

## Rust on Wheat.

The following communication is penned by a practical farmer, who has been trained to the business from early boyhood, and therefore the views he advances are worthy of a careful examination. We are prepared to admit that the disease known as rust is most difficult to be understood; and indeed with the present light upon the subject, it is almost hopeless to recommend any method of managing the land for the wheat crop that would in every instance be calculated to carry it safely through to maturity, without being attacked more or less with this disease. But few farmers have observed more closely than ourselves the operations of rust upon the wheat plant, and after all we have not been able to fully establish a theory, which would in every instance be applicable in demonstrating the cause of this great enemy to the wheat grower. We are, however, quite certain, that in a great majority of cases, rust may be nearly, if not altogether prevented by skilful cultivation. In advancing this view, we know we are some years in advance of public opinion, but time alone will shew whether we are in error or not.

Mr. Editor,—I have read with attention and interest the various articles which have appeared in the *Cultivator*, from time to time, on the subject of rust on wheat. There appears to be a diversity of opinions among writers as to the cause of the disease; some ascribing it to the sowing of grass seeds amongst the wheat, and others to the application of unfermented manure to the land, whilst the general and prevailing opinion appears to be, that it is caused by a luxuriant growth of the wheat plants in the early part of the season, and consequently an overflow of sap, which causes the sap vessels to burst, and that some of the sap exudes from the ruptured vessels, and dries upon the outside of the stalk, and causes rust.

In reference to the opinion that the sowing of grass seeds amongst the wheat causes rust, it needs but to be named to be rejected, for in seasons when rust prevails, we find that fields of wheat that has no grass seeds sown amongst, equally affected with those that have. We must therefore ascribe the cause to some other source.

The same thing may be said of unfermented manure; for if it is caused by this, the rust would be confined to fields of wheat, which have been

thus treated; but every observing person knows that this is not the case, and before I can subscribe to the last named opinion, that it is caused by the bursting of sap vessels, I must have the following queries satisfactorily answered:

1st. If rust is caused by the rupturing of sap vessels, why is it that we discover the rust on the chaff upon the head, and also upon the outer husk of the stalk, and even upon the leaves, which appear perfectly dry and sapless at the time the rust affects them? and also why is it that that part of the stalk which is protected by an outer husk or covering, upon stripping it off, appears perfectly bright and free from rust?

2d. And if the rust is caused by the bursting of the sap-vessels, would it not take place when the wheat arrives at a certain stage of perfection? and would not the wheat in those localities where it ripens earliest, show the appearance of rust sooner than in places where it is more backward, because it would arrive at the proper state for the sap vessels to burst sooner?

Having made the above observations upon the opinions of others, I may venture to give my own views upon the subject, but with little hope, however, that my opinion will become very prevalent, since men of scientific knowledge differ so widely as to the cause of rust on wheat.

I have observed that in seasons when the wheat is affected by the rust, that it is all attacked at the same time. Frequently after a foggy or misty day or night, I have noticed the appearance of rust upon the wheat within twenty-four hours afterwards; and if accompanied by a gentle breeze, a field of wheat will present a much more rusty appearance in viewing it from the windward side than it will in viewing it from the opposite direction; hence, I am of opinion, that it is caused by certain particles of matter contained or carried in the atmosphere, and which falls upon the external surface of the stalk, when, if succeeded by a hot sun, is almost sure to cause rust; but if the wheat is forward, or nearly ripe, it will suffer but very little from the effects of it, but if it is backward, whether caused by late sowing or by being winter killed, or by being attacked by the disease earlier in the season, it is almost ruinous to the prospects of the farmer.

The present season the wheat is pretty generally affected by the rust. I have noticed in a field of mine, which has a bank in it facing the sun, that the wheat upon the hill-side, is large