

George H. Cook's Report on Soil Ingredients of Cranberry Production
Presented to
New Jersey Cranberry Growers' Association

My investigations lead to the conclusion that your cranberry bogs are too much cultivated, and the nature of the soil thereby changed. The cranberry grows and thrives naturally in a soil which is composed of leaves, moss, etc., usually wet and acid to the taste. It does not in this state undergo any sort of decay. Changes do take place in these soils, but they are chemical; some form peat, others coal, iron, etc. The carbon remains—an acid substance. The methods of deep drainage and exposure of the soil, common among cranberry growers, have a tendency to sweeten the soil and destroy these qualities. Lime, or any other fertilizer, has the same injurious effect.

On a recent visit to the farm of the late Chalkey Albertson, near Haddonfield, my attention was called to a deposit of "poison marl." This marl destroyed all vegetation when applied in the ordinary way as a top-dressing for crops. I was also informed that piles of the marl, which has been laying out and exposed to the weather for some years, were now covered with a luxuriant growth of cranberries. A visit to the locality showed the cranberry plants with the fruit still on them in April, and that the plants were healthy and vigorous. On digging into the earth, it was found to be of a rusty red color for four or five inches down, and from that on downwards, to be dark colored and almost black. It was composed mainly of sand, with a very little loam in it. It had a strong inky taste, and was decidedly acid to the tongue as well as to chemical tests. Two samples of the earth were taken for analyses, one from near the surface, in which the roots of the cranberry were growing, and the other from about thirteen inches beneath the surface, and below where any roots were seen. The analyses, which were made only to find the amount of sulphate of iron in the earth, resulted as follows, viz: Surface earth contained 0.038 percent sulphuric acid. Earth thirteen inches down contained 0.028 percent sulphuric acid. This acid is combined with iron, forming the common crystallized green vitriol, or copperas, and what is known to chemists as photo-sulphate of iron and as ferrous-sulphate. The surface layer on an acre contains, in the first six inches of depth, 1875 pounds of this ferrous-sulphate, and the lower layer, for the same area and thickness, contains 1381 pounds of the same substance. It is quite certain that many of the bogs in which cranberries thrive, contain sulphate of iron, and it will be an interesting question to ascertain whether all the good cranberry bogs are acid from the presence of that subject, or from some organic acid; and, also, to ascertain whether those bogs where the cranberry fails most completely, are not lacking in this acid property.

A soil containing the smallest trace of acid will cause blue litmus paper, if moistened, to turn red the moment the paper touches it. For the purpose of testing the fact as to whether sulphate of iron will cause the cranberry plants to grow more vigorously, it is recommended to make experiments. Take five hundred pounds of sulphate of iron and dissolve it in one hundred gallons of water, and use this in repeated sprinklings on a square rod of cranberry bog. It may be that less than this will be sufficient, and one pound in twenty gallons of water may be used on a square rod, and this be repeated as often as it appears to be needed.

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