

# The Progressive Farmer

AND THE COTTON PLANT.  
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CLARENCE H. POE, - - - Editor and Manager.  
B. W. KILGORE, } - - - Agricultural Editors.  
C. W. BURKETT, }  
C. G. LANE, Travelling Agent. T. B. PARKER, Sec.-Treas.

## IN THE CORN FIELD.

There is no subject that is riper for attention by the thinking farmer of the Middle South than that pertaining to the Imperial Agriculture plant of America, corn. The raising of this crop is particularly important to our Southern agriculture because, under the present system, the farmers are obliged to bring into our section of the country large quantities each year from the West. It is all right to benefit one section if it is not at the expense of another, but under our present system our own agriculture is not benefited. Without further discussion let us go at once into the corn field and see what is necessary for the most economic production of this important plant.

### Soil, Its Tillage and Preparation.

If a tomato is put into a can and carefully sealed so as to keep out the air it will be preserved for a long time. If, on the other hand, the lid of the tomato can is removed or a puncture is made so as to admit the air, decay and decomposition at once take place. This is an analogous case to our corn lands. A compact light soil infrequently plowed, and shallow at that, which means but little access of air, prevents decay and decomposition of the soil particles. Where the soil is stirred up so that the air has easy access into the soil, decay and decomposition follow and change the unassimilable plant food into forms that plants can use. You see, then, that plant food exists in the soil in two forms: available and unavailable. We have plowed our Southern soils and cropped them in such a manner that they have become hard and dead and lifeless, simply because there is so little circulation of air and so little humus in them the unavailable plant food is too slowly changed into available forms.

Our Southern soils do contain plant food, and considerable quantities of it. It is principally there in the unavailable form which will be released only by frequent and thorough tillage. In this connection it is only necessary to say that a good plow that makes a good cut so as to turn the soil in a way that will pulverize it when it is dropped in the furrow, is necessary. A good plowman should be behind the plow to make the furrow regular and even. When the plow strikes a stone or root it should be pulled back and put in again so as to make thorough work the rule and not the exception. This feature is the most galling of all to the enthusiast and practical believer in tillage—the seeing of so much slipshod, careless plowing. In a way good plowing has almost become a lost art with us. Our forefathers, with poorer implements, did better work than the majority that hold the handles of the plow to-day.

### Judicious Plowing and Harrowing.

The most of our Southern soils—especially those of clayey formation—can be handled better in the winter than in the spring. It gives the air and frost a longer time to work on the particles; in other words, there is a longer time for unavailable plant food to be changed into the available form. Sandy soils and those that easily leach by the spring and winter rains, perhaps can better be plowed in the spring. They readily dry off in the spring and planting is never materially delayed. When spring comes, and the frost has gone and the soil is dry, then comes the use of the disc and spring tooth harrows. But do not hurry.

It will take another frost to remedy the evil done by plowing or harrowing a wet soil. A crop is often materially lessened by this injudicious rush to plow or to cultivate. A soil that has been plowed during the winter is usually compacted and hardened by spring time. In this case a reploting in the spring is advisable. We have increased the yield as much as 25 per cent by an extra spring plowing. But when this intensive plowing is neither necessary nor advisable, the disc or spring tooth harrow, or both, will not only cut up and level and fine, but put the soil in thorough preparation for planting. When a dry spring comes, and the soil is dry and hard, let the roller be used in connection with the above-mentioned tools so as to thoroughly prepare the soil. The clods and lumps must be gotten rid of. If they must exist, have them at the top of the soil, but not in the soil. Here is where diligent tillage comes in, and here is where cultivation of corn has its greatest value—before the corn is planted.

### Test Your Seed Corn.

As a rule, the Southern farmer is not sufficiently careful with the selection of his seed for the next crop. A test for germination should be made; ordinarily, there is scarcely a farmer in a hundred that tests his seed corn so as to know what per cent will germinate. Half crops and failures are often from this one trouble alone.

Let me suggest that the reader try a little different method this year. Get a sample, say a hundred grains of seed corn, and then plant in a tomato can or box or even fold the grains in a cloth and lay the same in a shallow pan where it will be kept warm and moist some where in the living room of the house, and in a few days' time the experimenter can see for himself how many of the grains have germinated. This will give full information in reference to the quantity of seed to plant on each acre.

### Planting the Corn.

Corn is ordinarily planted now with the horse planter. The seed is not only better distributed by this method, but what is quite as important, labor is saved. Hand labor, through necessity, is being displaced with horse power.

The two important methods of planting is by checking the corn into two sets of rows so as to plant in hills and by the drills so as to distribute the corn in single rows. The yield, in total dry matter, is practically the same, with an advantage perhaps in favor of the drill. In soils badly infested with weeds, the check system is better because it enables the cultivator to cultivate both ways, and practically all weeds and grass can be destroyed in this way.

### Why We Cultivate?

First, because tillage is manure; secondly, to kill the weeds, and thirdly, to stir the soil to make a mulch so as to conserve the moisture. We have already discussed the first point, and going to the second, we must say that one of the great objections to weeds is that they consume plant food and water. Professor Hunt has estimated that a ton of pig-weed contains as much phosphoric acid, twice as much nitrogen and five times as much potash as a ton of ordinary barnyard manure.

We see by this that weeds consume a great deal of plant food, and proportionally take great quantities of water that should be in the soil for the use of the corn plant. This water feature is very important, especially during dry seasons, and the farmer should take every opportunity to counteract the influences that consume the moisture of the soil, which should be conserved to be appropriated by the growing plant.

### How Mulching Pays.

Again, weeds shade the ground. The soil is made cooler because sunlight is kept out. In an experiment which the writer conducted during the summer of 1899, but two-thirds of the average yield was obtained where corn was mulched. The

experiment decidedly showed that sunlight and warmth to the soil are necessary for the best growth of corn. The above are the main reasons why weeds should be kept out of growing corn. The table following shows the results and fully illustrates the above facts:

Kind of Culture.	Lbs. Stover.	Bus. Sh'd Corn per acre.
No culture .....	4,420	17.1
Mulch soil shaded.....	11,028	56.4
Ordinary .....	11,496	79.9

The above table explains itself. Where no culture was given, and weeds and grass allowed to grow, a small yield resulted. On the other hand, where good culture was given so as to control the growth of weeds, a maximum yield was obtained, and where the weeds were controlled by a mulch, a fair yield resulted which would have been increased had the soil been warmed and nourished by tillage and sunlight.

### Shallow or Deep Cultivation.

A soil is improved by growing corn because it permits during a period of several months the use of the cultivator so as to stir the soil. This in a way comes in close connection with what was said in the beginning of this article. Stirring the soil increases the available plant food by causing a freer circulation of air and by bringing the soil particles into different relations with each other. It also loosens up the soil so that the roots may penetrate more readily. The point now comes up: Since the weeds must be killed and the soil stirred up, how deep shall we cultivate?

Investigation by our Experiment Stations has not been lacking in regard to this. Fifty-six tests have been made with positive results in favor of shallow cultivation. The question hitches on the running of the roots. Professor Hunt, at the Illinois Station during three years' trial, found that nearly three-fourths of the roots of corn grew between two and four inches below the surface of the ground. It is evident what effect deep cultivation would have on the roots and the root system if corn were cultivated more than four inches below the surface of the soil. The following experiment by the writer throws further light on this question:

Kind of Culture.	Lbs. Stover.	Bus. Sh'd Corn per acre.
Shallow—14 times.....	12,016	80.6
Shallow—5 times.....	11,496	79.1
Deep—5 times.....	9,874	69.7

From the above we see that deep cultivation was less productive than shallow, and also that ordinary or five shallow cultivations were as effective as frequent, the difference in nowise meeting the extra expense of labor.

### Practical Deductions.

1.—Plow the soil as deep as its character will permit. A shallow impoverished soil cannot be plowed as deep as a deep fertile one. A good seed-bed is necessary, and the deeper the plowing, when the soil permits, the better the preparation for planting. If the soil is shallow, gradually deepen it by subsequent plowings. By going an inch deeper, for instance, each plowing the soil can be deepened, improved and enriched. If the whole of the deepening process is attempted at one time in a shallow soil it will be ruined for some time and the crop lessened for the first season at least. After a depth for plowing has once been established, vary it slightly from time to time; otherwise a layer at the bottom of the furrow will be formed of compacted and hard soil, due to steps of horse and man.

2.—Destroy the weeds. This necessitates cultivation which should be done as often as necessary to keep out the weeds. The harrow, if used a few days after planting time and again after the corn is up, will do much to keep back the weeds, when the weeder and cultivator can follow to destroy the grass and weeds. Where a soil is badly infested with weeds, plant corn in hills and rows so as to be able to cultivate both ways.

3.—Cultivate the soil. This is done not only to kill weeds, but also because tillage is manure. The stirring of the soil is one of the means of changing unavailable plant food into the available form. Cultivation also makes a mulch of the fine and dry soil that contributes in a degree to conserve the moisture in the soil.

C. W. BURKETT.