

**RUST ON WHEAT**

In view of the damage which the present crop has suffered, a considerable portion of which has been due to presence of rust, it is interesting to read an article written in October, 1912, by A. Dryden, St. Agathe, Man., in which he comments on the rust damage done to the 1912 grain crop. Following are extracts from this article:—

The notion is wrong that there are different varieties of rust, such as rust on oats and on wheat, on the leaf and on the stalk—red rust or black rust, there is only one kind. It is also a mistake to suppose that it is only in late years that it has obtained a foothold in this country. I have seen it on grain in 1880 and more or less right along, but with the exception of the year before last I have never known it to injure the wheat crop and even in that year damage was very far from general over the northwest.

Investigation has shown that rust can only do damage when the stalk of the grain splits open from whatever cause and allows the rust spores to find a lodgement and the roots penetrating thru the split draw the sap that would otherwise go to bring the grain to maturity. Rust is always present on many different kinds of plants. A few years ago the Ontario legislature by statute ordered the destruction of the barberry, a shrub that acts as a host plant for rust, and from which it spreads to the grain at the time it is liable to attack. Other plants and weeds have been mentioned whereon it finds a lodgement and there is no doubt but that the distribution of its spores is almost universal, not only on plants, but at times in fine dust thru the air, a state of things only to be remedied by a process analogous to that employed by doctors in surgical operations when they purify the air of the operating room by saturating it with an antiseptic solution that kills all germs that may be floating in it. This plan is obviously impossible in the case of rust.

**The Weather the Cause**

What may cause the epidermis of the straw to spread and permit the sap to exude making a lodging place for the minute spores of rust must depend largely on the weather at particular stages in the growth of the plant. I would imagine that a period of wet weather coming just at the time the grain is filling may cause the stalk to burst from an excessive sap, particularly if the stalk has already begun to harden and so is more liable to crack. This, it seems to me, was what happened two years ago (1910) when the southwestern part of Manitoba and parts of Dakota suffered. There was a period of wet weather at the time the grain should have been matured. The eastern part of Manitoba escaped that rain. The bounds of the rain and the rust districts were almost identical. Three years ago I had a field of early sown Banner Oats, maturing quickly, when a heavy rain occurred which delayed cutting. The morning after the rain rust appeared on the stalk close to the ground, gradually rose and when cutting was done everything was red-crop, implements and men. Wheat cut later in the same year was absolutely uninjured which goes to show that the period of liability to rust is a very limited one. I believe the only chance of guarding against an attack of rust is in getting rust proof varieties of grain. Five wheat comes very nearly being such (Marquis was little known at that time, but from experience this year seems to be more rust resistant than Fife) having hard and flinty straw which no doubt is more hard and flinty in new land and this may account for an increased liability to rust as the country grows older. Banner Oats by some are considered to be the best variety that ever grew in this country were it not for the rust. They have a very soft straw and inevitably suffer and in this locality have been discarded.

**Interesting Old Letter**

There is an old saying among farmers that as soon as rust strikes the grain, cut it and you will gain every time and in this connection let me quote a letter nearly sixty years old:—

Preble County, Ohio,  
May 7, 1858.

John H. Klippart,

Sir:—At the instance of the worthy secretary of our agricultural society, I give my personal observations as to the operation of the wheat rust, one of the most ruinous diseases the crop is subject to.

In 1842 I had a large field seriously

affected by rust and having read in the Genesee Farmer the necessity of early cutting, I put a hand cradle to work and left, was absent for a few days and on my return found my hand had only cut a few dozen sheaves, avowing it was so green he knew it would be worthless. I then procured hands and had the field cut, but too late for more than half a crop, while the portion cut at first was plumb and had well filled grains.

In 1849 I had three fields of wheat of equal size. Between June 20 and 25 the rust made its appearance in its worst form. The cholera being in the country hands were hard to procure. I managed, however, to get two cradlers and set them to work in field No. 1.



Women getting up hay on an English farm

I soon left for the day and on my return home was vexed to find my foreman had abandoned the field with the declaration that if I was fool enough to cut wheat so green he was not. I explained and entreated and finally got the field cut on Monday and Tuesday of the week, leaving the wheat in the swath unbound until it partly cured in the sun before binding. Field No. 2 was left, partly to meet the views of my men and partly as an experiment until Thursday and Friday, when it was cut and shocked. Field No. 3 having been put in by a tenant and under his control, was left till Monday following tho I urged him to have it

but actually draws out the 'nutriment that is already in. It does not gain more by delay in cutting, but loses instead. It would appear that rust will not affect the stalk, on which only the injury is done, till maturing has commenced in the first hardening of the straw, in which condition it is more liable to crack and split open, thereby allowing the sap to exude and furnish a lodging place for the spores of rust to take root.

**Heat Caused Damage**

The foregoing was the state of matters in the season of 1912. Now in 1916 we have a much more serious mishap to our great staple, blamed very largely to the same pest, tho in my opinion

erroneously. Heat, excessive heat, was our trouble this time. While granting that rust was more prevalent this year than usual it was in limited areas that material injury would have resulted from that cause, but had it not been for the srocco of heat that swept over our prairies on July 28 we would have had a crop little under that of last year. On August 1, I went 350 miles northwest from Winnipeg on the C.P.R. line to Edmonton and found the wheat in much the same condition as regards rust as it was in Manitoba, before July 28. In the two weeks I was there it continued ripening with no indications of injury and I have



The German schooner merchantman "Deutschland" in harbor at Baltimore

harvested sooner. On Monday all hands were ready for the work but on close inspection there was nothing but straw to cut and it was left unharvested.

The result: Field No. 1 tho it was the poorest stand, produced 12 measured bushels to the acre, and weighed 56 pounds to the bushel. No. 2 yielded 8 bushels to the acre, weighing 48 pounds to the bushel, while the third field, fully equal to the second field in every respect, yielded nothing. I think it is a fixed fact that the rust detracts or draws the substance from the grain.

Signed, Geo. D. Hendricks.

The point to be noticed here is that rust not only prevents the grain filling,

rust, but that the heat which killed and cooked it left the rust with nothing to feed on and it perished for want of sustenance. It is but another of the vicissitudes that has always accompanied the growing of the crop which gives man his daily bread. This time it was not "the frost that cometh in the night, it was the destruction that wasteth at noonday."—A.D.

**Feeding Rusted Straw**

With regard to the feeding value of rusted straw a letter of enquiry was sent to the superintendents of the Western Experimental Farms, the Dominion Chemist, several experiment stations in the States at which investigational work along this line has been carried on and in addition to several farmers who have made a practice of feeding stock for a larger number of years and the general opinion seems to be that no harm comes to horses or cattle fed rusted straw.

James Brown of Neudorf, Sask., has the following to say:—

"During the last 25 years we have several winters fed cattle and horses oat straw badly affected with red rust and have never found any harm from doing so. I do not think rust on green oat sheaves would spoil their feeding value. As to running them thru a cutter before feeding it is always best to do so whether there is rust or not. This practice is economical and I mix in some crushed grain when feeding."

W. C. McKillican, superintendent of the Brandon Experimental Farm, states that tho he has had no previous opportunity to conduct experimental work on this subject he believes that the value of rusted straw is fully equal to good straw. The rust may lessen the palatability of the straw but it has no injurious effect on the stalk and as indicated in the work of the Dominion Chemist it actually increases the percentage of protein. The throwing and shaking incidental to threshing and cutting will doubtless lessen the rust on the straw. If the crop were not worth threshing to get the grain out of it, he thinks it could be fully as economically used by feeding in the sheaves.

**THE B.C. LANDSLIDE**

The provincial election held in British Columbia on Thursday, September 14, resulted in a landslide in favor of the Liberal party. Returns are as yet incomplete, and in any event it will be some time before the soldier vote, made possible under the election act passed by the former government, will be received and allotted to the various constituencies, but majorities in practically every case are so overwhelmingly in favor of the Liberal candidates that there can be no doubt as to the general result.

All the cabinet ministers are believed to have been defeated, but there is a doubt in the case of W. R. Ross, who is running neck and neck with McInnes in Fort George. Cowichan, Kaslo, Nelson, Prince George, Similkameen and South Okanagan are safely Conservative. Hon. Mr. Bowser may win on the soldiers' vote. The soldiers' vote might turn the scale for Lieut. McKenzie in Delta, and possibly two others, which would run the Conservative opposition in the house up to ten. That will mean at least 37 Liberals are returned.

**Woman Suffrage and Prohibition**

Premier Bowser will presumably hold office until the official returns are made about October 15. The soldiers' political vote will be counted in October 12. But on prohibition the soldiers will continue to vote until the end of the year. But there is no reasonable chance, according to the figures available, of the present majority in favor of prohibition being overcome. Throught the province the majority in favor of woman's suffrage is slightly under ten thousand. There are still some districts to be heard from on both the suffrage and prohibition, and it will be several days before full returns are to hand.

More than 4,000,000 women will be able to vote in the United States this year, and that will bring the total possible vote for presidential electors up to nearly 30,000,000, or double the number cast four years ago.