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MILDEW IN WHEAT.

The attention of our readers can hardly be directed to a more important subject than the cause of the prevalence in certain districts of the *Mildew in Wheat*. In another column it is stated that certain parishes in Middlesex, once celebrated for the quality of their wheat are now much infested with this disease, and produce, under the present system of cultivation, a great bulk of wheat straw with an occasional large yield of corn, but very rarely of a good sample. This change we once heard ascribed by an old labourer, a native of one of those parishes, to the alternate system of cropping, which commenced as the land began to be inclosed from a state of common-field; There had been no good wheat grown, he said, since they gave up the good old system of three corn crops and a fallow; and there is, perhaps, more truth in the remark than may at first be apparent. Mildew has been shown by naturalists to be a minute fungus, whose germs are floating in the atmosphere, and only require, for their development, a particular condition of the surface of whatever plant they attack. Thus, their growth is, doubtless, favoured—perhaps insured—by the exudation of sap from the ruptured vessels of the wheat plant, on which they may alight. This rupture may be caused by a plethoric state of those vessels—perhaps, also, by a deficiency of silica in the epidermis of the straw; and this condition is brought on by whatever occasions a great flow of sap, or causes it to continue too long; and the indications of it are a deep green colour in the leaves and straw, and the continuance of this dark green colour a few inches below the ear after the chaff has begun to turn off. When this symptom appears, a bad case of mildew is inevitable.

That the excessive use of nitrogenous manures will produce this disease is evident, from the mildew which follows the use of nitrate of soda and guano, on rich soils and in growing seasons, as a dressing for wheat—from that also, which attacks the wheat growing on the sites of dunghills, when other parts of the field are free from it—and also from the usually diseased state of wheat grown in highly cultivated gardens. A continuance of warm and humid weather, which produces a rapid and luxuriant growth of leaf and straw, and keeps the plant in this state when the grain ought to be approaching maturity, is highly favourable to the development of mildew. Now, the common-field system of cultivation was eminently calculated to discourage anything like luxuriance of growth; and it is probable that it would generally produce on a naturally good soil a light crop, but of a good sample. The market-garden system of farming, like high farming generally, has just the opposite tendency; it induces that luxuriance of growth which predisposes for the reception of the disease. To the excessive use, then, of London dung, with its large supplies of ammonia and carbonic acid, we may attribute the prevalence of mildew in the district under consideration. The redundancy of these substances in the soil is aggravated by the supplies of them with which the atmosphere round London for many miles is loaded. As a palliative for the disease when it has commenced, early cutting is resorted to. The excessive flow of sap which, instead of reaching the grain goes to the nourishment of the fungus, is thus cut off, and sufficient remains in the straw to enable the grain to consolidate; and instead of a shrivelled kernel, all bran, one that is at any rate half filled is obtained.

Winter-sown wheats which have lost plant, and which tillered excessively, producing a thin and irregular crop, continuing green at the ears when other crops are ripening, are peculiarly liable to the disease. Early and thick sowing is therefore recommended as a preventative, and the result in seasons when these thick crops of weak straw can keep their legs till they are nearly ripe, is a great bulk both of straw and corn. But in dripping seasons, or when heavy thunder storms occur before the ear is well filled, such crops are sure to be laid, and this conspires with mildew to reduce the five, six, or seven quarters per acre, to three or fewer, leaving the grower to console himself if he can, with the adage that "lodged crops never ruined a farmer."

To these remarks, which, though they have special reference to the neighbourhood of London, are nevertheless, we believe, generally true, we add an extract from the second volume of the English Agricultural Society's Journal:

"On the precautions to be taken against Rust and Mildew.—I do not think it has been clearly determined by experiment, whether the sporules of the root and mildew fungi are absorbed by the roots of corn, like those of the bunt and smut fungi; or whether (which seems to be the more prevalent idea) they enter through those minute pores on the stem and leaves which botanists term *stomata*. The fungi at first makes their appearance in little cavities scraped immediately beneath these pores, which certainly looks very much as if the sporules entered there. The stomata are naturally exhaling organs, continually discharging, under the influence of light, a large proportion of the water imbibed by the root. But in moist weather this function is impeded, if, in some cases, it be not actually reversed; when it would be easy for the sporules to enter these invisible stomata, with the moisture imbibed by them. The fact, however, stands in need of proof; and hitherto the evidence is more in favour of similar fungi being imbibed by the roots of the plants which they attack. Mr Knight, indeed who is high authority, particularly insists upon mildew being induced by foggy weather, happening at a time when the ground is particularly dry—circumstances which we may readily understand as likely to convert the stomata (or even the whole superficial tissue of plants) into imbibing organs. If the autumnal fogs really predispose wheat to the attack of the mildew fungus, we must agree with those who recommend the growth of early varieties in places subject to these fogs. It seems to be pretty generally admitted that spring wheats are less liable to mildew than winter wheats, and that heavy soils are less subject to it than light ones. But, at present, the information on these points is very vague and unsatisfactory. We may safely conclude that a generally healthy state of the plant, without any over luxuriance of vegetation, is most likely to secure a crop against the attacks of the rust and mildew fungi; but whatever tends to render the plant sickly, whether it be excess of heat or cold, drought or wet, sudden changes of temperature, poverty of soil, over-manuring, shade, &c., must be considered as a predisposing cause to these diseases."—E. W.—*Agricultural Gazette*.

SKILFUL CULTIVATION.

The farm of Henry Skelton, Esq., called Braham Grange, situate about a mile to the south of Thonon,