

Here are two causes in action sufficient to explain all the phenomena which attends in wheat, and which are explained by none other. We know that if the vessels which convey the materials that form the grain be destroyed, the grain cannot be formed. We see here causes in action sufficient to produce that destruction, and we never see it produced without the existence of those causes. But this is not all. Whenever we find any causes present, able to counteract the influence of either of the above, rust is not produced; whenever, in the composition of the soil, sufficient materials exist to give a firm strong stalk, rust is never seen.

On land exposed to the influence of the spray from saltwater, wheat always escapes the rust, though that in the same neighborhood may suffer. A narrow belt of trees frequently separates fields, that are uninjured, from those which are entirely ruined: this belt of trees arresting the spray from the water. This spray contains soda, one of the substances which assists to form a strong hard stalk. Upon soils precisely identical, except in location, and in what was derived from salt water, I have found the above fact to exist, which can only be accounted for by materials in the salt water. Wherever the soil contains the materials in proper proportion for forming a strong stalk, rust does not injure the crop.

In localities where rust was before troublesome, it has almost ceased to exist, after the application of green sand marl, which is rich in those substances which form the stalk. Again, common salt has been recommended to prevent rust, by its *antiseptic* power, that is, its power to prevent putrefaction. Its effect against the rust, may be better explained by its power to strengthen the straw. I shall institute during the present season a series of experiments on this subject, and confidently expect to determine the true nature of this blasting, blighting disease. If it be from the causes which I have given above, then the remedy will, in preventing the effects of the injury, greatly increase the product of this, the staple crop of the Union.

The material to prevent this is in very great abundance in our State, and now deemed worthless. At this time its owners will pay for its removal?

If in the present report, or in the labors which preceded it, any good shall have been conferred on the Agriculture of the State, those labors will be abundantly rewarded. If I have only awakened such an interest in our Agriculturists, as will induce them to study and apply the sciences of their art, my ambition will be satisfied.

learn, been applied to the diagnosis of the constituents of soils, until used by myself. I have not been able as yet to make but few investigations with it; though it may not confer the same advantages on the prosecution of the study of the components of soils, as the telescope has done in the study of Astronomy, yet I am certain that it will be of *very great utility*. During the present year I intend to devote much time in order to see how far that utility extends.