

that there was no grass growing on it, at least none of any length, and when the rain would come it would all run into little hollows. The ground was covered with these little hollows six inches or a foot in depth.

HOW ALKALINE SOILS IMPROVE BY TILLAGE.

But he had gone into one of these places and had broken it up and planted his potatoes, and the potatoes were all in spots. Here and there there would be a few hills and on the other portions there would be nothing. I said, 'What is the matter?' He said, 'That is just the matter, what is the matter? That is what I brought you here for, to find out?' I said I did not know what was the matter, and neither did I until I looked into it, but I will show you. When I began to look into it and to examine the plot I found that potatoes were growing on elevated spots in the plot, and that in the hollows there were none, and then when we dug them up we found the potatoes were all rotten; the alkaline plants, some of them were still left there, you know the kind of ploughing they used to do in the West—cut and cover—and they were growing there. There was the solution of the whole question, there was too much salt. You do not hear anything of that now. Why here is the law. As soon as ever alkaline soil in the Northwest is broken up and the rain is allowed to descend upon the broken up soil it takes the surplus of alkali and puts it down. In other words, it leaches the superabundant alkali out of the soil and leaves it in good condition for growing grain.

Q. Yes, but how long does it require? It takes several years to do that?

A. It just depends upon the amount of alkali that is in the soil, it may take ten years sometimes, though I doubt it.

By Mr. Schaffner:

Q. It takes a great many years to get it out. Where there is a great deal of it in the soil in the dry season the soil becomes quite white?

A. It has been established by actual experience that as soon as they begin to break up the soil and let the rain penetrate it the superabundant alkali in the soil is washed out.

By Mr. Smith (Oxford):

Q. Was not that discovery made by the experimental station at California, and the results demonstrated on the alkaline lands of Arizona?

A. It may have been; I would not doubt it, because I do not know. But that it is absolutely true I am sure.

By Mr. Lake:

Q. You would not advise any man to start operations by breaking up alkali land because it takes several years before you can get the alkali out of it. I have had experience of that myself?

A. Certainly not.

Q. It takes four or five years at least, and it is only after you have kept plugging away long enough that you are able to obtain results?

A. I confess I would not go on alkali land myself.

Q. You would not recommend any man to go there on alkali land where he would have to wait until the superabundant alkali was exhausted?

A. No, I would not. But it is not so much the question about growing grain on alkali land that is a serious matter as is the difficulty of getting good water, which is an absolute necessity.

By Mr. Schaffner:

Q. Did I understand you to say that you have to go to gravel before you can get good water?

Q. Beg pardon, I am speaking of Manitoba. But when you get on the second prairie steppe—