The Grain Grower's Guide

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Dry Farming

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In an Address at the Dry Farming Congress, Spokane, Washington, October, 1910

WHETHER or not the term "dry farming" has come to stay, is immaterial, but the fundamental principles that underlie this system of farming will endure forever, with, of course, such variation in detail as location and the evolution of time may warrant. Some sensitive people dislike the term "dry farming" on the ground that it is a reflection on their country and an admission to the world at large that their district is subject to drought. Admitting that this is correct, is it not better to face the situation boldly and prepare for it on the principle that "forewarned is forearmed" and that nothing in the end is gained by pretending to have what you have not? The meteorological records of Saskatchewan go to show that we have an average annual precipitation of about seventeen inches, and there is no getting away from the fact that this is usually looked upon in more humid countries as only about one-half the amount necessary to grow profitable crops. Thus the climate of Saskatchewan is sufficiently dry that until a few years ago it was thought to be impossible to grow cereal crops in the greater portion thereof. Intelligent tillage methods, however, timely applied, have demonstrated in every district that crops can be grown with very much less precipitation than was supposed, provided the moisture is systematically and economically taken care of. As a matter of fact the dryness of our seasons is, in one sense, our salvation, as reasonable drought is essential in most districts to ensure the maturity and saving of cereal crops in our ordinarily short growing seasons. But a dry climate to be a blessing must be prepared for, otherwise it will blight and disappoint the hopes of the husbandman.

Same as "Good Farming"

Since "dry farming" has become a popular term, and its principles recognized as scientific, many critics have claimed that this method involves nothing more nor less than the methods that our fathers followed in eastern or other climes, known as "good farming." While it is admitted that dry farming is good farming, it cannot, however, be claimed that good farming is necessarily dry farming. Good farming in some countries may consist among other things of getting rid of superfluous moisture, while dry farming, among other things always involves economizing nature's water supply. In all semi-arid regions the besetting hindrance to successful farming is drought, consequently the basic principles underlying dry farming must and do imply a system of scientific and timely tillage, such as will best off-set the dangers of scanty precipitation—in other words we must accomplish in the growing of crops with an average annual precipitation of seventeen inches, what more humid countries accomplish with a much more generous rainfall.

How it is to be Gone About

In the pioneer days of Saskatchewan scores and hundreds of settlers left the country believing that no solution of this problem was within the realm of probability, but, as has often previously proven the case "necessity was the mother of invention" and the sturdy pioneer farmers of those days, assisted by the experimental farms and the agricultural press, demonstrated very clearly that our strong retentive heavy clay soil was capable of producing good crops with very much less even, than seventeen inches of annual precipitation. While this is true, it must be admitted that this could not be done year after year in succession without stopping at varying intervals of three or more years and storing up moisture under a system of approved and improved modern summer tillage (commonly called summer fallow) that will be alluded to later.

Some writers have undertaken to lay down a hard and fast rule with regard to the best method of tillage to pursue under semi-arid conditions, but so far as Saskatchewan is concerned such rigidity applied to our varying soils, altitudes, exposures, precipitation, and climatic conditions, would only lead to loss and disappointment Variations in method must and can be pursued without departing from principles, and herein lies the importance of every farmer understanding something of the science of soil physics in order to have the ability to prescribe such crops and tillage methods as will meet the requirements of his particular farm, just as a physician prescribes to suit the individuality of his patient.

The following features usually identified with dry farming where longer and warmer seasons prevail than in Saskatchewan, and considered by some to be fundamental, should be carefully noted as to their applicability where fat lands and shorter growing seasons are the general rule:

First,—Summer fallowing at intervals of every third year, or thereabout.
Second,—Deep ploughing.
Third,—Deep sowing.
Fourth,—Thin sowing.

An examination of these points in some detail might be profitable at this time.

Summer fallowing

The modern summer fallow was introduced into Saskatchewan over twenty-five years ago, not for the purpose of renewing a worn-out soil, as was once commonly thought, but for the purpose of getting the soil into the best condition to absorb moisture and then holding it there for the use of succeeding crops. Thus the shortage in each year's precipitation was overcome, and full crops ensured. In order to do this thoroughly and most effectively in Saskatchewan, it was found that the land intended for fallow after receiving some form of fall tillage should be ploughed as early as possible in the spring after seeding that it might be in the most receptive condition to fully absorb and save from waste all the early and later rains. This should be immediately followed by surface tillage to put the necessary non-conducting soil mulch on the top to intercept capillary movement and prevent loss of moisture by evaporation. By this system the soil, if thoroughly and intelligently handled, will be found moist to a depth of five or six feet, and a sufficient reserve of moisture for the growing of at least two successive crops is secured, even though drouth should occur. This system was practised for many years, and is to a large extent in vogue yet. In the annual report of the Indian Head Experimental Farm as long ago as 1889, superintendent MacKay is speaking of the best tillage methods to pursue in the then North-West Territories, says, in part, as follows:

"Our seasons point to only one way in which we can in all years expect to reap something. It is quite within the bounds of probability that some other and perhaps more successful method may be found, but at present I submit that fallowing the land is the best preparation to ensure a crop. Fallowing land in this country is not required for the purpose of renovating it, as is the case with worn-out lands in the east, and it is a question yet unsettled how much the fallows should be worked, but as we have only one wet season during the year, it is found beyond doubt that the land must be ploughed the first time before this wet season is over if we expect to reap a crop the following year. Land ploughed after July is of no use whatever unless there is rain in August, which very seldom comes to any great extent. A good harrowing should succeed the ploughing, and all weeds or volunteer grain should be kept down by successive cultivation. Above all it is of the greatest importance that the first ploughing should be deep and done in time to receive the June or July rains."

Experience of Early Days

Thus it will be seen that the more important foundation principles of dry farming were understood and practised in Saskatchewan years ago, although much improved upon since. But with the passing of time, cheap land, root fibre and humus, many advanced and thinking farmers are now searching for a more economic, permanent, and less extravagant system of farming. The profitable returns under this method have caused land values to increase so rapidly that it now seems a waste of capital to have one-third the tillable acreage idle each year. Furthermore, this system, while restoring nothing to the soil, rapidly dissipates its humus, and thus, as the years go by, reduces its capacity to absorb and retain moisture. While summer fallowing is recognized yet as the very foundation stone of successful agriculture in Saskatchewan, still it can, and will, I believe, be supplemented by other intelligent tillage methods which will lengthen the time between fallowing seasons and obviate the necessity of such a large acreage being idle each year. If the care that is put on summer fallow to conserve moisture, be followed up in each succeeding year by fall discing immediately the harvest has been taken off, and by a more generous use of the diamond harrow at every available opportunity—even in many cases after the grain is up in the spring, and by packing, the reserve of moisture in the fallow could be made to extend over a much longer period than two years. Instead of summer-fallowing a quarter section five inches deep every third year, would it not be more economical to fallow one-half that amount say ten inches deep, thus assuredly storing up a much larger amount of moisture and extending its benefits over a longer term of years. The more frequent use of the disc and drag harrow before referred to, would not only help to control evaporation, but also kill innumerable weeds that frequently prove such a continual drain on the soil moisture. To plough ten inches deep could only be advantageously done in Saskatchewan by subsoiling, and this will be referred to under the next heading.

Deep Ploughing

Too much indiscriminate advice to plough deeply under all circumstances in Saskatchewan would be unwise and misleading, and must meet with disappointing results; but that all clay soils should be stirred deeply at least once after being broken up, is becoming more and more apparent. Deep ploughing to increase the soil's capacity to store moisture at intervals of say ten or twelve years, to be followed by shallow ploughing or surface tillage in intervening years to hasten early maturity, is now thought to be the ideal method in many localities. The danger of too frequent deep ploughing is obvious. Should it be followed by a dropping season the growth of straw will be too rank, and maturity retarded, which tends to run the corn into the period of early fall

Continued on Page 10

Auto accident at Oak Lake, Man., August 12, 1910