## APPENDIX.

## MAINTAINING THE FERTILITY OF THE SOIL IN ORCHARDS.

## A paper read before the New York Horticultural Society, Jan. 28th, 1892, by PROF. I. P. KOBERTS, of Cornell University, Ithaca, N. Y.

We usually speak of fertility in a general way, that is, if the land produces well, we call it fertile; if it produces nothing we say it is barren; and yet, the land which produces little or nothing may, and often does, contain far more of the elements of plant growth than does the productive soil. The products of cultivated land are not, usually, in any sense the measure of the amount of plant food which it contains, nor the amount which may be liberated by scientific culture. In most cases it will not pay to have the soil analyzed, but the shrewd cultivator will have learned, if he has made any careful study at all of the land that all plants love a fine soil which has been aerated and relieved from stagnart water, and has been compacted, except possibly a little of the surface.

In our farm vernacular fertility means production, whereas it should mean the amount of plant food which can be profitably set free by the best and most scientific methods. To the orchardist, the amount of plant food which the trees can get out of the land is practically the true measure of the fertility of that land.

The question of how best to secure the fertility which is already in the land, should be discussed before we speak of manures or fertilizers. The roots of an orchard after it is fairly grown, occupy very fully the entire ground except a small portion of the surface. From this time on, the feeding roots are practically confined to the exact ground from which they have been feeding for the last fifteen or twenty years. The roots of fruit trees, where set the ordinary distance apart, have extended themselves nearly as far into the subsoil at fifteen years of age as they will ever go, because there is little more food that can be reached in that direction on account of the physical and chemical

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