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Soil Cultivation.

In our last issues have appeared a number of interesting letters on the cultivation of soil, with reference both to virgin prairie and old land. These letters, from men whose long and successful experience in the various districts in which they live entitles them to speak authoritatively, will be read with very general interest and profit. In the treatment of old land, of course opinions differ with the locality, soil, etc. One thing, however, that all are agreed upon is the importance of establishing short rotations, in which summer-fallow forms a most important part. If there has been one thing that has not received sufficient stress in these letters, it is the importance of good plowing. The ideal seed-bed consists of a fairly deeply-worked soil, firm and compact—not with a hard pan four inches below the surface, formed by running the plows year after year on the same bottom—covered with a finely-pulverized inch or inch and a half of top soil. In a well-worked summer-fallow we generally get this condition, but there are thousands of acres of stubble-plowing, as done on the average farm, that no amount of surface-working can ever reduce to the desired condition, just because the plowing was badly done or because the plow was not built to do its work properly. Farmers in the western part of the wheat-growing area, where the average rainfall is very light, have learned to appreciate the importance of a firm seed-bed; and where the land is free from weeds, the practice of taking off two consecutive crops of wheat after fallow without plowing is becoming quite common and productive of good results.

"Prof. Roberts, of Cornell University, in his excellent work on 'The Fertility of the Land,' gives valuable advice on plows and soil cultivation, and from his chapter on the 'Tilling of Land' we quote: 'All of the objects that may be secured by plowing are seldom or never kept in view, hence in America it is the least understood and most imperfectly performed of any operation of preparing the land for crops. It is still worse in Europe. The Englishman does little more than two things with the plow—inverts the furrow, and makes it straight.'

Of too many Western farmers even this much cannot be said, for they neither invert the furrow nor make it straight.

"One of the chief objects of plowing is to pulverize the soil. The plow may invert it in the most perfect manner and bury surface vegetation, but if it fails to do the greater part of the *fining of the soil* as well, and leaves it in such a condition that the harrow and cultivator cannot complete the work in the cheapest and best manner, it is seriously defective."

Although so high an authority as J. Stirling Morton, ex-Secretary of Agriculture for the United States, once said, "The plow used by the American farmer is a humbug and an enemy to fertility," there are many excellent patterns of plows on the market that will do their work well, provided the man between the handles exercises wise effort. Harrows, rollers, cultivators and soil-packers of every conceivable pattern and design are constantly being invented and placed on the market to assist in covering up the tracks of the bad plowman. The lately-introduced soil-packer is claimed to solidify the subsoil and still leave the surface or soil much loose and friable. And no doubt on some light soils and where it has been necessary to plow down a very heavy stubble in any soil these packers will do excellent service. The originator, however, lays great stress on the importance of deep, very deep cultivation in order to reap the greatest advantage from the use of these machines.

While it is absolutely true that continual cropping without returning anything in the way of fertilizers must reduce the fertility of even the richest soil, still it is marvellous what an immense store of plant food there is in most soils, and how it may be made available by *proper* cultivation,

Look, for instance, at the yields of grain at the Indian Head and Brandon Experimental Farms, which are yearly creeping up higher and higher; and as a matter of fact, the land where these tests are made never receives any manure or other fertilizer. How is it? Simply soil cultivation—

To conserve moisture;
To make available the latent plant food;
To improve the mechanical condition of the soil.
And one of the important factors in obtaining these results is the PLOW.

This, indeed, is an important subject, and worthy of the most careful study.

Our Butter Market.

The opening up of the Kootenay country has practically solved the question of a butter market for Manitoba and the Territories, and now the dairymen of the West must set themselves to meet the increasingly exacting demands of that market. The demand is for dairy products of *good quality*. One of the most serious drawbacks at present is that we have tried to supply a market that is open for twelve months in the year from creameries that only operate for five months, and the quality of butter and system of storage has not been conducive to the quality of the product when finally presented to the consumer months after it was manufactured, so that Manitoba butter to-day is not in as good favor in the British Columbia markets as it ought to be, and the Ontario product, with an additional fifteen-hundred-mile railroad journey against it, is capturing the market. We have it on the authority of a gentleman travelling in the Kootenay, who has a good knowledge of the dairy produce trade, that "It is almost enough now to mention Manitoba butter or cheese to have its quality questioned, while Ontario products are quite the reverse." The dealers who bought, stored and held dairy goods indiscriminately are equally to blame with the factorymen who turned out a poor article and the patron who failed in his duty. To remedy this state of affairs and recapture a good market that really ought to be ours, the strictest attention will have to be given to the *quality* of goods manufactured and the getting of these goods into *immediate* consumption. No matter how excellent the cold storage, butter never improves with age, and the poorer the storage the more rapidly does even the best of butter go off flavor. Creameries that can form direct business connections on the consumers' market, and forward supplies from week to week, put up to order, should be in the best position to build up and retain a profitable business. Of course, the longer season the supply can be kept up the better, for what may be gained in the summer may be all lost in the winter if the consumer has to go elsewhere for his supply. At several points in the Red Deer country creameries have been in operation all this past winter, with, we understand, satisfactory results. One of these, the Innisfail creamery, issues the following comparative report for the five winter months of '97-'98 and '98-'99:

MONTHS.	QUANTITIES OF BUTTER, LBS.	
	'97-'98	'98-'99
November.....	3,286	4,010
December.....	2,241	3,454
January.....	1,803	3,621
February.....	1,232	2,829
March.....	1,322	3,535
Total.....	9,914	17,449

Showing an increase for the past season of over seventy-five per cent. From May 1st to October 31st the output was 57,717 lbs., or an increase of nearly fifty per cent. over the corresponding period of 1897. Winter dairying is evidently proving a success in Alberta, and why could it not be made a success in other districts? At least, as the industry becomes more firmly established, and facilities are improved for the feeding and care of the cow, the seasons can be considerably lengthened at both ends.

The Inspection of Our Wheat.

The resolutions passed by the Western Grain Standards Board have met general endorsement before the committee of the House of Commons, and it looks as if the main features contended for would become law. Briefly they are:

A permanent standard for the higher grades; that is, that they shall not be changed to suit the crop conditions of each season. As a matter of fact there is almost as much difference in the samples from different districts every year as between the crops of different seasons. Permanency of standard will give our wheat some standing on the export market, and at the same time the producer will himself learn to know what his own wheat will grade.

To stop the "skinning" down and "mixing" of wheat; that is to say, that the dealer shall not be allowed to sell under a straight grade certificate a lower average quality than is called for from the producer. Put in a bin 100 wagon loads of No. 1 hard wheat from that number of farmers; the poorest must be No. 1 hard; the best will be much better than No. 1 hard calls for; and the average considerably above what is called for by the standard for No. 1 hard. It has been the custom of the dealer to mix in with that 100 loads of No. 1 hard as many loads of No. 2 hard or No. 1 Northern as possible, and still keep the No. 1 hard grade, or skin down the grade to the lowest notch. The bigger the dealer and the better equipped his elevator the greater his facilities to profit by "mixing." But this year he seems to have "fouled his own nest," and has now joined with the farmer in seeking legislation to prevent himself from mixing and lowering the average quality and ruining the reputation of Manitoba wheat in the export market.

The grain trade is intricate and most perplexing to anyone not thoroughly initiated into its mysteries, therefore it is hoped the proposed legislation will deal effectually with the evils that have existed, and give ample protection to the producer.

It is also urged that the inspectors be paid by salary instead of fee, so that they may be more thoroughly independent, and that the chief inspection be at Winnipeg in place of Fort William. This would tend to create a sample market; that is to say, if a car of wheat was much above grade, the owner would stand a chance to realize over grade price and nearer its value. It would also give time to deal on a car after getting it graded before reaching the bins of the terminal elevators at the lake with decided advantages to the producer.

The legislation sought seems to be along the right lines, and if everything is not perfect at first, it can be made so after.

The San Jose Scale Act Objected to in Manitoba.

The Western Horticultural Society, at its annual meeting held in Winnipeg last February, passed a vigorous protest against the legislation enacted a year ago at Ottawa re the San José scale. The resolution and the arguments were pretty fully published in the *ADVOCATE* at the time, and are known to all Western people who take any interest in such matters. The Act prohibits the importation of all kinds of trees, shrubs, etc., from the United States, and permits trade from one province of Canada with another. Members of the Society who have looked into it state that Minnesota and Dakota are free from the scale, while it is bad enough in Ontario to require very stringent local legislation. Ontario-grown trees are next to useless in Manitoba, and yet it is the only country from which, under present regulations, we can draw our supplies. Minnesota and Dakota grown stock gives much better results here, as the climatic conditions are more alike. Now, if treatment with hydrocyanic acid gas makes nursery stock