

THE PROGRESSIVE FARMER AND SOUTHERN FARM GAZETTE



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The Roots of a Plant and What They Are Worth.

HERE are two pictures worth your study. The first is a photograph of Mr. R. S. Wilson, who has charge of the Farm Demonstration Work in Alabama and Mississippi. He is holding up a cotton root, or part of one, a considerable portion of it having been broken off. The part which he holds is nine feet long and out at the end of it were the smaller rootlets on which grew the root-hairs whose business it was to take up the food from the soil for that plant. This root did not grow down into the ground, either; it was a lateral root—that is, it ran out from the plant near the surface of the soil, just as most cotton roots do. Many folks greatly overestimate the depth in the ground of the feeding roots of most plants. A few roots may run very deep down into the soil, but by far the greater part of the food obtained from the soil by our cultivated crops comes from the top six inches of the fields. In fact, on clay lands poorly broken, the feeding area may practically be limited to the first four inches. The top soil is nearly always a better feeding ground for plant roots than can be found further down, and the little rootlets are constantly reaching up for food into the top layer of earth where the soil is fine, loose, well supplied with air and where the plant food is most likely to be available. It is safe to say that a plow run six inches deep nine feet from the plant shown could have cut off most of the feeding rootlets on this cotton root. And that



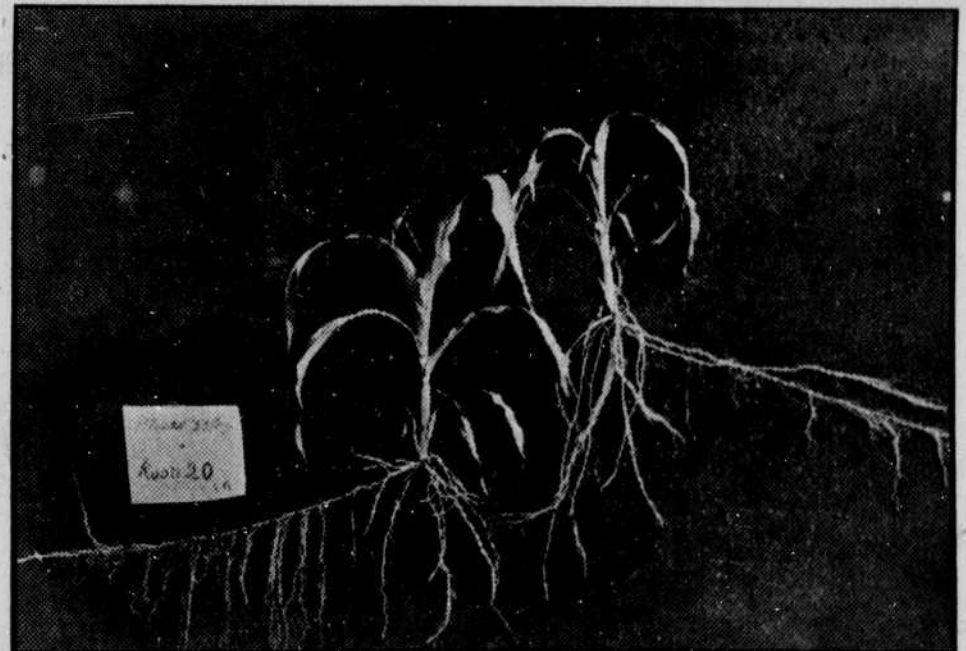
A COTTON ROOT NINE FEET LONG.

would have meant no little loss to the plant. The other picture shows some corn plants 33 days after planting. The roots of these plants are 20 inches long, and it is out at this distance from the plant that most of the very fine roots, the feeders, are to be found. Every one of these roots cut or broken off by a plow means a loss to the plant; a lessened ability to gather food; a smaller yield of corn. These pictures should be all the evidence necessary in the case of Deep versus Shallow Cultivation. It must be evident to anyone who will study the matter a little, or who will go into his field and investigate, that it is impossible to plow deeply after his cotton or corn has reached a height of six inches without cutting off thousands and thousands of the little roots which are the only means the plants have of getting their food from the soil. There may come times when it is better to do this than to turn the crop over to the grass, but no farmer should ever willingly run his cultivators more than three or four inches deep after the plants he is tending have reached any considerable size. When this must be done, it is only a choice between two evils. Many farmers, in fact, have a wrong idea of the purpose of cultivation. The time to fine and loosen the soil, to make it a fit place

for the plants to grow in, is before the seed are planted. The first essential of good cultivation is a good seed-bed, and this seed-bed can not be made after the plants are up. Yet how many farmers there are who feel it their duty to "loosen up the ground" to a considerable depth after the crops have grown for weeks and have filled the soil with thousands of little feeding roots running in every direction and searching eagerly everywhere for the foods by which the plants must be nourished. There may, again, be exceptional cases when deep cultivation is necessary for this purpose, but they are few indeed.

The true ideal of cultivation should be to keep, from the very beginning, the top three inches of soil so loose and light that the roots would not grow there and that the soil below would be covered as with a blanket. Then the tiny tubes which bring up the soil moisture from the depths to the surface would be cut off by this dust blanket and the moisture would be left just where the plants could get it most readily.

Of course, it is not always possible exactly to realize such an ideal as this, but the farmer who works with this end in view is



CORN 33 DAYS FROM PLANTING; ROOTS 20 INCHES LONG.

almost certain to make better crops in any ordinary season than will the man to whom cultivation means the running of deep furrows between the rows of his growing crops.

FEATURES OF THIS ISSUE.

CORN AND OATS FOR THE HORSE	12
CROP PROSPECTS IN ALABAMA	14
CULTIVATING CORN WITH THE WEEDER	6
CULTIVATION OF CORN	4
HINDUISM: THE SUPREME FACT OF INDIA	11
"OLD MAN AVERAGE"—I.....	10
PREPARING BROILERS FOR MARKET	16
PROFESSOR MASSEY'S COMMENTS	2
SPRAYING WILL DOUBLE YOUR IRISH POTATO CROP.....	18
THE PURE-BRED HERD.....	13
THE BEST CULTIVATION.....	5
THE SEED PATCH OR PLAT.....	3
TISSUE-BUILDING FOODS.....	8