

Save the Moisture

Without the gift of prophecy it cannot be told whether this year will be a dry one or a wet one, but the attention of our readers is called to a few facts which they know quite well, or at least, have the means of knowing.

Last fall it will be remembered was dry, perhaps a fall cannot be recalled in which the rain-fall was so uniformly light. When winter set in the ground was so dry and powdery that even though the weather was most severe there was not enough moisture to cement the particles of soil together through the action of the frost. That the ground was not frozen was very apparent this spring. As fast as the snow melted the water disappeared. There was no run-off as in former springs. The ground acted much the same as a sponge, it simply soaked up the moisture and did not give it a chance to run into the low places and form ponds, or to run into the creeks and rivers. The rivers and small streams are lower this spring than they ever were before at this period of the year. In fact there was scarcely volume enough of water to force the ice out, which melted away to a great extent without a move. When it is considered that the snowfall was probably as great this winter as the West has ever seen, there being over 46 inches on the level, it can be readily seen how dry the fields were when this vast amount of melted snow water was immediately sucked into the earth. Had this water all run off there would not have been enough moisture in the soil to start the crop without a considerable amount of rain, and even at this early date rain is needed in some sections of the country while others will require it in a short time.

Ground not Frozen

As has been already said, the ground being dry in the fall, no moisture was frozen deep in the soil to be gradually given off during the spring. As there is nothing to hold the moisture in subjection for a time it will escape very readily unless there is a mulch put on the soil to check its advance. Therefore, it should be the part of wisdom, inasmuch as the rainfall cannot be estimated, to take the utmost care of what moisture there is in the ground at present. As a matter of fact, most farmers are not taking care of it. There are hundreds of thousands of acres of stubble land which are intended for wheat, oats and barley this year that are as yet untouched. The surface of this land is cracked open, and moisture is escaping at various rates; but when the wind is from the southwest, the day warm and the sun shining, enough water escapes before it is checked by cultivation to cut the coming crops free to ten bushels to the acre. One does not see it escaping but none the less it escapes, with the result of clod formation and a scarcity of moisture for the coming crop.

The man who sows his wheat on loose dry soil is usually playing for hard luck. The man who neglects his fields until he is ready to plow for wheat or oats is joining him. If the farmer wishes to raise a first class crop of anything, even with the usual amount of rainfall, he must take every care in preparing the seed-bed. In this, as in many other things, it is the part of wisdom to prepare for the worst, at the same time hoping for the best.

Spring Plowing

Spring plowing will remain a universal practice because the farmer seldom has the time in the fall to finish the whole of his plowing. The land is usually in a splendid condition to plow in the spring, but there are several things which are essential and which are neglected by many farmers. In the first place, if the farmer has much plowing to do, he should put the disc harrow or light cultivator on the land as soon as it is dry enough to form a mulch and retain all the moisture possible. When plowing is commenced a most important matter is packing the soil almost immediately after it is plowed and following up with a light harrow to form a soil mulch. The land should always be harrowed the same day that it is plowed. The chief objects of harrowing are: to make a fine and mellow seed-bed; to warm the soil, to kill weeds, to prevent the evaporation

of soil moisture, to retain the rains, and to encourage the germ life that is essential to fertility. In harrowing and plowing the soil should be taken at the right time, that is to say, when the soil is moist—neither too wet nor too dry. When land is plowed and left unharrowed for a few days the soil becomes dry and cloddy and it is impossible to get a firm mellow seed-bed. Packing should also be done when the plowing is still moist, as it is almost impossible to pack the soil after it has become dried and lumpy. Harrowing land that is inclined to be wet, or having furrows with a glazed appearance, will injure the mechanical texture of the soil. It is better therefore, to lose some of the water in the soil by evaporation rather than to run the risk of harming the land.

Preparing the Fallow

As soon as the fallow can be worked it should be cultivated to form the soil mellow and to start the growth of weeds; if it is still early for seeding the farmer can leave it for a week without fear of losing the moisture and then har-

row with the chains, as the chains tend to make the surface too smooth and susceptible to the wind. Many farmers of the West, who have light soils, have found it to their advantage to remove the press wheels or the chains as the case may be, as the soil, being light and mellow, readily falls into the crevices made by the shoes and covers the seed. By this means the surface is left fairly rough and will be less inclined to drift to the wind than if it were perfectly smooth.

In the case of heavy clay soils and deep loams, however, there cannot be too much harrowing unless, as we have said, the land be very wet. Harrowing tends to pack the soil and render it mellow.

ROLLING vs. PACKING

Rolling compacts the surface of the soil and brings the particles closer together so that the film water passes up more readily by capillary attraction. While passing upward it comes in contact with the roots of the plants and is absorbed by them, but this water will pass away from the surface unless it is harrowed to establish a soil-mulch. The soil in a field

to drift with the wind the packer is the superior implement, as it compresses the soil and leaves the surface rough and less susceptible to the wind than the roller. The roller, however, may be used to advantage on heavy soils that are inclined to clod on the surface. Great care must be taken, however, not to roll clayey soils when they are wet, as they are liable to become cemented into hard clods.

Working Ground after Seeding

A great many farmers are afraid to cultivate the ground after the grain is up from an inch to three inches, fearing that they will hurt the crop; this is, however, a mistake. We quote the following from "Dry Farming," by Macdonald, one of the leading authorities on farming to conserve the moisture. Mr. George L. Farrell, who has grown wheat for forty years in the Cache Valley, Utah, was once asked at a farmers' institute what he would do if the grain were too thin. "Harrow it," he replied. "But what would you do if it were too thick?" "Harrow it," came the same reply. And he was right in both cases. If the grain is too thin tilt the teeth of the harrow backward, and the harrowing will tend to make the wheat plants "stood" out better and give a much better stand. If the grain is too thick run the sharp iron teeth straight, cut out some of the plants, and at the same time form a mulch which cannot fail to be of benefit to the crop.

"In Utah it is usual to harrow the soil three to five times during the growing season and thus the surface soil is prevented from baking and the fields kept free from weeds. It does not pay to use a two-horse harrow on large fields. Four-horse tools of all sorts are far more economical."

An implement which has already been widely used in the west and which has given splendid satisfaction is the "weeder." This implement is put on the fields after the grain is up and beside destroying small weeds puts a good mulch on the soil, thus preventing evaporation. It is a most valuable implement for easy and rapid harrowing and should find a place on every farm. Weeders can be employed on wheat fields where the plants have become too large for the safe use of the ordinary steel tooth harrow. It is a very satisfactory implement to use on land that has been rolled, to place a shallow mulch on the surface.

Quantity of Seed

The quantity of seed to sow depends entirely on the character of the soil. Rich heavy soil must be sown thicker than light or worn-out soils, also wet soils require more seed than soils that are inclined to be dry. Any farmer who has had experience in the West has a pretty good idea what quantity of seed to sow on his land. A large amount of seed is often the cause of crop failure; because a heavy seeding makes an instant demand on the moisture close to the surface before the young and tender plants can strike their roots down into the deep soil. The result is a severe struggle for existence among the individual plants and crop failure should the drought continue. On the other hand, too thin sowing is often the cause of lodging and the crop taking a long time to ripen. This is usually the case on rich wet soils when too little seed is sown. No hard and fast rule can be given regarding the quantity of seed to sow, for the same amount of seed will seldom give the desired result in different localities. Three-quarters of a bushel of good wheat will often give the best results on dry light land, while two bushels are common on heavy rich loams.

Good Seed

Just a word about good seed. No farmer can expect a full crop, no matter how he conserves the moisture, or how he is favored by climatic conditions, unless he sows good seed. The fanning mill should be overworked in the spring and nothing but the big strong kernels put in the soil. Every farmer who has the least suspicion that there is smut in his grain or soil should disinfect his seed with formalin or bluestone. Poor seed is more susceptible to smut than seed of a strong vitality and should not be sown without first disinfecting.

FAVORS RECIPROCITY

Editor, Guide:—Your favor of the 15th ult. to hand some time ago. I have been unable to answer before but trust this will be in time to do what you want done. I have followed with great interest the course of the reciprocity agreement pro and con, and it is with amazement and regret that I have witnessed the action of our party in the matter. A Conservative since I was able to vote 39 years ago, I have always been an advocate of fair trade, and that is what I understand our national policy to mean. Now what is fairer to us than that United States should lower their duties to ours, and trade on even terms; this is what it really means. Who should object? Surely not Canada. I believe our party has made a huge mistake in not accepting this, and going one better by endorsing the farmers demands for free implements and an increase in the British preference, instead of opposing what the Liberals are willing to offer, and offering what the Liberals refuse. This looks to me a dog in the manger policy, which we farmers must oppose by getting hold of both parties or control our members, both of which we can do if we stand fast and quit ourselves like men.

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row again to destroy the weeds just before seeding. The fallow, if it has been properly prepared the previous summer, should be in excellent condition in the spring, that is, the soil should be mellow and firm so that all the farmer has to do is to put on the soil mulch and sow the seed.

Drifting Soils

It depends to a great extent on the character of the soil whether or not it should be frequently harrowed in the spring. Light sandy land will not require much harrowing, if any, to render the soil mellow, while a heavy clay soil will stand a great deal of harrowing. Whatever the farmer does he must guard against drifting, for if he allows his land to be torn to pieces each spring by the winds he will soon lose the best of his soil and have no farm. Spring plowing seldom drifts in the spring of the year, even though the land be light; the worst trouble is experienced with the fallow and fall plowing. Light fallow land that is inclined to blow should not have too fine a surface placed on it in the spring, as it will usually drift. For this reason the cultivator should be used to place on the soil mulch, which will leave the top in ridges and rather rough. Harrowing should not follow the cultivator. The seed should be sown with the surface of the soil in this rough state. The drill with the press wheels would be better to use than the

that has been rolled is more moist on the top than if it had not been rolled, but the soil below the compacted portion is much drier than it would have been had the surface been left loose. That is to say, the upper four or five inches of soil have been made more moist by rolling but at the expense of the soil beneath. The loss of moisture from rolled soil is due to the fact that the surface is left very smooth and level and offers less obstructions to the wind. The velocity with which wind passes over rolled ground may be nearly twice as great as that over rough unrolled ground. This means that much more moisture is sucked up from the soil by the wind. The chief purpose of rolling is to increase the supply of moisture to the seed-bed, but, of course, it is also useful in crushing lumps on soils which become cloddy. Rolling is thus a good thing but the soil should not be left smooth, as it is, after rolling; it should be harrowed to form the surface mulch and prevent evaporation.

The packer, on the other hand, compresses the soil at the bottom of the plowing but leaves the surface rough. Thus, while the packer makes a firm seed-bed and aids in bringing the moisture up to the roots of the plants, it also has the advantage over the roller of leaving the surface in a mulch. It can be readily seen that for light soils that are inclined

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