Pulverizing the Soil and Its Influence on Cultivation

Article No. 11 on "Diversification and Independence in 1915!"

By TAIT BUTLER

TOO frequently we seem to have lost sight of the intimate relationship between **preparation** and **cultivation.** If we fully appreciated the effects of thorough preparation on the economy and efficiency of subsequent cultivation we feel certain there would be less seed put in among clods and clumps of growing grass and weeds.

There are many reasons why our crops are planted on soils that are not properly pulverized, or before the best seed bed practicable has been obtained. The one which is most prominent in the mind of the average farmer, and hence, is the most common cause of indifferent preparation of the soil, is that of insufficient time. It is believed that it is more important to get the crops in early than to devote extra time and labor on fining and firming the soil. It will probably be agreed that one year with another crops planted moderately early, or as soon as weather and soil conditions, especially temperature, are suitable, produce the best yields. But the real question is, will the delay in planting, occasioned by the time necessary to prepare the soil well, be more injurious than less thorough preparation? We think there is no sort of doubt but that in the early part of the season the benefits of thorough preparation will more than balance any ill effects resulting from the delay in time of planting caused by the time consumed in giving this thorough preparation.

Good Preparation Insures Rapid Crop Growth

BUT if this plan is followed and all the land is thoroughly prepared the last crops planted will be planted as much later as will equal all the time spent on the extra preparation. In other words, while the first crop planted may not be put in more than a day or two later, caused by extra good preparation, the last crop may be as much as two weeks later. To any one familiar with the more rapid growth of crops put in on well prepared land, when weather conditions are right, over those put in earlier on poorly prepared land, it is evident that the delay in planting the early crops, caused by the time consumed in thorough preparation, is no disadvantage. But in the latter part of the season a delay of a week or two caused by the extra time consumed in thoroughly preparing the land may be a serious matter.

In view of these facts, there is need for exercising good judgment as to the time to be spent in preparing the soil for the seed; but as a general rule, it is safe to state that no more land should be planted than the time, teams, tools and other facilities and conditions will enable the farmer to prepare well. A poor crop is usually an unprofitable crop, and nothing tends more toward producing poor, unprofitable crops than insufficient preparation.

While we desire in this article to especially stress the advantages of tillage before the crop is planted as an aid to tillage after the crop is up and growing, lest we forget, it may be well to briefly call attention to the objects of tillage in general.

"Tillage is manure" in the sense that it enables the crops to get a larger supply of plant food from that already in the soil. In other words, it fines the soil and increases the effects of the water in dissolving the plant foods. The clods are broken up and the soil of which they are made becomes a part of the field on which the roots may feed. Clods are of no value, because the roots can not enter them and because when they are numerous there are large spaces between them which the roots can not cross. The finer the particles of soil the more soil that is exposed to the air, moisture and other agencies which aid chemical and other changes necessary to the making of plant foods available. Again, the finer the particles of soil the more water it will retain and after all water, in just the right quantity, is the most important element of successful crop production, on most soils. But there is not only more moisture held in the soil when it is finely pulverized, because the smaller the soil particles the greater the surfaces on which water is held, but the smaller the soil particles the more soil is touched by the soil-water and the more quickly and largely are the plant foods dissolved so that they can be used by the plants. King gives the following illustration:

"A cubic foot of marbles one inch in diameter possesses an aggregate surface of 37.7 square feet, while if the marbles were reduced in diameter to one-thousandth of an inch, then the total area per cubic foot is increased to 37,700 square feet."

Tillage has at least one other important function: It destroys weeds. Indeed, judged by appearances or general practice, this is to the average Southern farmer the chief object of tillage; hence, he regards cultivation of the crop after it is planted of much greater importance than tillage before planting. Even by those who realize many of the advantages of thorough preparation before planting, the tendency is to forget all except that a better seed bed is prepared in order to obtain a better stand of young plants. This is an important object of good preparation, but perhaps if we realized more fully that good preparation is attended by all the results of good tillage mentioned above and aids in cultivation of the growing crop there would be less tendency to plant the crops on poorly prepared land with the hope of completing the tillage while the crops are growing. But two advantages of good preparation which appear to us among the most important, and which we believe are generally lost sight of, are that cultivation can be done better and more cheaply before the crop is up to interfere with the use of the most efficient and economical implements, and that weeds and grass may be more easily and economically kept down on a well prepared soil than on one where the crop has been planted before the soil was put in suitable condition.

Saving in the Cost of Cultivation

AMONG the most important of all the benefits of thorough preparation we believe is the saving of expense in later cultivation. We do not overlook the benefit of preparation in obtaining a good stand, nor any of the other results of tillage; but the use of those implements which are most efficient and economical in the early cultivation of the crop is so dependent on thorough preparation that we regard this one benefit alone which results from good preparation sufficient to justify any one in giving extra work to the soil before the crops are planted.

It is a well known fact that the most expensive implement used for cultivating corn, cotton and other row crops in the South is the hoe. Until we reduce the hoeing to the lowest possible amount we can not produce such crops most economically. That the abundance of labor in the past has fixed on our practice a too extensive use of the hoe can not be denied. Even our best farmers are frequently victims of this expensive habit and there are few among us who give as much thought to cutting out this expensive method of cultivating a crop as we should.

Avoid Expensive Hoeing

THE one thing that will do more toward cutting out the necessity for hoeing corn and cotton is a thorough preparation of the soil. Not only will a more thorough preparation of the soil destroy all clumps of grass, instead of cultivating and setting them out, as is now often done; but it will especially, and this is the point we wish to stress, make it possible and practicable to use the most economical and efficient implements for early cultivation, the weeder and the smoothing or section harrow, especially the latter.

Except in a few rare soils, in which clods are readily dissolved by rain, and on sandy soils, a thorough fining of the soil and a complete destruction of clumps of grass and roots are absolutely essential to the economical and effective cultivation of the growing crop, for on these conditions depend the efficiency of the harrow, and without a free use of the harrow early cultivation is expensive and slow and consequently likely to be insufficient.

All know that when grass and weeds get a good start in any young growing crop that cultivation is expensive and difficult and that injury to the crop is almost certain to result. Depending on the plow and the hoe and neglecting the crop in its early stages are the chief reasons why so many "get in the grass." By such methods it is impossible to finish planting and give the attention required by the early planted crops, but by a proper preparation of the land, implements like the harrow and weeder, which enable the farmer to cover large areas rapidly, time can be found to give the early cultivation so necessary to the more rapid growth of the crop and the destruction of the grass and weeds when small and more easily killed. When this method of early cultivation has been found ineffective, the one general and most important cause has been a failure to put the soil in condition before planting the crop.

The time to cutlivate the crop is before it is planted, simply because it can be done more effectively and economically at that time. A good seed bed is essential to a good stand and the early growth of the crop, but probably not more important than for the aid which it gives to early and economical cultivation. This latter fact we have too generally overlooked.

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