A THOROUGH test of electrical farming being made on an elaborate scale near New York. The electric current is set to work to quicken the actual growth of familiar plants and vegetables. It is expected that the rate of development will be greatly increased, if not perhaps doubled by this method. A plan to grow new farming look forward to a day when the crops will be immensely increased the country over by this simple expedient.

The tests are made by ex-Judge Thomas H. Williams of Brooklyn on a farm at Eastport, L. I. A plot of two acres, favorably located has been set aside for the experiments. The methods employed are closely copied from the electric farms of Germany, where surprising results have been obtained. As the success of the new method is proved the farm will be enlarged.

New York's electric farm will present a curious appearance to the layman in such matters. The ground used for the tests is planted with iron poles, twelve in length, arranged in regular rows. The tops of the poles are connected by a series of wires running omissible fashion. Their height above the ground will be great enough to permit the workers or even the farm wagons to pass beneath. The electricity used for stimulating the plants will be developed by a series of windmills, which will lend an attractive touch to the farm. The poles and wires will be gathered in storage batteries. This supply will make it possible to turn on a current over the larger part of the field during the day or night, whether the windmills be working or not.

The experiment combines a high amplitude with a low voltage. It may be supplied at a comparatively slight expense. Great progress is being made upon the German method, which Judge Williams is inaugurating, it is believed that the new stimulus may be made a practically commercial possibility.

The electric current may be said to drop from the wires into the ground. It will thus act directly upon the seed throughout their germination and later upon the small sprouts and vegetation. The crops and vegetables, for the tests are intended to be an entirely practical nature.

The results so far made to prove exactly how the electric fluid works upon plant life. A capillary tube when filled with water shows just how the stimulus of electricity is felt. When the current is turned on water is forced up the capillary tube and forms several drops at the top. The quantity of water which is thus raised has been found to be in direct proportion to the strength of the current applied.

What happens in the isolated capillary tube under the microscope is, of course, repeated in millions of the capillary tube through the vegetation and wires. The current serves to force the sap of the plant upward just as it raises the water. Some of the sap will rise through the little tube is thus quickened, the sap is carried further, and the plant is made to grow faster.

When the current is turned on in the electric farm the invisible fluid leaps through the capillary tube, across the poles to the earth, thus passing through the plants which are in circuit. A spark may be formed between the wires and the ground. In damp weather the air often produces a glow which is visible for a considerable distance.

The stimulating effects of the electricity is greater than that of powerful nitric acid, and it is startling, but not overwhelming, and may thus be used to further stimulate the action of the nitrites. If the growth of a crop for instance be increased 25 per cent., a powerful nitrate the addition of the electrical treatment will still further increase the growth of the plants. The results are even more striking. Electrical farming has been carried on with great success near London by Sir Oliver Lodge in Belgium, Russia, France, and Switzerland. The plants we are considering are considerably different. The average would seem to indicate that an increase of 25 per cent. may be obtained in the size of ordinary farm crops and of from 60 to 80 per cent. of vegetables.

Plants have been compared growing under natural conditions and with the stimulus of the electric treatment, so that an exact measurement might be made. It has been found that after 104 hours of the electric current marked results were obtained. The tobacco plants increased 25 per cent. faster under the electric treatment, the bean plants 120 per cent. faster, lima beans, 11 per cent. and carrots 8 per cent. faster.

The experiments were taken to determine the exact fertility of the various plots of ground. It was found that the soil in the field was not as fertile than a variable current, even though the time the two is exactly the same. Careful observation it was found that the fertility of wheat and corn grown in the tests was very much more rapid.

At the end of the second test it was found that the plants had grown 25 per cent. faster because of the electric current. The carrots 37 per cent. and potatoes 50 per cent. On the other hand showed a decrease of 7 per cent. "Here is a contradictory fact," Judge Williams said; "one of the secrets of electrical farming is to have the plants well watered. The increased humidity seems to assist the action of the electricity.

The success of the electric farm of Sir Oliver Lodge just outside London, where very satisfactory results have been obtained, has been due to the fact that the produce is sent to twenty-five acre. The wires in this case are strung at a height of 17 feet above the ground, which, it was said, allowed the least number of interferences. This height allows the convenient passage of the largest farm wagons and so interfere with the action of the electric current.

The soil is well drained, has an entirely different system of applying the electric current has been employed, with very interesting results. Instead of stringing the electric wires above the ground, plates of zinc, copper, and iron are sunk at regular intervals, the ground and connected with wires leading to the dynamo. The tests have been made with a variety of plants, but the best results have been obtained with very young plants before germination.

The heat generated by the network of wires is very small and the ground directly affects the roots. By applying the current for 12 hours a day, the plants have been allowed to sprout on 30 to 40 per cent. In the size of the crop has been increased by 25 per cent. The cost of cultivating such a system of electro-culture is high, but the cost of maintenance is very low. It is to be expected that the idea will be adopted by the manufactories, where the overhead system, but cheaper to operate.

Still another system of electro-culture consists in suspending powerful electric wires from the pews and the rights of the lamp to play upon the crop. This test has been carried out in glass houses with surprising results. One of the plants, comprising various kinds of pears, tomatoes, etc., were thus forced about the same time. The electrically treated crops were ready for harvesting four days before the regular crops. The gain in time was not important, but the increase in the yield was well worth the electric farmer for his trouble.

The electric crop of wheat was 20 per cent. greater than that of the wheat grown by normal conditions. A strawberry bed which had been systemically watered with the same current for 115 days, or for 1,014 hours, showed an increase of 35 per cent. over the regular crop. The same beds were also obtained with tomatoes and raspberries.