farming, and to make them understand that crops cannot profitably be increased by enormous additions of Peruvian guano, nor of any other manure, as has been advised. This law is correct, that the yield of crops is not in direct ratio to the quantity of any substance either originally existing in the soil or applied to it by a manure, but on a proper proportion of all the elements of the food of plants. Crops cannot, therefore, be economically produced by the application of three or four hundred pounds of Peruvian guano, as has been recommended by some who assume to direct agricultural improvements, without either practical experience or scientific knowledge. If we go beyond a certain quantity, the crop will not be increased in proportion to the expense of the surplus added, and this large application will consequently be unprofitable, save to the manure dealers. The application of 200 pounds of Peruvian guano, *containing compounds capable of forming sixteen per cent. of ammonia*, is enough for any soil, and on many soils a less quantity is all that is required; and the effect of this, if used according to the directions which we have given, will equal in effect double or treble this quantity improperly applied.

This advice has heretofore saved thousands of dollars to the farmers and planters of our State, and if followed will save many more thousands. They should not make up for *other deficiencies* in the